

COUNTY COUNCIL OF BEAUFORT COUNTY  
ADMINISTRATION BUILDING  
BEAUFORT COUNTY GOVERNMENT ROBERT SMALLS COMPLEX  
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AGENDA  
NATURAL RESOURCES COMMITTEE

Tuesday, August 22, 2017

3:00 p.m.

Executive Conference Room, Administration Building  
Beaufort County Government Robert Smalls Complex  
100 Ribaut Road, Beaufort

Committee Members:

Brian Flewelling, Chairman  
Roberts "Tabor" Vaux, Vice Chairman  
Rick Caporale  
Gerald Dawson  
Steve Fobes  
York Glover  
Alice Howard

Staff Support:

Anthony Criscitiello, Planning Director  
Gary James, Assessor  
Eric Larson, Division Director  
Environmental Engineering  
Dan Morgan, Division Director  
Mapping & Applications

1. CALL TO ORDER – 3:00 P.M.
2. DISCUSSION / PREVIOUS PLANNING COMMISSION MEETING
3. AWARD PROFESSIONAL SERVICE CONTRACTS FOR ENGINEERING DESIGNS AND CONSTRUCTION ADMINISTRATION SERVICES FOR FY 2018 GROUP CIP PROJECTS ([backup](#))
4. AN ORDINANCE OF BEAUFORT COUNTY COUNCIL CREATING A SPECIAL TAX ASSESSMENT FOR REHABILITATED HISTORIC PROPERTIES IN THE GEOGRAPHICAL BOUNDARIES KNOWN AS DAUFUSKIE ISLAND ([backup](#))
5. AN ORDINANCE OF BEAUFORT COUNTY COUNCIL AMENDING THE COMMUNITY DEVELOPMENT CODE, DIVISION A.2 (LADY'S ISLAND COMMUNITY PRESERVATION DISTRICT--LICP) OF APPENDIX A, COMMUNITY PRESERVATION DISTRICT: TABLE A.2.40.A (LAND USES) AND SECTION A.2.50 (CONDITIONAL AND SPECIAL USE STANDARDS) TO PERMIT COMMUNITY RESIDENCES (E.G. DORMS, CONVENTS, ASSISTED LIVING FACILITIES, TEMPORARY SHELTERS) AS A SPECIAL USE SUBJECT TO ADDITIONAL STANDARDS; APPLICANT: JADE EASTRIDGE ([backup](#))
6. DISCUSSION OF POSSIBLE ORDINANCE / ADDING CHAPTER 38, ARTICLE 6: SINGLE-USE PLASTIC BAGS TO THE BEAUFORT COUNTY CODE OF ORDINANCES TO ENCOURAGE THE USE OF REUSABLE CHECKOUT BAGS AND RECYCLABLE PAPER CARRYOUT BAGS AND BANNING THE USE OF SINGLE-USE PLASTIC BAGS FOR RETAIL CHECKOUT OF PURCHASED GOODS IN THE UNINCORPORATED AREAS OF THE COUNTY ([backup](#))
7. A RESOLUTION ADOPTING THE LADY'S ISLAND CORRIDOR STUDY (STANTEC REPORT) ([backup](#))



8. DISCUSSION / PROPOSAL BY CITY OF BEAUFORT FOR BRIDGE ACCESS AND BIKE PATH TO WHITEHALL PLANTATION ON LADY’S ISLAND ([Beaufort County Trails and Blueways Master Plan](#))
9. DISCUSSION / PARKING TRACTOR TRAILERS ON RURAL AND RESIDENTIAL PROPERTY ([backup](#))
10. DISCUSSION / SOUTHERN BEAUFORT COUNTY FUTURE LAND USE MAP
11. CONSIDERATION OF REAPPOINTMENTS AND APPOINTMENTS
  - A. Planning Commission
  - B. Southern Beaufort County Corridor Beautification Board
12. ADJOURNMENT

2017 Strategic Plan Committee Assignments

Hilton Head National Rezoning/Development Agreement  
Priority Investment – Capital Projects Long-Term Prioritized Requirements  
Passive County Parks: Plan, Funding  
Comprehensive Countywide System/Stormwater Utility (Agreements with Municipalities)  
2018 Priority Projects: Immediate Opportunities  
Stormwater Management Program/Policy: Implementation  
Okatie River Restoration: Funding  
May River Action Plan  
Rivers and Creeks Water Quality: Evaluation  
Transfer of Development Rights  
Buckingham Plantation Community Development Plan: Amendment



**COUNTY COUNCIL OF BEAUFORT COUNTY  
PURCHASING DEPARTMENT**

106 Industrial Village Road, Bldg. 2, Post Office Drawer 1228  
Beaufort, South Carolina 29901-1228

David L Thomas, Purchasing Director  
dthomas@bcgov.net 843.255.2353

**TO:** Councilman Brian Flewelling, Chairman, Natural Resources Committee

**FROM:** David L Thomas. CPPO. Purchasing Director

**SUBJ:** New Contract as a Result of Solicitation  
RFP 07192017, Engineering and Consulting Services for Capital Improvement Plan - FY 2018 Project Grouping

**DATE:** 08/16/2017

**BACKGROUND:**

Beaufort County Purchasing Department issued a Request for Proposal (RFP) for Engineering and Consulting Services for Stormwater Management to assist with the construction of regional stormwater best management practices in four locations throughout Beaufort County. The projects were part of the 2015 Stormwater Capital Improvement Plan (CIP) that was proposed and adopted as part of the County's budget for FY16. The proposal requested that the consultant staff prepare the design, secure permitting, and oversee construction administration of the four projects outlined in the RFP.

These projects included:

- 1) Brewer Memorial Park BMP Demonstration
- 2) Sawmill Creek sub-watershed Regional Detention BMP
- 3) Salt Creek South sub-watershed Regional Detention Basin
- 4) Shanklin Road sub-watershed Regional BMP

The County received four proposals. All four consultants were interviewed.

- 1) Andrews Engineering / CDM Smith
- 2) ATM / Floyd and Davis
- 3) Thomas and Hutton
- 4) Ward Edwards Engineering

The Evaluation Committee consisted of five (5) representatives from Beaufort County including Eric Larson with Beaufort County Stormwater Management, Rebecca Baker with Beaufort County Stormwater Regulation, Danny Polk with Beaufort County Stormwater Regulation, Andrea Atherton with Beaufort County Engineering and Chris Inglese with Beaufort County Legal. The five (5) representatives of Beaufort County elected to split the award and unanimously selected Ward Edwards for projects 1 and 2 and Andrews Engineering / CDM Smith for projects 3 and 4. The contract term is effective August 29, 2017, to July 31, 2019. Contract fee for the projects will be a negotiated amount not to exceed \$743,959.

**VENDOR INFORMATION:**

See above

**COST:**

NTE \$743,959

**FUNDING:**

Primary Funding - Brewer Memorial Park – 50260017, Sawmill Creek Overtopping – 50260023, Salt Creek South M1 – 50260020, Shanklin Road M2 – 50260021

PROPOSED COST: \$743,959 (Budget = \$629,500 per 2015 Capital Improvement Plan approved by County Council)

Stormwater Utility Enterprise Fund has a net position of approximately \$4 million as of June 30, 2017. Additionally, at the beginning of Fiscal Year 2018, \$5 million General Obligation Bonds were issued for the Stormwater Utility Enterprise Fund.

Funding approved:  By:  Date:

**FOR ACTION:**

**RECOMMENDATION:**

The Purchasing Department recommends that the Natural Resources Committee approves and recommends to County Council the contract award to Andrews Engineering / CDM Smith and Ward Edwards for Engineering and Consulting Services for Stormwater Management not to exceed \$743,959.

Attachment:    
12.82 KB

cc: Gary Kubic, County Administrator

Approved:  Date:

Check to override approval: ☒ Overridden by:  Override Date:

Joshua Gruber, Deputy County Administrator/Special Counsel Approved:  Date:

Check to override approval: ☐ Overridden by:  Override Date:

Alicia Holland, Assistant County Administrator, Finance Approved:  Date:

Approved:  Date:

Check to override approval: ☒ Overridden by:  Override Date:  ready for admin: ☒

**After Initial Submission, Use the Save and Close Buttons**



**Project Fee Schedule**

|                             | <b>ATM</b>          | <b>Andrews<br/>Engineering</b> | <b>Thomas &amp;<br/>Hutton</b> | <b>Ward Edwards</b> |
|-----------------------------|---------------------|--------------------------------|--------------------------------|---------------------|
| <b>Brewer Memorial Park</b> | \$74,900.00         | \$80,664.45                    | \$49,500.00                    | \$66,000.00         |
| <b>Sawmill Creek</b>        | \$145,000.00        | \$186,337.30                   | \$48,000.00                    | \$88,000.00         |
| <b>Salt Creek South M1</b>  | \$267,700.00        | \$203,301.40                   | \$80,000.00                    | \$110,000.00        |
| <b>Shanklin Road M2</b>     | \$292,500.00        | \$172,870.05                   | \$50,500.00                    | \$114,000.00        |
| <b>Total</b>                | <b>\$780,100.00</b> | <b>\$643,173.20</b>            | <b>\$228,000.00</b>            | <b>\$378,000.00</b> |

### Evaluation Summary

| <u>ATM</u>   | Larson    | Baker     | Polk      | Inglese   | Atherton  |            |
|--|-----------|-----------|-----------|-----------|-----------|------------|
| Demonstrated experience with stormwater best management practices design.    | 15        | 20        | 15        | 10        | 18        |            |
| Working knowledge of computer based water quantity and water quality models. | 12        | 10        | 13        | 10        | 12        |            |
| Demonstrated experience with land, right of way, and easement acquisition    | 5         | 8         | 5         | 5         | 8         |            |
| Demonstrated experience in construction project management.                  | 10        | 10        | 8         | 10        | 10        |            |
| Capacity to perform.   | 6         | 10        | 5         | 5         | 8         |            |
| Location and knowledge of locality of the project.                           | 8         | 8         | 6         | 5         | 9         |            |
| Price proposal.  | 15        | 15        | 18        | 0         | 5         |            |
| <b>Total</b>   | <b>71</b> | <b>81</b> | <b>70</b> | <b>45</b> | <b>70</b> | <b>337</b> |

| <u>Andrews Engineering</u>   | Larson    | Baker     | Polk      | Inglese   | Atherton  |            |
|--|-----------|-----------|-----------|-----------|-----------|------------|
| Demonstrated experience with stormwater best management practices design.    | 20        | 18        | 19        | 20        | 20        |            |
| Working knowledge of computer based water quantity and water quality models. | 14        | 13        | 14        | 15        | 15        |            |
| Demonstrated experience with land, right of way, and easement acquisition    | 8         | 8         | 8         | 10        | 8         |            |
| Demonstrated experience in construction project management.                  | 8         | 10        | 9         | 10        | 9         |            |
| Capacity to perform.   | 9         | 10        | 9         | 10        | 10        |            |
| Location and knowledge of locality of the project.                           | 7         | 10        | 8         | 10        | 10        |            |
| Price proposal.  | 20        | 15        | 20        | 24        | 18        |            |
| <b>Total</b>   | <b>86</b> | <b>84</b> | <b>87</b> | <b>99</b> | <b>90</b> | <b>446</b> |

| <u>Thomas &amp; Hutton</u>   | Larson    | Baker     | Polk      | Inglese   | Atherton  |            |
|--|-----------|-----------|-----------|-----------|-----------|------------|
| Demonstrated experience with stormwater best management practices design.    | 20        | 15        | 19        | 20        | 20        |            |
| Working knowledge of computer based water quantity and water quality models. | 13        | 10        | 13        | 5         | 12        |            |
| Demonstrated experience with land, right of way, and easement acquisition    | 8         | 8         | 9         | 5         | 9         |            |
| Demonstrated experience in construction project management.                  | 8         | 8         | 8         | 10        | 10        |            |
| Capacity to perform.   | 8         | 10        | 7         | 10        | 10        |            |
| Location and knowledge of locality of the project.                           | 7         | 10        | 8         | 9         | 10        |            |
| Price proposal.  | 20        | 20        | 20        | 15        | 10        |            |
| <b>Total</b>   | <b>84</b> | <b>81</b> | <b>84</b> | <b>74</b> | <b>81</b> | <b>404</b> |

| <u>Ward Edwards</u>  | Larson    | Baker     | Polk      | Inglese   | Atherton  |            |
|--|-----------|-----------|-----------|-----------|-----------|------------|
| Demonstrated experience with stormwater best management practices design.    | 20        | 20        | 20        | 20        | 18        |            |
| Working knowledge of computer based water quantity and water quality models. | 12        | 15        | 13        | 15        | 15        |            |
| Demonstrated experience with land, right of way, and easement acquisition    | 8         | 8         | 8         | 10        | 8         |            |
| Demonstrated experience in construction project management.                  | 7         | 10        | 8         | 10        | 9         |            |
| Capacity to perform.   | 5         | 10        | 8         | 5         | 9         |            |
| Location and knowledge of locality of the project.                           | 10        | 10        | 8         | 10        | 10        |            |
| Price proposal.  | 20        | 25        | 21        | 25        | 22        |            |
| <b>Total</b>   | <b>82</b> | <b>98</b> | <b>86</b> | <b>95</b> | <b>91</b> | <b>452</b> |

|                     |              |
|---------------------|--------------|
|                     | <b>Total</b> |
| ATM                 | 337          |
| Andrews Engineering | 446          |

|                 |     |
|-----------------|-----|
| Thomas & Hutton | 404 |
| Ward Edwards    | 452 |

# CONTRACT

**THIS CONTRACT** is made this August 29, 2017, by and between Beaufort County, a political subdivision of the State of South Carolina (hereinafter referred to as "County") and Andrews Engineering Co., Inc. (hereinafter referred to as "Consultant"). This Contract shall consist, by reference of all the terms, conditions, scope of work, specifications and provisions contained in RFP Number 071917 dated June 20, 2017 (advertised in The Island Packet/Beaufort Gazette on June 20, 2017, all Addendums and Consultant's Statement of Qualifications dated July 19, 2017.

## W I T N E S S E T H:

**WHEREAS**, the Consultant and the County desire to enter into this contract relating to Engineering and Consulting Services for Capital Improvement Plan-FY18 Projects 3 & 4 (Project 3 - Salt Creek South sub-watershed Regional Detention Basin and Project 4 - Shanklin Road sub-watershed Regional BMP) subject to the terms, specifications, conditions and provisions of the request for proposals as heretofore mentioned.

**NOW, THEREFORE**, the Consultant and the County agree to all of these terms, conditions, specifications, provisions and the special provisions as listed below:

- A. This Contract is deemed to be under and shall be governed by and construed according to the laws of the State of South Carolina.
- B. Any litigation arising out of this Contract shall be held only in a circuit court of Beaufort County, Beaufort, South Carolina in the Fourteenth Judicial Circuit.
- C. The Consultant shall not sublet, assign, nor by means of a stock transfer sale of its business, assign or transfer this Contract without the written consent of the County.
- D. This Contract, including the terms, conditions, specifications and provisions listed herein makes up the entire contract between the Consultant and County. No other Contract, oral or otherwise, regarding the subject matter of this Contract shall be deemed to exist or bind either party hereto.
- E. It is understood that this Contract shall be considered exclusive between the parties.
- F. Any provisions of this Contract found to be prohibited by law shall be ineffective, to the extent of such prohibition, without invalidating the remainder of this Contract.

**NOW, THEREFORE**, in consideration of the mutual covenants contained herein, the parties agree as follows:

## **ARTICLE 1 BACKGROUND/SCOPE OF WORK**

### **Background**

The Consultant does hereby offer to the County services for the purpose of providing Engineering and Consulting Services as contained and described in the Scope of Work.

### **Scope of Work**

#### **Project 3 – Salt Creek**

##### **TASK 1: DATA COLLECTION & PROJECT INITIATION**

- Kick off meeting with key members of the County staff for a review of the Project's scope of work and its goals, milestones, and schedule.
- Collection of available data from the County.
- Coordination with the County in contacting property owners for permission to access property for monitoring and begin discussions regarding easements and/or property acquisition.
- Create an overall project concept figures that will enable the County to thoroughly explain the project to property owners.
- Attendance for up to three (3) County and property owner meetings;
- Survey the areas indicated on Exhibit "3A".
- Flag wetlands at indicated survey areas shown on Exhibit "3A"; and
- Four (4) 15' geotechnical borings; soil evaluation; determination of seasonal high ground water table; and infiltration rates.

*Deliverable: Overall Preliminary Project Figures; Survey as shown in Exhibit "3A"; and Geotechnical Evaluation Report.*

**Fee: \$48,290.00**

##### **TASK 2: CONCEPTUAL DESIGN**

- Evaluation of gathered data for design and constructability.
- Verify watershed and update water quality and quantity models with new available data and drainage basin modifications.
- Develop proposed design stormwater model. (Please note: Model *excludes* a no-rise study and sea level rise analysis.)
- Provide results of existing model.
- Run model scenarios with BMPs concepts.
- Provide summary of results, methodology, peak flows, BMP recommendations, and support for design.
- Develop figures of conceptual design of BMPs.
- Engineer's cost estimates.
- Meet with all necessary permitting agencies, include permitting requirements and challenges per conceptual design in technical memorandum.
- Meet with the County to review conceptual technical memorandum.

*Deliverable: Conceptual Technical Memorandum.*

**Fee: \$34,200.00**

#### TASK 3: DESIGN SERVICES

- 30% Construction Drawings; Engineer's Cost Estimate; review meeting with County Staff.
- 90% Construction Drawings; Engineer's Cost Estimate; review meeting with County Staff.
- Final Drainage Report.
- 100% Bid Documents; Technical Specifications; Bid Schedule (front end documents to be completed by Beaufort County).

*Deliverable: Construction Plans; Engineer's Cost Estimate; Bid Schedule; and Technical Specifications.*

**Fee: \$69,460.00**

#### TASK 4: QA/QC

- Completed by Technical Review Committee (TRC) and supporting design firm at 30% and 90% design stages.
- TRC representative to attend kick off meeting and 30%, and 90% review meetings with County.

*Deliverable: N/A*

**Fee: \$9,360.00**

#### TASK 5: PERMITTING

- OCRM Land Disturbance Permit.
- USACE Nationwide Permit (includes impacts 0.50 acres or less).
- Beaufort County Land Development Permit.
- Permit fees and wetland mitigation cost to be paid by County.

*Deliverable: Permit Submittals.*

**Fee: \$17,590.00**

#### TASK 6: BIDDING ASSISTANCE

- Attend pre-bid meeting.
- Bid document distribution.
- Plan holder list compilation.
- Response to contractor Request for Information (RFI).
- Development of addenda as necessary.
- Bid procurement; evaluation; and award recommendation.
- Review draft contract and bid bond prior to submission to County.
- Review of insurance certificates and compliance with minimum requirements.
- Permit review.

*Deliverable: N/A*

**Fee: \$4,120.00**

#### TASK 7: CONSTRUCTION ADMINISTRATION

- Attend pre-construction meeting.
- Shop drawings review.
- RFI's and clarifications.
- Conduct site visits at key times of construction including an observation report and construction photos.
- SWPPP inspections.
- Conduct progress meetings at major construction milestones; and provide agenda and meeting minutes for the progress meeting.
- Document construction activities.
- Document geotechnical data received by contractor.
- Review as-built survey.
- Conduct substantial and final-completion reviews and documented memorandum.

*Deliverable: Show drawing review memorandum; progress meeting agendas and meeting minutes; construction milestone observation reports and photos; substantial and final-completion reviews; and documented memorandum.*

**Fee: \$21,840.00**

#### TASK 8: WATER SAMPLING

- Conduct field site visit to acquire water quality samples and delivery to USCB Lab.
- Assumes two (2) locations, every other week for two years, approximately 52 site visits. (Per trip cost is \$450.00 with or without samples being pulled).

*Deliverable: N/A*

**Fee: \$11,050.00**

### **Project 4 – Shanklin Road**

#### TASK 1: DATA COLLECTION & PROJECT INITIATION

- Kick off meeting with key members of the County staff for a review of the Project's scope of work and its goals, milestones, and schedule.
- Collection of available data from the County.
- Coordination with the County in contacting property owners for permission to access property for monitoring and begin discussions regarding easements and/or property acquisition.
- Create an overall project concept figures that will enable the County to thoroughly explain the project to property owners.
- Attendance for up to three (3) County and property owner meetings;
- Survey the areas indicated on Exhibit "4A".
- Flag wetlands at indicated survey areas shown on Exhibit "4A"; and
- Four (4) 15' geotechnical borings; soil evaluation; determination of seasonal high ground water table; and infiltration rates.

*Deliverable: Overall Preliminary Project Figures; Survey as shown in Exhibit "4A"; and Geotechnical Evaluation Report.*

**Fee: \$34,720.00**



## TASK 2: CONCEPTUAL DESIGN

- Evaluation of gathered data for design and constructability.
- Verify watershed; and update water quality and quantity models with new available data and drainage basin modifications.
- Develop proposed design stormwater models for BMPs 1, 2, 3, and 4. (Please note: Model *excludes* no-rise study and sea level rise analysis.)
- Provide results of existing model.
- Run model scenarios with BMPs concepts.
- Provide summary of results; methodology; peak flows; BMP recommendations; and support for design.
- Develop figures of conceptual design of BMPs.
- Engineer's Cost Estimates.
- Meet with permitting agencies; include permitting requirements and challenges per conceptual design in technical memorandum.
- Meet with the County to review conceptual technical memorandum.

*Deliverable: Conceptual Technical Memorandum.*

**Fee: \$47,150.00**

## TASK 3: DESIGN SERVICES

- Provide additional survey required for design construction drawings (areas estimated per Exhibit "4B").
- 30% Construction Drawings; Engineer's Cost Estimate; review meeting with County Staff.
- 90% Construction Drawings; Engineer's Cost Estimate, review meeting with County Staff.
- Final Drainage Report.
- 100% Bid Documents; Technical Specifications; Bid Schedule (front end documents to be completed by Beaufort County).

*Deliverable: Construction Plans; Engineer's Cost Estimate; Bid Schedule; and Technical Specifications.*

**Fee:**

**BMP 1: \$75,560.00**

**BMP 2: \$33,120.00**

**BMP 3: \$38,820.00**

**BMP 4: \$22,695.00**

## TASK 4: QA/QC

- Completed by Technical Review Committee (TRC) and supporting design firm at 30% and 90% design stages.
- TRC representative to attend kick off meeting and 30%, and 90% review meetings with County.

*Deliverable: N/A*

**Fee:**

**BMP 1: \$5,520.00**

**BMP 2: \$3,120.00**

**BMP 3: \$3,120.00**

**BMP 4: \$2,400.00**

**TASK 5: PERMITTING**

- OCRM Land Disturbance Permit.
- USACE Nationwide Permit (includes impacts 0.50 acres or less).
- Beaufort County Land Development Permit.
- Permit fees and wetland mitigation cost to be paid by County.

*Deliverable: Permit Submittals.*

**Fee:**

**BMP 1: \$ 14,480.00**

**BMP 2: \$7,300.00**

**BMP 3: \$ 9,580.00**

**BMP 4: \$ 6,435.00**

**TASK 6: BIDDING ASSISTANCE**

- Attend pre-bid meeting.
- Bid document distribution.
- Plan holder list compilation.
- Response to contractor Request for Information (RFI).
- Development of addenda as necessary.
- Bid procurement; evaluation; and award recommendation.
- Review draft contract and bid bond prior to submission to County.
- Review of insurance certificates and compliance with minimum requirements.
- Permit review.

*Deliverable: N/A*

**Fee:**

**BMP 1: \$2,720.00**

**BMP 2: \$1,290.00**

**BMP 3: \$2,360.00**

**BMP 4: \$1,290.00**

**TASK 7: CONSTRUCTION ADMINISTRATION**

- Attend pre-construction meeting.
- Shop drawings review.
- RFI's and clarifications.
- Conduct site visits at key times of construction (including an observation report and construction photos).
- SWPPP inspections.
- Conduct progress meetings at major construction milestones; provide agenda of meeting and meeting minutes of progress meeting.
- Document construction activities.
- Document geotechnical data received by contractor.
- Review as-built survey.
- Conduct substantial and final-completion reviews and documented memorandum.

*Deliverable: Show drawing review memorandum; progress meeting agendas and meeting minutes; construction milestone observation reports and photos; substantial and final-completion reviews and documented memorandum.*

**Fee:**

**BMP 1: \$6,140.00**

**BMP 2: \$5,090.00**

**BMP 3: \$6,880.00**

**BMP 4: \$3,740.00**

**TASK 8: WATER SAMPLING**

- Conduct field site visit to obtain water quality samples and deliver to USCB Lab.
- Assumes two (2) locations, every other week for two years, approximately 52 site visits. (Per trip cost is \$450.00 with or without samples being pulled.)

*Deliverable: N/A*

**Fee: \$ 11,050.00**

**ARTICLE 2  
LIABILITY**

The County and Consultant shall not be responsible to each other for any incidental, indirect or consequential damages incurred by either Consultant or County or for which either party may be liable to any third party which damages have been or are occasioned by services performed or reports prepared or other work performed hereunder.

**ARTICLE 3  
INDEMNIFICATION AND HOLD HARMLESS**

The Consultant does hereby agree to indemnify and save harmless the County, its officers, agents and employees from and against any and all liability, claims, demands, damages, fines, fees, expenses, penalties, suits, proceedings, actions and cost of actions, including attorney's fees for trial and on appeal of any kind and nature to the extent arising or growing out of or in any way connected with the negligent performance of the Contract, by Consultant, its agents, servants or employees.

**ARTICLE 4  
ASSIGNMENT**

Consultant shall not assign any rights or duties of the professional services contract without the expressed written consent of the County. Any assignment or subletting without the written consent of County shall be void and this Contract shall terminate at the option of the County.

**ARTICLE 5  
PERFORMANCE PERIOD/TERM**

The term of this Contract shall be for a period of (determined by negotiated schedule of work) starting on August 29, 2017 and ending on July 31, 2019. At the County's option, this

contract may be extended to July 31, 2022, not to exceed five (5) years total.

## **ARTICLE 6 COMPENSATION**

Total annual compensation is not to exceed Five Hundred, Forty –One Thousand, Nine Hundred and Fifty-Nine dollars (\$541,959), billed at unit rates provided in the SOQ and invoiced monthly.

### **Project 3 – Salt Creek**

| Service Description   |                      |           |
|---|----------------------|-----------|
| Project Initiation and Data Collection                                  | Hourly Not To Exceed | \$33,790  |
|   | Lump Sum             | \$14,500  |
| Conceptual Design   | Hourly Not To Exceed | \$34,200  |
| Design Services, QA/QC, Permitting, Bidding Services, and Const. Admin. | Hourly Not To Exceed | \$115,370 |
|   | Lump Sum             | \$7,000   |
| Monitoring  | Hourly Not To Exceed | \$11,050  |
| Reimbursements  | As Incurred          | \$6477    |
|   | Total                | \$222,387 |

### **Project 4 – Shanklin Road**

| Service Description                    |                      |           |
|--|----------------------|-----------|
| Project Initiation and Data Collection | Hourly Not To Exceed | \$19,220  |
|  | Lump Sum             | \$15,500  |
| Conceptual Design                      | Hourly Not To Exceed | \$32,160  |
|  | Lump Sum             | \$14,540  |
| Item #1: Wetland Enhancement           | Hourly Not To Exceed | \$97,420  |
|  | Lump Sum             | \$7,000   |
| Item #2: Borrow Pit A                  | Hourly Not To Exceed | \$46,920  |
|  | Lump Sum             | \$3,000   |
| Item #3: Borrow Pit B & Oxy. Ponds C   | Hourly Not To Exceed | \$57,760  |
|  | Lump Sum             | \$3,000   |
| Item #4: Spanish Moss Trail            | Hourly Not To Exceed | \$33,560  |
|  | Lump Sum             | \$3,000   |
| Monitoring                             | Hourly Not To Exceed | \$11,050  |
| Reimbursements                         | As Incurred          | \$10,500  |
|  | Total                | \$355,080 |
|  | Discounted Total     | \$319,572 |

## **ARTICLE 7 INSURANCE/PERFORMANCE BOND**

### **Insurance**

Consultant does hereby covenant, agree and hereby represent to the County that it has obtained workmen's compensation insurance, general liability and automobile liability insurance, as well as providing coverage against potential liability arising from and in any manner relating to the Consultant's use or occupation of the premises during the course of performing the contracted services, all in accordance with and as **specified** in the County's RFP Number 071917,. **Additionally, the Consultant agrees to list the County as 'additional insured' on Certificates of Insurance related to the execution of this Contract.**

### **Performance Bond**

**No performance bond is required for this contract.**

## **ARTICLE 8 DEFAULT/TERMINATION**

### **Default**

In the event of default or breach of any condition of this Contract resulting in litigation, the prevailing party would be entitled to reasonable attorneys' fees fixed by the Court. The remedies herein given to County under Default shall be cumulative, and the exercise of any one remedy by the County shall not be to the exclusion of any other remedy.

### **Termination**

This contract may be terminated by the County,' 'for convenience' 'for cause,' or by 'by mutual consent' as described in RFP number 071917.

#### **1. Termination for Convenience**

The County may, without cause, terminate this contract in whole or in part at any time for its convenience. In such instance, an adjustment shall be made to the Consultant, for the reasonable costs of the work performed through the date of termination. Termination costs do not include lost profits, consequential damages, delay damages, unabsorbed or under absorbed overhead of the Consultant or its sub-consultants, and/or failure of Consultant to include termination for convenience clause into its subcontracts and material purchase orders shall not expose the County to liability for lost profits in conjunction with a termination for convenience settlement or equitable adjustment. Consultant expressly waives any damages, delay damages, or indirect costs which may arise from County's election to terminate this contract in whole or in part for its convenience.

## **2. Termination For Cause**

Termination by the County for cause, default, or negligence on the part of the Consultant shall be excluded from the foregoing provisions. Termination costs, if any, shall not apply. The ten (10) days advance notice requirement is waived, and the default provision in this bid shall apply.

Reasons for Termination for Cause shall include but not limited to:

- a) Default as defined above,
- b) failing to make satisfactory progress in the prosecution of the contract
- c) endangering the performance of this contract
- d) criminal activity or misconduct,
- e) work that is deemed sub-standard by the County Representative.

## **3. Termination by Mutual Consent**

Either party may terminate this Contract by mutual consent with written notice attesting and agreeing to a termination by mutual consent by either party. Upon such termination, the County shall pay the Consultant for all services performed hereunder up through the date of such termination. Termination by mutual consent may entitle the Consultant to reasonable costs allocable to the contract for work or costs incurred by the Consultant up to the date of termination. The Consultant must not be paid compensation as a result of a termination by mutual consent that exceeds the amount encumbered to pay for work to be performed under the contract.

## **ARTICLE 9 RESPONSIBILITY**

The County will be responsible to provide the Consultant reasonable access to County locations when necessary, ensure cooperation of County employees in activities reasonable and appropriate under the project, and obtain authorization for access to third party sites, if required.

## **ARTICLE 10 FORCE MAJEURE**

Should performance of Consultant services be materially affected by causes beyond its reasonable control, a *Force Majeure* results. *Force Majeure* includes, but is not restricted to:

- a) acts of God,
- b) acts of a legislative,
- c) administrative or judicial entity,
- d) acts of Consultants (other than sub-consultants of Consultant),
- e) fires,
- f) floods,
- g) labor disturbances,
- h) civil unrest
- i) incorrect/inferior parts or materials
- j) terrorism
- k) unusually severe weather.

Consultant will be granted a time extension and the parties will negotiate an adjustment to the fee, where appropriate, based upon the effect of the Force Majeure upon Consultant's performance.

## **ARTICLE 11 SEVERABILITY**

Every term or provision of this Contract is severable from others. Notwithstanding any possible future finding by a duly constituted authority that a particular term or provision is invalid, void, or unenforceable, this Contract has been made with the clear intention that the validity and enforceability of the remaining parts, terms and provisions shall not be affected thereby.

## **ARTICLE 12 INDEPENDENT CONSULTANT**

The Consultant shall be fully independent in performing the services and shall not act as an agent or employee of the County. As such, the Consultant shall be solely responsible for its employees, sub-consultants, and agents and for their compensation, benefits, contributions and taxes, if any.

## **ARTICLE 13 NOTICE**

The Consultant and the County shall notify each other of service of any notice of violation of any law, regulation, permit or license relating to the services; initiation of any proceedings to revoke any permits or licenses which relate to such services; revocation of any permits, licenses or other governmental authorizations relating to such services; or commencement of any litigation that could affect such services. Such notice shall be delivered by U.S. mail with proper postage affixed thereto and addressed as follows:

County:

Beaufort County Administrator  
P. O. Drawer 1228  
Beaufort, SC 29901-1228

Beaufort County  
Attn: Beaufort County Purchasing Director  
P. O. Drawer 1228  
Beaufort, SC 29901-1228

Consultant:

Andrews Engineering Co., Inc.  
2712 Bull Street, Suite A  
Beaufort, SC 29902

## **ARTICLE 14 CHANGE ORDERS**

Change order(s) are applicable under this contract. Change order(s) initiated by the County must be delivered to the Consultant for review and approval. Change order(s) initiated by the Consultant must be delivered to the County for review and approval. The Consultant and County must execute the Change Order(s) prior to work being performed.

## **ARTICLE 15 AUDITING**

The Consultant shall make available to the County if requested, true and complete records, which support billing statements, reports, performance indices, and all other related documentation. The County's authorized representatives shall have access during reasonable hours to all records, which are deemed appropriate to auditing billing statements, reports, performance indices, and all other related documentation. The Consultant agrees that it will keep and preserve for at least seven years all documents related to the Contract, which are routinely prepared, collected or compiled by the Consultant during the performance of this contract.

The County's Auditor and the Auditor's authorized representatives shall have the right at any time to audit all of the related documentation. The Consultant shall make all documentation available for examination at the Auditor's request at either the Auditor or Consultant's office and without expense to the County.

## **ARTICLE 16 GRATUITIES**

The right of the Consultant to proceed or otherwise perform this Contract, and this Contract may be terminated if the County Manager and/or the County Contracting Manager determine, in their sole discretion, that the Consultant or any officer, employee, agent, or other representative whatsoever, of the Consultant offered or gave a gift or hospitality to a County officer, employee, agent or Consultant for the purpose of influencing any decision to grant a County Contract or to obtain favorable treatment under any County Contract.

The terms "hospitality" and "gift" include, but are not limited to, any payment, subscription, advance, forbearance, acceptance, rendering or deposit of money, services, or items of value given or offered, including but not limited to food, lodging, transportation, recreation or entertainment, token or award.



## **ARTICLE 17 INVOICES**

All invoices for work done under this contract should be directed to the County Representative, Eric W. Larson, PE, CPSWQ, AICP, CFM – Director of Environmental Engineering & Land Management, located at:

Beaufort County Stormwater Utility  
120 Shanklin Road  
Beaufort, SC 29906

Invoices should include:

- a) Period of time covered by the invoice
- b) Detail of work performed
- c) Purchase order and Contract Number
- d) Tax Identification Number

## **ARTICLE 18 Purchase Orders**

**The County will issue Purchase Orders from properly executed requisitions. The County shall not be responsible for invoices of \$500 or more that do not have a purchase order covering them.**

## **ARTICLE 19 ORDER OF DOCUMENTS**

The following are incorporated into and made a part of this contract by reference:

- a) Request for Proposals Number 071917
- b) General Terms and Conditions between County and Consultant.
- c) Insurance Requirements
- d) XXXXXXXXXX SOQ Submission to RFP Number 071917
- e) Notice of Award Letter dated XXXXXX.
- f) Recommendation Letter dated XXXXXX
- g) Exhibits 3A – 3B and 4A – 4C.

# SIGNATURE PAGE

This Contract with the above Articles constitutes the entire contract between the parties hereto. No representations, warranties or promises pertaining to this Contract have been made or shall be binding upon any of the parties, except as expressly stated herein.

This Contract shall be construed in accordance and governed by the laws of the State of South Carolina.

**IN WITNESS WHEREOF**, the parties hereto have executed this Contract on the day and year first above written.

**WITNESSES:**

\_\_\_\_\_  
\_\_\_\_\_

**BEAUFORT COUNTY**, a political sub-division of the State of South Carolina

By: \_\_\_\_\_  
Name: Gary Kubic  
Title: County Administrator  
Address: P.O. Drawer 1228  
Beaufort, SC 29901-1228  
Phone: (843) 255-2026  
Fax: (843) 255-9403  
Date: \_\_\_\_\_

**WITNESSES:**

\_\_\_\_\_  
\_\_\_\_\_

**CONSULTANT NAME**

By: \_\_\_\_\_  
Name: Steve Andrews  
Title: President  
Address: 2712 Bull Street, Suite A  
Beaufort, SC 29902  
Phone: 843-379-2222  
Fax: 843-379-2223  
Tax ID Number: 57-1035293  
Date: \_\_\_\_\_

# CONTRACT

**THIS CONTRACT** is made this August 29, 2017, by and between Beaufort County, a political subdivision of the State of South Carolina (hereinafter referred to as "County") and Ward Edwards, Inc. (hereinafter referred to as "Consultant"). This Contract shall consist, by reference of all the terms, conditions, scope of work, specifications and provisions contained in RFP Number 071917 dated June 20, 2017 (advertised in The Island Packet/Beaufort Gazette on June 20, 2017, all Addendums and Consultant's Statement of Qualifications dated July 19, 2017.

## WITNESSETH:

**WHEREAS**, the Consultant and the County desire to enter into this contract relating to Engineering and Consulting Services for Capital Improvement Plan-FY18 Projects 1 & 2 (Project 1 - Brewer Memorial Park BMP Demonstration and Project 2 - Sawmill Creek sub-watershed Regional Detention BMP) subject to the terms, specifications, conditions and provisions of the request for proposals as heretofore mentioned.

**NOW, THEREFORE**, the Consultant and the County agree to all of these terms, conditions, specifications, provisions and the special provisions as listed below:

- A. This Contract is deemed to be under and shall be governed by and construed according to the laws of the State of South Carolina.
- B. Any litigation arising out of this Contract shall be held only in a circuit court of Beaufort County, Beaufort, South Carolina in the Fourteenth Judicial Circuit.
- C. The Consultant shall not sublet, assign, nor by means of a stock transfer sale of its business, assign or transfer this Contract without the written consent of the County.
- D. This Contract, including the terms, conditions, specifications and provisions listed herein makes up the entire contract between the Consultant and County. No other Contract, oral or otherwise, regarding the subject matter of this Contract shall be deemed to exist or bind either party hereto.
- E. It is understood that this Contract shall be considered exclusive between the parties.
- F. Any provisions of this Contract found to be prohibited by law shall be ineffective, to the extent of such prohibition, without invalidating the remainder of this Contract.

**NOW, THEREFORE**, in consideration of the mutual covenants contained herein, the parties agree as follows:

# **ARTICLE 1**

## **BACKGROUND/SCOPE OF WORK**

### **Background**

The Consultant does hereby offer to the County services for the purpose of providing Engineering and Consulting Services as contained and described in the Scope of Work.

### **Scope of Work**

#### **Project 1 – Brewer Memorial Park**

#### **PROJECT UNDERSTANDING**

Our project understanding is described in the Work Plan section of the Response to Request for Qualifications for the Engineering and Consulting Services for Capital Improvement Plan – FY18. The scope of services and the associated fees match those listed in the Work Plan, but also include services for water quality monitoring collections services requested by the County.

#### **SCOPE OF SERVICES**

##### **TASK 1: Conceptual Engineering**

The Consultant will provide the following Engineering Consulting Services:

1. Review background information provided by Beaufort County or gathered by the Consultant.
2. Conduct a review of the gathered information and perform exploratory field investigations of the project site and contributing watershed.
3. Attend meeting with the County and SCDHEC-OCRM to determine the project feasibility, identify permitting roadblocks, and decide upon the best course of action for design and permitting.
4. Prepare conceptual site plan showing the proposed BMP and site improvements.
5. Meet with the County to review the conceptual design and gain approval prior to final design and permitting.

##### **TASK 2: Wetland Delineation & Verification**

The Consultant will provide the following Natural Resources consulting services through a sub-consultant:

1. Complete a comprehensive delineation of freshwater and saltwater wetlands within the referenced tract. This task will include flagging of wetland boundaries and coordination with survey crews to complete a field survey of the identified wetlands.
2. Upon completion and receipt of a survey plat of the wetlands, the Consultant will prepare and submit the required information to the US Army Corps of Engineers (USACE) and SCDHEC OCRM to obtain verification of the wetland delineation.
3. The Consultant will prepare and submit a request for jurisdictional determination which will include aerial photography depicting approximate wetland locations, USGS topographic maps, soil maps and data sheets representing typical site conditions to USACE.
4. The Consultant will coordinate the jurisdictional determination with the USACE throughout the review process to and initial conclusion. This will include site visits with USACE that are necessary to complete their review. Should revisions to the delineation

be required including any additional fieldwork and/or documentation that's not normally required, this time will be billed as a time and expense fee.

### **TASK 3: Site Surveying**

The Consultant will provide the following Surveying services through a sub-consultant:

1. Prepare tree, topographic, boundary and wetland survey of the park site including the existing bait pond and the adjacent marsh. The survey will be on the South Carolina State Plane coordinate system and the NAVD88 datum, to match horizontally and vertically with the Beaufort County LiDAR. Matching the LiDAR will allow for easy comparison of surveyed locations to un-surveyed onsite and offsite areas.

### **TASK 4: Geotechnical Investigation**

The Consultant will provide the following Natural Resources consulting services through a sub-consultant:

1. The Consultant will advance two soil test borings within the proposed basin foot print at each site. Each boring will be extended to a depth of fifteen feet below the ground surface, auger refusal, or hole collapse; whichever is shallower. Borings may be Standard Penetration Test (SPT) soil borings, hand auger borings with Dynamic Cone Penetrometer, or some combination of each. Soil samples will be classified in the field at the time of boring according to the USCS by the ASTM Visual-Manual method. Two bulk samples will be obtained from the top five feet within each boring. These bulk samples will be subjected to Standard Proctor Compaction testing to help evaluate the soil suitability for use in an earthen berm.
2. Boring and bulk sample locations and elevations will be estimated from drawings provided by The Consultant and will be measured in the field with Trimble R6 GPS equipment. Northing and easting coordinates and ground surface elevation will be recorded on the log for each boring.
3. The Consultant will evaluate recovered test boring soil samples and bulk samples. They will perform at least ten classification tests (natural moisture content and grain size analysis with hydrometers), 4 Atterberg Limits tests, two Standard Proctor tests, and two Organic Content tests at each site. The results of the laboratory testing will be utilized to help classify recovered soil samples and to prepare grading recommendations.
4. The Consultant will provide a report that includes a summary of the field exploration, laboratory test results, measured groundwater levels, boring logs, site plan, and boring/bulk sample location plan. The report will also include recommendations for the following:
  - a. Groundwater mitigation if the Consultant believes groundwater mitigation will be needed during construction.
  - b. Recommendation for site preparation for mass grading.
5. Assumptions/Limitations:
  - a. Clearing will be needed to access some or all of the test locations. The Consultant will attempt to locate borings to minimize clearing, however, some trees and underbrush will be cut. The County will be responsible for providing access and clearing permissions to The Consultant and the Consultant.
  - b. The Consultant has proposed sampling and testing for hydrocarbon based pollutants in the sediments at Brewers Memorial Park. The Consultant's environmental testing is limited to sediments the Park site. The Consultant's environmental exploration at the Park is limited to hydrocarbon based pollutants

that can be detected by BTEX laboratory tests. No other sampling and testing for pollutants are included.

- c. Due to past history of site usage, hydrocarbon testing of the soils in the pond may be needed. Testing for hydrocarbon (BTEX) contamination may be needed of the on-site soils to determine proper disposal. It was assumed that if needed, the testing will be required of the selection contractor prior to construction.

### **TASK 5: Civil-Site Engineering**

The Consultant will prepare the civil-site engineering design based on the conceptual plan developed with County input, the determined wetland delineation, the geotechnical investigation, and the site surveying. The scope of the design will include:

1. Compile base plan using the survey file provided in AutoCAD format and using the previous Conceptual Engineering Design plan.
2. Design the pond outfall modifications.
3. Locate other site improvements based on preservation of significant trees and limits to wetland impacts.
4. Prepare a stormwater hydrologic & hydraulic model to match the new proposed conditions. The model output will help estimate the expected runoff volume and rate reductions.

**It is assumed that the County will provide revised sub-basin information from the newly updated SWMP.**

5. Prepare a basic water quality model to estimate the expected pollutant removal from the designed regional BMP. The revised water quality model will demonstrate that the proposed design will meet the County's water quality goals.
6. Prepare design plans detailing the civil construction associated with this project. Plans are prepared using AutoCAD software and paper copies are printed on 24" x 36" sheets.

Design drawings will show:

- a. Tree removal and preservation plans
- b. Demolition plans
- c. Staking plans
- d. Sedimentation and soil erosion control plans
- e. Drainage and grading plans
- f. Civil Construction details and specifications

*The proposed boardwalk and landscape improvement were excluded from the project design and permitting scope, assuming that the scope of this project is limited to the BMP improvements. It is understood that the County may want to construct additional BMPs at the site for use as a public education a demonstration site, in conjunction with Clemson Extension. The design and permitting of any additional site BMPs beyond the pond improvements are also excluded from the current civil engineering design and permitting scope.*

### **TASK 6: Wetland Permitting**

The Consultant will provide the following Natural Resources consulting services through a sub-consultant:

1. The Consultant will create permit drawings suitable for submittal to USACE and OCRM. Coordination will include attendance at team meetings and review of draft plans and

permitting drawings. Upon receipt of suitable permit drawings, the Consultant will prepare and submit a Nationwide Permit along with a Critical Area Permit application package to USACE and SCDHEC-OCRM.

2. The Consultant will serve as a liaison between the applicant and the various state and federal regulatory agencies throughout the permit review and decision process to an initial conclusion by USACE and applicable certification by OCRM. This will include attendance at agency meetings, response to comment or questions, and coordination of additional information as needed.

*The tasks and associated fees were estimated based on several assumptions based on prior experience. These assumptions, however, can be affected by sudden policy changes and discretions by regulatory agencies. In some instances, these sudden changes and discretions result in unanticipated actions and requests by the regulatory agencies. Unanticipated actions could include but are not limited to additional field work required by coordination with agencies, additional maps and/or additional research. Upon knowledge of such requests, and prior to undertaking work outside of the scope of the proposed tasks, the Consultant will notify the County.*

#### **TASK 7: Regulatory Permitting**

The Consultant will apply for the following regulatory permits needed to construct the proposed pond and associated infrastructure:

- Beaufort County MS4 NPDES Permit
- SCDHEC OCRM Coastal Zone Consistency.
- SCDOT Encroachment Permit for utility improvements (if needed) within highway right-of-way.
- SCDOT Stormwater Permit for SCDOT drainage system outfall modification.
- Beaufort County Community Development Department for coordination on tree removal and site impacts.

The Consultant will prepare permit application packages according to each agency's application instructions. This task includes a single round of minor modifications associated with each agency's comments. A single iteration of comment/modification is typically sufficient for approval. In the event that there are additional comments that are "agency-specific" and not design-related, additional Permitting Consulting budget will be needed. The County is responsible for permit-related fees.

*Note: The proposed boardwalk and landscape improvements were excluded from the project design and permitting scope, assuming that the scope of this project is limited to the BMP improvements.*

#### **TASK 8: Bidding and Construction Support**

The Consultant will provide the following services to support the bidding and construction Phase:

1. Prepare construction quantity takeoff
2. Update the Engineer's Estimate of Probable Construction Costs based on the final construction documents
3. Review front-end bidding and contract documents provided by County staff
4. Attend pre-bid conference
5. Support reviewing bids with County staff
6. Assist in contract negotiations between County and selected Contractor, if requested

7. Support in contract document coordination for execution
8. Attend a pre-construction conference with the County and contractor(s).
9. Attend a weekly team coordination meeting with the County and contractor(s).
10. Provide a single review iteration of the supplied shop drawings associated with the construction documents and provide response to the contractor.
11. Visit the project at appropriate intervals during construction to become generally familiar with the progress and quality of the contractors' work and to determine if the work is proceeding in general accordance with the contract documents. It was assumed that the Consultant will not make detailed inspections to provide exhaustive, continuous project review or observation services; however these levels of service can be provided if the project budget allows. The effort assumes 4 hours per week during construction for a 10 month construction schedule.
12. Provide services associated with construction observation on as as-needed basis in order to resolve questions or conflicts during the construction process. (RFI's Field Requests)
13. Perform a final Site Tour for general design compliance.
14. Prepare a punch list of identified site design deficiencies that need to be corrected prior to processing the final pay application for the project.
15. Schedule and attend final inspection with the County.
16. A record drawing survey of the infrastructure will be prepared as part of the project surveying scope as required by regulatory agencies with jurisdiction over the project.
17. Manage construction documentation needed to comply with the EPA 319 Grant closeout requirements.

#### **TASK 9: Post-Construction As-built Surveying**

The Consultant will provide the following Surveying services through a sub-consultant:

1. Prepare a post-construction as-built survey of the constructed BMP suitable for NPDES permit closeout. The survey will be on the South Carolina State Plane coordinate system and the NAVD88 datum, to match horizontally and vertically with the Beaufort County LiDAR.

#### **TASK 10: Water Quality Monitoring Collection**

The Consultant will provide the following services to support the pre and post construction water quality monitoring:

1. Determine location of field water collection sample at the proposed post-construction BMP outfall location. The location will be determined based on site visits of the property in current conditions on a couple of occasions to determine existing flow paths and areas that are most likely to contain water during routine visits throughout the year. The location will be reviewed with the County and the USCB Water Quality Lab for final approval. GPS coordinates will be provided to USCB and Beaufort County for use in mapping.
2. Field collect water samples at the determined location, every other week for one year before construction and for one year after construction, regardless of rainfall conditions. This will result in 26 pre-construction samples and 26 post-construction samples.
3. It is assumed that the USCB lab will provide gloves and sample bottles for use by the Consultant. USCB will also purchase the collection pole and will be reimbursed by the Consultant. The Consultant will provide the cooler used to store the sample.
4. The Consultant will record weather and tidal conditions at the time of sampling per the Beaufort County monitoring SOPs.



5. It was assumed that samples will be collected on Wednesdays and delivered to the USCB lab no later than 2:00pm.
6. It was assumed that the Consultant will collect one sample for use by the County and USCB to test for their pollutant of choice.
7. The fee assumed 5 hours of “Principal” time and 30 hours of “Project Manager” time to manage the two-year effort.
8. The fee assumed 3 hours per week of a field technician time to drive to the site, collect the sample, deliver it to the downtown Beaufort campus, and return to the Consultant office. All mileage expenses are included in this fee. This results in a \$330 charge for each sample collection and delivery.

If the technician arrives at the site and is unable to collect a sample that week due to dry conditions, the effort is assumed to be only 2 hour of time and the County will be billed \$220 for that bi-weekly period.

## **Project 2 – Sawmill Creek**

### **PROJECT UNDERSTANDING**

Our project understanding is described in the Work Plan section of the Response to Request for Qualifications for the Engineering and Consulting Services for Capital Improvement Plan – FY18. The scope of services and the associated fees match those listed in the Work Plan, but also include services for water quality monitoring collections services requested by the County.

### **SCOPE OF SERVICES**

#### **TASK 1: Conceptual Engineering**

The Consultant will provide the following Engineering Consulting Services:

1. Review background information provided by the County or gathered by the Consultant.
2. Conduct a review of the gathered information and perform exploratory field investigations of the project site and contributing watershed.
3. Attend meeting with the County and SCDHEC-OCRM to determine the project feasibility, identify permitting roadblocks, and decide upon the best course of action for design and permitting. Preliminary site investigations indicate that the majority of the parcel is likely wetlands. State policies prevent the construction of ponds within wetlands (Waters of the State) so the pond concept is dependent on finding enough upland area onsite that could fit a proposed pond.
4. Prepare conceptual site plan showing the proposed BMP and site improvements. The conceptual design of the Sawmill Creek project will carefully consider tailwater effects related to the Tanger drainage system. The Consultant designed Tanger and can model the original design with different tailwater conditions in order to evaluate potential impacts. Similar tailwater impacts for developments south of Bluffton Parkway will also need to be considered.
5. After the fieldwork related to wetlands determination is complete, the Consultant will analyze detention options and other options to mitigate the undersized highway culverts. The Consultant will provide a conceptual engineering options to the County for review and decisions on how to proceed.
6. Meet with the County to review the conceptual design and gain approval prior to final design and permitting.

#### **TASK 2: Wetland Delineation & Verification**

The Consultant will provide the following Natural Resources consulting services through a sub-consultant:

1. Complete a comprehensive delineation of freshwater and saltwater wetlands within the referenced tract. This task will include flagging of wetland boundaries and coordination with survey crews to complete a field survey of the identified wetlands.
2. Upon completion and receipt of a survey plat of the wetlands, the Consultant will prepare and submit the required information to the US Army Corps of Engineers (USACE) and SCDHEC OCRM to obtain verification of the wetland delineation.
3. The Consultant will prepare and submit a request for jurisdictional determination which will include aerial photography depicting approximate wetland locations, USGS topographic maps, soil maps and data sheets representing typical site conditions to USACE.
4. The Consultant will coordinate the jurisdictional determination with the USACE throughout the review process to an initial conclusion. This will include site visits with USACE that are necessary to complete their review. Should revisions to the delineation be required including any additional fieldwork and/or documentation that's not normally required, this time will be billed as a time and expense fee.

### **TASK 3: Site Surveying**

The Consultant will provide the following Surveying services through a sub-consultant:

1. Prepare tree, topographic, boundary and wetland survey for the 9.9 acre property (R600 040 000 0134 0000) and the topography/drainage of the offsite upstream (Bluffton Pkwy) and downstream (HWY 278). The survey will be on the South Carolina State Plane coordinate system and the NAVD88 datum, to match horizontally and vertically with the Beaufort County LiDAR. Matching the LiDAR will allow for easy comparison of surveyed locations to un-surveyed onsite and offsite areas.

### **TASK 4: Geotechnical Investigation**

The Consultant will provide the following Natural Resources consulting services through a sub-consultant:

1. The Consultant will advance two soil test borings within the proposed basin foot print at each site. Each boring will be extended to a depth of fifteen feet below the ground surface, auger refusal, or hole collapse; whichever is shallower. Borings may be Standard Penetration Test (SPT) soil borings, hand auger borings with Dynamic Cone Penetrometer, or some combination of each. Soil samples will be classified in the field at the time of boring according to the USCS by the ASTM Visual-Manual method.
2. Two bulk samples will be obtained from the top five feet within each boring. These bulk samples will be subjected to Standard Proctor Compaction testing to help evaluate the soil suitability for use in an earthen berm.
3. Boring and bulk sample locations and elevations will be estimated from drawings provided by The Consultant and will be measured in the field with Trimble R6 GPS equipment. Northing and easting coordinates and ground surface elevation will be recorded on the log for each boring.
4. The Consultant will evaluate recovered test boring soil samples and bulk samples. They will perform at least ten classification tests (natural moisture content and grain size analysis with hydrometers), 4 Atterberg Limits tests, two Standard Proctor tests, and two Organic Content tests at each site. The results of the laboratory testing will be utilized to help classify recovered soil samples and to prepare grading recommendations.

5. The Consultant will provide a report that includes a summary of the field exploration, laboratory test results, measured groundwater levels, boring logs, site plan, and boring/bulk sample location plan. The report will also include recommendations for the following:
  - a. Groundwater mitigation if the Consultant believes groundwater mitigation will be needed during construction
  - b. Recommendation for site preparation for mass grading.
6. Assumptions/Limitations: Clearing will be needed to access some or all of the test locations. The Consultant will attempt to locate borings to minimize clearing, however, some trees and underbrush will be cut. Beaufort County will be responsible for providing access and clearing permissions to the Consultant.

#### **TASK 5: Civil-Site Engineering**

The Consultant will prepare the civil-site engineering design based on the conceptual plan developed with County input, the determined wetland delineation, the geotechnical investigation, and the site surveying. The scope of the design will include:

1. Compile base plan using the survey file provided in AutoCAD format and using the previous Conceptual Engineering Design plan.
2. Design the pond outfall modifications.
3. Locate other site improvements based on preservation of significant trees and limits to wetland impacts.
4. Prepare a stormwater hydrologic & hydraulic model to match the new proposed conditions. The model output will help estimate the expected runoff volume and rate reductions. It is assumed that the County will provide revised sub-basin information from the newly updated SWMP.
5. Prepare a basic water quality model to estimate the expected pollutant removal from the designed regional BMP. The revised water quality model will demonstrate that the proposed design will meet the County's water quality goals.
6. Prepare design plans detailing the civil construction associated with this project. Plans are prepared using AutoCAD software and paper copies are printed on 24" x 36" sheets.

Design drawings will show:

- a. Tree removal and preservation plans
- b. Demolition plans
- c. Staking plans
- d. Sedimentation and soil erosion control plans
- e. Drainage and grading plans
- f. Civil Construction details and specifications

#### **TASK 6: Wetland Permitting**

The Consultant will provide the following Natural Resources consulting services through a sub-consultant:

1. The Consultant will create permit drawings suitable for submittal to USACE and OCRM. Coordination will include attendance at team meetings and review of draft plans and permitting drawings. Upon receipt of suitable permit drawings, the Consultant will prepare and submit a Nationwide Permit along with a Critical Area Permit application package to USACE and SCDHEC-OCRM.
2. The Consultant will serve as a liaison between the applicant and the various state and federal regulatory agencies throughout the permit review and decision process to an

initial conclusion by USACE and applicable certification by OCRM. This will include attendance at agency meetings, response to comment or questions, and coordination of additional information as needed.

The tasks and associated fees were estimated based on several assumptions based on prior experience. These assumptions, however, can be affected by sudden policy changes and discretions by regulatory agencies. In some instances, these sudden changes and discretions result in unanticipated actions and requests by the regulatory agencies. Unanticipated actions could include but are not limited to additional field work required by coordination with agencies, additional maps and/or additional research. Upon knowledge of such requests, and prior to undertaking work outside of the scope of the proposed tasks, The Consultant will notify the County.

***It was assumed that the wetland impacts will be justified by the proposed frontage road and not by the proposed stormwater BMP. If detailed alternative analyses are needed to justify the road design and location, the County will provide this information or an addendum for additional wetland scientist consulting will be required. If the design and permit of the proposed frontage road is delayed or not following a similar schedule to the proposed BMP, the wetland permitting task will be delayed as well.***

#### **TASK 7: Regulatory Permitting**

The Consultant will apply for the following regulatory permits needed to construct the proposed pond and associated infrastructure:

- Beaufort County MS4 NPDES Permit
- SCDHEC OCRM Coastal Zone Consistency.
- SCDOT Encroachment Permit for utility improvements (if needed) within highway right-of-way.
- SCDOT Stormwater Permit for SCDOT drainage system outfall modification.
- Beaufort County Community Development Department for coordination on tree removal and site impacts.

The Consultant will prepare permit application packages according to each agency's application instructions. This task includes a single round of minor modifications associated with each agency's comments. A single iteration of comment/modification is typically sufficient for approval. In the event that there are additional comments that are "agency-specific" and not design-related, additional Permitting Consulting budget will be needed. The County is responsible for permit-related fees.

#### **TASK 8: Bidding and Construction Support**

The Consultant will provide the following services to support the bidding and construction Phase:

1. Prepare construction quantity takeoff
2. Update the Engineer's Estimate of Probable Construction Costs based on the final construction documents
3. Review front-end bidding and contract documents provided by County staff
4. Attend pre-bid conference
5. Support reviewing bids with County staff
6. Assist in contract negotiations between County and selected Contractor, if requested
7. Support in contract document coordination for execution
8. Attend a pre-construction conference with the Beaufort County and contractor(s).

9. Attend a weekly team coordination meeting with the County and contractor(s).
10. Provide a single review iteration of the supplied shop drawings associated with the construction documents and provide response to the contractor.
11. Visit the project at appropriate intervals during construction to become generally familiar with the progress and quality of the contractors' work and to determine if the work is proceeding in general accordance with the contract documents. It was assumed that The Consultant will not make detailed inspections to provide exhaustive, continuous project review or observation services; however these levels of service can be provided if the project budget allows. The effort assumes 4 hours per week during construction for a 10 month construction schedule.
12. Provide services associated with construction observation on an as-needed basis in order to resolve questions or conflicts during the construction process. (RFI's Field Requests)
13. Perform a final Site Tour for general design compliance.
14. Prepare a punch list of identified site design deficiencies that need to be corrected prior to processing the final pay application for the project.
15. Schedule and attend final inspection with the County.
16. A record drawing survey of the infrastructure will be prepared by the Consultant as part of the project surveying scope as required by regulatory agencies with jurisdiction over the project.
17. Manage construction documentation needed to comply with the EPA 319 Grant closeout requirements.

#### **TASK 9: Post-Construction As-built Surveying**

The Consultant will provide the following Surveying services through a sub-consultant:

1. Prepare a post-construction as-built survey of the constructed BMP suitable for NPDES permit closeout. The survey will be on the South Carolina State Plane coordinate system and the NAVD88 datum, to match horizontally and vertically with the Beaufort County LiDAR.

#### **TASK 10: Water Quality Monitoring Collection**

The Consultant will provide the following services to support the pre and post construction water quality monitoring:

1. Determine location of field water collection sample at the proposed post-construction BMP outfall location. The location will be determined based on site visits of the property in current conditions on a couple of occasions to determine existing flow paths and areas that are most likely to contain water during routine visits throughout the year. The location will be reviewed with the County and the USCB Water Quality Lab for final approval. GPS coordinates will be provided to USCB and Beaufort County for use in mapping.
2. Field collect water samples at the determined location, every other week for one year before construction and for one year after construction, regardless of rainfall conditions. This will result in 26 pre-construction samples and 26 post-construction samples.
3. It is assumed that the USCB lab will provide gloves and sample bottles for use by the Consultant. USCB will also purchase the collection pole and will be reimbursed by the Consultant. The Consultant will provide the cooler used to store the sample.
4. The Consultant will record weather and tidal conditions at the time of sampling per the Beaufort County monitoring SOPs.
5. It was assumed that samples will be collected on Wednesdays and delivered to the USCB lab no later than 2:00pm.

6. It was assumed that the Consultant will collect one sample for use by the County and USCB to test for their pollutant of choice.
7. The fee assumed 5 hours of “Principal” time and 30 hours of “Project Manager” time to manage the two-year effort.
8. The fee assumed 3 hours per week of a field technician time to drive to the site, collect the sample, deliver it to the downtown Beaufort campus, and return to the Consultant office. All mileage expenses are included in this fee. This results in a \$330 charge for each sample collection and delivery.

If the technician arrives at the site and is unable to collect a sample that week due to dry conditions, the effort is assumed to be only 1 hour of time and the County will be billed \$110 for that bi-weekly period.

## **ARTICLE 2 LIABILITY**

The County and Consultant shall not be responsible to each other for any incidental, indirect or consequential damages incurred by either Consultant or County or for which either party may be liable to any third party which damages have been or are occasioned by services performed or reports prepared or other work performed hereunder.

## **ARTICLE 3 INDEMNIFICATION AND HOLD HARMLESS**

The Consultant does hereby agree to indemnify and save harmless the County, its officers, agents and employees from and against any and all liability, claims, demands, damages, fines, fees, expenses, penalties, suits, proceedings, actions and cost of actions, including attorney's fees for trial and on appeal of any kind and nature to the extent arising or growing out of or in any way connected with the negligent performance of the Contract, by Consultant, its agents, servants or employees.

## **ARTICLE 4 ASSIGNMENT**

Consultant shall not assign any rights or duties of the professional services contract without the expressed written consent of the County. Any assignment or subletting without the written consent of County shall be void and this Contract shall terminate at the option of the County.

## **ARTICLE 5 PERFORMANCE PERIOD/TERM**

The term of this Contract shall be for a period of (determined by negotiated schedule of work) starting on August 29, 2017 and ending on July 31, 2019. At the County's option, this contract may be extended to July 31, 2022, not to exceed five (5) years total.

## **ARTICLE 6 COMPENSATION**

Total annual compensation is not to exceed Two Hundred and Two Thousand dollars (\$202,000), billed at unit rates provided in the SOQ and invoiced monthly.

**FEES:** The below fees are based on prompt payment of invoices and on the orderly and continuous progress of the Project.

### **Project 1 – Brewer Memorial Park**

| <b>Service Description</b>                            |                      |                    |
|---|----------------------|--------------------|
| <b>Task 1: Conceptual Engineering</b>                 | Hourly Not To Exceed | <b>\$12,000.00</b> |
| <b>Task 2: Wetland Delineation &amp; Verification</b> | Hourly Not To Exceed | <b>\$2,500.00</b>  |
| <b>Task 3: Site Surveying</b>                         | Hourly Not To Exceed | <b>\$3,000.00</b>  |
| <b>Task 4: Geotechnical Investigation</b>             | Hourly Not To Exceed | <b>\$8,300.00</b>  |
| <b>Task 5: Civil Site Engineering</b>                 | Hourly Not To Exceed | <b>\$11,000.00</b> |
| <b>Task 6: Wetland Permitting</b>                     | Hourly Not To Exceed | <b>\$8,500.00</b>  |
| <b>Task 7: Regulatory Permitting</b>                  | Hourly Not To Exceed | <b>\$10,000.00</b> |
| <b>Task 8: Bidding and Construction Support</b>       | Hourly Not To Exceed | <b>\$8,000.00</b>  |
| <b>Task 9: Post Construction Asbuilt Surveying</b>    | Hourly Not To Exceed | <b>\$1,500.00</b>  |
| <b>Task 10: Water Quality Monitoring Collection</b>   | Hourly Not To Exceed | <b>\$24,000.00</b> |
| <b>Reimbursable Expenses</b>                          | As Incurred          | <b>\$1,200.00</b>  |
|   | <b>Total</b>         | <b>\$90,000.00</b> |

### **Project 2 – Sawmill Creek**

| <b>Service Description</b>                            |                      |                    |
|---|----------------------|--------------------|
| <b>Task 1: Conceptual Engineering</b>                 | Hourly Not To Exceed | <b>\$15,500.00</b> |
| <b>Task 2: Wetland Delineation &amp; Verification</b> | Hourly Not To Exceed | <b>\$3,600.00</b>  |
| <b>Task 3: Site Surveying</b>                         | Hourly Not To Exceed | <b>\$13,000.00</b> |
| <b>Task 4: Geotechnical Investigation</b>             | Hourly Not To Exceed | <b>\$8,300.00</b>  |
| <b>Task 5: Civil Site Engineering</b>                 | Hourly Not To Exceed | <b>\$13,000.00</b> |
| <b>Task 6: Wetland Permitting</b>                     | Hourly Not To Exceed | <b>\$10,500.00</b> |

|   |                      |                     |
|---|----------------------|---------------------|
| <b>Task 7: Regulatory Permitting</b>                | Hourly Not To Exceed | <b>\$10,000.00</b>  |
| <b>Task 8: Bidding and Construction Support</b>     | Hourly Not To Exceed | <b>\$8,500.00</b>   |
| <b>Task 9: Post Construction Asbuilt Surveying</b>  | Hourly Not To Exceed | <b>\$3,600.00</b>   |
| <b>Task 10: Water Quality Monitoring Collection</b> | Hourly Not To Exceed | <b>\$24,000.00</b>  |
| <b>Reimbursable Expenses</b>                        | As Incurred          | <b>\$2,000.00</b>   |
|   | <b>Total</b>         | <b>\$112,000.00</b> |

## **ARTICLE 7 INSURANCE/PERFORMANCE BOND**

### **Insurance**

Consultant does hereby covenant, agree and hereby represent to the County that it has obtained workmen's compensation insurance, general liability and automobile liability insurance, as well as providing coverage against potential liability arising from and in any manner relating to the Consultant's use or occupation of the premises during the course of performing the contracted services, all in accordance with and as **specified** in the County's RFP Number 071917,. **Additionally, the Consultant agrees to list the County as 'additional insured' on Certificates of Insurance related to the execution of this Contract.**

### **Performance Bond**

**No performance bond is required for this contract.**

## **ARTICLE 8 DEFAULT/TERMINATION**

### **Default**

In the event of default or breach of any condition of this Contract resulting in litigation, the prevailing party would be entitled to reasonable attorneys' fees fixed by the Court. The remedies herein given to County under Default shall be cumulative, and the exercise of any one remedy by the County shall not be to the exclusion of any other remedy.

### **Termination**

This contract may be terminated by the County,' 'for convenience' 'for cause,' or by 'by mutual consent' as described in RFP number 071917.

#### **1. Termination for Convenience**

The County may, without cause, terminate this contract in whole or in part at any time for its convenience. In such instance, an adjustment shall be made to the Consultant, for the reasonable costs of the work performed through the date of termination. Termination costs do



not include lost profits, consequential damages, delay damages, unabsorbed or under absorbed overhead of the Consultant or its sub-consultants, and/or failure of Consultant to include termination for convenience clause into its subcontracts and material purchase orders shall not expose the County to liability for lost profits in conjunction with a termination for convenience settlement or equitable adjustment. Consultant expressly waives any damages, delay damages, or indirect costs which may arise from County's election to terminate this contract in whole or in part for its convenience.

## **2. Termination For Cause**

Termination by the County for cause, default, or negligence on the part of the Consultant shall be excluded from the foregoing provisions. Termination costs, if any, shall not apply. The ten (10) days advance notice requirement is waived, and the default provision in this bid shall apply.

Reasons for Termination for Cause shall include but not limited to:

- a) Default as defined above,
- b) failing to make satisfactory progress in the prosecution of the contract
- c) endangering the performance of this contract
- d) criminal activity or misconduct,
- e) work that is deemed sub-standard by the County Representative.

## **3. Termination by Mutual Consent**

Either party may terminate this Contract by mutual consent with written notice attesting and agreeing to a termination by mutual consent by either party. Upon such termination, the County shall pay the Consultant for all services performed hereunder up through the date of such termination. Termination by mutual consent may entitle the Consultant to reasonable costs allocable to the contract for work or costs incurred by the Consultant up to the date of termination. The Consultant must not be paid compensation as a result of a termination by mutual consent that exceeds the amount encumbered to pay for work to be performed under the contract.

## **ARTICLE 9 RESPONSIBILITY**

The County will be responsible to provide the Consultant reasonable access to County locations when necessary, ensure cooperation of County employees in activities reasonable and appropriate under the project, and obtain authorization for access to third party sites, if required.

## **ARTICLE 10 FORCE MAJEURE**

Should performance of Consultant services be materially affected by causes beyond its reasonable control, a *Force Majeure* results. *Force Majeure* includes, but is not restricted to:

- a) acts of God,
- b) acts of a legislative,

- c) administrative or judicial entity,
- d) acts of Consultants (other than sub-consultants of Consultant),
- e) fires,
- f) floods,
- g) labor disturbances,
- h) civil unrest
- i) incorrect/inferior parts or materials
- j) terrorism
- k) unusually severe weather.

Consultant will be granted a time extension and the parties will negotiate an adjustment to the fee, where appropriate, based upon the effect of the Force Majeure upon Consultant's performance.

#### **ARTICLE 11 SEVERABILITY**

Every term or provision of this Contract is severable from others. Notwithstanding any possible future finding by a duly constituted authority that a particular term or provision is invalid, void, or unenforceable, this Contract has been made with the clear intention that the validity and enforceability of the remaining parts, terms and provisions shall not be affected thereby.

#### **ARTICLE 12 INDEPENDENT CONSULTANT**

The Consultant shall be fully independent in performing the services and shall not act as an agent or employee of the County. As such, the Consultant shall be solely responsible for its employees, sub-consultants, and agents and for their compensation, benefits, contributions and taxes, if any.

#### **ARTICLE 13 NOTICE**

The Consultant and the County shall notify each other of service of any notice of violation of any law, regulation, permit or license relating to the services; initiation of any proceedings to revoke any permits or licenses which relate to such services; revocation of any permits, licenses or other governmental authorizations relating to such services; or commencement of any litigation that could affect such services. Such notice shall be delivered by U.S. mail with proper postage affixed thereto and addressed as follows:

|         |   |
|---------|---|
| County: | Beaufort County Administrator<br>P. O. Drawer 1228<br>Beaufort, SC 29901-1228     |
|         | Beaufort County<br>Attn: Beaufort County Purchasing Director<br>P. O. Drawer 1228 |

Beaufort, SC 29901-1228

Consultant: Ward Edwards, Inc.  
119 Palmetto Way, Suite C  
PO Box 381  
Bluffton, SC 29910

DRAFT

## **ARTICLE 14 CHANGE ORDERS**

Change order(s) are applicable under this contract. Change order(s) initiated by the County must be delivered to the Consultant for review and approval. Change order(s) initiated by the Consultant must be delivered to the County for review and approval. The Consultant and County must execute the Change Order(s) prior to work being performed.

## **ARTICLE 15 AUDITING**

The Consultant shall make available to the County if requested, true and complete records, which support billing statements, reports, performance indices, and all other related documentation. The County's authorized representatives shall have access during reasonable hours to all records, which are deemed appropriate to auditing billing statements, reports, performance indices, and all other related documentation. The Consultant agrees that it will keep and preserve for at least seven years all documents related to the Contract, which are routinely prepared, collected or compiled by the Consultant during the performance of this contract.

The County's Auditor and the Auditor's authorized representatives shall have the right at any time to audit all of the related documentation. The Consultant shall make all documentation available for examination at the Auditor's request at either the Auditor or Consultant's office and without expense to the County.

## **ARTICLE 16 GRATUITIES**

The right of the Consultant to proceed or otherwise perform this Contract, and this Contract may be terminated if the County Manager and/or the County Contracting Manager determine, in their sole discretion, that the Consultant or any officer, employee, agent, or other representative whatsoever, of the Consultant offered or gave a gift or hospitality to a County officer, employee, agent or Consultant for the purpose of influencing any decision to grant a County Contract or to obtain favorable treatment under any County Contract.

The terms "hospitality" and "gift" include, but are not limited to, any payment, subscription, advance, forbearance, acceptance, rendering or deposit of money, services, or items of value given or offered, including but not limited to food, lodging, transportation, recreation or entertainment, token or award.

## **ARTICLE 17 INVOICES**

All invoices for work done under this contract should be directed to the County Representative, Eric W. Larson, PE, CPSWQ, AICP, CFM – Director of Environmental Engineering & Land Management, located at:

Beaufort County Stormwater Utility  
120 Shanklin Road  
Beaufort, SC 29906

Invoices should include:

- a) Period of time covered by the invoice
- b) Detail of work performed
- c) Purchase order and Contract Number
- d) Tax Identification Number

## **ARTICLE 18 Purchase Orders**

**The County will issue Purchase Orders from properly executed requisitions. The** County shall not be responsible for invoices of \$500 or more that do not have a purchase order covering them.

## **ARTICLE 19 ORDER OF DOCUMENTS**

The following are incorporated into and made a part of this contract by reference:

- a) Request for Proposals Number 071917
- b) General Terms and Conditions between County and Consultant.
- c) Insurance Requirements
- d) XXXXXXXXXX SOQ Submission to RFP Number 071917
- e) Notice of Award Letter dated XXXXXX.
- f) Recommendation Letter dated XXXXXX

# SIGNATURE PAGE

This Contract with the above Articles constitutes the entire contract between the parties hereto. No representations, warranties or promises pertaining to this Contract have been made or shall be binding upon any of the parties, except as expressly stated herein.

This Contract shall be construed in accordance and governed by the laws of the State of South Carolina.

**IN WITNESS WHEREOF**, the parties hereto have executed this Contract on the day and year first above written.

**WITNESSES:**

\_\_\_\_\_  
\_\_\_\_\_

**BEAUFORT COUNTY**, a political sub-division of the State of South Carolina

By: \_\_\_\_\_  
Name: Gary Kubic  
Title: County Administrator  
Address: P.O. Drawer 1228  
Beaufort, SC 29901-1228  
Phone: (843) 255-2026  
Fax: (843) 255-9403  
Date: \_\_\_\_\_

**WITNESSES:**

\_\_\_\_\_  
\_\_\_\_\_

**CONSULTANT NAME**

By: \_\_\_\_\_  
Name: Allen Ward  
Title: President/Principal-in-Charge  
Address: 119 Palmetto Way, Suite C  
PO Box 381  
Bluffton, SC 29910  
Phone: 843-837-5250  
Fax: 843-837-2558  
Tax ID Number: 57-0888952  
Date: \_\_\_\_\_

**AN ORDINANCE OF BEAUFORT COUNTY COUNCIL CREATING A SPECIAL TAX ASSESSMENT FOR REHABILITATED HISTORIC PROPERTIES IN THE GEOGRAPHICAL BOUNDARIES KNOWN AS DAUFUSKIE ISLAND**

WHEREAS, Section 4-9-195 of the South Carolina Code of Laws, as amended (“S.C. Code”), provides that counties may by ordinance grant special property tax assessments to real property which qualifies as “rehabilitated historic property”; and

WHEREAS, the geographic area known as Daufuskie Island, in the County of Beaufort, South Carolina (“Daufuskie”) contains a substantial amount of historic property, the preservation of which is beneficial for the economic development of the County and for its citizens; and

WHEREAS, Beaufort County Council (the “County Council”) has determined that it is in the best interests of the County and its citizens to allow for a special property tax assessment available and as set forth in S.C. Code §4-9-195 to qualifying properties located within the geographic boundaries of Daufuskie; and

WHEREAS, the County Council finds that providing for this special property tax assessment will (1) encourage the restoration of historic properties, (2) promote community development and redevelopment, (3) encourage sound community planning, and (4) promote the general health, safety, and welfare of the community; and

WHEREAS, pursuant to S.C. Code §4-9-195, the County must specify the minimum investment threshold and the number of years in which the special assessment shall apply, and in the absence of a board of architectural review the County may name an appropriate reviewing authority to consider proposed rehabilitation plans and actual rehabilitation work.

NOW, THEREFORE, BE IT ORDAINED by Beaufort County Council that Chapter 66, Article III of the Beaufort County Code of Ordinances is hereby amended by inserting the following into Beaufort County Code of Ordinances Chapter 66, Division 4:

**Division 4. Special Assessment Ratio for Rehabilitated Historic Properties**

**Section 66-155. Special tax assessment created –Daufuskie Island.**

A special tax assessment is created for eligible rehabilitated historic properties located within the geographic boundaries of Daufuskie Island for 10 years equal to the appraised value of the property at the time of preliminary certification.

**Section 66-156. Purpose.**

It is the purpose of this division to:

- (a) Encourage the restoration of historic properties;
- (b) Promote community development and redevelopment;
- (c) Encourage sound community planning; and
- (d) Promote the general health, safety, and welfare of the community.

**Section 66-157. Eligible properties.**

- (a) *Certification.* In order to be eligible for the special tax assessment, historic properties must receive preliminary and final certification.

- (1) To receive preliminary certification a property must meet the following conditions:

- a. The property has received historic designation from the Daufuskie Island Council and in accordance with the Daufuskie Island Plan or is listed on the Beaufort County Above Ground Historic Resources Survey completed in 1998.
- b. The proposed rehabilitation work receives approval from the Beaufort County Historic Preservation Review Board (HPRB) under Sec. 5.10 and Sec. 7.2.120 of the Beaufort County Community Development Code (CDC).; and
- c. Be a project that commences on or after the date of the adoption of this ordinance. Preliminary certification must be received prior to beginning work.

- (2) To receive final certification, a property must have met the following conditions:

- a. The property has received preliminary certification.
- b. The minimum expenditures for rehabilitation were incurred and paid.
- c. The completed rehabilitation receives approval from the Beaufort County Planning Director, or designee, as being consistent with the plans approved by the HPRB as part of preliminary certification.

- (b) *Historic designation.* As used in this section, "Historic Designation" means:

- (1) The structure is at least 50 years old and is located in the geographic area known as Daufuskie Island;
- (2) The structure is listed on the National Register of Historic Places; or
- (3) The structure is listed on the "1998 Beaufort County Above Ground Historic Sites Survey."



**Section 66-158. Eligible rehabilitation.**

- (a) Standards for rehabilitation work. To be eligible for the special tax assessment, historic rehabilitations must be appropriate for the historic building and the geographic district. This is achieved through adherence to the standards set forth in the Community Development Code and, if required, approval of a Certificate of Appropriateness in accordance with Sec. 7.2.120 of the CDC.
- (b) Work to be reviewed. The following work will be reviewed according to the standards set forth above:
  - (1) Repairs to the exterior of the designated building.
  - (2) Alterations to the exterior of the designated building.
  - (3) New construction on the property on which the building is located.
  - (4) Alterations to interior primary public spaces.
  - (5) Any remaining work where the expenditures for such work are being used to satisfy the minimum expenditures for rehabilitation.
- (c) Minimum expenditures for rehabilitation means the owner rehabilitates the building, with expenditures for rehabilitation exceeding 75 percent of the fair market value of the building. Fair market value means the appraised value as certified by a real estate appraiser licensed by the State of South Carolina, the sales price as delineated in a bona fide contract of sale within 12 months of the time it is submitted, or the most recent appraised value published by the Beaufort County Tax Assessor.
- (d) Expenditures for rehabilitation means the actual cost of rehabilitation relating to one or more of the following:
  - (1) Improvements located on or within the historic building as designated.
  - (2) Improvements outside of but directly attached to the historic building which are necessary to make the building fully useable (such as vertical circulation) but shall not include rentable/habitable floorspace attributable to new construction.
  - (3) Architectural and engineering services attributable to the design of the improvements.
  - (4) Costs necessary to maintain the historic character or integrity of the building.
- (e) Scope. The special tax assessment may apply to the following:
  - (1) Structure(s) rehabilitated.
  - (2) Real property on which the building is located.

- (f) Time limits. To be eligible for the special tax assessment, rehabilitation must be completed within two years of the preliminary certification date. If the project is not complete after two years, but the minimum expenditures for rehabilitation have been incurred, the property continues to receive the special assessment until the project is completed or until the end of the special assessment period, whichever shall first occur.

#### **Section 66-159. Process.**

- (a) Fee required. A fee as set out in the County of Beaufort's Fee Schedule, as appropriate, shall be required for final certification for each application.
- (b) Plan required. Owners of property seeking approval of rehabilitation work must submit an application for a Certificate of Appropriateness, as required under Sec. 7.2.120 of the CDC, with supporting documentation and application fee(s) prior to beginning work.
- (c) Preliminary certification. Upon receipt of the completed application, the proposal shall be placed on the next available agenda of the Beaufort County Historic Preservation Review Board (HPRB). After the HPRB makes its' determination(s), the owner shall be notified in writing. Upon receipt of this determination the owner may:
- (1) If the application is approved, apply for building permits to begin rehabilitation;
  - (2) If the application is not approved, may revise such application in accordance with comments provided by the HPRB.
- (d) Substantive changes. Once preliminary certification is granted to an application, substantive changes must be approved by the HPRB. Unapproved substantive changes are conducted at the risk of the property owner and may disqualify the project from eligibility. Additional expenditures will not qualify the project for an extension on the special assessment.
- (e) Final certification. Upon completion of the project, the project must receive final certification in order to be eligible for the special assessment. The Beaufort County Planning Director and Director of Building Codes, or designees, will inspect completed projects to determine if the work is consistent with the approval granted by the HPRB. Final certification will be granted when verification is made that expenditures have been made in accordance with Section 66-158(c) above. Upon receiving final certification, the property will be assessed for the remainder of the special assessment period on the fair market value of the

property at the time the preliminary certification was made or the final certification was made, whichever occurred earlier.

(f) *Additional work.* For the remainder of the special assessment period after final certification, the property owner shall notify the Beaufort County Community Development Department of any additional work, other than ordinary maintenance. The HPRB will review the work at a regularly scheduled hearing and determine whether the overall project is consistent with the standards for rehabilitation. If the additional work is found to be inconsistent, the property owner may withdraw his request and cancel or revise the proposed additional work.

(g) *Decertification.* When the property has received final certification and has been assessed as rehabilitated historic property, it remains so certified and must be granted the special assessment until the property becomes disqualified by any one of the following:

- (1) Written notice from the owner to the Beaufort County Assessor's Office requesting removal of the preferential assessment; or
- (2) Rescission of the approval of rehabilitation by the HPRB because of alterations or renovation by the owner or the owner's estate, which causes the property to no longer possess the qualities and features which made it eligible for final certification.

Notification of any change affecting eligibility must be given immediately to the Beaufort County Assessor, Auditor, and Treasurer.

(h) *Notification.* The Beaufort County Community Development Department shall, upon final certification of a property, notify the Beaufort County Assessor, Auditor and Treasurer that such property has been duly certified and is eligible for the special tax assessment.

(i) *Date effective.* If an application for preliminary or final certification is filed by May 1 or the preliminary or final certification is approved by August 1, the special assessment authorized herein is effective for that year. Otherwise, it is effective beginning with the following year.

The special assessment only begins in the current or future tax years as provided for in this section. In no instance may the special assessment be applied retroactively.

- (j) Application. Once a property has received final certification, the owner of the property shall make application to the Beaufort County Assessor's Office for the special assessment provided for herein.

**SECTIONS 66-160. Reserved.**

This ordinance shall become effective immediately upon adoption.

DONE, this \_\_\_\_ of \_\_\_\_\_, 2017.

COUNTY COUNCIL OF BEAUFORT COUNTY

By: \_\_\_\_\_  
D. Paul Sommerville, Chairman

APPROVED AS TO FORM:

\_\_\_\_\_  
Thomas J. Keaveny, II, Esquire  
Beaufort County Attorney

ATTEST:

\_\_\_\_\_  
Ashley M. Bennett, Clerk to Council

First Reading: May 22, 2017

Second Reading:

Public Hearing:

Third and Final Reading:



## MEMORANDUM

**To:** Natural Resource Committee of Beaufort County Council

**From:** Anthony Criscitiello, Beaufort County Community Development Director

**Subject:** Amendment to the Beaufort County Community Development Code to Permit Community Residences as a Special Use in the LICP District with Conditions

**Date:** August 16, 2017

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**PLANNING COMMISSION RECOMMENDATION from the excerpt of its July 6, 2017, draft minutes:**

Mr. Criscitiello briefed the Commission on the text amendments. The Planning staff asked the Lady's Island Community Preservation (LICP) Committee for their recommendation on the text amendments. Since the text amendments were a change to the intent (see Section A.2.40 of the Community Development Code) of the LICP District, the LICP Committee felt making the use a Special Use would be acceptable since additional review by the Zoning Board of Appeals (ZBOA) would be required. Mr. Criscitiello then explained the ZBOA process. The Housing Chapter of the Comprehensive Plan notes that more infill development is needed for elderly residents, especially assisted living and continuing care facilities in urbanized areas of the County. The proposed 9.5-acre assisted living project meets a community need. Staff established additional conditions for the Special Use to include: a minimum site area of 5.0 acres, a maximum height of 35 feet, adjoining buffers and setbacks of 50 feet for LICP Districts and 20 feet for all other districts, 50 feet for local/collector; and Community Residences being limited to sites within one and one-half mile from the centerline of the intersection of Sea Island Parkway (US 21) and Sam's Point Road/Lady's Island Drive. The Metropolitan Planning Commission forwarded no comment since there was not a quorum.

**Applicant's Comments:**

1. Mr. Greg Baisch with Ward Edwards Engineering noted that he and the applicant met several times with staff and the LICP Committee. Generally, the LICP Committee accepted the revisions of the project after the applicant addressed the site area and setbacks in order to be sensitive of the area. The staff's addition as a special use and additional requirements would open other properties to the use and allow the public to see site-specific details as a Special Use. *(Commission discussion included noting that this is the first time the public hears about this proposal and asking for additional information from the applicant; concerns with temporary shelters being included in the text amendment; Mr. Criscitiello noting that the staff added the use to accommodate the community; noting that County-wide temporary shelters are kept private to provide privacy to individuals in the shelter; Mr. Criscitiello noted that the staff must have the ability to address such uses across the population spectrum; clarification on the text amendment covering the LICP District, and reiterating that the amendment was not site/parcel specific.)*
2. Mr. Eric Sauers, partner with CR Senior Living LLC, stated that his project was a 60,000 square foot/66-room facility, with 60-65 employees, about 20-25 employees per shift. His company has 3 sites in Greenville, SC, that have been in operation for 4 years; there is one near Spartanburg, SC, and another at Little River, SC. The site (on Lady's Island) is large enough for nice landscaping appeal;

he anticipates 80-90 residents. He stated he would place his mother in the facility. He said the bathrooms are spa-like, and there are interior lights with an atrium in the center of the facility. The facility is large enough to support this smaller market. He believes Beaufort is a little gem. He believes his company will add to the community.

3. Mr. Baisch noted the start of the parcel is where Dore Drive connects Lady's Island Drive to Meridian Road. The parcel has frontage off Lady's Island Drive and Meridian Road. The lot could accommodate 27 homes, the proposed use (as an assisted living facility) would decrease the traffic impact. There is an existing dirt road that the property owner will improve, but the majority of the traffic would be centered off Lady's Island Drive. There are sidewalks on Lady's Island Drive for people to interact with the property. The building will be single-storied. The current zoning only allows the use in a TCP (Traditional Community Plan). The property owner considered annexing into the City of Beaufort but the connection with other parcels did not occur. *(Commission discussion included noting that the property involves heirs property, noting that the area has transportation issues along Sea Island Parkway, concern with property egress/ingress, concern with how this property interacts with the proposed Lady's Island Plan; noting the intent to maintain Polk Road and giving easement to adjoining property owners, and querying the definition of a buffer for public information.)* Mr. Baisch noted the undisturbed buffers were to the east and north on the property--all other buffers must be rebuilt since the majority of the site had been timbered by the former owner. There are no wetlands on the property per the National Wetland Inventory map. He noted that stormwater issues were addressed. He stated that the buffers and setbacks are such that the building can be 50 feet off the road. *(Mr. Criscitiello noted that the Staff Review Team (SRT) would deal with details of the development when the project is submitted for permitting.)* The building will have a Beaufort facade/coastal look.

**Public Comment:** None were received.

Mr. Criscitiello noted that posting and review will occur at the staff level with the SRT. He explained the Special Use process involving the Zoning Board of Appeals and its level of review.

Further discussion included concern with the grouping of uses such as dorms and convents, along with assisted living facilities; and supporting the additional standards that added another layer of review.

**Motion:** Mr. Jason Hinchler made a motion, and Ms. Carolyn Fermin seconded the motion, **to forward to County Council with a recommendation of approval of the Text Amendments to the Community Development Code, Division A.2 (Lady's Island Community Preservation District--LICP) of Appendix A, Community Preservation District: Table A.2.40.A (Land Uses) and Section A.2.50 (Conditional and Special Use Standards) to permit Community Residences (e.g. dorms, convents, assisted living facilities, temporary shelters) as a Special Use subject to additional standards.** No further discussion occurred. The motion **carried (FOR: Chmelik, Fermin, Hinchler, Mitchell, Pappas, Semmler, and Stewart; ABSENT: Fireall and Walsnovich).**

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## **STAFF REPORT**

### **A. BACKGROUND:**

**Case No.** ZTA 2017-07

**Applicant:** Jade Eastridge

**Proposed Text Change:** Amendment to Permit Community Residences as a “Special Use” in the LICP District with Conditions

**B. SUMMARY OF REQUEST:**

The proposed amendment would change the Use Table for the Lady’s Island Community Preservation (LICP) district to permit “Community Residence” (e.g. dorms, convents, assisted living, and temporary shelters) as a Special Use. This use is currently only allowed in the LICP district if part of a larger Traditional Community Plan (TCP). The Special Use designation means that this use could be developed as a stand-alone project in the LICP district if approved by the Zoning Board of Appeals through a public hearing process. The applicant is also proposing the following additional standards apply to this use:

1. Minimum Site Area: 5.0 acres
2. Maximum Height: 35 feet
3. Adjoining Buffers: LICP = 50 ft., All other districts = 20 ft., Local/collector roads = 50 ft.
4. Adjoining Setbacks: LICP = 50 ft., All other districts = 20 ft., Local/collector roads = 50 ft.
5. Community Residences are limited to sites within one and one-half mile from the centerline of the intersection of Sea Island Parkway (US 21) and Sams Point Rd./Lady’s Island Dr.

**C. ANALYSIS:**

**Sec. 7.7.30(C). Code Text Amendment Review Standards.** The advisability of amending the text of this Development Code is a matter committed to the legislative discretion of the County Council and is not controlled by any one factor. In determining whether to adopt or deny the proposed text amendment, the County Council shall weigh the relevance of and consider whether, and the extent to which, the proposed amendment:

**1. Is consistent with the goals, objectives, and policies of the Comprehensive Plan;**

The proposed amendment is consistent with one of the goals of the Comprehensive Plan to ensure a variety of housing types in the County to accommodate the full range of income, age, cultural groups, disabilities and special needs in the community. This amendment would make more sites available on Lady’s Island for elderly residents in needs of assisted living facilities.

**2. Is not in conflict with any provision of this Development Code or the Code of Ordinances;**

The proposed change does not conflict with other provisions of the Development Code or Code of Ordinances.

**3. Is required by changed conditions;**

(Not Applicable)

**4. Addresses a demonstrated community need;**

The Housing Chapter of the Comprehensive Plan notes that more infill development is needed for elderly residents, especially assisted living and continuing care facilities, in urbanized areas of the County. This amendment would help address this need by allowing these facilities as a Special Use within a 1 ½-mile radius of the intersection of Sea Island Parkway (US 21) and Sams Point Rd./Lady’s Island Dr., near grocery stores, pharmacies, medical and dental offices, banks, restaurants, and churches.

5. **Is consistent with the purpose and intent of the zones in this Development Code, or would improve compatibility among uses and ensure efficient development within the County;**

This amendment would promote these facilities in residential areas of Lady's Island close to the commercial core, while requiring large buffers from adjoining residential development, a minimum site area of five acres, height restrictions, and special use review by the Zoning Board of Appeals to mitigate incompatibilities.

6. **Would result in a logical and orderly development pattern; and**

See responses to Items 4 and 5.

7. **Would not result in adverse impacts on the natural environment, including but not limited to water, air, noise, stormwater management, wildlife, vegetation, wetlands, and the natural functioning of the environment.**

The proposed amendment does not affect any environmental regulations contained in the Code.

#### **D. STAFF RECOMMENDATION:**

After review of the standards set forth in Section 7.7.30(C) of the Community Development Code, staff recommends Approval of the proposed amendment:

#### **PROPOSED AMENDMENT** (new language underscored)

**Table A.2.40.A: Lady's Island Community Preservation Land Uses**

| Land Use   | Use Definition                               | Use Permission |
|--|--|----------------|
| <b>Residential</b>   |  |                |
| Community Residence<br>(dorms, convents, assisted<br>living, temporary shelters) | See definition in Article 8,<br>Table 3.1.70 | S              |

#### **Sec. A.2.50 Conditional and Special Use Standards**

##### L. Community Residence not part of a Traditional Community Plan

1. Minimum Site Area: 5.0 acres
2. Maximum Height: 35 feet
3. Adjoining Buffers: LICP = 50 ft., All other districts = 20 ft., Road ROWs = 50 ft.
4. Adjoining Setbacks: LICP = 50 ft., All other districts = 20 ft., Road ROWs = 50 ft.
5. Community Residences are limited to sites within one and one-half mile from the centerline of the intersection of Sea Island Parkway (US 21) and Sams Point Rd./Lady's Island Dr.



**E. LADY’S ISLAND COMMUNITY PRESERVATION COMMITTEE  
RECOMMENDATION:**

At the Lady's Island Community Preservation Committee meeting held on June 5th, a request for a text change to the Lady’s Island Community Preservation (LICP) District section of the Beaufort County Community Development Code for a 9.5 acre parcel of land was made by RE Capital. The intention of RE capital is to construct a 66 bed assisted living facility near the corner of Sea Island Parkway and Meridian Road. Delores Frazier of the Beaufort County planning staff said that the CP Committee could consider two options for the proposed text amendment: either allow the facility as a “Conditional Use” in the LICP subject to specific requirements (e.g. minimum site area, buffers, setbacks, height restrictions and distance from the intersection of Lady’s Island Drive and Sea Island Parkway), or a “Special Use” that would add an additional notification and public hearing process. Following discussion, the LICPC voted unanimously to recommend that the project move forward as a text amendment to allow it as a “Special Use.” That process will involve notification to nearby property owners, a public review, and a Design Review Board review, before final approval or rejection by the Beaufort County Zoning Board of Appeals.

**F. METROPOLITAN PLANNING COMMISSION RECOMMENDATION:** The Metropolitan Planning Commission met on June 19, 2017. Commissioners in attendance were Robert Semmler, Caroline Fermin, and Bill Harris. The Commissioners heard a presentation from Mr. Anthony Criscitiello, County Planning Director. There being a lack of quorum, no recommendation was provided by the Commission.

**ATTACHMENTS:**

- Copy of application for Code Text Amendment
- Map of Lady’s Island
- LICP Land Use Table

**BEAUFORT COUNTY, SOUTH CAROLINA**  
**PROPOSED COMMUNITY DEVELOPMENT CODE (CDC)**  
**ZONING MAP OR TEXT AMENDMENT / PUD MASTER PLAN CHANGE APPLICATION**

TO: Beaufort County Council

The undersigned hereby respectfully requests that the Beaufort County Zoning/Development Standards Ordinance (ZDSO) be amended as described below:

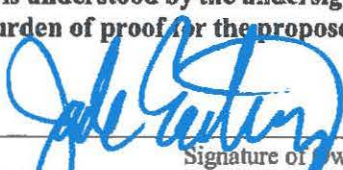

1. This is a request for a change in the (check as appropriate): ☐ PUD Master Plan Change  
☐ Zoning Map Designation/Rezoning ☒ Community Development Code Text
2. Give exact information to locate the property for which you propose a change: (N/A: LICP)  
Tax District Number: \_\_\_\_\_, Tax Map Number: \_\_\_\_\_, Parcel Number(s): \_\_\_\_\_  
Size of subject property: \_\_\_\_\_ Square Feet / Acres (circle one)  
Location: \_\_\_\_\_
3. How is this property presently zoned? (Check as appropriate)  

|   |  |  |
|---|--|--|
| <input type="checkbox"/> T4NC Neighborhood Center | <input type="checkbox"/> T2RC Rural Center                 | <input type="checkbox"/> C3 Neighborhood Mixed Use     |
| <input type="checkbox"/> T4HC Hamlet Center       | <input type="checkbox"/> T2RN Rural Neighborhood           | <input type="checkbox"/> C4 Community Center Mixed Use |
| <input type="checkbox"/> T4HCO Hamlet Center      | <input type="checkbox"/> T2RNO Rural Neighborhood Open     | <input type="checkbox"/> C5 Regional Center Mixed Use  |
| <input type="checkbox"/> T4VC Village Center      | <input type="checkbox"/> T2R Rural                         | <input type="checkbox"/> S1 Industrial                 |
| <input type="checkbox"/> T3N Neighborhood         | <input type="checkbox"/> T1 Natural Preserve               | <input type="checkbox"/> Planned Unit Development/PUD  |
| <input type="checkbox"/> T3HN Hamlet Neighborhood | <input checked="" type="checkbox"/> Community Preservation | (name) _____   |
| <input type="checkbox"/> T3E Edge                 | (specify) <u>Lady's Island</u>                             |  |
4. What new zoning do you propose for this property? N/A - Text Amendment  
(Under Item 9 explain the reason(s) for your rezoning request.)
5. Do you own all of the property proposed for this zoning change? ☐ Yes ☒ No  
Only property owners or their authorized representative/agent can sign this application. If there are multiple owners, each property owner must sign an individual application and all applications must be submitted simultaneously. If a business entity is the owner, the authorized representative/agent of the business must attach: 1- a copy of the power of attorney that gives him the authority to sign for the business, and 2- a copy of the articles of incorporation that lists the names of all the owners of the business.
6. If this request involves a proposed change in the Community Development Code text, the section(s) affected are: Table A3.4.0A and Section A.2.50  
(Under Item 9 explain the proposed text change and reasons for the change.)
7. Is this property subject to an Overlay District? Check those which may apply: N/A  

|   |   |
|---|---|
| <input type="checkbox"/> MCAS-AO Airport Overlay District/MCAS          | <input type="checkbox"/> MD Military Overlay District       |
| <input type="checkbox"/> BC-AO Airport Overlay District/Beaufort County | <input type="checkbox"/> RQ River Quality Overlay District  |
| <input type="checkbox"/> CPO Cultural Protection                        | <input type="checkbox"/> TDR Transfer of Development Rights |
| <input type="checkbox"/> CFV Commercial Fishing Village                 |   |
8. The following sections of the Community Development Code (CDC) (see attached sheets) should be addressed by the applicant and attached to this application form:
  - a. Division 7.3.20 and 7.3.30, Comprehensive Plan Amendments and Text Amendments.
  - b. Division 7.3.40, Zoning map amendments (rezoning).
  - c. Division 1.6.60, Planned Unit Developments (PUDs) Approved Prior to Dec. 8, 2014
  - d. Division 6.3, Traffic Impact Analysis (for PUDs)

9. Explanation (continue on separate sheet if needed): Please see attachment.

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

 6-6-17   
Signature of Owner (see Item 5 on page 1 of 1) Date  
Printed Name: KR SENIOR LIVING, LLC Telephone Number: 980-201-3348  
Address: 2410 DUNMONT STREET, CHARLOTTE, NC, 28203  
Email: JEASTRIDGE@CARROCKINVEST.COM  
Agent (Name/Address/Phone/email): JAE EASTRIDGE / 704-780-7864  
JEASTRIDGE@CARROCKINVEST.COM

UPON RECEIPT OF APPLICATIONS, THE STAFF HAS THREE (3) WORK DAYS TO REVIEW ALL APPLICATIONS FOR COMPLETENESS. THE COMPLETED APPLICATIONS WILL BE REVIEWED FIRST BY THE BEAUFORT COUNTY PLANNING COMMISSION SUBCOMMITTEE RESPONSIBLE FOR THE AREA WHERE YOUR PROPERTY IS LOCATED. MEETING SCHEDULES ARE LISTED ON THE APPLICATION PROCESS (ATTACHED). COMPLETE APPLICATIONS MUST BE SUBMITTED BY NOON THREE WORKING DAYS AND FOUR (4) WEEKS PRIOR FOR PLANNED UNIT DEVELOPMENTS (PUDs) OR THREE (3) WEEKS PRIOR FOR NON-PUD APPLICATIONS TO THE APPLICABLE PLANNING COMMISSION MEETING DATE.

PLANNED UNIT DEVELOPMENT (PUD) APPLICANTS ARE REQUIRED TO SUBMIT FIFTEEN (15) COPIES TO THE PLANNING DEPARTMENT. CONSULT THE APPLICABLE STAFF PLANNER FOR DETAILS.

FOR MAP AMENDMENT REQUESTS, THE PLANNING OFFICE WILL POST A NOTICE ON THE AFFECTED PROPERTY AS OUTLINED IN DIV. 7.4.50 OF THE COMMUNITY DEVELOPMENT CODE.

CONTACT THE PLANNING DEPARTMENT AT (843) 255-2140 FOR EXACT APPLICATION FEES.

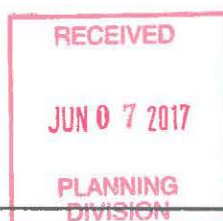
FOR PLANNING DEPARTMENT USE ONLY:

Date Application Received:  
(place received stamp below)

Date Posting Notice Issued:

Application Fee Amount Received:

Receipt No. for Application Fee:





## Text Amendment Analysis

**Section 7.3.30: Code Text Amendment Review Standards.** The advisability of amending the text of this Development Code is a matter committed to the legislative discretion of the County Council and is not controlled by any one factor. In determining whether to adopt or deny the proposed text amendment, the County Council shall weigh the relevance of and consider whether, and the extent to which, the proposed amendment:

1. Is consistent with the goals, objectives, and policies of the Comprehensive Plan;

**Comment:** The Community Preservation (CP) District implements the future land use designation of Residential in Chapter 4 of the Comprehensive Plan. The future land use designation calls for a mix of housing types and pedestrian access to services and facilities. Removing barriers to the development of Community Residence housing type furthers this goal in the Comprehensive Plan. The Comprehensive plan also recommends that the county continue to evaluate the effectiveness of existing CP Plans and zoning districts and make revisions as warranted.

In addition, the Affordable Housing section (chapter 8) of the Comprehensive Plan indicates a greater range of housing types will be essential to meet the anticipated demographic phenomenon caused by the baby boomer generation. Beaufort County should support mix housing types within developments wherever possible to accommodate various incomes, ages, and special needs. The plan specifically states "More infill development for elderly residents, weather working or retired is needed in urban locations near facilities they frequent, **especially assisted living and continuing care facilities**. Special high-density provisions may be required to accommodate this need."

2. Is not in conflict with any provision of this Development Code or the Code of Ordinances;

**Comment:** The proposed text change does not conflict with any other provisions of the Code of Ordinances.

3. Is required by changed conditions;

**Comment:** Not Applicable.

4. Addresses a demonstrated community need;

**Comment:** Community Residence development is permitted in the district to encourage a mix of housing types in Beaufort County and to provide additional housing types in areas of the county in proximity to retail and services. Removing a Regulatory barrier to the creation of community residence (assisted living) housing for seniors furthers these community needs

5. Is consistent with the purpose and intent of the zones in this Development Code, or would improve compatibility among uses and ensure efficient development within the County;

**Comment:** The CP District currently allows Community Residence as a Traditional Community Plan use. The proposed addition to allow as a Special use with conditions still ensures that new developments are compatible with the surrounding neighborhoods. The special use will also require the community residence project specific sites are reviewed by the zoning board of appeals and notify adjacent properties of the development plans.

6. Would result in a logical and orderly development pattern; and

**Comment:** The proposed amendment would provide greater opportunity and flexibility in the development of community residence in the CP district while maintaining requirements that development is compatible with surrounding neighborhood character in size, scale, and architecture. New Community Residence developments will also be reviewed by the Beaufort County Design Review Board to ensure that these conditions are being met.

7. Would not result in adverse impacts on the natural environment, including but not limited to water, air, noise, stormwater management, wildlife, vegetation, wetlands, and the natural functioning of the environment.

**Comment:** The proposed amendment does not change the size or intensity of community residence developments in the CP district. New community residence developments in CP will still be subject to the same environmental and stormwater requirements.



**Division A.2: Lady's Island Community Preservation District (LICP)**

**Table A.3.40.A: Lady's Island Community Preservation Land Uses**

| <b>Land Use</b>                                       | <b>Use Definition</b>   | <b>Use Permission</b> |
|---|---|-----------------------|
| <b>Residential</b>                                    |   |                       |
| Single-family detached                                | Detached dwelling unit intended for only one family. Includes any one family dwelling unit, which complies with the Beaufort County Building Code.  | C                     |
| Single-family cluster                                 | Two or more single-family detached residential uses in a subdivision, or on an individual lot that include, as part of the subdivision or lot design, significant common open space that meets the standards in Article 2, Division 2.8.  | C                     |
| Traditional Community Plan                            | See Article 2, Division 2.3 (Traditional Community Plans)   | C                     |
| Multifamily   | A building containing two or more dwelling units, specifically permitting duplexes, mansion apartments, and apartment houses.   | C                     |
| Accessory dwelling unit                               | A second dwelling unit, clearly subordinate to the principal unit, either in or added to an existing single-family detached dwelling, or in a separate accessory structure on the same lot as the main dwelling, for use as a complete independent living facility. Maximum building size shall not exceed 50% of the principal unit's floor area.  | C                     |
| Family compound                                       | Form of traditional rural development which provides affordable housing for family members allowing additional family dwelling units on, and/or subdivisions of, a single lot owned by the same family for at least 50 years (see Article 2, Section 2.7.40).   | C                     |
| Group home  | Residential facility for nine or fewer mentally or physically handicapped persons providing care on a 24-hour basis and licensed by a state agency or department, or is under contract with a state agency or department, for that purpose.   | C                     |
| Home occupation                                       | A business, profession, occupation or trade located entirely within a residential dwelling, which does not change the essential character of the residential use.   | C                     |
| Home business   | A business operated out of a single-family residence and accessory structures that permits the employment of up to three unrelated individuals. This includes independent contractors operating from the facility. Farm workers are not included. Uses shall be limited to office and service types, carpentry, upholstery, woodworking, potteries, glasswork and other similar uses; wholesale or retail sales are prohibited on-premises. | C                     |
| <b>Offices and Services</b>                           |   |                       |
| Day care, family                                      | A facility in a private home that is operated by one or more persons duly licensed or qualified to be licensed by the state for the purpose of providing child day care for one to not more than eight children at any one time, who are not relatives of the day care provider. (NAICS 62441)  | P                     |
| <b>Recreation, Education, Safety, Public Assembly</b> |   |                       |
| Public services                                       | These uses include emergency service, buildings, or garages, (e.g., ambulance, fire, police, rescue, and public works) or other garages or areas where vehicles are stored and dispatched. (NAICS 62191, 92212, 92216, see "Office" uses, below)  | P                     |
| Religious establishments (large)                      | Establishments engaged in operating religious organizations, such as churches, religious temples and /or establishments primarily engaged in administering an organized religion or promoting religious activities with or without schools (except Sunday schools occupying no more than 50% of the floor area) as part of the complex and having 15,000 or greater square feet of floor area (NAICS 813110).                               | S                     |

"P" indicates a Use that is Permitted By Right.

"C" indicates a Use that is Permitted with Conditions.

"S" indicates a Use that is Permitted as a Special Use.

"TCP" indicates a Use that is permitted only as part of a Traditional Community Plan under the requirements in Division 2.3



## Division A.2: Lady's Island Community Preservation District (LICP)

| Table A.3.40.A: Lady's Island Community Preservation Land Uses (continued)        |  |                |
|---|--|----------------|
| Land Use  | Use Definition   | Use Permission |
| <b>Recreation, Education, Safety, Public Assembly (continued)</b>                 |  |                |
| Religious establishments (small)  | Establishments engaged in operating religious organizations, such as churches, religious temples and /or establishments primarily engaged in administering an organized religion or promoting religious activities with no schools (except Sunday schools occupying no more than 50% of the floor area) as part of the complex and having less than 15,000 square feet of floor area.  | S              |
| Local utility   | Utility substations or transmission and local distribution facilities, including telephone, and all government-owned utilities. Not included are generation facilities, storage of combustibles, regional facilities, and landfills or mining operations. (NAICS 221122, 221211)   | S              |
| Outdoor recreation  | <ol style="list-style-type: none"> <li>1. Active recreational activities and supporting services including, but not limited to: jogging, cycling, tot lots, playing fields, playgrounds, outdoor swimming pools, and tennis courts (NAICS 71113); fishing clubs; marinas.</li> <li>2. Passive recreational uses including, but not limited to: arboreturns, wildlife sanctuaries, forests, areas for hiking, nature areas, and other passive recreation-oriented parks</li> <li>3. Picnic areas, garden plots, and beaches.</li> </ol> | C              |
| Schools, neighborhood (elementary and middle school) and community (high schools) | Institutions of learning or instruction primarily catering to minors, whether public or private, which are licensed by either the county or the State of South Carolina. The definition includes nursery schools, kindergarten, elementary schools, middle schools, senior high schools or any special institution of learning under the jurisdiction of the state department of education catering to those age groups. This does not include charm schools, dancing schools, music schools or similar limited schools. (NAICS 61111) | S              |
| <b>Infrastructure, Transportation, Communications</b>                             |  |                |
| Commercial communications towers  | A tower, pole or similar structure, which supports a telecommunications antenna, operated for commercial purposes above ground in a fixed location, freestanding or guyed, or atop a structure. This does not include television antennas or satellite dishes. Towers for radio or television station use are regulated as regional utilities.   | S              |
| <b>Temporary Uses</b>   |  |                |
| Construction staging or plant   | A concrete or asphalt batch plant, or metal forming and cutting facility assembled on the site or located no more than one mile from the site where the construction of a particular road, infrastructure or building is to take place. Such facilities shall be removed within one year.  | S              |
| Contractor's office   | Security guard buildings and structures, construction equipment sheds, contractor's trailers and similar uses incidental to a construction project. Limited sleeping and/or cooking facilities may also be permitted.  | P              |
| Model homes sales office  | A dwelling unit or modular unit in a subdivision used as a sales office for that subdivision.  | P              |
| <b>Traditional Community Plan Uses</b>  |  |                |
| Single-Family attached  | A structure containing one dwelling unit on a single lot and connected along a property line to another dwelling unit on an adjoining lot by a common wall or other integral part of the principal building such as a breezeway or carport.  | TCP            |

"P" indicates a Use that is Permitted By Right.

"C" indicates a Use that is Permitted with Conditions.

"S" indicates a Use that is Permitted as a Special Use.

"TCP" indicates a Use that is permitted only as part of a Traditional Community Plan under the requirements in Division 2.3



Table A.3.40.A: Lady's Island Community Preservation Land Uses (continued)

| Land Use   | Use Definition  | Use Permission |
|--|---|----------------|
| <b>Traditional Community Plan Uses (continued)</b>       |   |                |
| Live/Work  | An integrated housing unit and working space, occupied and utilized by a single household in a structure that has been designed or structurally modified to accommodate joint residential occupancy and work activity, and which includes: complete kitchen, living, and sleeping space and sanitary facilities in compliance with the Building Code, and working space reserved for and regularly used by one or more occupants of the unit. Workspace is limited to a maximum fifty percent (50%) of the structure and located on the first floor with living space located to the rear or above. Activities are limited to those uses permitted in the underlying Zone in which the Live/Work unit is located.   | TCP            |
| General Retail<br>3,500 SF or less                       | Stores and shops that sell and/or rent goods and merchandise to the general public. This category does not include "Open Air Retail," "Vehicle Sales and Rental," or "Gas Stations/Fuel Sales."   | TCP            |
| Gas Stations/Fuel Sales                                  | An establishment where petroleum products are dispensed for retail sale. This use may include a retail convenience store and/or a single bay carwash. It does not include towing, vehicle body or engine repair (see "Vehicle Services"), or overnight vehicle storage.   | TCP            |
| Restaurant, Café,<br>Coffee Shop                         | A retail business selling ready-to-eat food and/or beverages for on- or off-premise consumption. These include eating establishments where customers are served from a walk-up ordering counter for either on- or off-premise consumption; and establishments where customers are served food at their tables for on-premise consumption, which may also provide food for take-out, but does not include drive-through services, which are separately defined and regulated. This use includes all mobile kitchens.   | TCP            |
| General Offices &<br>Services: 3,500 SF<br>or less       | <ol style="list-style-type: none"> <li>1. Bank/Financial Services. Financial institutions, including, but not limited to: banks, credit agencies, investment companies, security and commodity exchanges, ATM facilities.</li> <li>2. Business Services. Establishments providing direct services to consumers, including, but not limited to: employment agencies, insurance agent offices, real estate offices, travel agencies, landscaping and tree removal companies, exterminators, carpet cleaners, and contractors' offices without exterior storage.</li> <li>3. Business Support Services. Establishments providing services to other businesses, including, but not limited to: computer rental and repair, copying, quick printing, mailing and mailbox services.</li> <li>4. Personal Services. Establishments providing non-medical services to individuals, including, but not limited to: barber and beauty shops, dry cleaners, small appliance repair, laundromats, massage therapists, pet grooming with no boarding, shoe repair shops, tanning salons, funeral homes. These uses may include incidental retail sales related to the services they provide.</li> <li>5. Professional and Administrative Services. Office-type facilities occupied by businesses or agencies that provide professional or government services, or are engaged in the production of intellectual property.</li> </ol> | TCP            |
| Animal Services:<br>Clinic/Hospital                      | An establishment used by a veterinarian where animals are treated. This use may include boarding and grooming as accessory uses.  | TCP            |
| Day Care:<br>Commercial<br>Center (9 or<br>more clients) | A state-licensed facility that provides non-medical care and supervision for more than 8 adults or children, typically for periods of less than 24 hours per day for any client. Facilities include, but are not limited to: nursery schools, preschools, after-school care facilities, and daycare centers.  | TCP            |
| Lodging: Bed &<br>Breakfast (5<br>rooms or less)         | The use of a single residential structure for commercial lodging purposes, with up to 5 guest rooms used for the lodging of transient guests and in which meals may be prepared for them, provided that no meals may be sold to persons other than such guests, and where the owner resides on the property as his/her principal place of residence.  | TCP            |

"TCP" indicates a Use that is permitted only as part of a Traditional Community Plan under the requirements in Division 2.3

**Division A.2: Lady's Island Community Preservation District (LICP)**

| Table A.3.40.A: Lady's Island Community Preservation Land Uses (continued) |  |                |
|--|--|----------------|
| Land Use   | Use Definition   | Use Permission |
| <b>Traditional Community Plan Uses (continued)</b>                         |  |                |
| Lodging: Bed & Breakfast (5 rooms or less)                                 | The use of a single residential structure for commercial lodging purposes, with up to 5 guest rooms used for the purpose of lodging transient guests and in which meals may be prepared for them, provided that no meals may be sold to persons other than such guests, and where the owner resides on the property as his/her principal place of residence.                                     | TCP            |
| Lodging: Inn (up to 24 rooms)  | A building or group of buildings used as a commercial lodging establishment having up to 24 guest rooms providing lodging accommodations to the general public. This includes the use of any dwelling unit for lodging accommodations on a daily or weekly rate to the general public.   | TCP            |
| Medical Service: Clinics/Offices   | See definition in Article 8, Table 3.1.70  | TCP            |
| Community Oriented Cultural Facility (less than 15,000 SF)                 | Public or non-profit facilities that provide educational and cultural experiences for the general public, examples of which include: aquariums, arboretums, art galleries, botanical gardens, libraries, museums, planetariums, civic centers and theaters predominantly used for live performances, and zoos. May also include accessory retail uses such as a gift/book shop, restaurant, etc. | TCP            |
| Community Residence (dorms, convents, assisted living, temporary shelters) | See definition in Article 8, Table 3.1.70  | TCP            |

"TCP" indicates a Use that is permitted only as part of a Traditional Community Plan under the requirements in Division 2.3

**A.2.50 Conditional and Special Use Standards**

This section describes the standards governing conditional and special uses as designated in Table A.3.40.A of this division. These standards are in addition to other standards required elsewhere in the Beaufort County Community Development Code (CDC), but supersede the conditional, special use, and accessory use standards in Article 4 of the CDC.

**A. Local Utility**

1. Reports/studies required. All applications for this use shall include an Area Impact Assessment (A.1.30.B), Environmental Impact Assessment (A.1.30C), and an Archaeological and Historic Impact Assessment (A.1.30.E).
2. In considering an application for a special use permit, the zoning board of appeals shall consider the justification for the location of the proposed utility service and any alternative locations which may be available. Utility agencies shall submit service radii or other locational criteria that demonstrate the need to place facilities in this district.
3. Additional buffers. The required perimeter buffer shall be increased by ten feet along common boundaries with residential uses or zones.
4. Screening and buffering consistent with Article 5, Division 5.8 of the CDC shall be required, unless specifically modified as part of the approved conditional or special use permit.

## Ordinance 2017/

AN ORDINANCE ADDING CHAPTER 38, ARTICLE 6: SINGLE-USE PLASTIC BAGS TO THE BEAUFORT COUNTY CODE OF ORDINANCES TO ENCOURAGE THE USE OF REUSABLE CHECKOUT BAGS AND RECYCLABLE PAPER CARRYOUT BAGS AND BANNING THE USE OF SINGLE-USE PLASTIC BAGS FOR RETAIL CHECKOUT OF PURCHASED GOODS IN THE UNINCORPORATED AREAS OF THE COUNTY

### Section 38-161 Purpose.

This chapter is adopted to improve the environment of the county by encouraging the use of reusable checkout bags and recyclable paper carryout bags and banning the use of single-use plastic bags for retail checkout of purchased goods. Business establishments are encouraged to make reusable bags available for sale and recyclable paper carryout bags available for distribution.

### Section 38-162 Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

- **Business Establishment.** Any commercial enterprise that provides carryout bags to its customers through its employees or independent contractors associated with the business. The term includes sole proprietorships, joint ventures, partnerships, corporations, or any other legal entity, whether for profit or not for profit.
- **Single-Use Plastic Carryout Bag.** A bag provided by a business establishment to a customer typically at the point of sale for the purpose of transporting purchases, which is made predominantly of plastic derived from either petroleum or a biologically-based source. "Single-use plastic carryout bag" includes compostable and biodegradable bags, but does not include reusable carryout bags.
- **Reusable Carryout Bag.** A carryout bag that is specifically designed and manufactured for multiple reuse, and meets the following criteria:
  - (1) Displays in a highly visible manner on the bag exterior, language describing the bag's ability to be reused and recycled;
  - (2) Has a handle; except that handles are not required for carryout bags constructed out of recyclable paper with a height of less than 14 inches and width of less than eight inches; and

- (3) Is constructed out of any of the following materials:
  - (a) Cloth, other washable fabric, or other durable materials, whether woven or non-woven; or
  - (b) Recyclable plastic, with a minimum thickness of 2.25 mils;

- **Customer.** A person who purchases merchandise from a business establishment.

#### **Section 38-163 Regulations.**

- (A) No person may provide single-use plastic carryout bags at any county facility, county-sponsored event, or any event held on county property.
- (B) No business establishment within the county limits may provide single use plastic carryout bags to its customers.
- (C) Business establishments within the county limits are strongly encouraged to provide prominently displayed signage advising customers of the benefit of reducing, reusing and recycling and promoting the use of reusable carryout bags and recyclable paper carryout bags by customers.
- (D) All business establishments shall provide or make available to a customer reusable carryout bags or recyclable paper bags.

#### **Section 38-164 Exemptions.**

This chapter shall not apply to:

- (A) Laundry dry cleaning bags, door-hanger bags, newspaper bags, or packages of multiple bags intended for use as garbage, pet waste, or yard waste;
- (B) Bags provided by pharmacists or veterinarians to contain prescription drugs or other medical necessities;
- (C) Bags used by a customer inside a business establishment to:
  - (1) Contain bulk items, such as produce, nuts, grains, candy, or small hardware items;
  - (2) Contain or wrap frozen foods, meat, or fish, whether or not prepackaged;
  - (3) Contain or wrap flowers, potted plants or other items to prevent moisture damage to other purchases; or
  - (4) Contain unwrapped prepared foods or bakery goods; and
- (D) Bags of any type that the customer bring to the store for their own use for carrying away from the store goods that are not placed in a bag provided by the store.

#### **Section 38-165 Effective Date and Waivers.**

All of the requirements set forth in this chapter shall take effect January 1, 2018. In the event that compliance with the effective date of this chapter is not feasible for a business establishment because of either unavailability of alternative checkout bags or economic hardship, County Council may grant a waiver of not more than 12 months upon application of the business owner or owner's representative.

**Section 38-166 Penalties.**

- (A) Any business establishment that violates or fails to comply with any of the provisions of this chapter after a written warning notice has been issued for that violation shall be deemed guilty of a misdemeanor. The penalty shall not exceed \$100 for a first violation; \$200 for a second violation within any 12-month period; and \$500 for each additional violation within any 12-month period. Each day that a violation continues will constitute a separate offense.
- (B) In addition to the penalties set forth in this section, repeated violations of this chapter by a person who owns, manages, operates, is a business agent of, or otherwise controls a business establishment may result in the suspension or revocation of the business license issued to the premises on which the violations occurred. No business license shall be issued or renewed until all fines outstanding against the applicant for violations of this chapter are paid in full.
- (C) Violation of this chapter is hereby declared to be a public nuisance, which may be abated by the county by restraining order, preliminary and permanent injunction, or other means provided for by law, and the county may take action to recover the costs of the nuisance abatement.

Adopted this \_\_\_\_\_ day of \_\_\_\_\_, 2017.

COUNTY COUNCIL OF BEAUFORT COUNTY

BY: \_\_\_\_\_  
D. Paul Sommerville, Chairman

APPROVED AS TO FORM:

\_\_\_\_\_  
Thomas J. Keaveny, II, Esquire  
Beaufort County Attorney

ATTEST:

---

Ashley M. Bennett, Clerk to Council

First Reading:

Second Reading:

Public Hearing:

Third and Final Reading:

## PLASTIC BAG FACT SHEET

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### **Facts About Single Use Plastic Bags in the Lowcountry**

- Each year The Ocean Conservancy organizes an international beach sweep. Last year, volunteers collected over a half million plastic bags. Plastic bags were the fifth most common item found on our beaches.
- In Beaufort County alone, 722 volunteers dedicated three hours of their time on a single day in September. Calculated at South Carolina's average hourly wage, that amounts to \$32,490 in man-hours. If we spent that much time cleaning up litter every day, we would invest over \$12 million.
- Americans use and throw away 100 billion plastic bags every year. Twelve million barrels of oil are used to create that many plastic bags. For comparison, that is about 12% of the amount of oil used by the entire state of South Carolina in 2015.
- There is a myth that plastic bags never decompose; in fact, Plastic bags easily break down in sunlight and seawater. However, they only break down into smaller and smaller pieces of plastic. When they are around 5 millimeter pieces, they are called microplastics. Microplastics never fully break down; they just degrade into smaller and smaller pieces.
- Microplastics are sponges for chemicals and toxins in the environment. Toxins are continually absorbed and released while plastics break down.
- Fish can easily eat microplastics. Other animals affected by plastic include mussels shrimp, and oysters. When we eat fish and shellfish we are also eating plastic.
- Plastic bag pollution impacts over 700 species of marine life worldwide.
- Sea turtles mistake plastic bags for jellyfish and eat them. The bags block their stomachs and can cause the turtles to starve to death. One turtle admitted to the Sea Turtle Hospital in Charleston had eaten at least twelve pieces of plastic bags.
- The average plastic bag is used for 12 minutes and only about 1% are recycled. Instead, they take up space in local landfills.
- Plastic bag litter can clog storm drains. This can cause flooding or standing water that is ideal for mosquitoes.
- Plastic bags are lightweight and can "balloon" out. This makes it easy for the wind to pick them up and carry them from trashcans or recycling bins.
- Plastic bags are expensive, difficult to dispose of and hard to recycle. In Charleston County, recycling facilities no longer accept plastic bags. Christina Moskos, recycling coordinator, says, "[we] have to shut down the sorting line to pull the plastic bags out of the rotors in the machinery."



Map Satellite



Map navigation controls including a person icon, a plus sign (+), and a minus sign (-).



[Home](#) / [Plastic Bag Ban Map](#)

2K

446

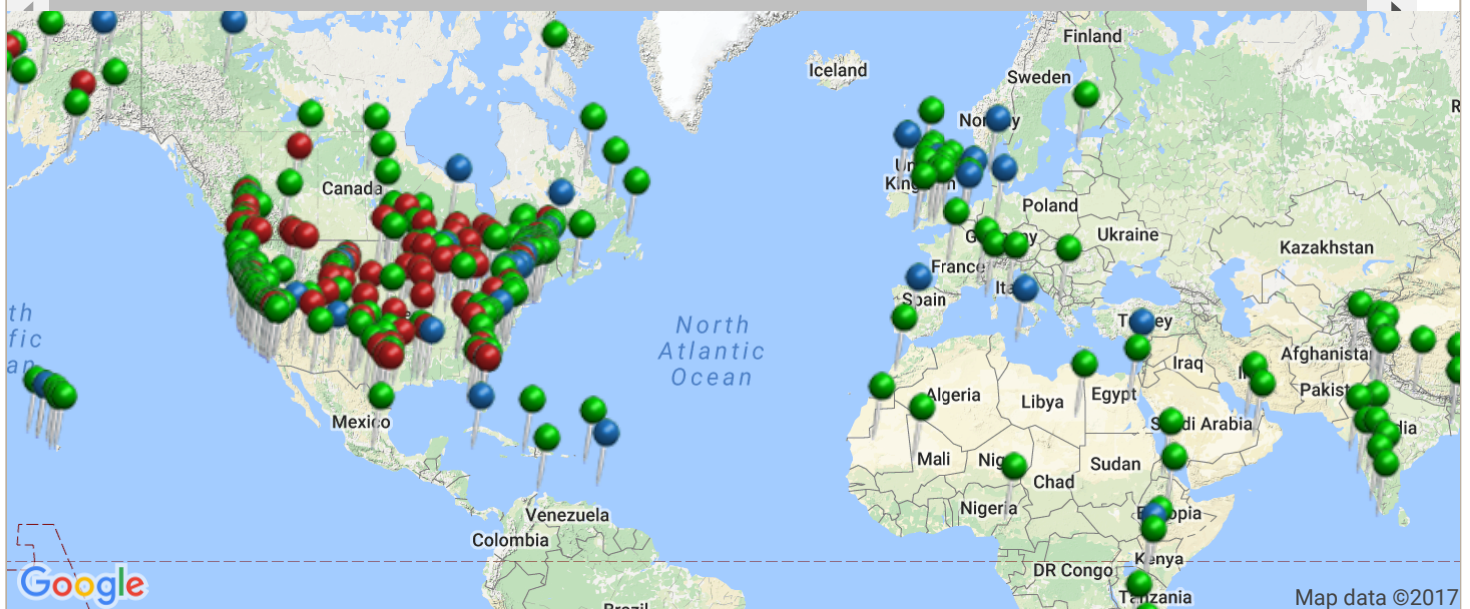
# Plastic Bag Ban Locations




## California

### Bag Ban

**Cities:** California

California lawmakers approved a disposable plastic bag ban in 2014. The matter was put on hold and added to the November



-  = Plastic Bags Banned
-  = Plastic Bag Usage Fee
-  = Plastic Bag Ban Failed

**CHOOSE THE  
RIGHT FABRIC  
FOR YOUR  
CUSTOM BAGS**



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Control &  
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## Understanding the Need for Reusable Bags

Why are more and more cities and states beginning to ban plastic bags? One-time use plastic bags are causing destruction throughout the world. These non-biodegradable bags are responsible for unsightly litter, flooding, the degradation of soil, creating an unnecessary expense, wasting petroleum (a non-renewable resource) and natural gas, and causing the deaths of hundreds of thousands of animals a year.

- ▶ Globally, ~500 billion to 1 trillion plastic bags are consumed per year – Over 1 million bags per minute
- ▶ Millions of sea animals die from plastic bags and other waste each year
- ▶ Retail businesses spend about \$4 billion each year on plastic bags

- ▶ Only 8% of the total plastic waste generated in the US in 2010 was recycled
- ▶ The United Nations Environment Program estimates 46,000 pieces of plastic litter floating in every square mile of ocean
- ▶ Americans throw away about 1 billion plastic bags a year, equivalent to dumping ~12 million barrels of oil

The [drawbacks of disposable plastic bags far outweigh the advantages](#) and cities, counties, states and even countries all over the world are looking for solutions to their plastic bag problems.

## Tracking the Plastic Bag Ban Progress – Interactive Map

Our interactive Plastic Bag Ban Map offers breaking news and current information, making it easy to examine and scrutinize the always changing, varied and wide-ranging solutions municipalities and governments put into action to resolve the same problem – how to address the abundance of plastic shopping bags.

Click on the color-coded pins to find out why various locations prohibit plastic bags, uncover where efforts were unsuccessful and discover the path some locations have taken to put a tax or fee in place on disposable bags. **Check out our list of U.S. [cities that have banned plastic bags or implemented fees](#).**

## Join the Plastic Bag Ban Movement

Are you ready to join us in this Bag Ban Movement? **Please feel free to copy and paste the code above to share our interactive bag ban map on your website, personal or corporate blog.**

Also, feel free to leave a comment with your thoughts on the movement, any updates on what we are missing, where bag ban initiatives off the ground, or just let us know if you are with us in this movement to create a more sustainable future.

### Sources:

<http://www.epa.gov/osw/conserve/materials/plastics.htm>

[http://www.ehow.com/facts\\_5552588\\_harmful-plastic-bags.html](http://www.ehow.com/facts_5552588_harmful-plastic-bags.html)

<http://www.factorydirectpromos.com/life-cycle-of-a-plastic-bag>

## Share The Map, Support The Movement, Comment Below

### Add The Map (Size: 650px x 364px)

```
<a href="http://www.factorydirectpromos.com/plastic-bag-bans" title="Plastic Bag Ban Map"></a>
```

### Share Our Badge (Size: 215px x 150px)

```
<a href="http://www.factorydirectpromos.com/plastic-bag-bans" title="Plastic Bag Ban Map">  </a>
```

*Copy and paste the code above to share our interactive bag ban map on your website, personal or corporate blog.*

## What Do You Think?

Tell us if you support bag bans or bag fees, fill us in on bag ban updates you know about but don't see on the map, and tell us about your efforts or the work of others to get the bag ban initiatives off the ground!

39 Comments

Sort by **Newest**



Add a comment...



### Now for some good news

Hi, can you please put red pins in Melbourne, Australia as we still do not have a plastic bag ban despite it being 2017! Thanks

Like · Reply · Aug 9, 2017 12:18pm



**Marina O'Boyle** · Interpretive Naturalist at Oregon State Parks

How do I copy the full image? I am an Interpretive Ranger and would like to include this map in a presentation about beach cleanup. (and site your organization, of course 😊 )

Like · Reply · Aug 3, 2017 4:20pm



**Silver Seagar** · Owner at Self-Employed

Hi, You have 2 green pins in NZ - Gisborne and Christchurch. To my knowledge these places are not plastic bag free, they do have groups that are working on community initiated pbr groups. These towns do not have a plastic bag ban. Please can you tell me where you got your info from? Thanks!

Like · Reply · 1 · Apr 7, 2017 4:00pm



### Factory Direct Promos

Hi Silver, we have a person on staff, Alison, who is our resident bag ban maven. She scours the Internet and receives daily updates on bag bans throughout the world. But we need folks like you in our community too that let us know when you have info like this. Thank you! We are on it. - Shane

Like · Reply · 1 · Apr 10, 2017 10:49am



**Jeanie Williams** · Lead Scientist and Education Specialist at Inland Seas Education Association

Previous versions of this also showed the places bag bans failed - I think this is good information to share, to show the opposition. I appreciate need for a positive message, however. Also, I am from MI and wherever Muskegon is on their ban proposal, it is now dead after a new state law makes it illegal for an municipality to create its own ordinance regarding plastic bags, or any other container.

Like · Reply · 2 · Feb 28, 2017 2:39pm



### Factory Direct Promos

Hi Jeanie, thank you for stopping by. We do keep this bag ban map updated but occasionally our red pins disappear! We have alerted our resident bag ban map webmaster and he is working to fix the problem. As far as Michigan goes, thanks for the info and you can check out our latest post on the subject <http://www.factorydirectpromos.com/.../the-pros-and-cons....> Our parent company, SBS Brands, is headquartered in Michigan and I am an MSU grad so this is something we are keeping our eye on and hope we will see some movement on. - Shane

Like · Reply · 1 · Mar 7, 2017 12:48pm



**Jeanie Williams** · Lead Scientist and Education Specialist at Inland Seas Education Association

Factory Direct Promos Thanks, Shane! Upon re reading my post it appears I'm a little down on your work, but quite the opposite is true! I love this site and what it's trying to do and I find it impressive that each pin has a story attached. I use this image for presentations I do about microplastics and folks always find it interesting. Thanks for your reply and this website. Movement on this issue would be great, I'm in!

Like · Reply · 1 · Mar 7, 2017 8:18pm



### Factory Direct Promos

Jeanie Williams Our red pins are back! Looks like we have a pin stealer...seriously this is a labor

of love for us and when we get great feedback from folks like you, it makes our day! Thank you for all you do to help our environment too. - Shane

Like · Reply · 2 · Mar 13, 2017 11:05am



**Maija Bigestans** · Teacher at Marikas mode och dansstudio

This is excellent! Are you still updating this?

Like · Reply · 1 · Feb 17, 2017 10:47am



**Factory Direct Promos**

Yes we are Maija! We are so glad you find it useful. Be sure to like us on Facebook to stay in touch. 😊 Shane

Like · Reply · 3 · Feb 28, 2017 1:05pm

[Load 10 more comments](#)

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Facebook Comments Plugin



# South Carolina Legislature

## Session 122 - (2017-2018)

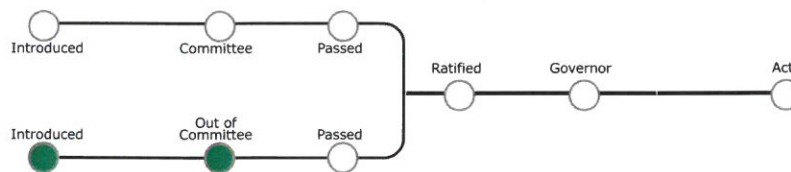
**H 3529 General Bill, By Bedingfield, Sandifer, Hamilton, Forrester, Atwater, Yow, Clemmons, Crawford, Fry, Hill, Lowe, Pitts, Putnam, Anderson, Martin and G.R. Smith**

**Summary:** Auxiliary containers

A BILL TO AMEND THE CODE OF LAWS OF SOUTH CAROLINA, 1976, BY ADDING CHAPTER 77 TO TITLE 39 SO AS TO PROVIDE THAT ANY REGULATION REGARDING THE USE, DISPOSITION, SALE, OR ANY IMPOSITION OF ANY PROHIBITION, RESTRICTION, FEE IMPOSITION, OR TAXATION OF AUXILIARY CONTAINERS MUST BE DONE ONLY BY THE GENERAL ASSEMBLY, TO DEFINE AUXILIARY CONTAINER, TO PROVIDE FOR LEGISLATIVE FINDINGS, AND TO PROVIDE FOR EXCEPTIONS.

The following graphic is a general description of the legislation's status. Users must reference the bill history and the respective journals of the House and Senate for detailed status information.

**SC Senate >>**



**SC House >>**

- 01/18/17House Introduced and read first time ([House Journal-page 19](#))
- 01/18/17House Referred to Committee on Labor, Commerce and Industry ([House Journal-page 19](#))
- 01/19/17House Member(s) request name added as sponsor: Putnam
- 01/25/17House Member(s) request name added as sponsor: Henderson
- 02/01/17House Member(s) request name removed as sponsor: Henderson
- 02/02/17House Member(s) request name added as sponsor: Anderson
- 02/02/17House Committee report: Favorable with amendment Labor, Commerce and Industry ([House Journal-page 1](#))
- 02/07/17House Member(s) request name added as sponsor: Martin, G.R.Smith
- 02/07/17House Requests for debate-Rep(s). Bedingfield, Toole, Brown, Hiott, Mack, Cogswell, Crosby, Danning, Arrington, Clary, Bernstein, Stavrinakis, McCoy, Henderson, Burns, B Newton, Martin, Forrester, Robinson-Simpson, Dilliard, Mitchell, Norrell, GR Smith, VS Moss, Cobb-Hunter, McEachern, Ridgeway, Douglas, W Newton, Erickson, Clemmons, Williams, Ott, Knight, King, Bradley, Finlay, Henegan, Johnson, S Rivers, Yow, Jefferson ([House Journal-page 16](#))
- 02/23/17House Debate adjourned until Tues., 2-28-17 ([House Journal-page 12](#))
- 02/28/17House Debate adjourned until Wed., 3-1-17 ([House Journal-page 12](#))
- 03/01/17House Debate adjourned until Thur., 3-1-17 ([House Journal-page 14](#))
- 03/02/17House Debate adjourned until Tues., 3-7-17 ([House Journal-page 28](#))
- 03/07/17House Amended ([House Journal-page 83](#))
- 03/07/17House Continued ([House Journal-page 83](#))

**South Carolina General Assembly**  
122nd Session, 2017-2018

**H. 3529**

**STATUS INFORMATION**

General Bill

Sponsors: Reps. Bedingfield, Sandifer, Hamilton, Forrester, Atwater, Yow, Clemmons, Crawford, Fry, Hill, Lowe, Pitts, Putnam, Anderson, Martin and G.R. Smith

Document Path: l:\council\bill\dk\3054sa17.docx

Introduced in the House on January 18, 2017

Last Amended on March 7, 2017

Continued by the House on March 7, 2017

Summary: Auxiliary containers

**HISTORY OF LEGISLATIVE ACTIONS**

| Date      | Body  | Action Description with journal page number  |
|-----------|-------|--|
| 1/18/2017 | House | Introduced and read first time ( <a href="#">House Journal-page 19</a> )   |
| 1/18/2017 | House | Referred to Committee on <b>Labor, Commerce and Industry</b> ( <a href="#">House Journal-page 19</a> )   |
| 1/19/2017 | House | Member(s) request name added as sponsor: Putnam  |
| 1/25/2017 | House | Member(s) request name added as sponsor: Henderson   |
| 2/1/2017  | House | Member(s) request name removed as sponsor: Henderson   |
| 2/2/2017  | House | Member(s) request name added as sponsor: Anderson  |
| 2/2/2017  | House | Committee report: Favorable with amendment <b>Labor, Commerce and Industry</b> ( <a href="#">House Journal-page 1</a> )  |
| 2/7/2017  | House | Member(s) request name added as sponsor: Martin, G.R.Smith   |
| 2/7/2017  | House | Requests for debate-Rep(s). Bedingfield, Toole, Brown, Hiott, Mack, Cogswell, Crosby, Danning, Arrington, Clary, Bernstein, Stavrinakis, McCoy, Henderson, Burns, B Newton, Martin, Forrester, Robinson-Simpson, Dilliard, Mitchell, Norrell, GR Smith, VS Moss, Cobb-Hunter, McEachern, Ridgeway, Douglas, W Newton, Erickson, Clemmons, Williams, Ott, Knight, King, Bradley, Finlay, Henegan, Johnson, S Rivers, Yow, Jefferson ( <a href="#">House Journal-page 16</a> ) |
| 2/23/2017 | House | Debate adjourned until Tues., 2-28-17 ( <a href="#">House Journal-page 12</a> )  |
| 2/28/2017 | House | Debate adjourned until Wed., 3-1-17 ( <a href="#">House Journal-page 12</a> )  |
| 3/1/2017  | House | Debate adjourned until Thur., 3-1-17 ( <a href="#">House Journal-page 14</a> )   |
| 3/2/2017  | House | Debate adjourned until Tues., 3-7-17 ( <a href="#">House Journal-page 28</a> )   |
| 3/7/2017  | House | Amended ( <a href="#">House Journal-page 83</a> )  |
| 3/7/2017  | House | Continued ( <a href="#">House Journal-page 83</a> )  |

View the latest [legislative information](#) at the website

**VERSIONS OF THIS BILL**

[1/18/2017](#)

[2/2/2017](#)

[3/7/2017](#)

1  
2 AMENDED--NOT PRINTED IN THE HOUSE  
3 Amt. No. 1 (3529C002.DKA.SA18.docx)  
4 Amt. No. 2 (3529C004.NBD.CZ17.docx)  
5 March 7, 2017  
6

7 **H. 3529**  
8

9 Introduced by Reps. Bedingfield, Sandifer, Hamilton, Forrester,  
10 Atwater, Yow, Clemmons, Crawford, Fry, Hill, Lowe, Pitts,  
11 Putnam and Anderson  
12

13 S. Printed 2/2/17--H.

14 Read the first time January 18, 2017.  
15 \_\_\_\_\_  
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**A BILL**

TO AMEND THE CODE OF LAWS OF SOUTH CAROLINA, 1976, BY ADDING CHAPTER 77 TO TITLE 39 SO AS TO PROVIDE THAT ANY REGULATION REGARDING THE USE, DISPOSITION, SALE, OR ANY IMPOSITION OF ANY PROHIBITION, RESTRICTION, FEE IMPOSITION, OR TAXATION OF AUXILIARY CONTAINERS MUST BE DONE ONLY BY THE GENERAL ASSEMBLY, TO DEFINE AUXILIARY CONTAINER, TO PROVIDE FOR LEGISLATIVE FINDINGS, AND TO PROVIDE FOR EXCEPTIONS.

Amend Title To Conform

Be it enacted by the General Assembly of the State of South Carolina:

SECTION 1. Title 39 of the 1976 Code is amended by adding:

“CHAPTER 77

Auxiliary Containers

Section 39-77-10. The General Assembly finds that:  
(1) prudent regulation of auxiliary containers is crucial to the welfare of the state’s economy;  
(2) retail and food establishments are sensitive to the costs and regulation of auxiliary containers; and  
(3) if individual political subdivisions of the State regulate auxiliary containers, there exists the potential for varying regulations which could lead to unnecessary increased costs for retail and food establishments to comply with the regulations.



1 Section 39-77-20. As used in this chapter, 'auxiliary container'  
2 means a bag, cup, package, container, bottle, or other packaging  
3 that is:

4 (1) designed to be either reusable or single-use;

5 (2) made of cloth, paper, plastic, including foamed or expanded  
6 plastic, cardboard, expanded polystyrene, corrugated material,  
7 aluminum, glass, postconsumer recycled, or similar material or  
8 substrates, including coated, laminated, or multilayer substrates;  
9 and

10 (3) designed for, but not limited to, consuming, transporting, or  
11 protecting merchandise, food, or beverages from or at a food  
12 service or retail facility.

13

14 Section 39-77-30. (A) Any regulation regarding the use,  
15 disposition, sale, or any imposition of any prohibition, restriction,  
16 fee imposition, or taxation of auxiliary containers must be done  
17 only by the General Assembly. This chapter supersedes and  
18 preempts any ordinance enacted by a political subdivision that  
19 purports to regulate the use, disposition, sale, or any imposition of  
20 any prohibition, restriction, fee imposition, or taxation of auxiliary  
21 containers at the retail, manufacturer, or distributor level.

22 (B) Nothing in this chapter may be construed to prohibit or  
23 limit any county or municipal ordinance regulating solid waste,  
24 any agreement pertaining to the disposal of solid waste, curbside  
25 recycling program, designated residential or commercial recycling  
26 locations, or commercial recycling program.

27 (C) The provisions of this chapter do not apply to the use of  
28 auxiliary containers within the boundaries of a State park, on a  
29 property owned by a county or municipality including, but not  
30 limited to, coastal tidelands and wetlands, or on a public beach  
31 maintained by a coastal county or municipality.

32 (D) The provisions of this chapter apply to auxiliary container  
33 regulations enacted after January 1, 2017.”

34

35 SECTION 2. This act takes effect upon approval by the Governor  
36 and applies to auxiliary container regulations enacted after the  
37 effective date of this act.

38 ----XX----

39

**A RESOLUTION  
ADOPTING THE LADY'S ISLAND CORRIDOR STUDY**

**WHEREAS**, Beaufort County, in conjunction with the City of Beaufort, had a corridor study prepared for the Sea Island Parkway corridor on Lady's Island; and

**WHEREAS**, the study included taking current traffic counts, projecting trips from future development, and modeling future traffic conditions; and

**WHEREAS**, public meetings regarding the study were held in September 2016 and February 2017; and

**WHEREAS**, meetings were held with project stakeholders and property owners directly impacted by the project's recommendations; and

**WHEREAS**, the final study report was presented to the Beaufort-Port Royal Metropolitan Planning Commission at their meeting on July 17, 2017, and the Beaufort County Planning Commission at their meeting on August 7, 2017 with both Commissions recommending approval; and

**WHEREAS**, the study was coordinated with the Beaufort County Traffic and Transportation Engineer and the South Carolina Department of Transportation; and

**WHEREAS**, the Beaufort County desires that the appropriate projects be added to the County's Transportation Capital Improvement Plan (CIP).

**NOW, THEREFORE, BE IT RESOLVED**, by Beaufort County Council that the Lady's Island Corridor Study dated May 19, 2017 (the Study) is approved and adopted. The Study, and the appropriate projects therein, shall be added to Beaufort County's Transportation Capital Improvement Plan (CIP).

Adopted this \_\_\_\_ day of August 2017.

COUNTY COUNCIL OF BEAUFORT COUNCIL

By: \_\_\_\_\_  
D. Paul Sommerville, Chairman

APPROVED AS TO FORM:

\_\_\_\_\_  
Thomas J. Keaveny, II, Esquire  
Beaufort County Attorney

ATTEST:

\_\_\_\_\_  
Ashley M. Bennett, Clerk to Council



## MEMORANDUM

**To:** Natural Resource Committee of Beaufort County Council  
**From:** Anthony Criscitiello, Beaufort County Community Development Director  
**Subject:** Lady's Island Corridor Study (Stantec Report)  
**Date:** August 17, 2017

---

**PLANNING COMMISSION RECOMMENDATION from the excerpt of its August 7, 2017, draft minutes:**

Mr. Criscitiello briefed the Commission that the Metropolitan Planning Commission recommended approval of the study. Mr. Criscitiello noted in the audience to provide support were the City of Beaufort Planning Director Libby Anderson and County Transportation Engineer Colin Kinton. Mr. Kinton provided comments on the Stantec Report (Lady's Island Corridor Study). Mr. Criscitiello noted that the City of Beaufort has adopted a resolution to support the Stantec Report. Similarly, a resolution will be going to Beaufort County Council to support the Stantec Report, with the Planning Commission recommendation. Mr. Criscitiello noted that the Planning Commission will see this Study again because it will amend the County Comprehensive Plan—the Priority Investment and the Transportation Elements. The Report has prioritized and included the estimated funding costs for each of nine proposed projects totaling \$28 million. He noted that some projects are interdependent, and must be accompanied or preceded by other projects. He noted that collectively speaking the projects make sense. Mr. Criscitiello noted that Mr. Kinton was available to answer any questions regarding the nine proposed projects in the Study.

Discussion by Commission included the project priorities totaling \$28.8 million; stating confidence in the Stantec study; clarification on the multitude of funding sources; noting that projected future needs were included in the study; concern with the next steps so that the study will not sit in the archives gathering dust; concern with updating the study data as time progresses; and concern with who would take ownership of the study (*Mr. Criscitiello noted that the Planning Commission and staff of each affected government jurisdiction would take ownership of the study and related ordinances. He also noted that staff is proposing to develop a Lady's Island Plan to be incorporated in the Beaufort County Comprehensive Plan.*).

**Public Comment:**

1. Mr. Chuck Newton speaking on behalf of the Sea Island Corridor Coalition stated that they supported the study and its recommendations. The City responded well to traffic concerns. The County responded equally well regarding funding the study. Our concern was that no new major roads are built nor existing thoroughfares widened. New roads means more development. We are concerned with the cost (\$28 million) during a time when resources are scarce. It's a question of priority, not resources. Please act positively on passing this Study to County Council to get it moving. We don't expect immediate results. The plan will occur over a number of years, but the community expects something to happen soon.
2. Ms. Libby Anderson, City of Beaufort Planning Director, offered no comment, when called upon by Mr. Semmler.
3. Mr. Colin Kinton, County Traffic Engineer, offered no comment, when called upon by Mr. Semmler.

**Motion:** Mr. Jason Hinchey made a motion, and Mr. Ed Pappas seconded the motion, **to favorably forward to County Council for adoption by resolution the Lady's Island Corridor Study (Stantec Report), and to incorporate the Study into the Beaufort County Comprehensive Plan.** Further discussion included clarification of the motion. The motion **carried (FOR: Chmelik, Hinchey, Mitchell, Pappas, Semmler, and Stewart; ABSENT: Fermin and Fireall; ABSTAIN: Walsnovich).**

---

## **STAFF REPORT**

### **A. BACKGROUND:**

**Case No.** MISC 2017-09  
**Applicant:** Community Development Staff

**B. SUMMARY:** In 2016, the City of Beaufort contracted with Stantec and Ward Edwards Engineering to conduct a transportation study primarily along the Sea Island Parkway between the Woods Memorial Bridge and Chowan Creek, and along Lady's Island Drive and Sam's Point Road from Rue Du Bois to Miller Drive. The purpose of the Lady's Island Corridor Study was to address concerns about future traffic resulting from recent development (e.g. Walmart, Harris Teeter, etc.) on Lady's Island. The primary aim of the Study was to:

- Improve traffic congestion and reduce delays;
- Improve safety; and
- Enhance bicycle and pedestrian accommodations.

The Study makes projections for future traffic volumes for the year 2038 based on projected growth for that time period. The Study recommends the following 9 projects to address future traffic congestion:

| <b>Project</b>  | <b>Cost</b>          |
|---|----------------------|
| 1. SC 802 Sam's Point Road Turn Lane                              | \$ 761,188           |
| 2. Hazel Farm Road and Gay Drive (S-7-497)                        | \$ 2,983,756         |
| 3. New Lady's Island Middle School Access                         | \$ 1,482,880         |
| 4. Sunset Blvd. (S-7-186 and Miller Drive West (S-7-187)          | \$ 4,842,155         |
| 5. Beaufort High School Access Realignment                        | \$ 1,792,274         |
| 6. Sea Island Pkwy. (US 21 Bus.) and SC 802 Mainline Improvements | \$ 10,755,744        |
| 7. Meadowbrook Drive Extension                                    | \$ 776,500           |
| 8. Mayfair Court Extension  | \$ 449,630           |
| 9. US 21 Airport Area and Frontage Road                           | \$ 4,980,303         |
| <b>Total</b>  | <b>\$ 28,824,430</b> |

A copy of the Lady's Island Corridor Study is attached to this report. Appendices A through F, which contain the technical data to support the Study, are available for review at the Beaufort County Community Development Office.

The Study was recommended for adoption by the Metropolitan Planning Commission on July 18, 2017, and subsequently adopted by Beaufort City Council by resolution on July 25, 2017.

**C. ANALYSIS:** The Beaufort County Traffic Engineering Department reviewed the Lady's Island Corridor Study (see attached memo).

#### **D. STAFF RECOMMENDATION:**

After review of the Lady's Island Corridor Study, staff recommends the Planning Commission forward the Study to County Council to be adopted by resolution. Staff further recommends that upon adoption of the study, the Transportation and Priority Investment Chapters of the Beaufort County Comprehensive Plan be amended to include the study's recommendations and to identify funding sources for improvement projects.

#### **F. METROPOLITAN PLANNING COMMISSION RECOMMENDATION:**

The Metropolitan Planning Commission met on July 18, 2017. Commissioners in attendance were Joe DeVito (Chairman), Judy Alling, Caroline Fermin, Bill Harris, Tim Rentz, and Robert Semmler.

The Commissioners heard a presentation from Mr. Brett Gillis of Stantec who did the Study. The Study covers Highway 21/Sea Island Parkway from Woods Memorial Bridge to Chowan Creek. Mr. Gillis indicated that there were two public meetings. Feedback from the public included 48% concerns with traffic, 28% various unrelated concerns, and 8% each of trees/flora and drainage concerns. The national and Lady's Island traffic volumes increased in 2014, after having leveled off from 2007. The Study's 20-year traffic projections included all known proposed developments such as Walmart, Taco Bell, Harris Teeter, Village at Oyster Bluff, Whitehall Plantation, Marina Village, Crystal Lake, etc. Several scenarios were considered including grade separated interchange, road widening, and new bridge accesses, but all were deemed too costly. The Study recommends turn lane improvements at the Highway 21 and Sam's Point Road intersection and connectivity through secondary roads with street lights at Sunset Boulevard and Highway 21, Miller Road and Sam's Point Road, Gay Drive and Highway 21, and Hazel Farm Road and Highway 802. Other recommended improvements include traffic calming, landscaped islands, all-way stop control, mini-roundabouts, streetscape improvements, raised medians, new school accesses for Lady's Island Middle School and Beaufort High School, and a lighted intersection at the Walmart intersection. The Study has nine phases of improvements that can be combined in various combinations, depending on funding availability.

**Discussion** by the Commissioners included concerns for autonomous cars, widening the road through the Walmart intersection, SCDOT not approving 10-foot wide lanes and traffic calming measures recommended in the Study, and including bike lanes or widening sidewalks for bike traffic.

#### **Public Comment:**

1. Mr. Chuck Newton of the Sea Island Coalition indicated the Coalition supports the Study, but is opposed to new road construction. He encouraged that the Commission find a solution to the traffic problem on Lady's Island. He urged the government entities to work together to fund the Study.
2. Mr. Robert McFee, County Facilities & Construction Engineering Director, in answer to Commissioner Semmler's question regarding the County's budget process, noted that funding would be found through various sources for the Study.

**Motion:** Mr. Tim Rentz made the motion, and Ms. Judy Alling seconded the motion, to recommend approval of the Lady's Island Corridor Study to the Beaufort County Planning Commission/County Council and City of Beaufort Council. The motion passed (FOR: DeVito, Alling, Fermin, Harris, Rentz, and Semmler).

#### **G. ATTACHMENT:**

- Copy of the Lady's Island Corridor Study Summary
- Memo from Beaufort County Traffic Engineering Department

**A RESOLUTION  
ADOPTING THE LADY’S ISLAND CORRIDOR STUDY**

**WHEREAS**, Beaufort County, in conjunction with the City of Beaufort, had a corridor study prepared for the Sea Island Parkway corridor on Lady’s Island; and

**WHEREAS**, the study included taking current traffic counts, projecting trips from future development, and modeling future traffic conditions; and

**WHEREAS**, public meetings regarding the study were held in September 2016 and February 2017; and

**WHEREAS**, meetings were held with project stakeholders and property owners directly impacted by the project’s recommendations; and

**WHEREAS**, the final study report was presented to the Beaufort--Port Royal Metropolitan Planning Commission at their meeting on July 17, 2017, and the Beaufort County Planning Commission at their meeting on August 7, 2017 with both Commissions recommending approval; and,

**WHEREAS**, the study was coordinated with the Beaufort County Traffic and Transportation Engineer and the South Carolina Department of Transportation; and

**WHEREAS**, the Beaufort County desires that the appropriate projects be added to the County’s Transportation Capital Improvement Plan (CIP);

**NOW, THEREFORE, BE IT RESOLVED**, by Beaufort County Council that the Lady’s Island Corridor Study dated May 19, 2017 (the Study) is approved and adopted. The Study, and the appropriate projects therein, shall be added to Beaufort County’s Transportation Capital Improvement Plan (CIP).

Adopted this 28<sup>th</sup> day of August 2017.

COUNTY COUNCIL OF BEAUFORT COUNCIL

\

By: \_\_\_\_\_  
D. Paul Sommerville, Chairman

APPROVE AS TO FORM:

\_\_\_\_\_  
Thomas J. Keaveny, II, County Attorney

Attest:

\_\_\_\_\_  
Ashley M. Bennett, Clerk to Council

# **Lady's Island Corridor Study**

## **BEAUFORT, SC**

**May 19, 2017**



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## 1.0 Introduction

The purpose of the Lady's Island Corridor Study is to determine the most effective means of implementing the following improvements on Lady's Island:

- Improve congestion and reduce delays
- Improve safety
- Enhance bicycle and pedestrian accommodations

This traffic study intends to determine these means while maintaining the character of the area and enhancing the corridors with streetscape elements and lighting. Originally the study was focused on the two main corridors, US 21 Business / US 21 Sea Island Parkway and US 21 Lady's Island Drive / SC 802 Sams Point Road. In order to meet its stated goals, the scope was expanded to include several side streets as identified in this report.

The main intersection where these two corridors intersect is beginning to reach full capacity today in the AM and PM peak hours. With several developments underway, the intersection will likely exceed capacity by 2020. Long queues are expected to develop in the future, blocking access for side streets and driveways. Further to the east, a new Walmart development is under construction on US 21 Sea Island Parkway. Residential side streets in this area already have difficulties making left turns onto US 21. Future increases in the US 21 traffic volumes will increase the side street delays.

Traffic counts collected in 2016 show US 21 Business Sea Island Parkway has reached an ADT of 21,660 vehicles per day (vpd), while US 21 Lady's Island Drive has reached 26,000 vpd. These busy corridors are beginning to outgrow their existing two-way left-turn lanes. Raised medians, where feasible, can reduce right angle conflicts and potentially reduce right angle crashes.

This report documents the data collected, analyses performed, and conceptual improvements planned for the area. Concept plans have also been developed. They are provided separately.

## 2.0 Existing Conditions

### 2.1 PROJECT LOCATION

The project study area is approximately a total of 4.4 miles along US 21 Business Sea Island Parkway, SC 802 Sams Point Road, US 21 Lady's Island Drive, and US 21 Sea Island Parkway in Lady's Island. The study area along Sea Island Parkway begins at the Wood's Memorial Bridge and extends to the Chowan Creek Bridge. The study area along Sams Point Road begins at Miller Drive and extends to the intersection of Sea Island Parkway. The study area along Lady's Island Drive begins at the intersection of Sea Island Parkway and extends to Rue Du Bois. The study area is essentially divided into two distinct study sub areas by the natural marsh along Sea Island Parkway. The sub area to the west of the marsh includes the main US 21 Business/SC 802 Intersection and numerous commercial developments. The sub area to the east of the marsh includes the airport, the Walmart development, and the remainder of the study area to the Chowan Creek Bridge. Figure 2.1 below shows the project study area.

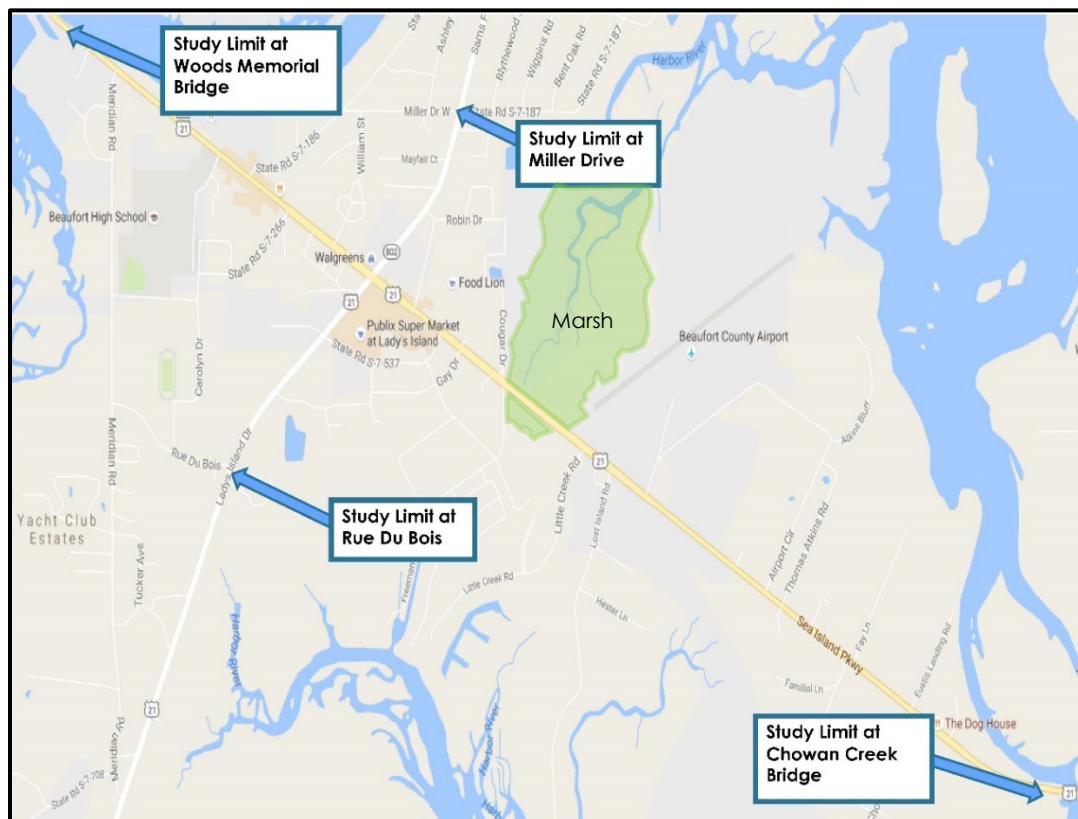


Figure 2.1 – Project Study Area

## 2.2 EXISTING ROADWAYS

**US 21 Business/US 21 (Sea Island Parkway)** is currently a three-lane roadway at the Wood's Memorial Bridge which widens out to a five-lane road near Youmans Drive. At the marsh, the roadway narrows to four lanes and at airport circle narrows down to a three-lane road. The 3.3 mile section of US 21 Business has a speed limit of 40 miles per hour (mph) from Wood's Memorial Bridge to near Lost Island Road, 50 mph from near Lost Island Road to a location near Hudson Drive, and 55 mph from near Hudson Drive to the study limit at Chowan Creek Bridge. The 2015 Annual Average Daily Traffic (AADT) for US 21B between Meridian Road and US 21 is 19,500 vehicles per day (vpd) and between US 21 and Chowan Creek Bluff is 17,800 vpd.

**US 21 (Ladys Island Drive)** is currently a five-lane roadway within the study limits. The 0.6 mile section of US 21 has a speed limit of 45 miles per hour (mph) from the intersection at US 21 Business to just north of Hazel Farm Road. From Hazel Farm Road to the southern study limit, the speed limit is 55 mph. The 2015 Annual Average Daily Traffic (AADT) for US 21 between US 21 Business and Meridian Road is 20,600 vehicles per day (vpd).

**SC 802 (Sams Point Road)** is currently a five-lane roadway within the study limits. The 0.5 mile section of US 21 has a speed limit of 45 miles per hour (mph) and the 2015 Annual Average Daily Traffic (AADT) for SC 802 between US 21 and Robin Drive is 20,000 vehicles per day (vpd) and between Robin Drive and Brickyard Point Road is 20,200 vpd.

**Meridian Road** The posted speed limit is 35 mph and the 2015 AADT is 2,000 vpd.

**S-7-186 Sunset Boulevard** The posted speed limit is 35 mph and the 2015 AADT is 3,000 vpd.

**Youmans Drive** The posted speed limit is 30 mph and the 2015 AADT is 900 vpd.

**Sams Point Way** The posted speed limit is 45 mph and the 2015 AADT is 2,600 vpd.

**S-7-187 Miller Drive West** The posted speed limit is 30 mph and the 2015 AADT is 1,450 vpd.

Several other roadways are included in this study and are listed on the following page.

The following roadways are all two-lane roadways with unknown AADTs that intersect US 21 Business, US 21, and SC 802 in the study area:

- ***Geechie Road***
- ***S-7-537 (Ferry Drive)***
- ***Cougar Drive***
- ***Airport Circle***
- ***Eustis Landing Road***
- ***Hazel Farm Road***
- ***Professional Village Circle***
- ***S-7-497 (Gay Drive)***
- ***Lost Island Road***
- ***Old Distant Island Road***
- ***Ashland Park Road***
- ***Rue Du Bois***

## 2.3 COUNT DATA

48-hour tube count data was collected just west of SC 802 and US 21 on US 21B and just south of US 21B on US 21, which is located near the center of the project limits, on September 7, 2016. Based on the tube count data, it was determined that the peak hours were 7:15 AM – 8:15 AM and 4:30 PM – 5:30 PM. Turning movement counts were conducted during these two peak hours at 20 locations along the corridor. Figure 2.2 on the following page shows the count locations. Count data is shown in Appendix A. The 2016 counts showed noticeable increases from SCDOT's 2015 count data. They showed 21,660 vehicles per day (vpd) for the US 21 Business Sea Island Parkway west of SC 802 and 26,000 vpd for US 21 Lady's Island Drive south of Sea Island Parkway. Seasonal impacts were also considered, with Saturday summer counts collected. The counts conducted in the summer considered 24-hour counts just west of SC 802 and US 21 on US 21B and just south of US 21B on US 21 and turning movement counts at the intersections of Sea Island Parkway & Professional Village Circle, Sea Island Parkway & Sams Point Road/Lady's Island Drive, Sea Island Parkway & Sams Point Way, Sea Island Parkway & Ferry Road, Sams Point Road & Sams Point Way, and Lady's Island Drive & Ferry Drive. The data showed that the weekday volumes during September were consistently higher than the Saturday summer traffic collected, thus the seasonal data was omitted in the final reporting herein for simplicity.

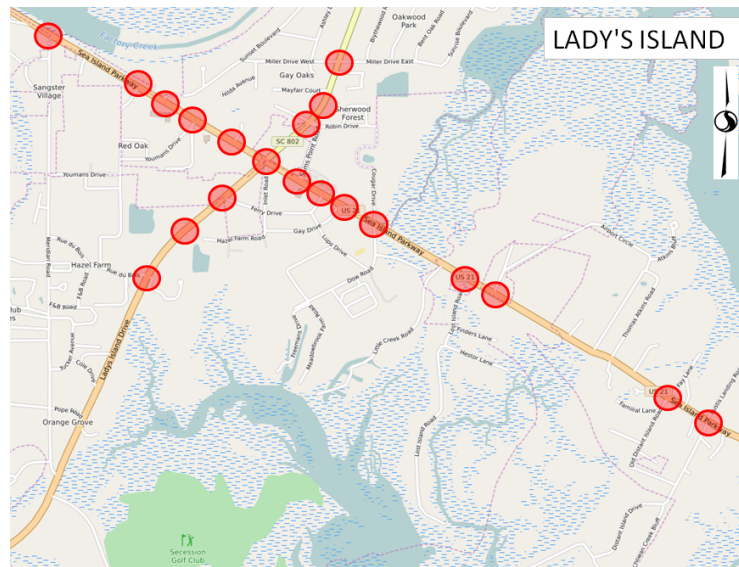


Figure 2.2 – Turning Movement Count Data Map

## 2.4 CRASH DATA

Crash data within the study area was obtained from the Department of Public Safety. Four years of data were obtained from January 1, 2012 to December 31, 2015. In total, there were 541 crashes in 4 years with two crashes involving at least one fatality and 180 crashes involving at least one injury. A summary of the crash data is provided below in Table 2.1.

Table 2.1 – Summary of Crash Data within Project Limits

| Crashes by Injury Class |            |
|-------------------------|------------|
| Fatal Crashes           | 2          |
| Injury Crashes          | 180        |
| PDO Crashes             | 359        |
| <b>Total Crashes</b>    | <b>541</b> |

| Crashes by Manner of Collision |            |
|--------------------------------|------------|
| Rear End                       | 246        |
| Angle                          | 177        |
| Sideswipe                      | 41         |
| Other                          | 77         |
| <b>Total Crashes</b>           | <b>541</b> |



Figure 2.3 below and Figure 2.4 on the following page are examples of the types of collisions experienced within the study limits. The segment shown in Figure 2.3 experiences a higher rate of rear-end collisions compared to the other types of collisions due to the stop and go congestion that is experienced in this area. Figure 2.4 shows the second most frequent type of collision in the study area, right angle collisions. At driveway locations and unsignalized intersections, angled collisions are experienced more frequently because of turning vehicles along high volume roads.



**Figure 2.3 – Rear End Collisions Along Sea Island Parkway**

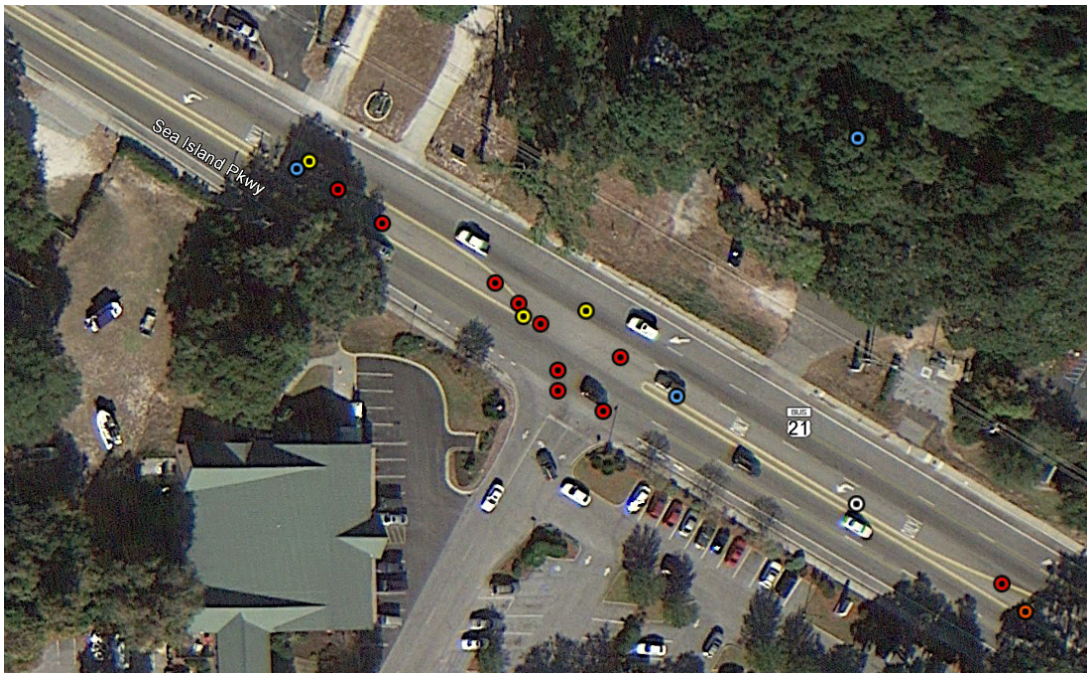


Figure 2.4 – Angled Collisions on Sea Island Parkway Just West of SC 802



### 3.0 Projected Conditions

#### 3.1 GROWTH RATES

Historic tube counts collected by SCDOT from 2008 – 2015 and tube counts collected by Stantec in 2016 along US 21 Business Sea Island Parkway and US 21 Lady's Island Drive show that the traffic volumes are increasing at a rate of 1.54% compounded annually over the past ten years. Table 3.1 shows AADTs and growth rates for the study area.

**Table 3.1 – Lady's Island Area AADT and Growth Rates**

| Location |         | US 21 B (West of Sunset Blvd) | US 21 Lady's Island Dr (South of Sea Island Pkwy) | Average |             |
|----------|---------|-------------------------------|---|---------|-------------|
| Station  |         | 137                           | 221   |         |             |
| Year     | 2006    | 19,900                        | 21,000  | 20,450  |             |
|          | 2007    | 19,400                        | 19,700  | 19,550  |             |
|          | 2008    | 18,000                        | 19,700  | 18,850  |             |
|          | 2009    | 17,100                        | 19,700  | 18,400  |             |
|          | 2010    | 17,400                        | 20,000  | 18,700  |             |
|          | 2011    | 17,100                        | 20,000  | 18,550  |             |
|          | 2012    | 16,200                        | 18,300  | 17,250  |             |
|          | 2013    | 16,500                        | 18,600  | 17,550  |             |
|          | 2014    | 16,400                        | 18,400  | 17,400  |             |
|          | 2015    | 19,500                        | 20,600  | 20,050  |             |
|          | 2016    | 21,660                        | 26,000  | 23,830  |             |
| Rates    | 2-Year  | 16.04%                        | 20.65%  | 18.48%  | 17.03%      |
|          | 3-Year  | 10.42%                        | 13.26%  | 11.93%  | 10.73%      |
|          | 4-Year  | 8.43%                         | 10.52%  | 9.54%   | 8.41%       |
|          | 5-Year  | 5.33%                         | 6.00%   | 5.69%   | 5.14%       |
|          | 6-Year  | 4.08%                         | 5.00%   | 4.57%   | 4.12%       |
|          | 7-Year  | 3.81%                         | 4.57%   | 4.22%   | 3.76%       |
|          | 8-Year  | 2.54%                         | 4.00%   | 3.30%   | 2.97%       |
|          | 9-Year  | 1.29%                         | 3.55%   | 2.43%   | 2.22%       |
|          | 10-Year | 0.88%                         | 2.38%   | 1.65%   | 1.54%       |
|          |         |                               |   | LINEAR  | EXPONENTIAL |

#### 3.2 FUTURE VOLUMES

The year 2038 is selected as the Design Year for this study, to give a reasonable long term view of the corridors. Considering the local roads along with US 21 and US 21 Business, a growth rate of 1.0% compounded annually is used to project future traffic volumes. This 1.0% growth rate is used for each intersection turning movement count along the corridor.

### 3.3 DEVELOPMENTS AND TRIP GENERATION

In an effort to project accurate future traffic, current proposed developments were incorporated in the future volume development as vested traffic. The proposed developments included were Walmart, Taco Bell, Harris Teeter, The Village at Oyster Bluff, Marina Village, Lady's Island Shopping Center redevelopment, and White Hall Plantation. The proposed developments' new trips were determined based off completed Traffic Impact Analyses (TIA) and the ITE's Trip Generation Manual, 9th Edition. The projected traffic was distributed throughout the study area according to the TIAs and existing volumes. These trips are shown in Appendix B.

## 4.0 Concept Development

### 4.1 NO BUILD ALTERNATE

As with any project, there is a “do nothing” option where you consider leaving the project in the current conditions for comparison to the proposed conditions. With no improvements to the study area in Lady's Island, traffic congestion will continue to compound each year.

### 4.2 BUILD CONCEPT

The proposed concept plan is provided separately. It includes the following elements:

**Greater Street Connectivity.** Seven new connections are shown to provide alternate routes for relief of congested intersections and safer means for difficult turning movements. These connections include:

1. Enhanced access on Miller Drive West and Sunset Boulevard to avoid the congested main US 21 / SC 802 intersection
2. Paving of Hazel Farm Road and enhanced access on Gay Drive to avoid the congested main intersection
3. Relocation of the Beaufort High School access road to align with Sunset Boulevard
4. Additional access for Lady's Island Middle School, to align with Gay Drive
5. Extension of Mayfair Court to Miller Street
6. Extension of Meadowbrook Drive to Dow Road
7. New frontage road to provide better access for Lost Island Road and Little Creek Road

Each of these connections provide their own individual benefits. The first two connections will provide congestion relief from the main US 21 / SC 801 intersection, which is expected to otherwise develop major queues and delays over time. Relocation of the Beaufort High School access road allows the existing traffic signal to be relocated to Sunset Boulevard, providing better access for Sunset Boulevard. The Lady's Island Shopping Center would be redeveloped separately by others to accommodate this new access road. The additional access for Lady's Island Middle School will allow it to use the new traffic signal at Gay Drive, providing safer access onto US 21. Extending Mayfair Court will allow its residents access to the new Miller Drive signal on SC 802 Sams Point Road. Extending Meadowbrook Drive to Dow Road will provide access for Tidewatch Business Center and other properties to the new Gay Drive signal. Lastly, the new

frontage road will allow Lost Island Road and Little Creek Road residents direct access to the new Walmart traffic signal. This will make access onto US 21 safer for them.

**Traffic Signal Improvements.** New traffic signals are shown at the following locations:

- US 21 Business Sea Island Parkway and Sunset Boulevard / Beaufort High School (relocation from current Beaufort High School access)
- SC 802 Sams Point Road and Miller Drive
- US 21 Lady's Island Drive and Hazel Farm Road
- US 21 Sea Island Parkway and Gay Drive

The five traffic signals in this area are to be interconnected to improve vehicular progression and reduce rear end collisions.

**Improvements to the Main Intersection of US 21 and SC 802.** Limited space is available to widen this congested intersection. However, there are two additions that can be implemented. As part of the Harris Teeter development, a new right turn lane will be constructed for the US 21 Sea Island Parkway eastbound approach. The concept plan for this study shows a new right turn lane for the SC 802 southbound approach. It will allow the southbound approach to have two through lanes and a dedicated right turn lane. This will be especially beneficial for the morning peak, where very heavy right turn volumes occur.

**Extension of the US 21 Sea Island Parkway Eastbound Outside Through Lane.** The outside through lane currently tapers down just prior to Lost Island Road. This creates a rear end crash potential for eastbound drivers turning right onto Little Creek Road and Lost Island Road. With the planned Walmart development, extending this outside through lane past the commercial area would provide both congestion and safety benefits. Along with this extension, the westbound right turns onto the two Walmart site driveways will be converted to through-right lanes. This will provide congestion relief for westbound traffic, particularly in the morning peak.

**Raised Medians for Access Management and Safety Improvements.** The medians are shown in the concept plan for parts of US 21 Business Sea Island Parkway, US 21 Sea Island Parkway, SC 802 Sams Point Road, and US 21 Lady's Island Drive. Careful consideration is given to alternate routes associated with the medians. For example, a new driveway onto the newly signalized Hazel Farm Road is shown for Sea Island Presbyterian Church and Mayfair Court is extended to provide alternate access. Also, the three-lane segment of US 21 Business Sea Island Parkway

does not include a raised median, as it would be too tight to accommodate any u-turn movements.

**Traffic Calming Elements.** With Sunset Boulevard, Miller Drive, and Gay Drive being designed as alternate routes to relieve the main intersection, it will be important to preserve their residential character. A previous study of Sunset Boulevard and Miller Drive by SCDOT found that those two streets did not meet policy criteria for traffic calming due to speed limits and functional class. Based on public input and the proposed connectivity, this study recognizes there will at least be a need for regulating flows. In the concept plan, these streets are designed to provide traffic flows that are largely uninterrupted, yet at low speeds. The intent is for these streets to flow freely, but at speeds that are safe for residents and pedestrians. The traffic calming elements include groups of landscaped areas along their shoulders that alternate with median chicanes. Also included are 25 mph speed limit postings. Combined, these elements should make drivers feel compelled to drive at a more consistent, slow speed. Lastly, roundabouts are included to avoid delays that would result from stop control and to better regulate traffic flows. The Hazel Farm Road / Gay Drive roundabout has the added benefit of accommodating street geometry needs without displacing any properties.

**Enhanced Bicycle and Pedestrian Accommodations.** Sidewalks already exist along both major routes and all approaches except for SC 802 Sams Point Road have dedicated bicycle lanes. However, the City of Beaufort wishes to enhance bicycle and pedestrian accommodations, pursuant to its Civic Master Plan. The concept plan shows the sidewalks to be widened, with multi-use paths on SC 802 to account for the lack of dedicated bicycle lanes. Side streets Sunset Boulevard, Miller Drive West, and Gay Drive also feature sidewalk/path enhancements.

**Corridor Enhancements.** Landscaping, irrigation, and lighting are planned to enhance the main corridors, as well as Sunset Boulevard, Miller Drive West, Gay Drive, and the Beaufort High School access road. These elements should significantly enhance the area.

#### 4.3 OTHER ALTERNATES CONSIDERED

Other design alternates were originally considered under this study. Among them included:

**Widening of US 21 Business / US 21 Sea Island Parkway and/or US 21 Lady's Island Drive / SC 802 Sams Point Road.** With commercial buildings, parking lots and large oak trees close to the

existing through lanes, no feasible options existed for widening the main corridors. Impacts would have been very significant, so this alternate was omitted from selection.

**Hazel Farm Road Extension.** Extension through the undeveloped area between Gay Drive and Meadowbrook Drive was considered in lieu of using Gay Drive. This would have routed traffic away from residential streets. However, it would have also incurred significantly higher property impacts and resulted in poor land use, with essentially unusable acreage along its length.

**Omitting the US 21 Sea Island Parkway Eastbound Through Lane Extension.** Omitting this extension was considered because of the wetland impacts it will require. However, it was determined that the safety benefits outweighed the wetland impacts. The congestion relief it offers is also warranted.

**Maintaining the Existing Beaufort High School Traffic Signal.** This alternate was considered in case relocating the traffic signal should be disallowed. A right turn acceleration lane from Sunset Boulevard onto US 21 Business westbound could accommodate heavy AM traffic flows in that direction. However, right of way impacts would be significant. It would also not accommodate the much needed left turn from US 21 Business onto Sunset Boulevard.

**Other Traffic Signal Locations.** Several other intersections were considered for traffic signals. Among them included US 21 Lady's Island Drive at Ferry Drive, US 21 Lady's Island Drive at Rue Du Bois, US 21 Sea Island Parkway at Sams Point Way, US 21 Sea Island Parkway at Ferry Road, and SC 802 Sams Point Road at Sams Point Way. None of these intersections were deemed feasible for signal installation, due to low side street volumes, close proximity to other existing signals, and potential queueing issues.

## 5.0 Operations Analysis

The No Build Alternate and the Build Concept were compared for intersection delays. Detailed Synchro analyses were performed for each study area intersection. Using the existing and projected traffic volumes, intersection analyses were conducted for the study area intersections considering 2020 No Build conditions, 2038 No Build conditions, and 2038 Build conditions. This analysis was conducted using the Transportation Research Board's *Highway Capacity Manual 2000 (HCM 2000)* methodologies of the *Synchro*, Version 9 software for intersection analysis.

Intersection level of service (LOS) grades range from LOS A to LOS F, which are directly related to the level of control delay at the intersection and characterize the operational conditions of the intersection traffic flow. LOS A operations typically represent ideal, free-flow conditions where vehicles experience little to no delays, and LOS F operations typically represent poor, forced-flow (bumper-to-bumper) conditions with high vehicular delays, and are generally considered undesirable. Table 5.1 summarizes the *HCM 2010* control delay thresholds associated with each LOS grade for unsignalized and signalized intersections.

**Table 5.1 – HCM 2010 LOS Criteria for Unsignalized and Signalized Intersections**

| Unsignalized Intersections |                                     | Signalized Intersections |                                     |
|----------------------------|-------------------------------------|--------------------------|-------------------------------------|
| LOS                        | Control Delay Per Vehicle (seconds) | LOS                      | Control Delay Per Vehicle (seconds) |
| A                          | $\leq 10$                           | A                        | $\leq 10$                           |
| B                          | $> 10$ and $\leq 15$                | B                        | $> 10$ and $\leq 20$                |
| C                          | $> 15$ and $\leq 25$                | C                        | $> 20$ and $\leq 35$                |
| D                          | $> 25$ and $\leq 35$                | D                        | $> 35$ and $\leq 55$                |
| E                          | $> 35$ and $\leq 50$                | E                        | $> 55$ and $\leq 80$                |
| F                          | $> 50$                              | F                        | $> 80$                              |

### 5.1 INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS

An Analysis of the 2016 Existing, 2038 No Build, and 2038 Build conditions was conducted. Intersection levels of service (LOS) results for the AM Peak Hour are shown in Table 5.2 for each of the analysis scenarios and Table 5.4 for the PM Peak Hour. It should be noted that the overall intersection LOS and delay shown in bold is for signalized intersections. All other LOS and delays are for stop controlled side street approaches. Also, the "+" in the table symbolizes that there

are no turning volumes at the intersection. The results highlighted in green represent a letter grade improvement in the 2038 Build LOS for the alternate, whereas the results highlighted in red represent a letter grade worse.

Analysis of the 2016 Existing peak hour shows one approach operates at LOS F, one approach at LOS E, seven approaches/intersections at LOS D, and eleven approaches/intersections at LOS C or better. Overall, the corridor has moderate delays. Analysis of the 2038 No Build AM and PM peak hours shows that the corridor will experience high delays in the future if no improvements are implemented. Analysis of the 2038 Build Conditions shows marked improvement over the No Build conditions. Out of 23 intersections in the 2038 AM Peak Hour Build scenario, 1 intersection got worse than the 2038 AM Peak Hour No Build scenario, 17 intersections improved (green), and 5 intersections remain at the same letter grade LOS. Out of 23 intersections in the 2038 PM Peak Hour Build scenario, 1 intersection got worse than the 2038 PM peak hour No Build scenario, 16 intersections improved (green), and 6 intersections remain at the same letter grade LOS. The intersection with decreased LOS in the Build scenarios is US 21 Business at the High School driveway. Here, the traffic signal has been relocated to Sunset Boulevard and side street volumes are expected to be very low. A very small number of vehicles are expected to experience the reduced LOS shown. The delay reported is only for the worst case minor street and is not the delay experienced by Sea Island Parkway. The 2016 Existing results are shown in Appendix C, the 2038 No Build results are shown in Appendix D, and the 2038 Build results are shown in Appendix E.

The mini roundabouts were analyzed using *Sidra* software. Based on the projected future 2038 Peak Hour Build volumes, the roundabouts are expected to operate at an LOS A in both the AM and PM peak hour. The results are shown for the AM Peak in Table 5.3 on the following page and are shown for the PM Peak in Table 5.5 on page 17. The *Sidra* results are shown in Appendix F. With the intersection of Sunset Boulevard and Miller Drive being an existing intersection, future 2038 delays are also shown for two scenarios without the roundabout: (1) existing stop control conditions (stopping on the Miller Drive approach only) and (2) all way stop control implemented. The results show the roundabout option to provide significantly lower delays. Meanwhile, Hazel Farm Road and Gay Drive would essentially be a new intersection. The roundabout is needed at this intersection to provide roadway geometry that avoids displacing properties.



**Table 5.2 – AM Peak Intersection LOS and Delay Results**

| Intersection  | 2016 No Build<br>Peak Hour |             | 2038 No Build<br>Peak Hour |              | 2038 Build<br>Peak Hour |             |
|---|----------------------------|-------------|----------------------------|--------------|-------------------------|-------------|
|   | LOS                        | Delay (sec) | LOS                        | Delay (sec)  | LOS                     | Delay (sec) |
| US 21 B (Sea Island Pky) & Meridian Rd                          | C                          | 23.0 (NB)   | F                          | 110.7 (NB)   | F                       | 110.7 (NB)  |
| US 21 B (Sea Island Pky) & Beaufort High School                 | <b>C</b>                   | <b>21.9</b> | <b>D</b>                   | <b>40.4</b>  | F                       | 98.1        |
| US 21 B (Sea Island Pky) & Sunset Blvd                          | E                          | 43.6 (SB)   | F                          | N.A. (NB)    | <b>E</b>                | <b>59.0</b> |
| US 21 B (Sea Island Pky) & Youmans Dr                           | C                          | 22.8 (SB)   | E                          | 47.8 (NB)    | <b>C</b>                | 24.0 (SB)   |
| US 21 B (Sea Island Pky) & Professional Village Cr              | C                          | 22.2 (SB)   | F                          | 96.2 (SB)    | <b>D</b>                | 25.7 (SB)   |
| US 21 (Sea Island Pky) & SC 802 (Sams Point Rd)                 | <b>D</b>                   | <b>54.9</b> | <b>F</b>                   | <b>147.9</b> | <b>D</b>                | <b>42.2</b> |
| US 21 (Sea Island Pky) & Sams Point Way                         | C                          | 17.2 (SB)   | F                          | 449.7 (NB)   | <b>C</b>                | 20.2 (NB)   |
| US 21 (Sea Island Pky) & Ferry Rd                               | D                          | 31.3 (SB)   | F                          | 217.9 (SB)   | <b>C</b>                | 21.8 (SB)   |
| US 21 (Sea Island Pky) & Gay Dr                                 | B                          | 14.7 (NB)   | D                          | 25.4 (NB)    | <b>B</b>                | <b>16.9</b> |
| US 21 (Sea Island Pky) & Cougar Dr                              | F                          | 62.2 (NB)   | F                          | N.A. (SB)    | -                       | +           |
| US 21 (Sea Island Pky) & Lost Island Rd                         | B                          | 14.5 (NB)   | C                          | 22.0 (NB)    | <b>B</b>                | 12.4 (NB)   |
| US 21 (Sea Island Pky) & Airport Circle                         | C                          | 19.3 (SB)   | <b>B</b>                   | <b>17.3</b>  | <b>B</b>                | <b>16.5</b> |
| US 21 (Sea Island Pky) & Old Distant Island Rd                  | C                          | 20.9 (NB)   | F                          | 224.7 (NB)   | F                       | 224.7 (NB)  |
| US 21 (Sea Island Pky) & Eustis Landing Road/Chowan Creek Bluff | <b>C</b>                   | <b>21.1</b> | <b>E</b>                   | <b>59.4</b>  | <b>E</b>                | <b>59.4</b> |
| US 21 (Lady's Island Drive) & Rue Du Bois                       | C                          | 24.9 (EB)   | F                          | 74.9 (EB)    | <b>E</b>                | 37.0 (EB)   |
| US 21 (Lady's Island Drive) & Hazel Farm Rd                     | C                          | 17.3 (WB)   | D                          | 26.4 (WB)    | <b>B</b>                | <b>14.3</b> |
| US 21 (Lady's Island Drive) & Ferry Dr                          | D                          | 34.5 (WB)   | F                          | 284.4 (WB)   | <b>C</b>                | 22.6 (WB)   |
| SC 802 (Sams Point Road) & Sams Point Way                       | B                          | 13.7 (WB)   | C                          | 22.9 (WB)    | <b>C</b>                | 18.0 (WB)   |
| SC 802 (Sams Point Road) & Ashland Park Rd                      | C                          | 23.0 (EB)   | E                          | 43.6 (EB)    | <b>C</b>                | 18.8 (EB)   |
| SC 802 (Sams Point Road) & Miller Rd                            | D                          | 33.8 (EB)   | F                          | 142.8 (EB)   | <b>D</b>                | <b>35.8</b> |
| US 21 B (Sea Island Pky) & Taco Bell                            | -                          | +           | C                          | 22.4 (NB)    | <b>B</b>                | 12.5 (NB)   |
| US 21 B (Sea Island Pky) & Walmart#3                            | -                          | +           | E                          | 45.5 (SB)    | <b>C</b>                | 24.4 (SB)   |
| US 21 B (Sea Island Pky) & Walmart#4                            | -                          | +           | E                          | 37.1 (SB)    | <b>C</b>                | 16.9 (SB)   |

**Table 5.3 – 2038 Build Intersection Alternatives AM Peak Hour LOS and Delay Results Comparison**

| AM Peak Hour LOS and Delay      | Existing Stop Control |                  | All Way Stop Control |                  | Roundabout |             |
|---------------------------------|-----------------------|------------------|----------------------|------------------|------------|-------------|
|                                 | 2038 Build            |                  | 2038 Build           |                  | 2038 Build |             |
|                                 | LOS                   | Delay (sec)      | LOS                  | Delay (sec)      | LOS        | Delay (sec) |
| Sunset Boulevard & Miller Drive | D                     | 27.5 (Westbound) | E                    | 36.0 (Westbound) | A          | 9.6         |
| Hazel Farm Road & Gay Drive     | -                     | -                | -                    | -                | A          | 8.3         |

**Table 5.4 – PM Peak Intersection LOS and Delay Results**

| Intersection  | 2016 No Build<br>Peak Hour |             | 2038 No Build<br>Peak Hour |              | 2038 Build<br>Peak Hour |             |
|---|----------------------------|-------------|----------------------------|--------------|-------------------------|-------------|
|   | LOS                        | Delay (sec) | LOS                        | Delay (sec)  | LOS                     | Delay (sec) |
| US 21 B (Sea Island Pky) & Meridian Rd                          | D                          | 28.2 (NB)   | F                          | 855.8 (SB)   | F                       | 855.8 (SB)  |
| US 21 B (Sea Island Pky) & Beaufort High School                 | <b>C</b>                   | <b>20.8</b> | <b>D</b>                   | <b>45.0</b>  | E                       | 46.6 (SB)   |
| US 21 B (Sea Island Pky) & Sunset Blvd                          | C                          | 19.7 (SB)   | F                          | N.A. (SB)    | <b>D</b>                | <b>52.6</b> |
| US 21 B (Sea Island Pky) & Youmans Dr                           | D                          | 32.9 (SB)   | F                          | N.A. (SB)    | F                       | N.A. (SB)   |
| US 21 B (Sea Island Pky) & Professional Village Cr              | C                          | 24.4 (SB)   | F                          | 223.9 (SB)   | <b>E</b>                | 53.0 (SB)   |
| US 21 (Sea Island Pky) & SC 802 (Sams Point Rd)                 | <b>D</b>                   | <b>53.9</b> | <b>F</b>                   | <b>153.9</b> | <b>E</b>                | <b>69.6</b> |
| US 21 (Sea Island Pky) & Sams Point Way                         | C                          | 15.9 (NB)   | F                          | 2667.8 (NB)  | <b>D</b>                | 25.8 (NB)   |
| US 21 (Sea Island Pky) & Ferry Rd                               | C                          | 21.9 (SB)   | F                          | 126.1 (SB)   | <b>D</b>                | 34.4 (SB)   |
| US 21 (Sea Island Pky) & Gay Dr                                 | C                          | 20.1 (NB)   | F                          | 51.8 (NB)    | <b>C</b>                | <b>21.6</b> |
| US 21 (Sea Island Pky) & Cougar Dr                              | D                          | 34.4 (NB)   | F                          | 325.5 (NB)   | -                       | +           |
| US 21 (Sea Island Pky) & Lost Island Rd                         | C                          | 19.7 (NB)   | F                          | 55.0 (NB)    | <b>C</b>                | 17.3 (NB)   |
| US 21 (Sea Island Pky) & Airport Circle                         | B                          | 13.3 (SB)   | <b>D</b>                   | <b>46.6</b>  | <b>C</b>                | <b>24.0</b> |
| US 21 (Sea Island Pky) & Old Distant Island Rd                  | C                          | 17.2 (NB)   | D                          | 32.6 (NB)    | D                       | 32.6 (NB)   |
| US 21 (Sea Island Pky) & Eustis Landing Road/Chowan Creek Bluff | <b>C</b>                   | <b>20.1</b> | <b>E</b>                   | <b>75.7</b>  | <b>E</b>                | <b>75.7</b> |
| US 21 (Lady's Island Drive) & Rue Du Bois                       | D                          | 25.0 (WB)   | F                          | 89.6 (WB)    | F                       | 81.4 (WB)   |
| US 21 (Lady's Island Drive) & Hazel Farm Rd                     | D                          | 27.1 (WB)   | F                          | 57.2 (WB)    | <b>B</b>                | <b>14.1</b> |
| US 21 (Lady's Island Drive) & Ferry Dr                          | F                          | 53.0 (WB)   | F                          | 744.2 (WB)   | <b>C</b>                | 24.7 (WB)   |
| SC 802 (Sams Point Road) & Sams Point Way                       | D                          | 30.5 (WB)   | F                          | 287.5 (WB)   | F                       | 125.0 (WB)  |
| SC 802 (Sams Point Road) & Ashland Park Rd                      | C                          | 18.1 (EB)   | E                          | 35.3 (EB)    | <b>C</b>                | 16.8 (EB)   |
| SC 802 (Sams Point Road) & Miller Rd                            | E                          | 40.5 (WB)   | F                          | 183.8 (WB)   | <b>C</b>                | <b>25.7</b> |
| US 21 B (Sea Island Pky) & Taco Bell                            | -                          | +           | F                          | 53.0 (NB)    | <b>C</b>                | 17.0 (NB)   |
| US 21 B (Sea Island Pky) & Walmart#3                            | -                          | +           | F                          | N.A. (SB)    | <b>C</b>                | 17.9 (SB)   |
| US 21 B (Sea Island Pky) & Walmart#4                            | -                          | +           | C                          | 21.1 (SB)    | <b>B</b>                | 13.4 (SB)   |

**Table 5.5 – 2038 Build Intersection Alternatives PM Peak Hour LOS and Delay Results Comparison**

| PM Peak Hour LOS and Delay      | Existing Stop Control |                  | All Way Stop Control |                   | Roundabout |             |
|---------------------------------|-----------------------|------------------|----------------------|-------------------|------------|-------------|
|                                 | 2038 Build            |                  | 2038 Build           |                   | 2038 Build |             |
|                                 | LOS                   | Delay (sec)      | LOS                  | Delay (sec)       | LOS        | Delay (sec) |
| Sunset Boulevard & Miller Drive | C                     | 19.5 (Westbound) | C                    | 20.3 (Northbound) | A          | 8.6         |
| Hazel Farm Road & Gay Drive     | -                     | -                | -                    | -                 | A          | 8.2         |

## 5.2 NEW TRAFFIC SIGNALS

The 2038 Build Concept includes recommendations regarding traffic signals along the corridors. Three new traffic signals are recommended: one at the intersections of Sams Point Road and Miller Drive, one at Sea Island Parkway and Gay Drive, and one at Lady's Island Drive and Hazel Farm Road. One traffic signal on US 21 Sea Island Parkway is recommended to be relocated from the current Beaufort High School Access Road intersection to the Sunset Boulevard intersection to accommodate Sunset Boulevard traffic. The high school's main entrance will be relocated to align with Sunset Drive and the new signal. These signals will facilitate traffic in the future to utilize the alternative routes proposed in the concept plan. They are currently scoped to include mast arms to match the streetscape enhancements.

Based on a review of the proposed traffic signals, the AM and PM peak hours whose volumes were counted are expected to meet the *Manual of Uniform Traffic Control Devices* (MUTCD's) one-hour, four-hour, and eight-hour warrants. Hours beyond the AM and PM peaks have not been counted. Based on anticipated traffic patterns, the four-hour warrant is likely to be met at all signals. Some intersections may meet the eight-hour warrant; however, this is difficult to predict.

Currently there are no funds for improvements. By the time any construction can occur, key developments identified, such as Walmart, Harris Teeter, etc., will likely be completed. Thus volumes will be lower than the 2038 turning movement counts projected, but not significantly lower. This study anticipates that by the time these signals can be funded and installed with roadway improvements, they will be warranted. Additional signal warrant analysis may be warranted during the design phase. Like this study, it would need to account for the latent turning movement demand that will exist but not necessarily show up in the volume counts due to difficulties in making these turns without a traffic signal.

## 6.0 Phases for Improvements

This study recognizes that the improvements will need to be constructed in phases, as individual projects. For planning and budgeting purposes, this study separates the proposed improvements into nine distinct improvement projects. These individual projects are listed below. The pages that follow provide descriptions for each project, with opinions of probable costs.

1. SC 802 Sams Point Road Right Turn Lane
2. Hazel Farm Road and S-7-497 Gay Drive
3. New Lady's Island Middle School Access
4. S-7-186 Sunset Boulevard and S-7-187 Miller Drive West
5. Beaufort High School Access Realignment
6. US 21 Business, US 21, and SC 802 Mainline Improvements
7. Meadowbrook Drive Extension
8. Mayfair Court Extension
9. US 21 Airport Area and Frontage Road

Each individual project provides its own specific benefits. Normally, the projects would be prioritized based on order of need. For Lady's Island, prioritization of these projects will depend somewhat on availability. For example, the Beaufort High School Access Realignment will require redevelopment of the adjacent shopping center.

It is not possible to precisely delineate the limits of each individual project because the elements of each project will depend partially on what elements have already been completed. In other words, the individual projects are somewhat interdependent of each other. For example, Hazel Farm Road and S-7-497 Gay Drive improvements will require turn lane / median improvements to Sea Island Parkway and Lady's Island Drive. The extent of those improvements will depend on whether the Hazel Farm / Gay Drive improvements begin first or the Sea Island Parkway and Lady's Island Drive improvements begin first. So the limits and costs for each individual project will likely change over time based on scheduling, but the overall totals should not change significantly.

## 6.1 SC 802 SAMS POINT ROAD TURN LANE

This project would include addition of the right turn lane at SC 802 (Sams Point Road) and US 21 Business. The dedicated right turn lane would open the existing right turn lane for conversion to a thru lane at the signal. This would benefit the intersection by providing relief for the heavy morning peak right turn movement and capacity for the through movement. The right turn is a good candidate for initial construction and can proceed the other projects. Upgrading the US 21 / SC 802 traffic signal to include mast arms would also be accomplished with this project.



| SC 802 SAMS POINT TURN LANE   |   |           |      |              |                     |
|---|---|-----------|------|--------------|---------------------|
| SECTION   | ITEM  | QUANTITY  | UNIT | UNIT PRICE   | NET PRICE           |
| 1031000   | MOBILIZATION                                  | 1.000     | LS   | \$30,000.00  | \$30,000.00         |
| 2027000   | REM. & DISP. OF EXISTING CONC.                | 10.000    | CY   | \$29.00      | \$290.00            |
| 2031200   | SITE EXCAVATION                               | 1.000     | LS   | \$65,000.00  | \$65,000.00         |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A          | 180.000   | TON  | \$85.00      | \$15,300.00         |
| 4011004   | LIQUID ASPHALT BINDER PG64-22                 | 25.000    | TON  | \$750.00     | \$18,750.00         |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"        | 1,098.000 | SY   | \$19.00      | \$20,862.00         |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B    | 60.000    | TON  | \$90.00      | \$5,400.00          |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B         | 170.000   | TON  | \$105.00     | \$17,850.00         |
| 7203210   | CONCRETE CURB AND GUTTER(2'-0") VERTICAL FACE | 580.000   | LF   | \$21.00      | \$12,180.00         |
| 7204100   | CONCRETE SIDEWALK(4" UNIFORM)                 | 598.000   | SY   | \$54.00      | \$32,292.00         |
| 7209000   | PEDESTRIAN RAMP CONSTRUCTION                  | 50.000    | SY   | \$170.00     | \$8,500.00          |
|   | TRAFFIC CONTROL                               | 1.000     | LS   | \$35,000.00  | \$35,000.00         |
|   | PAVEMENT MARKINGS                             | 1.000     | LS   | \$10,000.00  | \$10,000.00         |
|   | EROSION CONTROL                               | 1.000     | LS   | \$12,000.00  | \$12,000.00         |
|   | DRAINAGE                                      | 1.000     | LS   | \$80,400.00  | \$80,400.00         |
|   | TRAFFIC SIGNAL UPGRADES WITH MAST ARMS        | 1.000     | LS   | \$140,000.00 | \$140,000.00        |
| CONSTRUCTION COST=  |   |           |      |              | \$503,824.00        |
| PRELIMINARY ENGINEERING =   |   |           |      |              | \$55,000.00         |
| REIMBURSABLE UTILITY RELOCATION=  |   |           |      |              | \$40,000.00         |
| PERMITTING=   |   |           |      |              | \$500.00            |
| CONSTRUCTION OVERSIGHT=   |   |           |      |              | \$35,000.00         |
| SUBTOTAL =  |   |           |      |              | \$634,324.00        |
| CONTINGENCIES AT 20% =  |   |           |      |              | \$126,864.80        |
| <b>TOTAL PROJECT COST =</b>   |   |           |      |              | <b>\$761,188.80</b> |
| <b>NOTES:</b>   |   |           |      |              |                     |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |   |           |      |              |                     |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |   |           |      |              |                     |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |   |           |      |              |                     |



## 6.2 HAZEL FARM ROAD AND S-7-497 GAY DRIVE

The Hazel Farm Road and S-7-497 Gay Drive project would include paving of Hazel Farm Road, improvements to Gay Drive, construction of the roundabout, installation of new traffic signals at each end, and signal interconnection with the US 21 / SC 802 signal. Upgrading these roads would provide beneficial street connectivity, increased pedestrian and bike safety, and congestion relief for the main intersection. With new signal implementation, this project is interdependent with improvements to mainline SC 802/US 21 Bus (Sea Island Parkway) and alignment of the new Lady's Island Middle School Access project. Addition of turn lanes, realignment of the middle school access, and median work to provide access management is needed at the connection of Hazel Farm at SC 802 and Gay Drive at US 21 Bus (Sea Island Parkway) to provide the full benefit of the signal interconnection.



| HAZEL FARM ROAD AND S-7-497 GAY DRIVE   |  |           |      |              |                       |
|---|--|-----------|------|--------------|-----------------------|
| SECTION   | ITEM   | QUANTITY  | UNIT | UNIT PRICE   | NET PRICE             |
| 1031000   | MOBILIZATION                                   | 1.000     | LS   | \$120,000.00 | \$120,000.00          |
| 2025000   | REM.&DISP.OF EXIST ASPH. PVMT.                 | 1,335.000 | SY   | \$35.00      | \$46,725.00           |
| 2031200   | SITE EXCAVATION (INCLUDING DET. POND)          | 1.000     | LS   | \$450,000.00 | \$450,000.00          |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A           | 1,170.000 | TON  | \$85.00      | \$99,450.00           |
| 4011004   | LIQUID ASPHALT BINDER PG64-22                  | 175.000   | TON  | \$750.00     | \$131,250.00          |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"         | 1,122.222 | SY   | \$19.00      | \$21,322.22           |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B     | 585.000   | TON  | \$90.00      | \$52,650.00           |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B          | 1,652.208 | TON  | \$105.00     | \$173,481.88          |
| 5019010   | STAINED CONCRETE PAVEMENT (8" UNIFORM)         | 192.111   | SY   | \$130.00     | \$24,974.44           |
| 7201000   | CONCRETE CURB (9" X 15")                       | 230.000   | LF   | \$27.00      | \$6,210.00            |
| 7203210   | CONCRETE CURB AND GUTTER (2'-0") VERTICAL FACE | 310.000   | LF   | \$29.00      | \$8,990.00            |
| 7204100   | CONCRETE SIDEWALK (4" UNIFORM)                 | 1,092.000 | SY   | \$54.00      | \$58,968.00           |
| 7209000   | PEDESTRIAN RAMP CONSTRUCTION                   | 175.000   | SY   | \$170.00     | \$29,750.00           |
|   | TRAFFIC CONTROL                                | 1.000     | LS   | \$150,000.00 | \$150,000.00          |
|   | PAVEMENT MARKINGS AND SIGNING                  | 1.000     | LS   | \$75,000.00  | \$75,000.00           |
|   | TWO TRAFFIC SIGNAL WITH MAST ARMS              | 1.000     | LS   | \$280,000.00 | \$280,000.00          |
|   | TRAFFIC SIGNAL INTERCONNECT                    | 1.000     | LS   | \$45,000.00  | \$45,000.00           |
|   | EROSION CONTROL                                | 1.000     | LS   | \$80,000.00  | \$80,000.00           |
|   | DRAINAGE                                       | 1.000     | LS   | \$94,000.00  | \$94,000.00           |
|   | LANDSCAPING                                    | 1.000     | LS   | \$23,192.50  | \$23,192.50           |
|   | IRRIGATION                                     | 1.000     | LS   | \$75,000.00  | \$75,000.00           |
| CONSTRUCTION COST=  |  |           |      |              | \$2,045,964.04        |
| PRELIMINARY ENGINEERING =   |  |           |      |              | \$250,000.00          |
| REIMBURSABLE UTILITY RELOCATION=  |  |           |      |              | \$50,000.00           |
| PERMITTING=   |  |           |      |              | \$500.00              |
| CONSTRUCTION OVERSIGHT=   |  |           |      |              | \$140,000.00          |
| SUBTOTAL =  |  |           |      |              | \$2,486,464.04        |
| CONTINGENCIES AT 20% =  |  |           |      |              | \$497,292.81          |
| <b>TOTAL PROJECT COST =</b>   |  |           |      |              | <b>\$2,983,756.85</b> |
| <b>NOTES:</b>   |  |           |      |              |                       |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |  |           |      |              |                       |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |  |           |      |              |                       |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |  |           |      |              |                       |



### 6.3 NEW LADY'S ISLAND MIDDLE SCHOOL ACCESS

The new Lady's Island Middle School Access project includes realigning the main entrance road to the middle school with Gay Drive and tie-ins to the middle school driveways, existing Cougar Drive, and Robin Drive. Cougar Drive would become right in right out. The benefits of this configuration include safer access to US 21 and street connectivity with the surrounding neighborhood near Robin drive. This project is dependent on improvements to the medians on mainline US 21 Bus (Sea Island Parkway) and signalization with the Gay Drive Project.



| NEW LADY'S ISLAND MIDDLE SCHOOL ACCESS  |  |           |      |              |                       |
|---|--|-----------|------|--------------|-----------------------|
| SECTION   | ITEM   | QUANTITY  | UNIT | UNIT PRICE   | NET PRICE             |
| 1031000   | MOBILIZATION                                   | 1.000     | LS   | \$75,000.00  | \$75,000.00           |
| 2031200   | SITE EXCAVATION                                | 1.000     | LS   | \$245,000.00 | \$245,000.00          |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A           | 680.000   | TON  | \$85.00      | \$57,800.00           |
| 4011004   | LIQUID ASPHALT BINDER PG64-22                  | 80.000    | TON  | \$750.00     | \$60,000.00           |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"         | 333.333   | SY   | \$19.00      | \$6,333.33            |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B     | 340.000   | TON  | \$90.00      | \$30,600.00           |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B          | 500.000   | TON  | \$105.00     | \$52,500.00           |
| 7203210   | CONCRETE CURB AND GUTTER (2'-0") VERTICAL FACE | 1,500.000 | LF   | \$29.00      | \$43,500.00           |
|   | TRAFFIC CONTROL                                | 1.000     | LS   | \$75,000.00  | \$75,000.00           |
|   | PAVEMENT MARKINGS                              | 1.000     | LS   | \$50,000.00  | \$50,000.00           |
|   | EROSION CONTROL                                | 1.000     | LS   | \$75,000.00  | \$75,000.00           |
|   | DRAINAGE                                       | 1.000     | LS   | \$260,000.00 | \$260,000.00          |
| CONSTRUCTION COST=  |  |           |      |              | \$1,030,733.33        |
| PRELIMINARY ENGINEERING =   |  |           |      |              | \$110,000.00          |
| REIMBURSABLE UTILITY RELOCATION=  |  |           |      |              | \$20,000.00           |
| PERMITTING=   |  |           |      |              | \$5,000.00            |
| CONSTRUCTION OVERSIGHT=   |  |           |      |              | \$70,000.00           |
| SUBTOTAL =  |  |           |      |              | \$1,235,733.33        |
| CONTINGENCIES AT 20% =  |  |           |      |              | \$247,146.67          |
| <b>TOTAL PROJECT COST =</b>   |  |           |      |              | <b>\$1,482,880.00</b> |
| <b>NOTES:</b>   |  |           |      |              |                       |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |  |           |      |              |                       |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |  |           |      |              |                       |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |  |           |      |              |                       |

#### 6.4 S-7-186 SUNSET BOULEVARD AND S-7-187 MILLER DRIVE WEST

S-7-186 Sunset Boulevard and S-7-187 Miller Drive West includes improvements to both streets, traffic calming, installation of a new traffic signal at the Miller Drive West intersection with SC 802, and signal interconnection with the US 21 / SC 802 signal. This would increase pedestrian safety on Sunset Boulevard and Miller Drive and provide congestion relief for the main US 21 / SC 801 intersection. These improvements are interdependent with the US 21 / SC 802 mainline project and the Beaufort High School Access Realignment.





| S-7-186 SUNSET BOULEVARD AND S-7-187 MILLER DRIVE WEST  |  |           |      |              |                       |
|---|--|-----------|------|--------------|-----------------------|
| SECTION   | ITEM   | QUANTITY  | UNIT | UNIT PRICE   | NET PRICE             |
| 1031000   | MOBILIZATION                                   | 1.000     | LS   | \$120,000.00 | \$120,000.00          |
| 2025000   | REM.&DISP.OF EXIST ASPH. PVMT.                 | 1,115.000 | SY   | \$35.00      | \$39,025.00           |
| 2031200   | SITE EXCAVATION                                | 1.000     | LS   | \$250,000.00 | \$250,000.00          |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A           | 350.000   | TON  | \$85.00      | \$29,750.00           |
| 4011004   | LIQUID ASPHALT BINDER PG64-22                  | 160.000   | TON  | \$750.00     | \$120,000.00          |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"         | 6,000.000 | SY   | \$19.00      | \$114,000.00          |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B     | 175.000   | TON  | \$90.00      | \$15,750.00           |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B          | 2,524.736 | TON  | \$105.00     | \$265,097.29          |
| 5019010   | STAINED CONCRETE PAVEMENT (8" UNIFORM)         | 199.222   | SY   | \$130.00     | \$25,898.89           |
| 7201000   | CONCRETE CURB (9" X 15")                       | 690.000   | LF   | \$27.00      | \$18,630.00           |
| 7203210   | CONCRETE CURB AND GUTTER (2'-0") VERTICAL FACE | 6,282.000 | LF   | \$29.00      | \$182,178.00          |
| 7204100   | CONCRETE SIDEWALK (4" UNIFORM)                 | 5,219.444 | SY   | \$54.00      | \$281,850.00          |
| 7206000   | CONCRETE MEDIAN                                | 0.000     | SY   | \$105.00     | \$0.00                |
| 7209000   | PEDESTRIAN RAMP CONSTRUCTION                   | 150.000   | SY   | \$170.00     | \$25,500.00           |
|   | TRAFFIC CONTROL                                | 1.000     | LS   | \$180,000.00 | \$180,000.00          |
|   | PAVEMENT MARKINGS                              | 1.000     | LS   | \$95,000.00  | \$95,000.00           |
|   | TRAFFIC SIGNAL WITH MAST ARMS                  | 1.000     | LS   | \$140,000.00 | \$140,000.00          |
|   | TRAFFIC SIGNAL INTERCONNECT                    | 1.000     | LS   | \$72,000.00  | \$72,000.00           |
|   | EROSION CONTROL                                | 1.000     | LS   | \$125,000.00 | \$125,000.00          |
|   | DRAINAGE                                       | 1.000     | LS   | \$355,000.00 | \$355,000.00          |
|   | LANDSCAPING                                    | 1.000     | LS   | \$51,450.00  | \$51,450.00           |
|   | IRRIGATION                                     | 1.000     | LS   | \$100,000.00 | \$100,000.00          |
|   | LIGHTING                                       | 1.000     | LS   | \$784,000.00 | \$784,000.00          |
| CONSTRUCTION COST=  |  |           |      |              | \$3,390,129.18        |
| PRELIMINARY ENGINEERING =   |  |           |      |              | \$370,000.00          |
| REIMBURSABLE UTILITY RELOCATION=  |  |           |      |              | \$100,000.00          |
| PERMITTING=   |  |           |      |              | \$5,000.00            |
| CONSTRUCTION OVERSIGHT=   |  |           |      |              | \$170,000.00          |
| SUBTOTAL =  |  |           |      |              | \$4,035,129.18        |
| CONTINGENCIES AT 20% =  |  |           |      |              | \$807,025.84          |
| <b>TOTAL PROJECT COST =</b>   |  |           |      |              | <b>\$4,842,155.02</b> |
| NOTES:  |  |           |      |              |                       |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |  |           |      |              |                       |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |  |           |      |              |                       |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |  |           |      |              |                       |

## 6.5 BEAUFORT HIGH SCHOOL ACCESS REALIGNMENT

Beaufort High School Access includes realignment of the access road, tie-ins to the existing access and to the Lady's Island Shopping Center redevelopment, relocation of the existing traffic signal, and signal interconnection with the US 21 / SC 802 signal. This project improves the connection to US 21 with an alignment of Sunset Boulevard. Some sections are dependent upon coordination with property owners. For example, the Beaufort High School Access Realignment is dependent upon coordination with Lady's Island Shopping Center redevelopment. It requires relocation of the existing traffic signal. It could precede the Sunset Boulevard / Miller Drive West improvements, or otherwise the Sunset / Miller improvements would just not experience its full benefits until the signal was relocated.

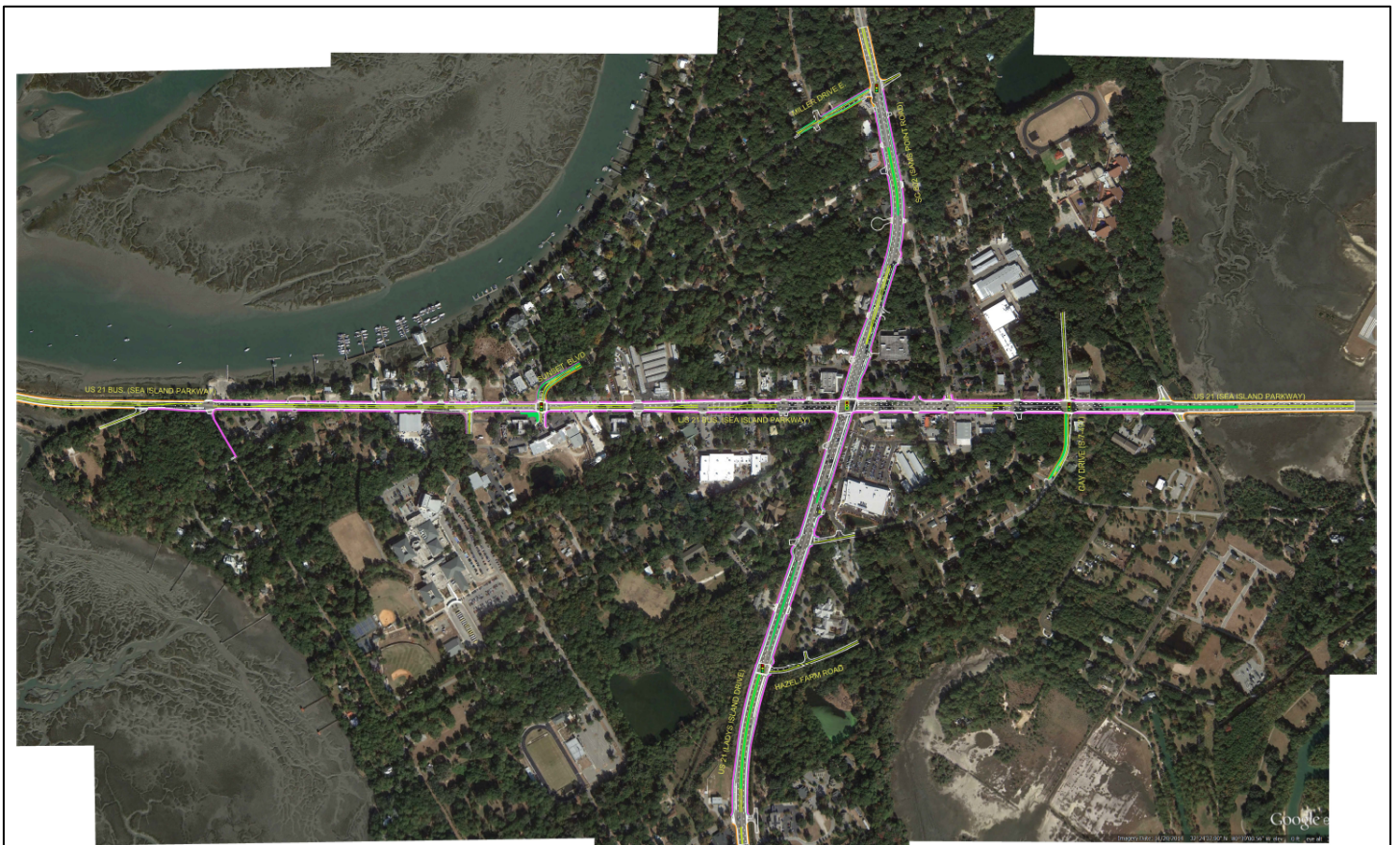


| BEAUFORT HIGH SCHOOL ACCESS REALIGNMENT   |   |           |      |              |                       |
|---|---|-----------|------|--------------|-----------------------|
| SECTION   | ITEM  | QUANTITY  | UNIT | UNIT PRICE   | NET PRICE             |
| 1031000   | MOBILIZATION                                  | 1.000     | LS   | \$75,000.00  | \$75,000.00           |
| 2025000   | REM.&DISP.OF EXIST ASPH. PVMT.                | 2,225.000 | SY   | \$35.00      | \$77,875.00           |
| 2031200   | SITE EXCAVATION                               | 1.000     | LS   | \$225,000.00 | \$225,000.00          |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A          | 135.000   | TON  | \$85.00      | \$11,475.00           |
| 4011004   | LIQUID ASPHALT BINDER PG64-22                 | 55.000    | TON  | \$750.00     | \$41,250.00           |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"        | 555.556   | SY   | \$19.00      | \$10,555.56           |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B    | 70.000    | TON  | \$90.00      | \$6,300.00            |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B         | 833.583   | TON  | \$105.00     | \$87,526.25           |
| 7203210   | CONCRETE CURB AND GUTTER(2'-0") VERTICAL FACE | 2,290.000 | LF   | \$21.00      | \$48,090.00           |
| 7204100   | CONCRETE SIDEWALK(4" UNIFORM)                 | 1,532.222 | SY   | \$54.00      | \$82,740.00           |
| 7209000   | PEDESTRIAN RAMP CONSTRUCTION                  | 75.000    | SY   | \$170.00     | \$12,750.00           |
|   | TRAFFIC CONTROL                               | 1.000     | LS   | \$130,000.00 | \$130,000.00          |
|   | PAVEMENT MARKINGS AND SIGNING                 | 1.000     | LS   | \$35,000.00  | \$35,000.00           |
|   | TRAFFIC SIGNAL WITH MAST ARMS                 | 1.000     | LS   | \$140,000.00 | \$140,000.00          |
|   | TRAFFIC SIGNAL INTERCONNECT                   | 1.000     | LS   | \$65,000.00  | \$65,000.00           |
|   | EROSION CONTROL                               | 1.000     | LS   | \$45,000.00  | \$45,000.00           |
|   | DRAINAGE                                      | 1.000     | LS   | \$180,000.00 | \$180,000.00          |
| CONSTRUCTION COST=  |   |           |      |              | \$1,273,561.81        |
| PRELIMINARY ENGINEERING =   |   |           |      |              | \$95,000.00           |
| REIMBURSABLE UTILITY RELOCATION=  |   |           |      |              | \$50,000.00           |
| PERMITTING=   |   |           |      |              | \$5,000.00            |
| CONSTRUCTION OVERSIGHT=   |   |           |      |              | \$70,000.00           |
| SUBTOTAL =  |   |           |      |              | \$1,493,561.81        |
| CONTINGENCIES AT 20% =  |   |           |      |              | \$298,712.36          |
| <b>TOTAL PROJECT COST =</b>   |   |           |      |              | <b>\$1,792,274.17</b> |
| <b>NOTES:</b>   |   |           |      |              |                       |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |   |           |      |              |                       |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |   |           |      |              |                       |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |   |           |      |              |                       |



## 6.6 US 21 BUSINESS, US 21, AND SC 802 MAINLINE IMPROVEMENTS

US 21 Business, US 21, and SC 802 Mainline includes all improvements to both corridors as shown below and on sheet 1 of the concept plan. The improvements include medians for access management, grass buffers and multi-use paths, lighting, and landscaping. These improvements would create a complete streets feel to the corridor and benefits include enhancing bicycle and pedestrian accommodations, safety, and improved vehicular progression. The full benefit of this project is interdependent with completion of the other projects.

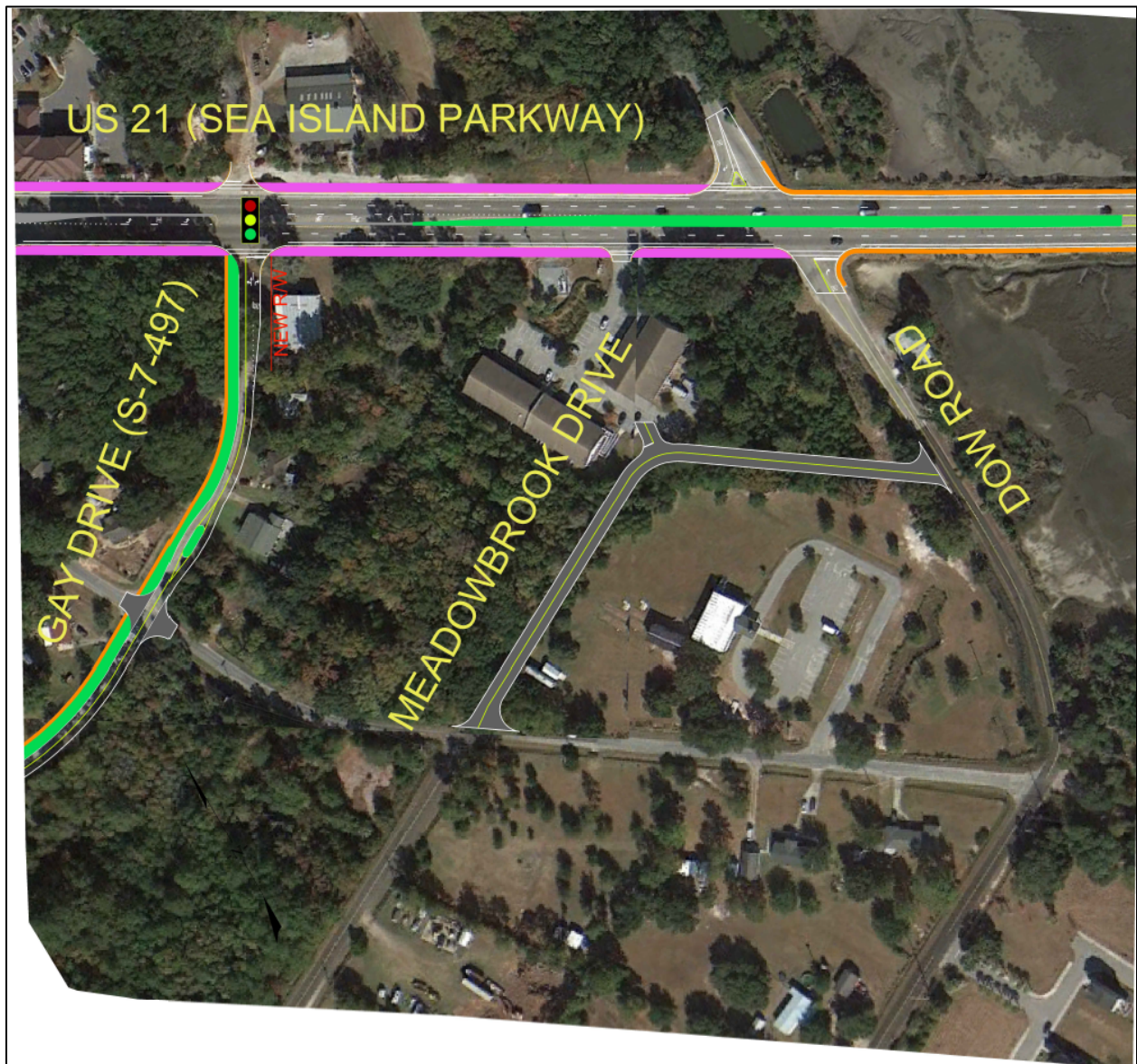


| US 21 BUSINESS, US 21, AND SC 802 MAINLINE IMPROVEMENTS   |   |             |      |                |                        |
|---|---|-------------|------|----------------|------------------------|
| SECTION   | ITEM  | QUANTITY    | UNIT | UNIT PRICE     | NET PRICE              |
| 1031000   | MOBILIZATION                                  | 1.000       | LS   | \$225,000.00   | \$225,000.00           |
| 2027000   | REM. & DISP. OF EXISTING CONC.                | 10.000      | CY   | \$29.00        | \$290.00               |
| 2031200   | SITE EXCAVATION                               | 1.000       | LS   | \$325,000.00   | \$325,000.00           |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A          | 190.000     | TON  | \$85.00        | \$16,150.00            |
| 4011004   | LIQUID ASPHALT BINDER PG64-22                 | 685.000     | TON  | \$750.00       | \$513,750.00           |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"        | 126,069.191 | SY   | \$7.50         | \$945,518.93           |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B    | 65.000      | TON  | \$90.00        | \$5,850.00             |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B         | 12,675.000  | TON  | \$105.00       | \$1,330,875.00         |
| 7203210   | CONCRETE CURB AND GUTTER(2'-0") VERTICAL FACE | 3,182.000   | LF   | \$29.00        | \$92,278.00            |
| 7204100   | CONCRETE SIDEWALK(4" UNIFORM)                 | 26,263.111  | SY   | \$54.00        | \$1,418,208.00         |
| 7206000   | CONCRETE MEDIAN                               | 1,734.333   | SY   | \$105.00       | \$182,105.00           |
| 7209000   | PEDESTRIAN RAMP CONSTRUCTION                  | 2,500.000   | SY   | \$170.00       | \$425,000.00           |
|   | TRAFFIC CONTROL                               | 1.000       | LS   | \$250,000.00   | \$250,000.00           |
|   | PAVEMENT MARKINGS AND SIGNING                 | 1.000       | LS   | \$125,000.00   | \$125,000.00           |
|   | EROSION CONTROL                               | 1.000       | LS   | \$225,000.00   | \$225,000.00           |
|   | DRAINAGE                                      | 1.000       | LS   | \$110,000.00   | \$110,000.00           |
|   | LANDSCAPING                                   | 1.000       | LS   | \$289,762.50   | \$289,762.50           |
|   | IRRIGATION                                    | 1.000       | LS   | \$160,000.00   | \$160,000.00           |
|   | RETAINING WALLS                               | 1.000       | LS   | \$100,000.00   | \$100,000.00           |
|   | LIGHTING                                      | 1.000       | LS   | \$1,300,000.00 | \$1,300,000.00         |
| CONSTRUCTION COST=  |   |             |      |                | \$8,039,787.43         |
| PRELIMINARY ENGINEERING =   |   |             |      |                | \$600,000.00           |
| REIMBURSABLE UTILITY RELOCATION=  |   |             |      |                | \$100,000.00           |
| PERMITTING=   |   |             |      |                | \$20,000.00            |
| CONSTRUCTION OVERSIGHT=   |   |             |      |                | \$220,000.00           |
| SUBTOTAL =  |   |             |      |                | \$8,979,787.43         |
| CONTINGENCIES AT 20% =  |   |             |      |                | \$1,795,957.49         |
| <b>TOTAL PROJECT COST =</b>   |   |             |      |                | <b>\$10,775,744.92</b> |
| <b>NOTES:</b>   |   |             |      |                |                        |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |   |             |      |                |                        |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |   |             |      |                |                        |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |   |             |      |                |                        |



## 6.7 MEADOWBROOK DRIVE EXTENTION

Extension of Meadowbrook Drive to Dow Road involves roadway work in existing right of way. The extension would increase roadway connectivity with access to the proposed signal at Gay Drive. This will be beneficial when Dow Road becomes right-in right-out. The Meadowbrook Drive Extension is not dependent on other projects, but its benefits would not be fully realized without US 21 Sea Island Parkway and Gay Drive improvements.

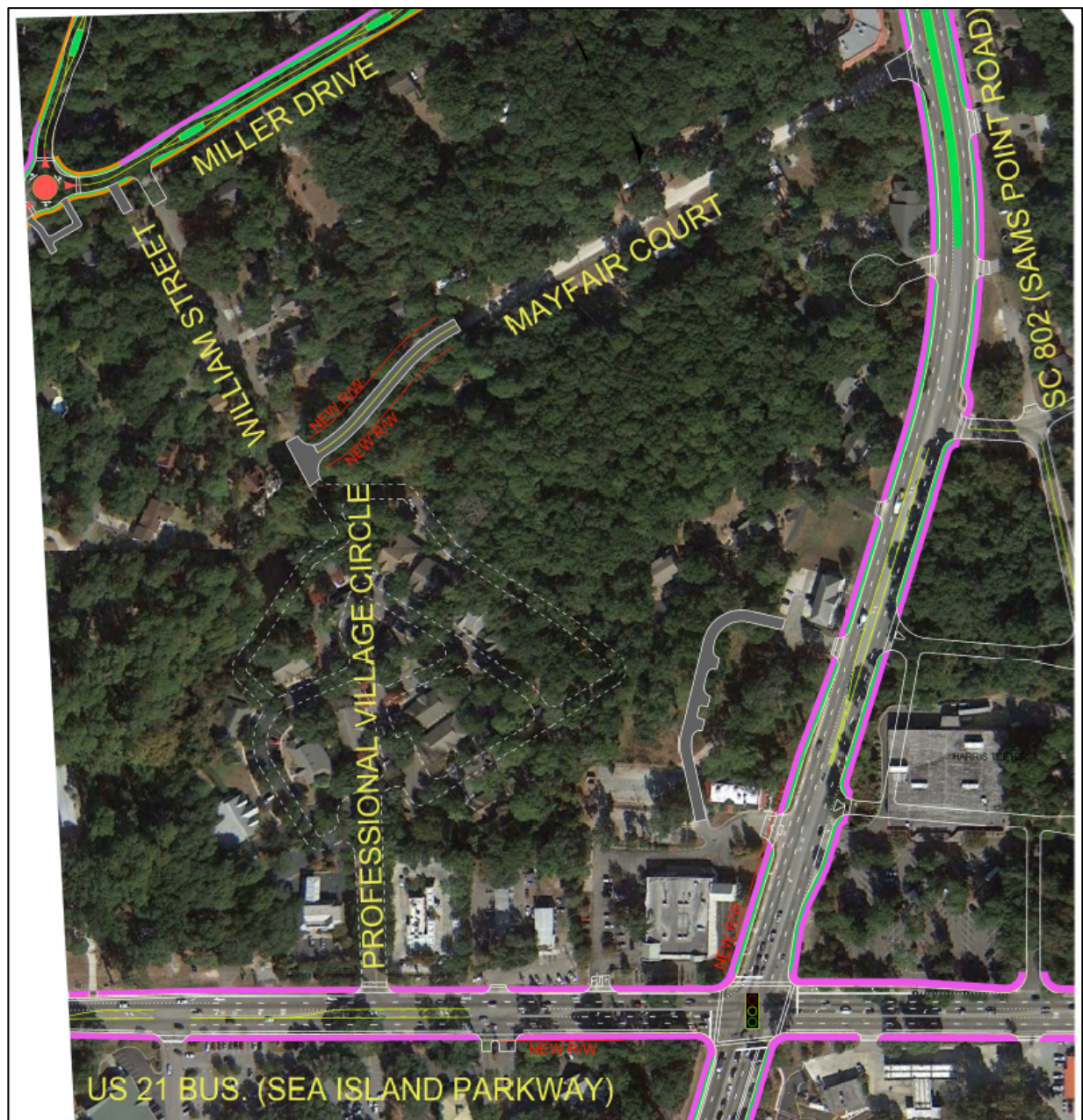


| MEADOWBROOK DRIVE EXTENSION   |  |          |      |              |                     |
|---|--|----------|------|--------------|---------------------|
| SECTION   | ITEM                                       | QUANTITY | UNIT | UNIT PRICE   | NET PRICE           |
| 1031000   | MOBILIZATION                               | 1.000    | LS   | \$75,000.00  | \$75,000.00         |
| 2031200   | SITE EXCAVATION                            | 1.000    | LS   | \$165,000.00 | \$165,000.00        |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A       | 500.000  | TON  | \$85.00      | \$42,500.00         |
| 4011004   | LIQUID ASPHALT BINDER PG64-22              | 50.000   | TON  | \$750.00     | \$37,500.00         |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"     | 333.333  | SY   | \$19.00      | \$6,333.33          |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B | 250.000  | TON  | \$90.00      | \$22,500.00         |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B      | 250.000  | TON  | \$105.00     | \$26,250.00         |
|   | TRAFFIC CONTROL                            | 1.000    | LS   | \$12,000.00  | \$12,000.00         |
|   | PAVEMENT MARKINGS AND SIGNING              | 1.000    | LS   | \$50,000.00  | \$50,000.00         |
|   | EROSION CONTROL                            | 1.000    | LS   | \$50,000.00  | \$50,000.00         |
| CONSTRUCTION COST=  |  |          |      |              | \$487,083.33        |
| PRELIMINARY ENGINEERING =   |  |          |      |              | \$65,000.00         |
| REIMBURSABLE UTILITY RELOCATION=  |  |          |      |              | \$20,000.00         |
| PERMITTING=   |  |          |      |              | \$40,000.00         |
| CONSTRUCTION OVERSIGHT=   |  |          |      |              | \$35,000.00         |
| SUBTOTAL =  |  |          |      |              | \$647,083.33        |
| CONTINGENCIES AT 20% =  |  |          |      |              | \$129,416.67        |
| <b>TOTAL PROJECT COST =</b>   |  |          |      |              | <b>\$776,500.00</b> |
| <b>NOTES:</b>   |  |          |      |              |                     |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |  |          |      |              |                     |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |  |          |      |              |                     |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |  |          |      |              |                     |



## 6.8 MAYFAIR COURT EXTENSION

Extension of Mayfair Court to William Street involves a new roadway connection and is dependent upon coordination with property owners. The Mayfair Court Extension is warranted before or during improvements to SC 802 Sams Point Road are made, as a median will be installed on SC 802. The Mayfair Court Extension may be combined with the mainline improvements. This benefits roadway connectivity and traffic progression on mainline SC 802 (Sams Point Road).

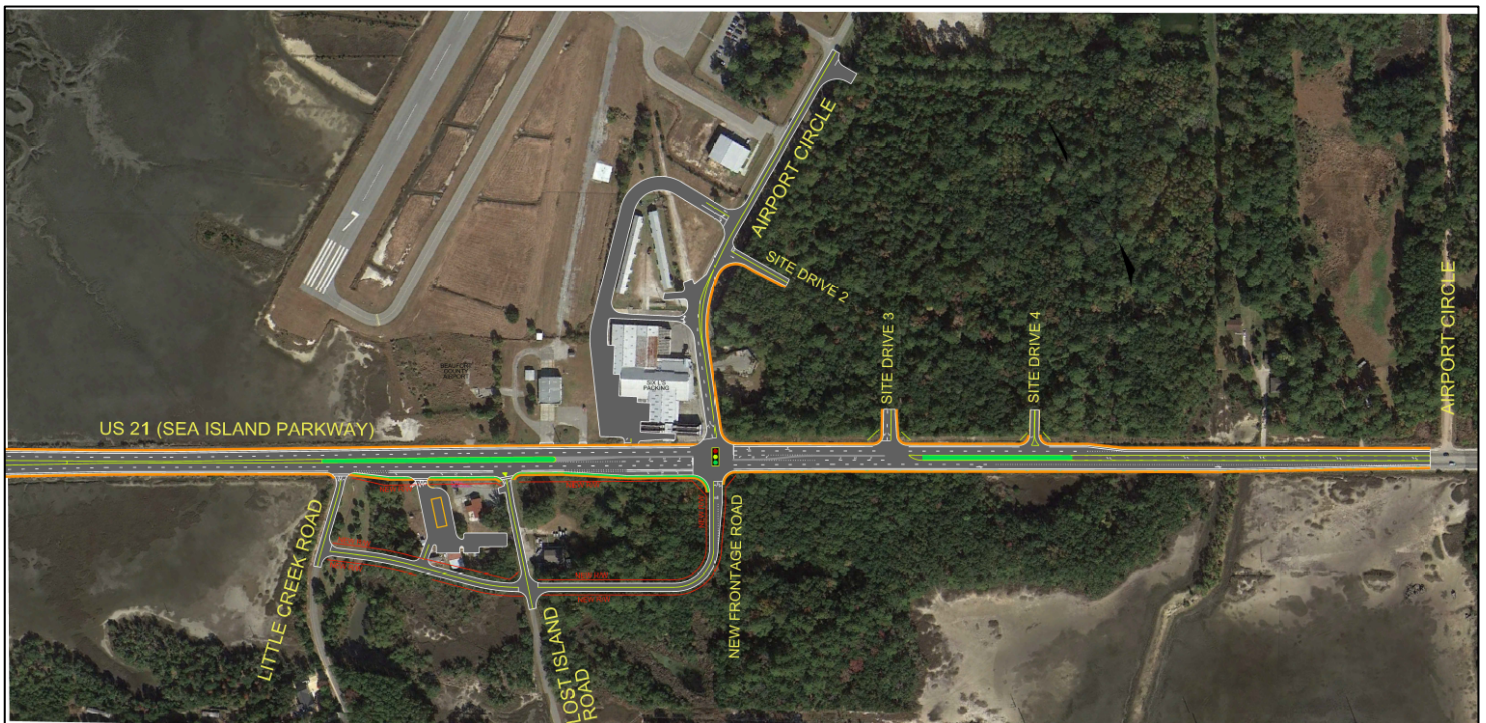


| MAYFAIR COURT EXTENSION   |  |          |      |              |                     |
|---|--|----------|------|--------------|---------------------|
| SECTION   | ITEM                                       | QUANTITY | UNIT | UNIT PRICE   | NET PRICE           |
| 1031000   | MOBILIZATION                               | 1.000    | LS   | \$25,000.00  | \$25,000.00         |
| 2031200   | SITE EXCAVATION                            | 1.000    | LS   | \$125,000.00 | \$125,000.00        |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A       | 160.000  | TON  | \$85.00      | \$13,600.00         |
| 4011004   | LIQUID ASPHALT BINDER PG64-22              | 20.000   | TON  | \$750.00     | \$15,000.00         |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"     | 435.111  | SY   | \$19.00      | \$8,267.11          |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B | 80.000   | TON  | \$90.00      | \$7,200.00          |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B      | 125.000  | TON  | \$105.00     | \$13,125.00         |
|   | TRAFFIC CONTROL                            | 1.000    | LS   | \$50,000.00  | \$50,000.00         |
|   | PAVEMENT MARKINGS AND SIGNING              | 1.000    | LS   | \$20,000.00  | \$20,000.00         |
|   | EROSION CONTROL                            | 1.000    | LS   | \$25,000.00  | \$25,000.00         |
| CONSTRUCTION COST=  |  |          |      |              | \$302,192.11        |
| PRELIMINARY ENGINEERING =   |  |          |      |              | \$40,000.00         |
| REIMBURSABLE UTILITY RELOCATION=  |  |          |      |              | \$10,000.00         |
| PERMITTING=   |  |          |      |              | \$500.00            |
| CONSTRUCTION OVERSIGHT=   |  |          |      |              | \$22,000.00         |
| SUBTOTAL =  |  |          |      |              | \$374,692.11        |
| CONTINGENCIES AT 20% =  |  |          |      |              | \$74,938.42         |
| <b>TOTAL PROJECT COST =</b>   |  |          |      |              | <b>\$449,630.53</b> |
| <b>NOTES:</b>   |  |          |      |              |                     |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |  |          |      |              |                     |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |  |          |      |              |                     |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |  |          |      |              |                     |



## 6.9 US 21 AIRPORT AREA AND FRONTAGE ROAD

US 21 Airport Area and Frontage Road includes all improvements shown below and in sheet 2 of the concept plan. These improvements would provide reduced travel delays and improved access management on US 21. They would also provide Little Creek Road and Lost Island Road access to the traffic signal. The US 21 Airport Area and the Frontage road improvements are dependent upon right of way acquisitions from property owners.



| US 21 AIRPORT AREA AND FRONTAGE ROAD  |   |            |      |              |                       |
|---|---|------------|------|--------------|-----------------------|
| SECTION   | ITEM  | QUANTITY   | UNIT | UNIT PRICE   | NET PRICE             |
| 1031000   | MOBILIZATION                                  | 1.000      | LS   | \$225,000.00 | \$225,000.00          |
| 2027000   | REM. & DISP. OF EXISTING CONC.                | 205.000    | CY   | \$29.00      | \$5,945.00            |
| 2031200   | SITE EXCAVATION                               | 1.000      | LS   | \$205,000.00 | \$205,000.00          |
| 3100310   | HOT MIX ASPHALT BASE COURSE - TYPE A          | 2,025.000  | TON  | \$85.00      | \$172,125.00          |
| 4011004   | LIQUID ASPHALT BINDER PG64-22                 | 375.000    | TON  | \$750.00     | \$281,250.00          |
| 4013200   | MILLING EXISTING ASPHALT PAVEMENT 2.0"        | 35,841.000 | SY   | \$9.50       | \$340,489.50          |
| 4020320   | HOT MIX ASPHALT INTERMEDIATE COURSE TYPE B    | 810.000    | TON  | \$90.00      | \$72,900.00           |
| 4030320   | HOT MIX ASPHALT SURFACE COURSE TYPE B         | 4,395.000  | TON  | \$105.00     | \$461,475.00          |
| 7203210   | CONCRETE CURB AND GUTTER(2'-0") VERTICAL FACE | 5,670.000  | LF   | \$29.00      | \$164,430.00          |
| 7204100   | CONCRETE SIDEWALK(4" UNIFORM)                 | 1,809.444  | SY   | \$54.00      | \$97,710.00           |
| 7206000   | CONCRETE MEDIAN                               | 485.111    | SY   | \$105.00     | \$50,936.67           |
| 7209000   | PEDESTRIAN RAMP CONSTRUCTION                  | 200.000    | SY   | \$170.00     | \$34,000.00           |
|   | TRAFFIC CONTROL                               | 1.000      | LS   | \$190,000.00 | \$190,000.00          |
|   | PAVEMENT MARKINGS AND SIGNING                 | 1.000      | LS   | \$125,000.00 | \$125,000.00          |
|   | TRAFFIC SIGNAL                                | 1.000      | LS   | \$190,000.00 | \$190,000.00          |
|   | EROSION CONTROL                               | 1.000      | LS   | \$175,000.00 | \$175,000.00          |
|   | DRAINAGE                                      | 1.000      | LS   | \$370,000.00 | \$370,000.00          |
|   | LANDSCAPING                                   | 1.000      | LS   | \$43,992.00  | \$43,992.00           |
|   | IRRIGATION                                    | 1.000      | LS   | \$30,000.00  | \$30,000.00           |
| CONSTRUCTION COST=  |   |            |      |              | \$3,235,253.17        |
| PRELIMINARY ENGINEERING =   |   |            |      |              | \$380,000.00          |
| REIMBURSABLE UTILITY RELOCATION=  |   |            |      |              | \$100,000.00          |
| PERMITTING=   |   |            |      |              | \$210,000.00          |
| CONSTRUCTION OVERSIGHT=   |   |            |      |              | \$225,000.00          |
| SUBTOTAL =  |   |            |      |              | \$4,150,253.17        |
| CONTINGENCIES AT 20% =  |   |            |      |              | \$830,050.63          |
| <b>TOTAL PROJECT COST =</b>   |   |            |      |              | <b>\$4,980,303.80</b> |
| <b>NOTES:</b>   |   |            |      |              |                       |
| 1. PROJECT COST EXCLUDES COSTS FOR OBTAINING RIGHT OF WAY AND PERMISSIONS/EASEMENTS.  |   |            |      |              |                       |
| 2. COSTS FOR REIMBURSABLE UTILITY RELOCATIONS AND PERMITTING ARE HIGHLY CONCEPTUAL. THEY ARE PROVIDED FOR PLANNING PURPOSES ONLY. |   |            |      |              |                       |
| 3. ALL COSTS ARE IN 2017 DOLLARS.   |   |            |      |              |                       |

## 7.0 Conclusion

The Lady's Island Corridor Study originated with the goals of Improving congestion and reducing delays, improving safety, enhancing bicycle and pedestrian accommodations, and enhancing aesthetics. The project team consisted of the City of Beaufort, Ward Edwards Engineering, and Stantec Consulting. Beaufort County and SCDOT provided additional cooperation. While developing the study, the team held several stakeholder meetings and two Public Information Meetings. Stakeholder meetings included:

- Area Developers and Engineers
- Various Property Owners
- Public Safety Representatives
- Lady's Island Community Preservation
- Sea Island Coalition
- Coastal Conservation League
- Beaufort County School District
- Northern Regional Plan Implementation Committee

The first Public Information Meeting was held on September 29, 2016. In that meeting, the team introduced the study's goals and objectives and requested citizen input on how the roadway corridors may be improved. The team collected public comments from that meeting and continued developing the study. The second Public Information Meeting was held on February 16, 2017. In that meeting, the team presented the results of the study and presented the concept plans. The team collected public comments from that meeting and then completed the study. The final concept plans and this report are the result of the team's analysis, stakeholder coordination, and feedback from the Public Information Meetings. The proposed improvements as shown in the concept plans will fully meet the intended objectives and significantly improve the corridors.

Programming and funding are needed to accomplish the proposed improvements. Improvements are expected to occur in phases, with the order of phasing to be determined in the near future based on availability and coordination with property owners.

# **APPENDIX A**

## **TURNING MOVEMENT COUNTS AND TUBE COUNTS**

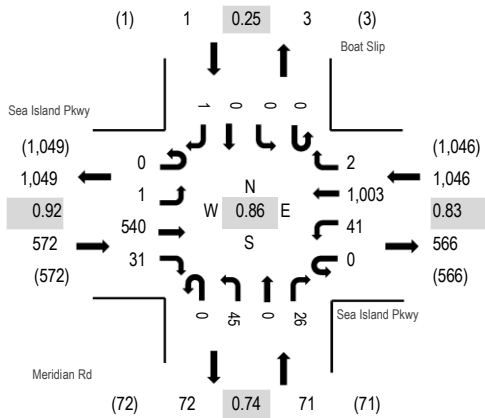




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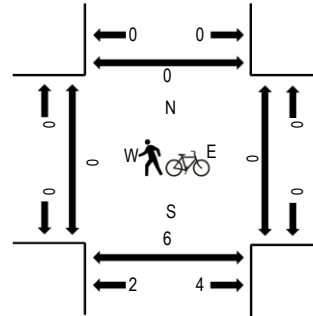
**Location:** 1 Meridian Rd & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Meridian Rd<br>Northbound |      |      |       | Boat Slip<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 0    | 123  | 3     | 0                            | 1    | 218  | 1     | 0                         | 8    | 0    | 3     | 0                       | 0    | 0    | 0     | 357   | 1,690           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 0    | 140  | 7     | 0                            | 8    | 253  | 0     | 0                         | 12   | 0    | 3     | 0                       | 0    | 0    | 1     | 424   |                 | 0                    | 0    | 6     | 0     |
| 7:45 AM                | 0                            | 0    | 147  | 8     | 0                            | 19   | 295  | 0     | 0                         | 12   | 0    | 9     | 0                       | 0    | 0    | 0     | 490   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 1    | 130  | 13    | 0                            | 13   | 237  | 1     | 0                         | 13   | 0    | 11    | 0                       | 0    | 0    | 0     | 419   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

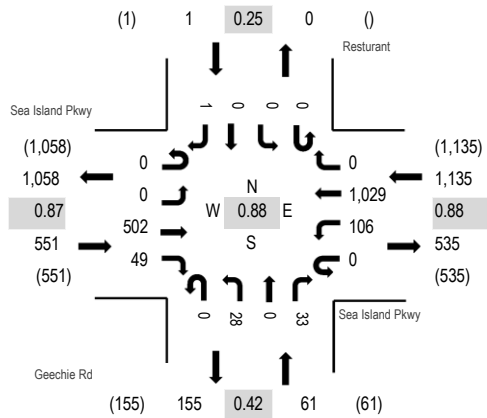
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 1    | 531  | 31    | 0         | 41   | 988   | 2     | 0          | 45   | 0    | 26    | 0          | 0    | 0    | 1     | 1,666 |
| Mediums            | 0         | 0    | 9    | 0     | 0         | 0    | 15    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 24    |
| Total              | 0         | 1    | 540  | 31    | 0         | 41   | 1,003 | 2     | 0          | 45   | 0    | 26    | 0          | 0    | 0    | 1     | 1,690 |



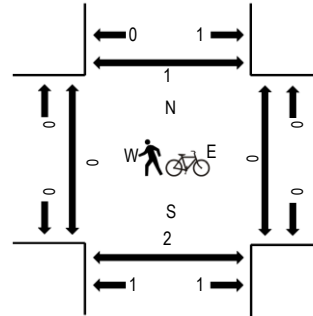
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**Location:** 2 Geechie Rd & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Geechie Rd<br>Northbound |      |      |       | Resturant<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|--------------------------|------|------|-------|-------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 0    | 113  | 10    | 0                            | 20   | 220  | 0     | 0                        | 1    | 0    | 5     | 0                       | 0    | 0    | 0     | 369   | 1,748           | 0                    | 0    | 2     | 1     |
| 7:30 AM                | 0                            | 0    | 129  | 5     | 0                            | 15   | 259  | 0     | 0                        | 5    | 0    | 1     | 0                       | 0    | 0    | 0     | 414   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 0    | 148  | 10    | 0                            | 14   | 310  | 0     | 0                        | 8    | 0    | 5     | 0                       | 0    | 0    | 1     | 496   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 0    | 112  | 24    | 0                            | 57   | 240  | 0     | 0                        | 14   | 0    | 22    | 0                       | 0    | 0    | 0     | 469   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

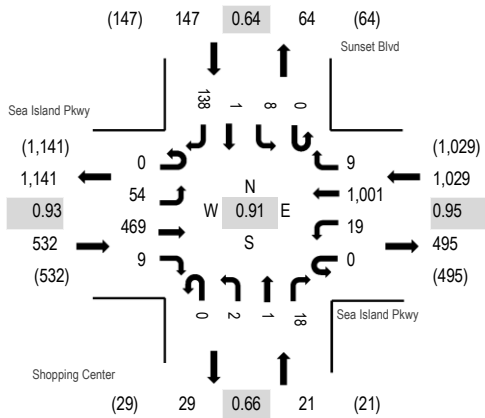
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 0    | 491  | 49    | 0         | 104  | 1,013 | 0     | 0          | 28   | 0    | 31    | 0          | 0    | 0    | 1     | 1,717 |
| Mediums            | 0         | 0    | 11   | 0     | 0         | 2    | 16    | 0     | 0          | 0    | 0    | 2     | 0          | 0    | 0    | 0     | 31    |
| Total              | 0         | 0    | 502  | 49    | 0         | 106  | 1,029 | 0     | 0          | 28   | 0    | 33    | 0          | 0    | 0    | 1     | 1,748 |



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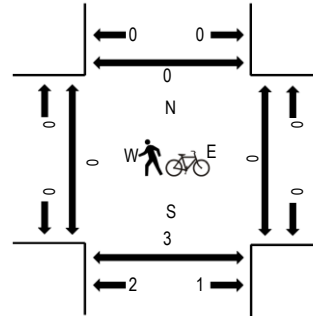
**Location:** 3 Shopping Center & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Shopping Center<br>Northbound |      |      |       | Sunset Blvd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------------|------|------|-------|---------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                    | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 9    | 102  | 2     | 0                            | 2    | 223  | 3     | 0                             | 0    | 0    | 2     | 0                         | 2    | 0    | 19    | 364   | 1,729           | 0                    | 0    | 2     | 0     |
| 7:30 AM                | 0                            | 11   | 124  | 2     | 0                            | 5    | 253  | 3     | 0                             | 1    | 1    | 6     | 0                         | 5    | 0    | 29    | 440   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 19   | 121  | 3     | 0                            | 7    | 259  | 2     | 0                             | 1    | 0    | 6     | 0                         | 0    | 1    | 56    | 475   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 15   | 122  | 2     | 0                            | 5    | 266  | 1     | 0                             | 0    | 0    | 4     | 0                         | 1    | 0    | 34    | 450   |                 | 0                    | 0    | 1     | 0     |

### Peak Rolling Hour Flow Rates

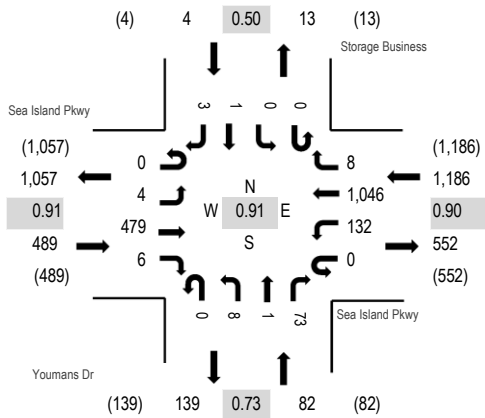
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 53   | 458  | 9     | 0         | 19   | 984   | 9     | 0          | 2    | 1    | 17    | 0          | 8    | 1    | 137   | 1,698 |
| Mediums            | 0         | 1    | 11   | 0     | 0         | 0    | 17    | 0     | 0          | 0    | 0    | 1     | 0          | 0    | 0    | 1     | 31    |
| Total              | 0         | 54   | 469  | 9     | 0         | 19   | 1,001 | 9     | 0          | 2    | 1    | 18    | 0          | 8    | 1    | 138   | 1,729 |



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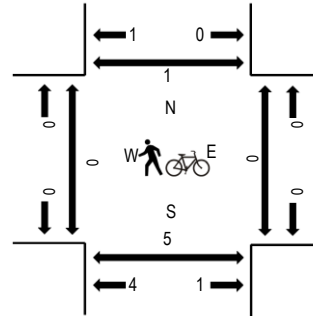
**Location:** 4 Youmans Dr & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Youmans Dr<br>Northbound |      |      |       | Storage Business<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|--------------------------|------|------|-------|--------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                         | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 0    | 99   | 0     | 0                            | 19   | 229  | 0     | 0                        | 1    | 1    | 15    | 0                              | 0    | 0    | 1     | 365   | 1,761           | 0                    | 0    | 2     | 0     |
| 7:30 AM                | 0                            | 2    | 132  | 1     | 0                            | 19   | 281  | 1     | 0                        | 2    | 0    | 14    | 0                              | 0    | 0    | 1     | 453   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 0    | 126  | 3     | 0                            | 37   | 267  | 4     | 0                        | 4    | 0    | 17    | 0                              | 0    | 0    | 0     | 458   |                 | 0                    | 0    | 3     | 0     |
| 8:00 AM                | 0                            | 2    | 122  | 2     | 0                            | 57   | 269  | 3     | 0                        | 1    | 0    | 27    | 0                              | 0    | 1    | 1     | 485   |                 | 0                    | 0    | 0     | 1     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 4    | 472  | 5     | 0         | 121  | 1,030 | 8     | 0          | 7    | 1    | 66    | 0          | 0    | 1    | 3     | 1,718 |
| Mediums            | 0         | 0    | 7    | 1     | 0         | 11   | 16    | 0     | 0          | 1    | 0    | 7     | 0          | 0    | 0    | 0     | 43    |
| Total              | 0         | 4    | 479  | 6     | 0         | 132  | 1,046 | 8     | 0          | 8    | 1    | 73    | 0          | 0    | 1    | 3     | 1,761 |



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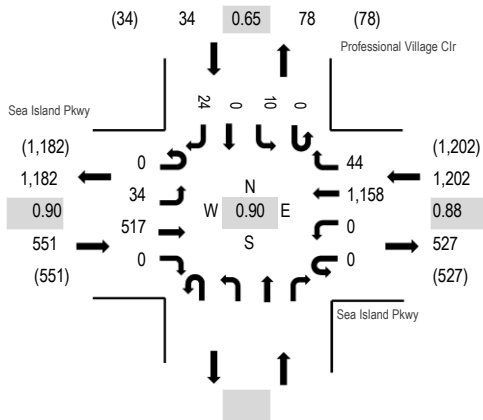
**Location:** 5 Professional Village Cir & Sea Island Pkwy AM

**Date and Start Time:** Wednesday, September 7, 2016

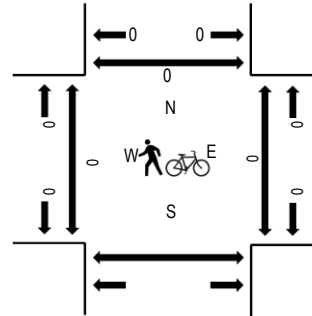
**Peak Hour:** 07:15 AM - 08:15 AM

**Peak 15-Minutes:** 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Northbound |      |      |       | Professional Village Cir<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------|------|------|-------|--|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn                                 | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 2    | 112  | 0     | 0                            | 0    | 0    | 241   | 9          |      |      |       | 0                                      | 1    | 0    | 1     | 366   | 1,787           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 9    | 131  | 0     | 0                            | 0    | 0    | 280   | 10         |      |      |       | 0                                      | 1    | 0    | 7     | 438   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 13   | 140  | 0     | 0                            | 0    | 0    | 302   | 17         |      |      |       | 0                                      | 4    | 0    | 9     | 485   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 10   | 134  | 0     | 0                            | 0    | 0    | 335   | 8          |      |      |       | 0                                      | 4    | 0    | 7     | 498   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

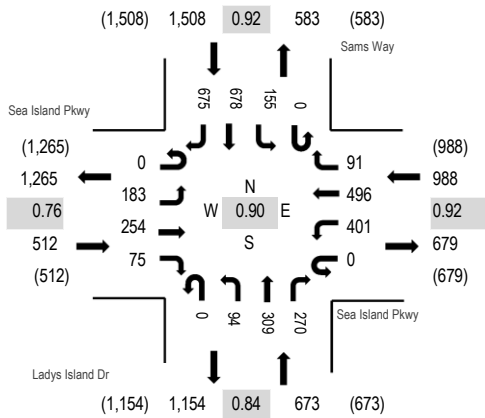
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0     | 0     |            |      |      |       | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 34   | 499  | 0     | 0         | 0    | 1,131 | 44    |            |      |      |       | 0          | 9    | 0    | 24    | 1,741 |
| Mediums            | 0         | 0    | 18   | 0     | 0         | 0    | 27    | 0     |            |      |      |       | 0          | 1    | 0    | 0     | 46    |
| Total              | 0         | 34   | 517  | 0     | 0         | 0    | 1,158 | 44    |            |      |      |       | 0          | 10   | 0    | 24    | 1,787 |



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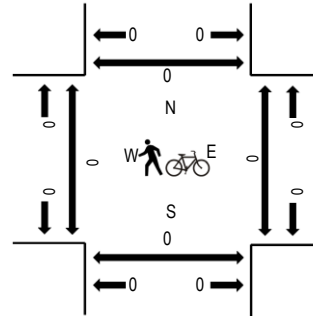
**Location:** 8 Ladys Island Dr & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Ladys Island Dr<br>Northbound |      |      |       | Sams Way<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------------|------|------|-------|------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                 | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 42   | 59   | 12    | 0                            | 91   | 88   | 26    | 0                             | 16   | 55   | 53    | 0                      | 40   | 132  | 138   | 752   | 3,681           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 32   | 54   | 14    | 0                            | 108  | 113  | 27    | 0                             | 27   | 90   | 66    | 0                      | 30   | 197  | 174   | 932   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 67   | 71   | 31    | 0                            | 110  | 136  | 22    | 0                             | 29   | 94   | 77    | 0                      | 35   | 170  | 182   | 1,024 |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 42   | 70   | 18    | 0                            | 92   | 159  | 16    | 0                             | 22   | 70   | 74    | 0                      | 50   | 179  | 181   | 973   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

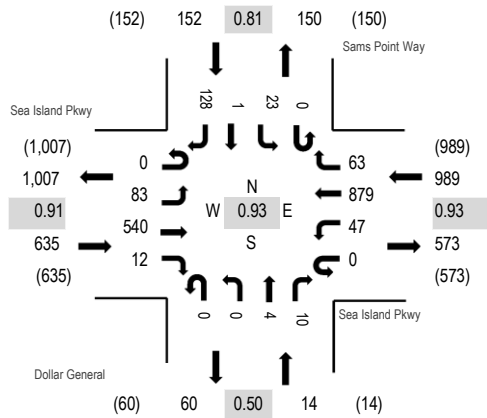
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 1    | 0    | 0     | 0          | 0    | 2    | 3     | 0          | 2    | 0    | 0     | 8     |
| Lights             | 0         | 178  | 248  | 73    | 0         | 390  | 484  | 79    | 0          | 92   | 298  | 262   | 0          | 147  | 667  | 664   | 3,582 |
| Mediums            | 0         | 5    | 6    | 2     | 0         | 10   | 12   | 12    | 0          | 2    | 9    | 5     | 0          | 6    | 11   | 11    | 91    |
| Total              | 0         | 183  | 254  | 75    | 0         | 401  | 496  | 91    | 0          | 94   | 309  | 270   | 0          | 155  | 678  | 675   | 3,681 |



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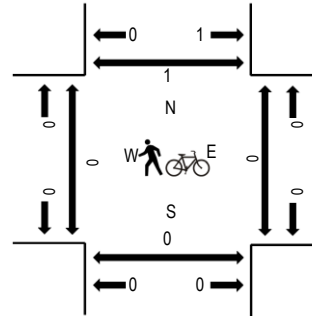
**Location:** 9 Dollar General & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Dollar General<br>Northbound |      |      |       | Sams Point Way<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 13   | 128  | 5     | 0                            | 5    | 188  | 11    | 0                            | 0    | 2    | 0     | 0                            | 4    | 0    | 25    | 381   | 1,790           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 21   | 118  | 1     | 0                            | 8    | 239  | 20    | 0                            | 0    | 1    | 6     | 0                            | 8    | 0    | 30    | 452   |                 | 0                    | 0    | 0     | 1     |
| 7:45 AM                | 0                            | 29   | 144  | 2     | 0                            | 14   | 229  | 20    | 0                            | 0    | 1    | 3     | 0                            | 4    | 0    | 34    | 480   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 20   | 150  | 4     | 0                            | 20   | 223  | 12    | 0                            | 0    | 0    | 1     | 0                            | 7    | 1    | 39    | 477   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

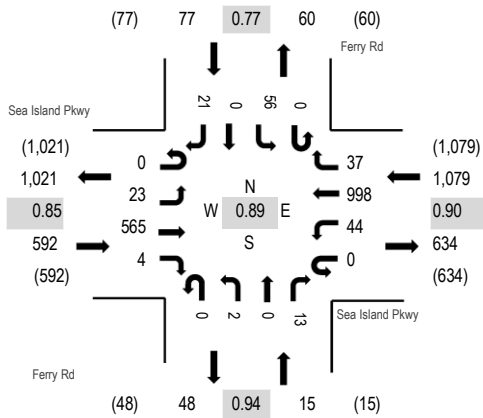
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 3    | 0     | 0         | 0    | 1    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 4     |
| Lights             | 0         | 82   | 518  | 12    | 0         | 46   | 850  | 63    | 0          | 0    | 4    | 10    | 0          | 23   | 1    | 124   | 1,733 |
| Mediums            | 0         | 1    | 19   | 0     | 0         | 1    | 28   | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 4     | 53    |
| Total              | 0         | 83   | 540  | 12    | 0         | 47   | 879  | 63    | 0          | 0    | 4    | 10    | 0          | 23   | 1    | 128   | 1,790 |



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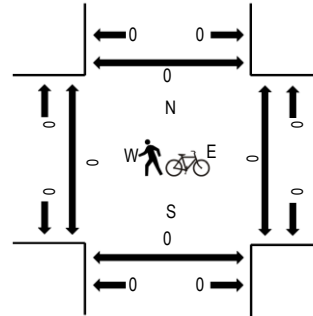
**Location:** 10 Ferry Rd & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Ferry Rd<br>Northbound |      |      |       | Ferry Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------|------|------|-------|------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                 | Left | Thru | Right | U-Turn                 | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 3    | 129  | 2     | 0                            | 4    | 204  | 5     | 0                      | 0    | 0    | 4     | 0                      | 12   | 0    | 6     | 369   | 1,763           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 5    | 127  | 0     | 0                            | 11   | 262  | 10    | 0                      | 1    | 0    | 3     | 0                      | 12   | 0    | 4     | 435   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 9    | 143  | 0     | 0                            | 14   | 259  | 11    | 0                      | 1    | 0    | 2     | 0                      | 18   | 0    | 7     | 464   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 6    | 166  | 2     | 0                            | 15   | 273  | 11    | 0                      | 0    | 0    | 4     | 0                      | 14   | 0    | 4     | 495   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 5    | 0     | 0         | 0    | 2    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 7     |
| Lights             | 0         | 22   | 540  | 4     | 0         | 43   | 966  | 36    | 0          | 1    | 0    | 13    | 0          | 55   | 0    | 20    | 1,700 |
| Mediums            | 0         | 1    | 20   | 0     | 0         | 1    | 30   | 1     | 0          | 1    | 0    | 0     | 0          | 1    | 0    | 1     | 56    |
| Total              | 0         | 23   | 565  | 4     | 0         | 44   | 998  | 37    | 0          | 2    | 0    | 13    | 0          | 56   | 0    | 21    | 1,763 |

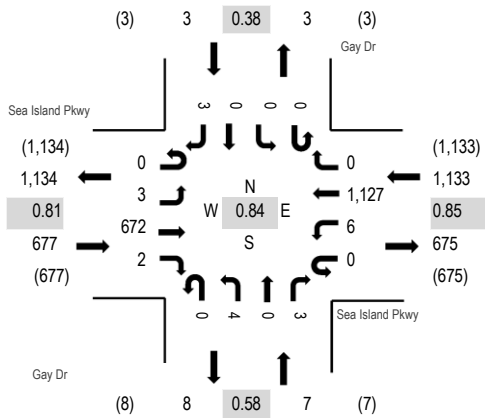




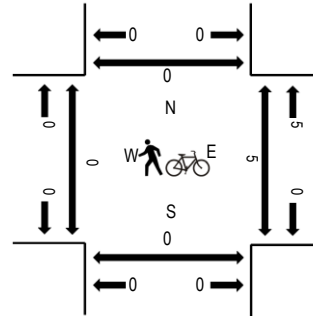
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**Location:** 11 Gay Dr & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Gay Dr<br>Northbound |      |      |       | Gay Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn               | Left | Thru | Right | U-Turn               | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 2    | 166  | 0     | 0                            | 1    | 219  | 0     | 0                    | 2    | 0    | 1     | 0                    | 0    | 0    | 2     | 393   | 1,820           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 0    | 135  | 1     | 0                            | 0    | 306  | 0     | 0                    | 1    | 0    | 0     | 0                    | 0    | 0    | 1     | 444   |                 | 0                    | 5    | 0     | 0     |
| 7:45 AM                | 0                            | 0    | 164  | 1     | 0                            | 0    | 273  | 0     | 0                    | 0    | 0    | 2     | 0                    | 0    | 0    | 0     | 440   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 1    | 207  | 0     | 0                            | 5    | 329  | 0     | 0                    | 1    | 0    | 0     | 0                    | 0    | 0    | 0     | 543   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

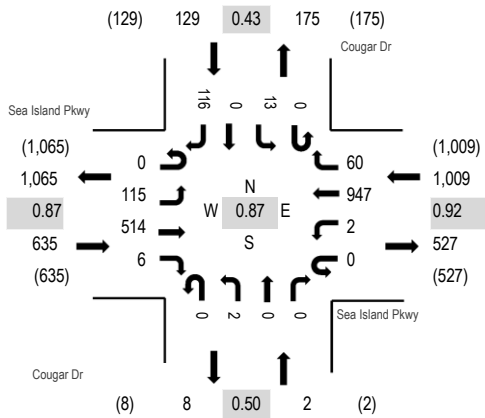
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 7    | 0     | 0         | 0    | 1     | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 8     |
| Lights             | 0         | 3    | 644  | 1     | 0         | 5    | 1,095 | 0     | 0          | 4    | 0    | 3     | 0          | 0    | 0    | 3     | 1,758 |
| Mediums            | 0         | 0    | 21   | 1     | 0         | 1    | 31    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 54    |
| Total              | 0         | 3    | 672  | 2     | 0         | 6    | 1,127 | 0     | 0          | 4    | 0    | 3     | 0          | 0    | 0    | 3     | 1,820 |



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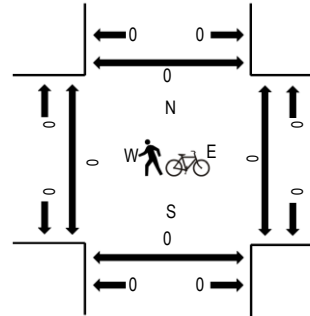
**Location:** 12 Cougar Dr & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 08:00 AM - 08:15 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Cougar Dr<br>Northbound |      |      |       | Cougar Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------|------|------|-------|-------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                  | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 5    | 140  | 2     | 0                            | 0    | 0    | 202   | 12                      | 0    | 0    | 0     | 0                       | 4    | 0    | 9     | 374   | 1,775           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 10   | 132  | 0     | 0                            | 1    | 268  | 5     | 0                       | 1    | 0    | 0     | 0                       | 0    | 0    | 9     | 426   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 38   | 123  | 2     | 0                            | 1    | 244  | 25    | 0                       | 1    | 0    | 0     | 0                       | 2    | 0    | 30    | 466   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 62   | 119  | 2     | 0                            | 0    | 233  | 18    | 0                       | 0    | 0    | 0     | 0                       | 7    | 0    | 68    | 509   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

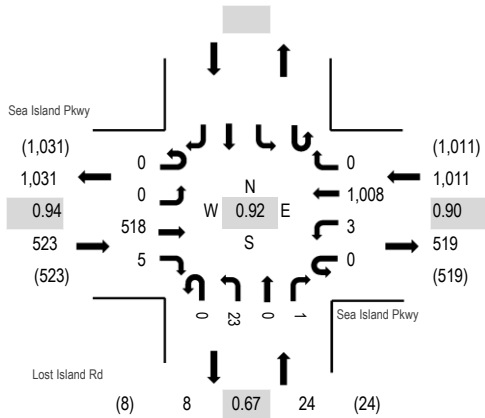
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 4    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 4     |
| Lights             | 0         | 115  | 491  | 6     | 0         | 1    | 922  | 51    | 0          | 2    | 0    | 0     | 0          | 9    | 0    | 110   | 1,707 |
| Mediums            | 0         | 0    | 19   | 0     | 0         | 1    | 25   | 9     | 0          | 0    | 0    | 0     | 0          | 4    | 0    | 6     | 64    |
| Total              | 0         | 115  | 514  | 6     | 0         | 2    | 947  | 60    | 0          | 2    | 0    | 0     | 0          | 13   | 0    | 116   | 1,775 |



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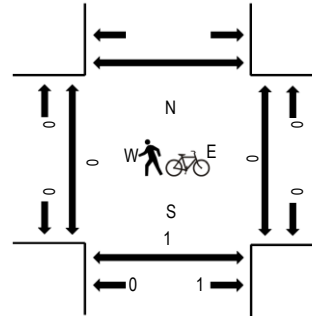
**Location:** 13 Lost Island Rd & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Lost Island Rd<br>Northbound |      |      |       | Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 0    | 137  | 0     | 0                            | 0    | 1    | 208   | 0                            | 0    | 5    | 0     | 0          |      |      |       | 351   | 1,558           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 0    | 136  | 3     | 0                            | 0    | 2    | 279   | 0                            | 0    | 3    | 0     | 0          |      |      |       | 423   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 0    | 123  | 0     | 0                            | 0    | 0    | 273   | 0                            | 0    | 9    | 0     | 0          |      |      |       | 405   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 0    | 122  | 2     | 0                            | 0    | 0    | 248   | 0                            | 0    | 6    | 0     | 1          |      |      |       | 379   |                 | 0                    | 0    | 1     | 0     |

### Peak Rolling Hour Flow Rates

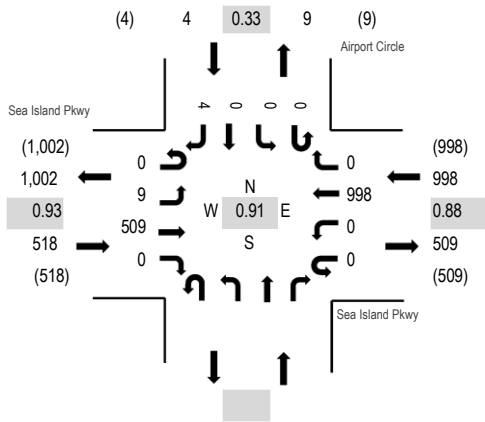
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |       |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|-------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru  | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 6    | 0     | 0         | 0    | 2     | 0     | 0          | 0    | 0    | 0     |            |      |      |       | 8     |
| Lights             | 0         | 0    | 491  | 5     | 0         | 3    | 968   | 0     | 0          | 23   | 0    | 1     |            |      |      |       | 1,491 |
| Mediums            | 0         | 0    | 21   | 0     | 0         | 0    | 38    | 0     | 0          | 0    | 0    | 0     |            |      |      |       | 59    |
| Total              | 0         | 0    | 518  | 5     | 0         | 3    | 1,008 | 0     | 0          | 23   | 0    | 1     |            |      |      |       | 1,558 |



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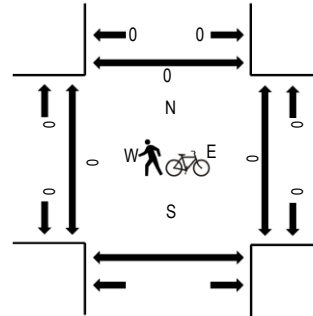
**Location:** 14 Airport Circle & Sea Island Pkwy AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Northbound |      |      |       | Airport Circle<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------|------|------|-------|------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn                       | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 1    | 138  | 0     | 0                            | 0    | 0    | 202   | 0          |      |      |       | 0                            | 0    | 0    | 0     | 341   | 1,520           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 2    | 130  | 0     | 0                            | 0    | 0    | 284   | 0          |      |      |       | 0                            | 0    | 0    | 1     | 417   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 2    | 118  | 0     | 0                            | 0    | 0    | 261   | 0          |      |      |       | 0                            | 0    | 0    | 0     | 381   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 4    | 123  | 0     | 0                            | 0    | 0    | 251   | 0          |      |      |       | 0                            | 0    | 0    | 3     | 381   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 6    | 0     | 0         | 0    | 0    | 0     |            |      |      |       | 0          | 0    | 0    | 2     | 8     |
| Lights             | 0         | 8    | 483  | 0     | 0         | 0    | 959  | 0     |            |      |      |       | 0          | 0    | 0    | 2     | 1,452 |
| Mediums            | 0         | 1    | 20   | 0     | 0         | 0    | 39   | 0     |            |      |      |       | 0          | 0    | 0    | 0     | 60    |
| Total              | 0         | 9    | 509  | 0     | 0         | 0    | 998  | 0     |            |      |      |       | 0          | 0    | 0    | 4     | 1,520 |



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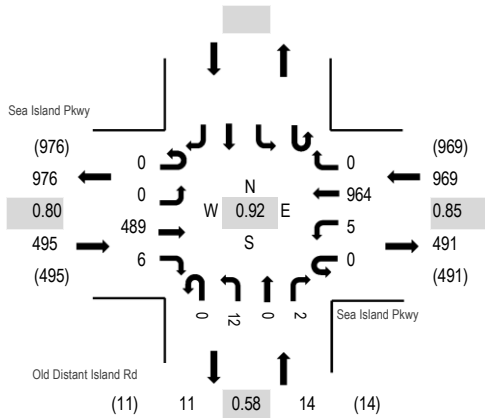
**Location:** 15 Old Distant Island Rd & Sea Island Pkwy AM

**Date and Start Time:** Wednesday, September 7, 2016

**Peak Hour:** 07:15 AM - 08:15 AM

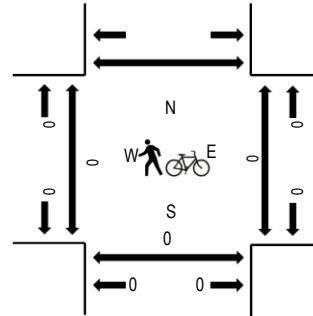
**Peak 15-Minutes:** 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Old Distant Island Rd<br>Northbound |      |      |       | Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------------------|------|------|-------|------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                              | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 0    | 117  | 2     | 0                            | 2    | 204  | 0     | 0                                   | 0    | 0    | 1     | 0          | 0    | 0    | 0     | 326   | 1,478           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 0    | 152  | 2     | 0                            | 1    | 243  | 0     | 0                                   | 4    | 0    | 0     | 0          | 0    | 0    | 0     | 402   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 0    | 110  | 0     | 0                            | 1    | 283  | 0     | 0                                   | 3    | 0    | 0     | 0          | 0    | 0    | 0     | 397   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 0    | 110  | 2     | 0                            | 1    | 234  | 0     | 0                                   | 5    | 0    | 1     | 0          | 0    | 0    | 0     | 353   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 0    | 474  | 4     | 0         | 5    | 929  | 0     | 0          | 11   | 0    | 2     | 0          | 0    | 0    | 0     | 1,425 |
| Mediums            | 0         | 0    | 15   | 2     | 0         | 0    | 35   | 0     | 0          | 1    | 0    | 0     | 0          | 0    | 0    | 0     | 53    |
| Total              | 0         | 0    | 489  | 6     | 0         | 5    | 964  | 0     | 0          | 12   | 0    | 2     | 0          | 0    | 0    | 0     | 1,478 |



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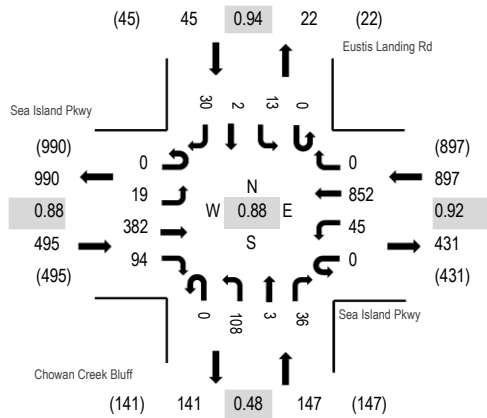
**Location:** 16 Chowan Creek Bluff & Sea Island Pkwy AM

**Date and Start Time:** Wednesday, September 7, 2016

**Peak Hour:** 07:15 AM - 08:15 AM

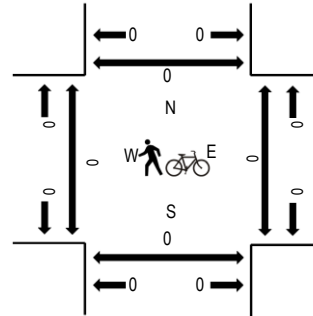
**Peak 15-Minutes:** 07:30 AM - 07:45 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Chowan Creek Bluff<br>Northbound |      |      |       | Eustis Landing Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|----------------------------------|------|------|-------|---------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                           | Left | Thru | Right | U-Turn                          | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 9    | 81   | 51    | 0                            | 18   | 170  | 0     | 0                                | 33   | 1    | 16    | 0                               | 3    | 0    | 9     | 391   | 1,584           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 4    | 87   | 32    | 0                            | 21   | 219  | 0     | 0                                | 57   | 2    | 17    | 0                               | 2    | 1    | 6     | 448   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 3    | 107  | 8     | 0                            | 3    | 241  | 0     | 0                                | 10   | 0    | 2     | 0                               | 5    | 1    | 6     | 386   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                            | 3    | 107  | 3     | 0                            | 3    | 222  | 0     | 0                                | 8    | 0    | 1     | 0                               | 3    | 0    | 9     | 359   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

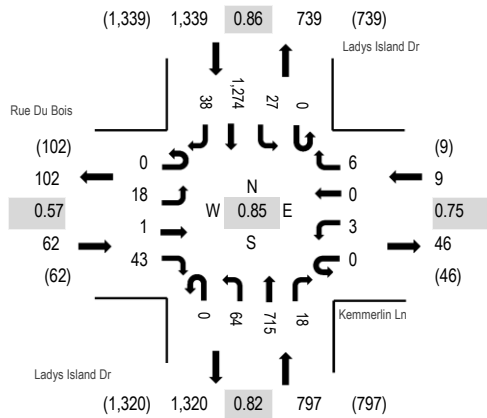
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 2    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 2     |
| Lights             | 0         | 17   | 363  | 93    | 0         | 43   | 822  | 0     | 0          | 105  | 3    | 35    | 0          | 12   | 2    | 26    | 1,521 |
| Mediums            | 0         | 0    | 19   | 1     | 0         | 2    | 30   | 0     | 0          | 3    | 0    | 1     | 0          | 1    | 0    | 4     | 61    |
| Total              | 0         | 19   | 382  | 94    | 0         | 45   | 852  | 0     | 0          | 108  | 3    | 36    | 0          | 13   | 2    | 30    | 1,584 |



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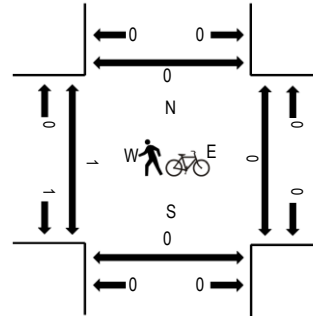
**Location:** 17 Ladys Island Dr & Kemmerlin Ln AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Rue Du Bois<br>Eastbound |      |      |       | Kemmerlin Ln<br>Westbound |      |      |       | Ladys Island Dr<br>Northbound |      |      |       | Ladys Island Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                   | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                        | 4    | 0    | 3     | 0                         | 1    | 0    | 1     | 0                             | 8    | 140  | 3     | 0                             | 3    | 247  | 11    | 421   | 2,207           | 1                    | 0    | 0     | 0     |
| 7:30 AM                | 0                        | 6    | 1    | 4     | 0                         | 1    | 0    | 1     | 0                             | 10   | 182  | 3     | 0                             | 6    | 322  | 4     | 540   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                        | 6    | 0    | 11    | 0                         | 0    | 0    | 2     | 0                             | 15   | 220  | 7     | 0                             | 6    | 373  | 11    | 651   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                        | 2    | 0    | 25    | 0                         | 1    | 0    | 2     | 0                             | 31   | 173  | 5     | 0                             | 12   | 332  | 12    | 595   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |       |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|-------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru  | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 4    | 0     | 0          | 0    | 2     | 0     | 6     |
| Lights             | 0         | 17   | 0    | 43    | 0         | 3    | 0    | 6     | 0          | 61   | 695  | 18    | 0          | 27   | 1,248 | 35    | 2,153 |
| Mediums            | 0         | 1    | 1    | 0     | 0         | 0    | 0    | 0     | 0          | 3    | 16   | 0     | 0          | 0    | 24    | 3     | 48    |
| Total              | 0         | 18   | 1    | 43    | 0         | 3    | 0    | 6     | 0          | 64   | 715  | 18    | 0          | 27   | 1,274 | 38    | 2,207 |



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**Location:** 18 Ladys Island Dr & Hazel Farm Rd AM

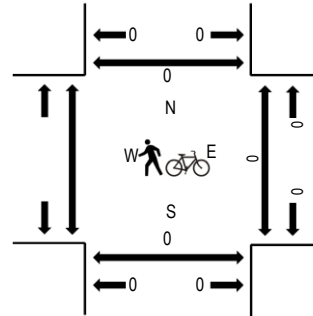
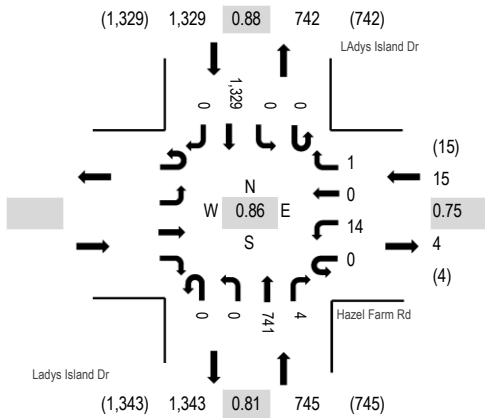
**Date and Start Time:** Wednesday, September 7, 2016

**Peak Hour:** 07:15 AM - 08:15 AM

**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

| Interval<br>Start Time | Eastbound |      |      |       | Hazel Farm Rd<br>Westbound |      |      |       | Ladys Island Dr<br>Northbound |      |      |       | LAdys Island Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-----------|------|------|-------|----------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn    | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                |           |      |      |       | 0                          | 4    | 0    | 1     | 0                             | 0    | 143  | 1     | 0                             | 0    | 257  | 0     | 406   | 2,089           |                      | 0    | 0     | 0     |
| 7:30 AM                |           |      |      |       | 0                          | 4    | 0    | 0     | 0                             | 0    | 192  | 2     | 0                             | 0    | 341  | 0     | 539   |                 |                      | 0    | 0     | 0     |
| 7:45 AM                |           |      |      |       | 0                          | 3    | 0    | 0     | 0                             | 0    | 229  | 1     | 0                             | 0    | 377  | 0     | 610   |                 |                      | 0    | 0     | 0     |
| 8:00 AM                |           |      |      |       | 0                          | 3    | 0    | 0     | 0                             | 0    | 177  | 0     | 0                             | 0    | 354  | 0     | 534   |                 |                      | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |       |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|-------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru  | Right |       |
| Articulated Trucks |           |      |      |       | 0         | 0    | 0    | 0     | 0          | 0    | 7    | 0     | 0          | 0    | 1     | 0     | 8     |
| Lights             |           |      |      |       | 0         | 14   | 0    | 1     | 0          | 0    | 720  | 3     | 0          | 0    | 1,304 | 0     | 2,042 |
| Mediums            |           |      |      |       | 0         | 0    | 0    | 0     | 0          | 0    | 14   | 1     | 0          | 0    | 24    | 0     | 39    |
| Total              |           |      |      |       | 0         | 14   | 0    | 1     | 0          | 0    | 741  | 4     | 0          | 0    | 1,329 | 0     | 2,089 |





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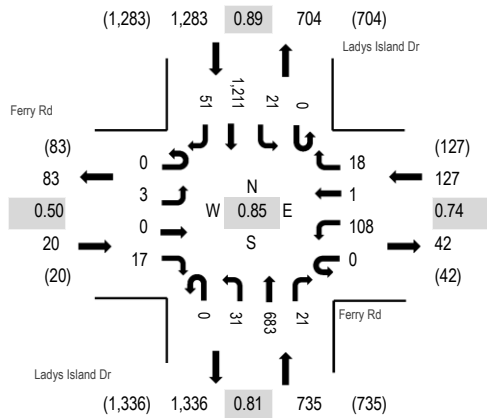
**Location:** 19 Ladys Island Dr & Ferry Rd AM

**Date and Start Time:** Wednesday, September 7, 2016

**Peak Hour:** 07:15 AM - 08:15 AM

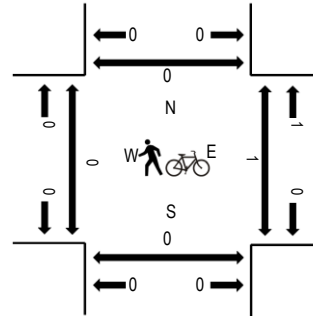
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Ferry Rd<br>Eastbound |      |      |       | Ferry Rd<br>Westbound |      |      |       | Ladys Island Dr<br>Northbound |      |      |       | Ladys Island Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-----------------------|------|------|-------|-----------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                | Left | Thru | Right | U-Turn                | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                     | 1    | 0    | 1     | 0                     | 14   | 0    | 5     | 0                             | 3    | 137  | 1     | 0                             | 3    | 240  | 9     | 414   | 2,165           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                     | 0    | 0    | 3     | 0                     | 21   | 0    | 6     | 0                             | 8    | 173  | 7     | 0                             | 7    | 319  | 19    | 563   |                 | 0                    | 1    | 0     | 0     |
| 7:45 AM                | 0                     | 2    | 0    | 8     | 0                     | 32   | 1    | 5     | 0                             | 18   | 201  | 9     | 0                             | 5    | 338  | 19    | 638   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                     | 0    | 0    | 5     | 0                     | 41   | 0    | 2     | 0                             | 2    | 172  | 4     | 0                             | 6    | 314  | 4     | 550   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |       |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|-------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru  | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 1    | 0    | 0     | 0          | 0    | 6    | 0     | 0          | 0    | 1     | 0     | 8     |
| Lights             | 0         | 3    | 0    | 16    | 0         | 105  | 1    | 17    | 0          | 31   | 664  | 20    | 0          | 20   | 1,189 | 51    | 2,117 |
| Mediums            | 0         | 0    | 0    | 1     | 0         | 2    | 0    | 1     | 0          | 0    | 13   | 1     | 0          | 1    | 21    | 0     | 40    |
| Total              | 0         | 3    | 0    | 17    | 0         | 108  | 1    | 18    | 0          | 31   | 683  | 21    | 0          | 21   | 1,211 | 51    | 2,165 |

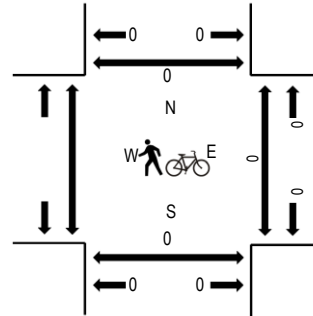
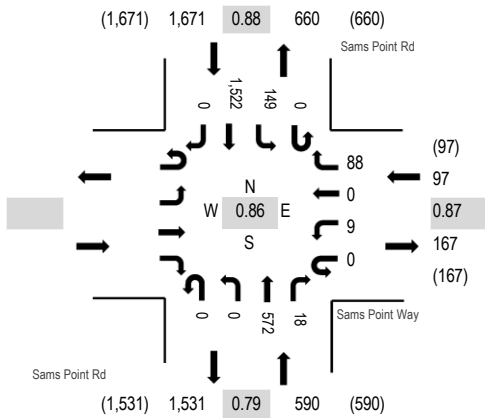


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**Location:** 20 Sams Point Rd & Sams Point Way AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

| Interval<br>Start Time | Eastbound |      |      |       | Sams Point Way<br>Westbound |      |      |       | Sams Point Rd<br>Northbound |      |      |       | Sams Point Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-----------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn    | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                |           |      |      |       | 0                           | 3    | 0    | 16    | 0                           | 0    | 125  | 7     | 0                           | 26   | 334  | 0     | 511   | 2,358           |                      | 0    | 0     | 0     |
| 7:30 AM                |           |      |      |       | 0                           | 2    | 0    | 21    | 0                           | 0    | 134  | 4     | 0                           | 32   | 375  | 0     | 568   |                 |                      | 0    | 0     | 0     |
| 7:45 AM                |           |      |      |       | 0                           | 0    | 0    | 28    | 0                           | 0    | 181  | 5     | 0                           | 44   | 431  | 0     | 689   |                 |                      | 0    | 0     | 0     |
| 8:00 AM                |           |      |      |       | 0                           | 4    | 0    | 23    | 0                           | 0    | 132  | 2     | 0                           | 47   | 382  | 0     | 590   |                 |                      | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

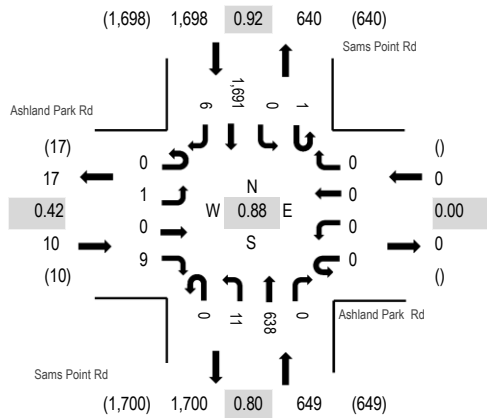
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |       |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|-------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru  | Right |       |
| Articulated Trucks |           |      |      |       | 0         | 0    | 0    | 0     | 0          | 0    | 2    | 0     | 0          | 0    | 2     | 0     | 4     |
| Lights             |           |      |      |       | 0         | 7    | 0    | 87    | 0          | 0    | 544  | 18    | 0          | 143  | 1,494 | 0     | 2,293 |
| Mediums            |           |      |      |       | 0         | 2    | 0    | 1     | 0          | 0    | 26   | 0     | 0          | 6    | 26    | 0     | 61    |
| Total              |           |      |      |       | 0         | 9    | 0    | 88    | 0          | 0    | 572  | 18    | 0          | 149  | 1,522 | 0     | 2,358 |



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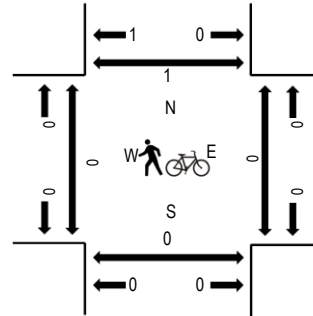
**Location:** 21 Sams Point Rd & Ashland Park Rd AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Ashland Park Rd<br>Eastbound |      |      |       | Ashland Park Rd<br>Westbound |      |      |       | Sams Point Rd<br>Northbound |      |      |       | Sams Point Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                            | 0    | 0    | 0     | 0                            | 0    | 0    | 0     | 0                           | 2    | 141  | 0     | 1                           | 0    | 379  | 0     | 523   | 2,357           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                            | 1    | 0    | 5     | 0                            | 0    | 0    | 0     | 0                           | 3    | 163  | 0     | 0                           | 0    | 420  | 5     | 597   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                            | 0    | 0    | 3     | 0                            | 0    | 0    | 0     | 0                           | 2    | 200  | 0     | 0                           | 0    | 461  | 0     | 666   |                 | 0                    | 0    | 0     | 1     |
| 8:00 AM                | 0                            | 0    | 0    | 1     | 0                            | 0    | 0    | 0     | 0                           | 4    | 134  | 0     | 0                           | 0    | 431  | 1     | 571   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

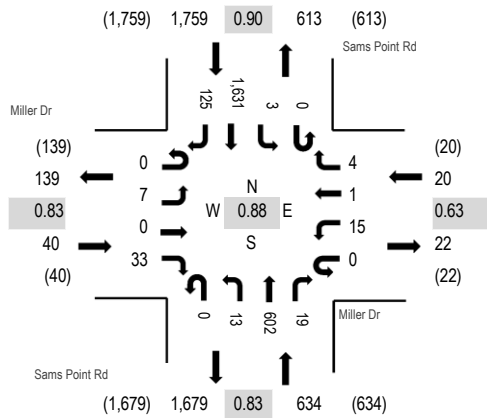
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |       |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|-------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru  | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 2    | 0     | 0          | 0    | 1     | 0     | 3     |
| Lights             | 0         | 1    | 0    | 9     | 0         | 0    | 0    | 0     | 0          | 11   | 613  | 0     | 1          | 0    | 1,656 | 6     | 2,297 |
| Mediums            | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 23   | 0     | 0          | 0    | 34    | 0     | 57    |
| Total              | 0         | 1    | 0    | 9     | 0         | 0    | 0    | 0     | 0          | 11   | 638  | 0     | 1          | 0    | 1,691 | 6     | 2,357 |



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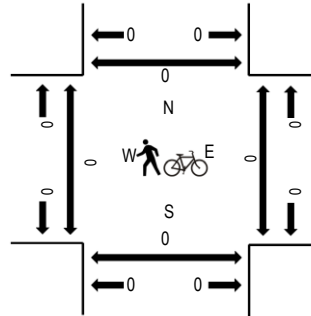
**Location:** 22 Sams Point Rd & Miller Dr AM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 07:15 AM - 08:15 AM  
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Miller Dr<br>Eastbound |      |      |       | Miller Dr<br>Westbound |      |      |       | Sams Point Rd<br>Northbound |      |      |       | Sams Point Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------|------|------|-------|------------------------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                 | Left | Thru | Right | U-Turn                 | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right |       |                 | West                 | East | South | North |
| 7:15 AM                | 0                      | 0    | 0    | 10    | 0                      | 2    | 0    | 0     | 0                           | 4    | 132  | 6     | 0                           | 0    | 377  | 14    | 545   | 2,453           | 0                    | 0    | 0     | 0     |
| 7:30 AM                | 0                      | 4    | 0    | 8     | 0                      | 1    | 0    | 2     | 0                           | 0    | 164  | 2     | 0                           | 0    | 426  | 27    | 634   |                 | 0                    | 0    | 0     | 0     |
| 7:45 AM                | 0                      | 1    | 0    | 7     | 0                      | 5    | 1    | 1     | 0                           | 3    | 183  | 5     | 0                           | 0    | 434  | 54    | 694   |                 | 0                    | 0    | 0     | 0     |
| 8:00 AM                | 0                      | 2    | 0    | 8     | 0                      | 7    | 0    | 1     | 0                           | 6    | 123  | 6     | 0                           | 3    | 394  | 30    | 580   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |       |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|-------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru  | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 1    | 0     | 0          | 0    | 1     | 0     | 2     |
| Lights             | 0         | 7    | 0    | 31    | 0         | 15   | 1    | 4     | 0          | 12   | 580  | 17    | 0          | 3    | 1,598 | 124   | 2,392 |
| Mediums            | 0         | 0    | 0    | 2     | 0         | 0    | 0    | 0     | 0          | 1    | 21   | 2     | 0          | 0    | 32    | 1     | 59    |
| Total              | 0         | 7    | 0    | 33    | 0         | 15   | 1    | 4     | 0          | 13   | 602  | 19    | 0          | 3    | 1,631 | 125   | 2,453 |



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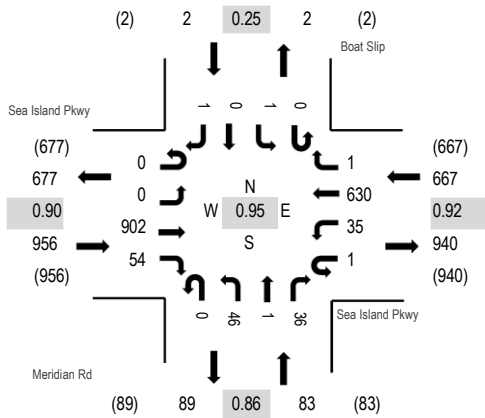
**Location:** 1 Meridian Rd & Sea Island Pkwy PM

**Date and Start Time:** Wednesday, September 7, 2016

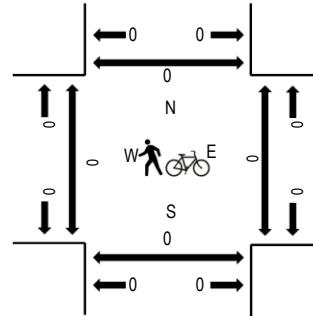
**Peak Hour:** 04:30 PM - 05:30 PM

**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Meridian Rd<br>Northbound |      |      |       | Boat Slip<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 0    | 221  | 21    | 0                            | 9    | 145  | 1     | 0                         | 11   | 0    | 8     | 0                       | 0    | 0    | 0     | 416   | 1,708           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 0    | 197  | 10    | 1                            | 9    | 156  | 0     | 0                         | 8    | 1    | 9     | 0                       | 1    | 0    | 1     | 393   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 0    | 225  | 17    | 0                            | 9    | 173  | 0     | 0                         | 16   | 0    | 8     | 0                       | 0    | 0    | 0     | 448   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 0    | 259  | 6     | 0                            | 8    | 156  | 0     | 0                         | 11   | 0    | 11    | 0                       | 0    | 0    | 0     | 451   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

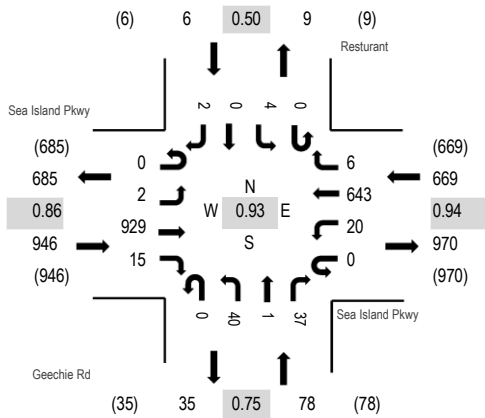
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 0    | 896  | 53    | 1         | 35   | 626  | 1     | 0          | 46   | 1    | 36    | 0          | 1    | 0    | 1     | 1,697 |
| Mediums            | 0         | 0    | 6    | 1     | 0         | 0    | 4    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 11    |
| Total              | 0         | 0    | 902  | 54    | 1         | 35   | 630  | 1     | 0          | 46   | 1    | 36    | 0          | 1    | 0    | 1     | 1,708 |



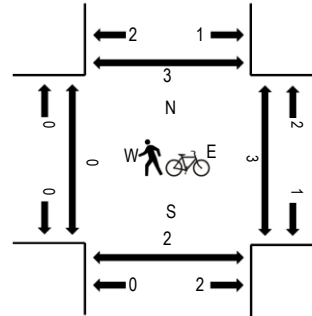
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**Location:** 2 Geechie Rd & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Geechie Rd<br>Northbound |      |      |       | Resturant<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|--------------------------|------|------|-------|-------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 0    | 232  | 3     | 0                            | 4    | 147  | 0     | 0                        | 13   | 0    | 13    | 0                       | 0    | 0    | 0     | 412   | 1,699           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 1    | 206  | 3     | 0                            | 10   | 162  | 2     | 0                        | 7    | 1    | 12    | 0                       | 2    | 0    | 1     | 407   |                 | 0                    | 2    | 1     | 1     |
| 5:00 PM                | 0                            | 1    | 221  | 4     | 0                            | 4    | 171  | 2     | 0                        | 12   | 0    | 5     | 0                       | 1    | 0    | 1     | 422   |                 | 0                    | 1    | 0     | 0     |
| 5:15 PM                | 0                            | 0    | 270  | 5     | 0                            | 2    | 163  | 2     | 0                        | 8    | 0    | 7     | 0                       | 1    | 0    | 0     | 458   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

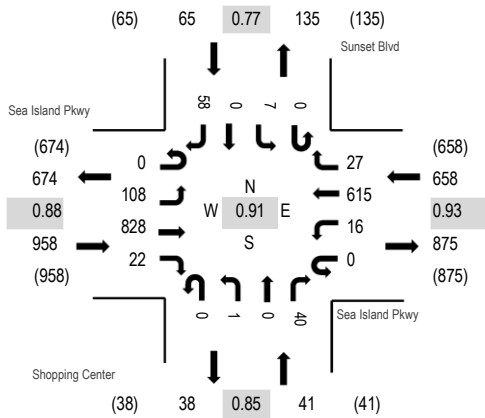
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 2    | 923  | 15    | 0         | 20   | 639  | 6     | 0          | 40   | 1    | 37    | 0          | 4    | 0    | 2     | 1,689 |
| Mediums            | 0         | 0    | 6    | 0     | 0         | 0    | 4    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 10    |
| Total              | 0         | 2    | 929  | 15    | 0         | 20   | 643  | 6     | 0          | 40   | 1    | 37    | 0          | 4    | 0    | 2     | 1,699 |



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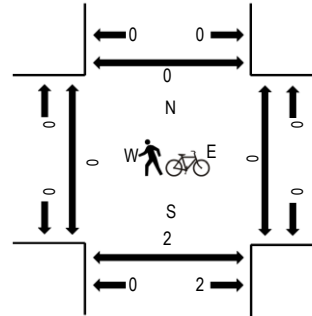
**Location:** 3 Shopping Center & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Shopping Center<br>Northbound |      |      |       | Sunset Blvd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------------|------|------|-------|---------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                    | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 38   | 206  | 3     | 0                            | 7    | 145  | 4     | 0                             | 0    | 0    | 12    | 0                         | 1    | 0    | 12    | 428   | 1,722           | 0                    | 0    | 2     | 0     |
| 4:45 PM                | 0                            | 19   | 183  | 5     | 0                            | 2    | 147  | 4     | 0                             | 0    | 0    | 9     | 0                         | 4    | 0    | 17    | 390   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 21   | 206  | 6     | 0                            | 3    | 162  | 7     | 0                             | 1    | 0    | 7     | 0                         | 2    | 0    | 14    | 429   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 30   | 233  | 8     | 0                            | 4    | 161  | 12    | 0                             | 0    | 0    | 12    | 0                         | 0    | 0    | 15    | 475   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 108  | 815  | 22    | 0         | 15   | 612  | 27    | 0          | 1    | 0    | 39    | 0          | 7    | 0    | 58    | 1,704 |
| Mediums            | 0         | 0    | 13   | 0     | 0         | 1    | 3    | 0     | 0          | 0    | 0    | 1     | 0          | 0    | 0    | 0     | 18    |
| Total              | 0         | 108  | 828  | 22    | 0         | 16   | 615  | 27    | 0          | 1    | 0    | 40    | 0          | 7    | 0    | 58    | 1,722 |

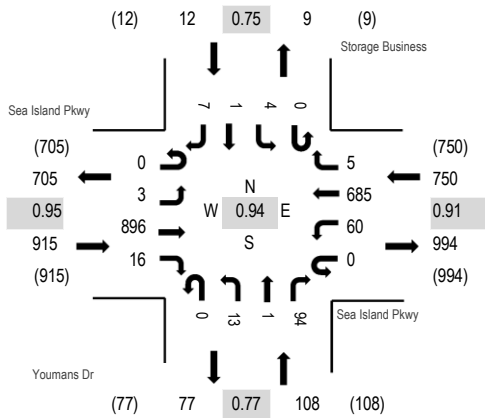




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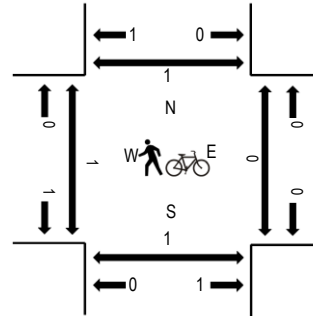
**Location:** 4 Youmans Dr & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:00 PM - 05:15 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Youmans Dr<br>Northbound |      |      |       | Storage Business<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|--------------------------|------|------|-------|--------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                   | Left | Thru | Right | U-Turn                         | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 0    | 222  | 6     | 0                            | 16   | 159  | 1     | 0                        | 2    | 0    | 19    | 0                              | 1    | 0    | 2     | 428   | 1,785           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 1    | 211  | 2     | 0                            | 14   | 154  | 1     | 0                        | 4    | 0    | 22    | 0                              | 3    | 0    | 1     | 413   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 0    | 226  | 5     | 0                            | 15   | 189  | 1     | 0                        | 3    | 1    | 31    | 0                              | 0    | 1    | 1     | 473   |                 | 1                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 2    | 237  | 3     | 0                            | 15   | 183  | 2     | 0                        | 4    | 0    | 22    | 0                              | 0    | 0    | 3     | 471   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 0     |
| Lights             | 0         | 3    | 888  | 16    | 0         | 54   | 682  | 5     | 0          | 13   | 1    | 93    | 0          | 4    | 1    | 7     | 1,767 |
| Mediums            | 0         | 0    | 8    | 0     | 0         | 6    | 3    | 0     | 0          | 0    | 0    | 1     | 0          | 0    | 0    | 0     | 18    |
| Total              | 0         | 3    | 896  | 16    | 0         | 60   | 685  | 5     | 0          | 13   | 1    | 94    | 0          | 4    | 1    | 7     | 1,785 |



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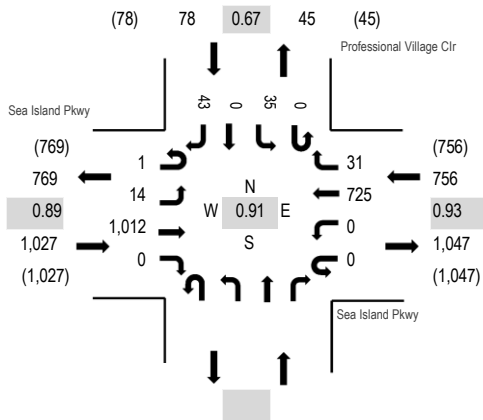
**Location:** 5 Professional Village Cir & Sea Island Pkwy PM

**Date and Start Time:** Wednesday, September 7, 2016

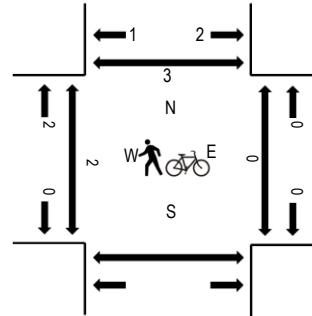
**Peak Hour:** 04:30 PM - 05:30 PM

**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Northbound |      |      |       | Professional Village Cir<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------|------|------|-------|--|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn                                 | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 5    | 235  | 0     | 0                            | 0    | 0    | 169   | 11         |      |      |       | 0                                      | 5    | 0    | 12    | 437   | 1,861           | 2                    | 0    |       | 2     |
| 4:45 PM                | 1                            | 2    | 249  | 0     | 0                            | 0    | 0    | 167   | 5          |      |      |       | 0                                      | 8    | 0    | 5     | 437   |                 | 0                    | 0    |       | 0     |
| 5:00 PM                | 0                            | 2    | 246  | 0     | 0                            | 0    | 0    | 191   | 9          |      |      |       | 0                                      | 15   | 0    | 14    | 477   |                 | 0                    | 0    |       | 0     |
| 5:15 PM                | 0                            | 5    | 282  | 0     | 0                            | 0    | 0    | 198   | 6          |      |      |       | 0                                      | 7    | 0    | 12    | 510   |                 | 0                    | 0    |       | 0     |

### Peak Rolling Hour Flow Rates

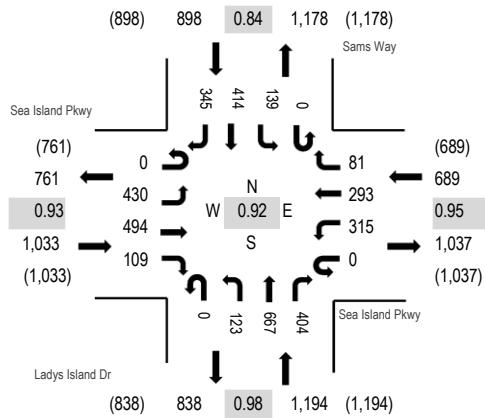
| Vehicle Type       | Eastbound |      |       |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|-------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru  | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0     | 0     | 0         | 0    | 0    | 0     |            |      |      |       | 0          | 0    | 0    | 0     | 0     |
| Lights             | 1         | 14   | 1,000 | 0     | 0         | 0    | 714  | 31    |            |      |      |       | 0          | 35   | 0    | 43    | 1,838 |
| Mediums            | 0         | 0    | 12    | 0     | 0         | 0    | 11   | 0     |            |      |      |       | 0          | 0    | 0    | 0     | 23    |
| Total              | 1         | 14   | 1,012 | 0     | 0         | 0    | 725  | 31    |            |      |      |       | 0          | 35   | 0    | 43    | 1,861 |



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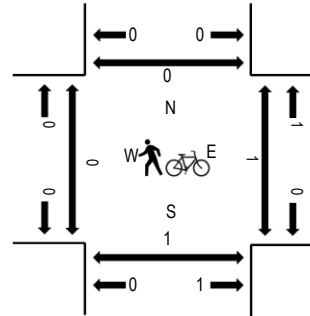
**Location:** 8 Ladys Island Dr & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Ladys Island Dr<br>Northbound |      |      |       | Sams Way<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------------|------|------|-------|------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                 | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 113  | 111  | 27    | 0                            | 74   | 73   | 21    | 0                             | 35   | 157  | 98    | 0                      | 31   | 94   | 77    | 911   | 3,814           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 103  | 109  | 36    | 0                            | 82   | 65   | 16    | 0                             | 27   | 170  | 96    | 0                      | 33   | 90   | 81    | 908   |                 | 0                    | 1    | 0     | 0     |
| 5:00 PM                | 0                            | 108  | 128  | 20    | 0                            | 76   | 78   | 23    | 0                             | 34   | 172  | 99    | 0                      | 32   | 105  | 89    | 964   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 106  | 146  | 26    | 0                            | 83   | 77   | 21    | 0                             | 27   | 168  | 111   | 0                      | 43   | 125  | 98    | 1,031 |                 | 0                    | 0    | 1     | 0     |

### Peak Rolling Hour Flow Rates

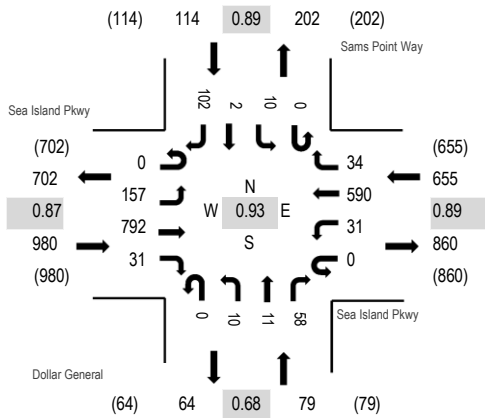
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 7    | 0    | 1     | 0          | 0    | 1    | 0     | 0          | 0    | 4    | 0     | 13    |
| Lights             | 0         | 423  | 493  | 107   | 0         | 299  | 290  | 79    | 0          | 122  | 661  | 399   | 0          | 135  | 402  | 337   | 3,747 |
| Mediums            | 0         | 7    | 1    | 2     | 0         | 9    | 3    | 1     | 0          | 1    | 5    | 5     | 0          | 4    | 8    | 8     | 54    |
| Total              | 0         | 430  | 494  | 109   | 0         | 315  | 293  | 81    | 0          | 123  | 667  | 404   | 0          | 139  | 414  | 345   | 3,814 |



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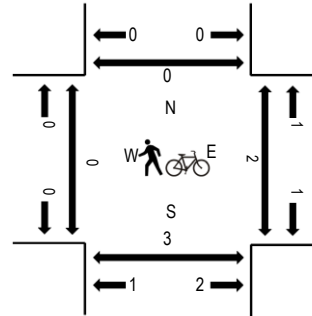
**Location:** 9 Dollar General & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Dollar General<br>Northbound |      |      |       | Sams Point Way<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 38   | 192  | 6     | 0                            | 10   | 145  | 9     | 0                            | 1    | 1    | 8     | 0                            | 5    | 0    | 26    | 441   | 1,828           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 33   | 183  | 5     | 0                            | 5    | 132  | 9     | 0                            | 5    | 3    | 21    | 0                            | 1    | 0    | 21    | 418   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 44   | 186  | 10    | 0                            | 7    | 168  | 8     | 0                            | 3    | 3    | 15    | 0                            | 1    | 1    | 30    | 476   |                 | 0                    | 1    | 3     | 0     |
| 5:15 PM                | 0                            | 42   | 231  | 10    | 0                            | 9    | 145  | 8     | 0                            | 1    | 4    | 14    | 0                            | 3    | 1    | 25    | 493   |                 | 0                    | 1    | 0     | 0     |

### Peak Rolling Hour Flow Rates

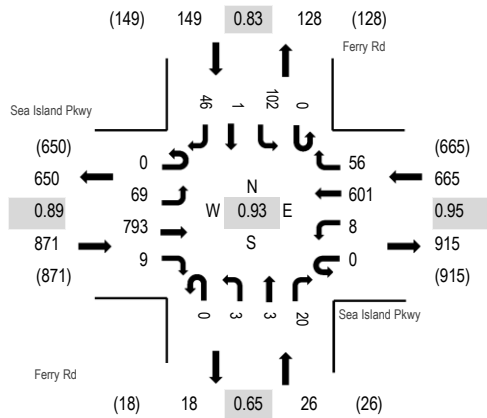
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 9    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 9     |
| Lights             | 0         | 157  | 782  | 31    | 0         | 31   | 567  | 34    | 0          | 10   | 11   | 57    | 0          | 10   | 2    | 102   | 1,794 |
| Mediums            | 0         | 0    | 10   | 0     | 0         | 0    | 14   | 0     | 0          | 0    | 0    | 1     | 0          | 0    | 0    | 0     | 25    |
| Total              | 0         | 157  | 792  | 31    | 0         | 31   | 590  | 34    | 0          | 10   | 11   | 58    | 0          | 10   | 2    | 102   | 1,828 |



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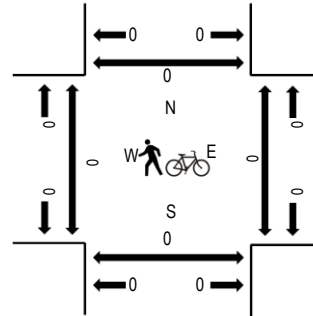
**Location:** 10 Ferry Rd & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Ferry Rd<br>Northbound |      |      |       | Ferry Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------|------|------|-------|------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                 | Left | Thru | Right | U-Turn                 | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 11   | 183  | 5     | 0                            | 1    | 155  | 16    | 0                      | 2    | 0    | 8     | 0                      | 24   | 0    | 13    | 418   | 1,711           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 20   | 183  | 1     | 0                            | 2    | 142  | 11    | 0                      | 0    | 2    | 3     | 0                      | 18   | 1    | 4     | 387   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 16   | 205  | 2     | 0                            | 2    | 161  | 12    | 0                      | 0    | 1    | 5     | 0                      | 33   | 0    | 11    | 448   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 22   | 222  | 1     | 0                            | 3    | 143  | 17    | 0                      | 1    | 0    | 4     | 0                      | 27   | 0    | 18    | 458   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

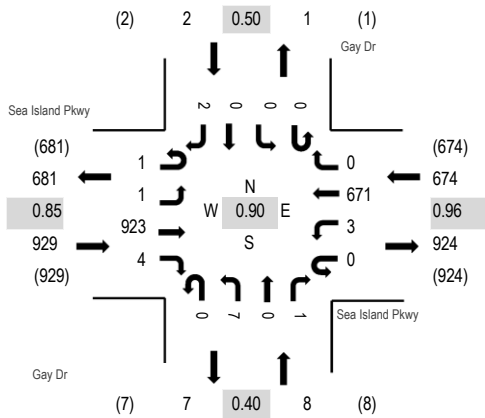
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 9    | 0     | 0          | 0    | 0    | 0     | 0          | 1    | 0    | 0     | 10    |
| Lights             | 0         | 69   | 780  | 9     | 0         | 8    | 580  | 56    | 0          | 3    | 3    | 20    | 0          | 100  | 1    | 46    | 1,675 |
| Mediums            | 0         | 0    | 13   | 0     | 0         | 0    | 12   | 0     | 0          | 0    | 0    | 0     | 0          | 1    | 0    | 0     | 26    |
| Total              | 0         | 69   | 793  | 9     | 0         | 8    | 601  | 56    | 0          | 3    | 3    | 20    | 0          | 102  | 1    | 46    | 1,711 |



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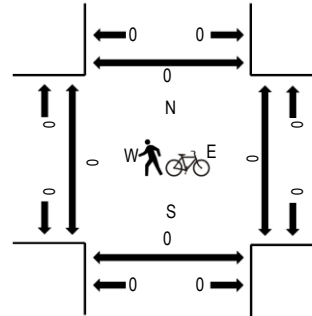
**Location:** 11 Gay Dr & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:00 PM - 05:15 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Gay Dr<br>Northbound |      |      |       | Gay Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|----------------------|------|------|-------|----------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn               | Left | Thru | Right | U-Turn               | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 1                            | 1    | 212  | 2     | 0                            | 1    | 174  | 0     | 0                    | 2    | 0    | 0     | 0                    | 0    | 0    | 0     | 393   | 1,613           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 0    | 195  | 0     | 0                            | 1    | 158  | 0     | 0                    | 4    | 0    | 1     | 0                    | 0    | 0    | 1     | 360   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 0    | 271  | 2     | 0                            | 1    | 172  | 0     | 0                    | 0    | 0    | 0     | 0                    | 0    | 0    | 0     | 446   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 0    | 245  | 0     | 0                            | 0    | 167  | 0     | 0                    | 1    | 0    | 0     | 0                    | 0    | 0    | 1     | 414   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

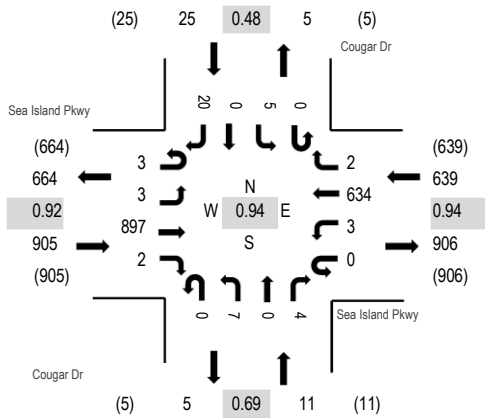
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 1    | 0     | 0         | 0    | 9    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 10    |
| Lights             | 1         | 1    | 910  | 4     | 0         | 3    | 650  | 0     | 0          | 7    | 0    | 1     | 0          | 0    | 0    | 2     | 1,579 |
| Mediums            | 0         | 0    | 12   | 0     | 0         | 0    | 12   | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 24    |
| Total              | 1         | 1    | 923  | 4     | 0         | 3    | 671  | 0     | 0          | 7    | 0    | 1     | 0          | 0    | 0    | 2     | 1,613 |



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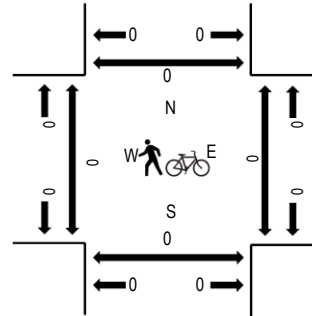
**Location:** 12 Cougar Dr & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:00 PM - 05:15 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Cougar Dr<br>Northbound |      |      |       | Cougar Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------|------|------|-------|-------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                  | Left | Thru | Right | U-Turn                  | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 1    | 205  | 0     | 0                            | 0    | 155  | 0     | 0                       | 2    | 0    | 1     | 0                       | 2    | 0    | 11    | 377   | 1,580           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 1    | 204  | 2     | 0                            | 2    | 146  | 2     | 0                       | 2    | 0    | 2     | 0                       | 1    | 0    | 3     | 365   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 1                            | 0    | 245  | 0     | 0                            | 0    | 170  | 0     | 0                       | 2    | 0    | 0     | 0                       | 0    | 0    | 4     | 422   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 2                            | 1    | 243  | 0     | 0                            | 1    | 163  | 0     | 0                       | 1    | 0    | 1     | 0                       | 2    | 0    | 2     | 416   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 1    | 0     | 0         | 0    | 9    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 0     | 10    |
| Lights             | 3         | 2    | 884  | 2     | 0         | 3    | 615  | 2     | 0          | 7    | 0    | 2     | 0          | 4    | 0    | 18    | 1,542 |
| Mediums            | 0         | 1    | 12   | 0     | 0         | 0    | 10   | 0     | 0          | 0    | 0    | 2     | 0          | 1    | 0    | 2     | 28    |
| Total              | 3         | 3    | 897  | 2     | 0         | 3    | 634  | 2     | 0          | 7    | 0    | 4     | 0          | 5    | 0    | 20    | 1,580 |

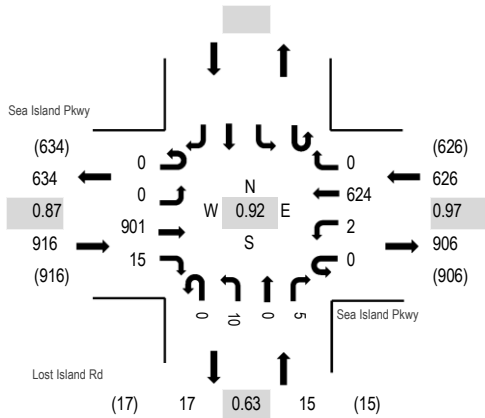




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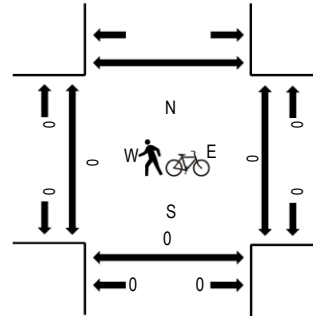
**Location:** 13 Lost Island Rd & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Lost Island Rd<br>Northbound |      |      |       | Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 0    | 224  | 1     | 0                            | 0    | 158  | 0     | 0                            | 1    | 0    | 1     |            |      |      |       | 385   | 1,557           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 0    | 205  | 4     | 0                            | 1    | 148  | 0     | 0                            | 3    | 0    | 1     |            |      |      |       | 362   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 0    | 214  | 5     | 0                            | 1    | 160  | 0     | 0                            | 6    | 0    | 0     |            |      |      |       | 386   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 0    | 258  | 5     | 0                            | 0    | 158  | 0     | 0                            | 0    | 0    | 3     |            |      |      |       | 424   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

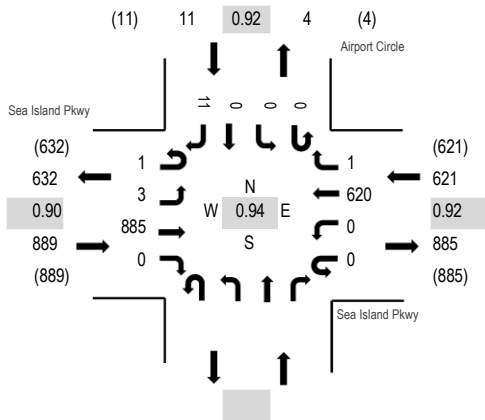
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 1    | 0     | 0         | 0    | 7    | 0     | 0          | 0    | 0    | 0     |            |      |      |       | 8     |
| Lights             | 0         | 0    | 883  | 14    | 0         | 2    | 609  | 0     | 0          | 9    | 0    | 5     |            |      |      |       | 1,522 |
| Mediums            | 0         | 0    | 17   | 1     | 0         | 0    | 8    | 0     | 0          | 1    | 0    | 0     |            |      |      |       | 27    |
| Total              | 0         | 0    | 901  | 15    | 0         | 2    | 624  | 0     | 0          | 10   | 0    | 5     |            |      |      |       | 1,557 |



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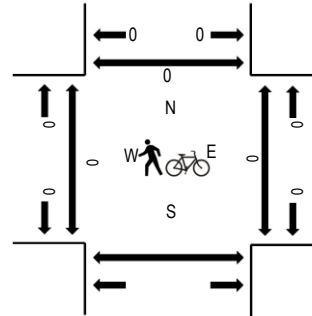
**Location:** 14 Airport Circle & Sea Island Pkwy PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Northbound |      |      |       | Airport Circle<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|------------|------|------|-------|------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn                       | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 0    | 211  | 0     | 0                            | 0    | 0    | 154   | 1          |      |      |       | 0                            | 0    | 0    | 3     | 369   | 1,521           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 0    | 199  | 0     | 0                            | 0    | 0    | 140   | 0          |      |      |       | 0                            | 0    | 0    | 3     | 342   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 2    | 231  | 0     | 0                            | 0    | 0    | 168   | 0          |      |      |       | 0                            | 0    | 0    | 3     | 404   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 1                            | 1    | 244  | 0     | 0                            | 0    | 0    | 158   | 0          |      |      |       | 0                            | 0    | 0    | 2     | 406   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 1    | 0     | 0         | 0    | 0    | 7     | 0          |      |      |       | 0          | 0    | 0    | 2     | 10    |
| Lights             | 1         | 3    | 873  | 0     | 0         | 0    | 0    | 601   | 1          |      |      |       | 0          | 0    | 0    | 9     | 1,488 |
| Mediums            | 0         | 0    | 11   | 0     | 0         | 0    | 0    | 12    | 0          |      |      |       | 0          | 0    | 0    | 0     | 23    |
| Total              | 1         | 3    | 885  | 0     | 0         | 0    | 0    | 620   | 1          |      |      |       | 0          | 0    | 0    | 11    | 1,521 |



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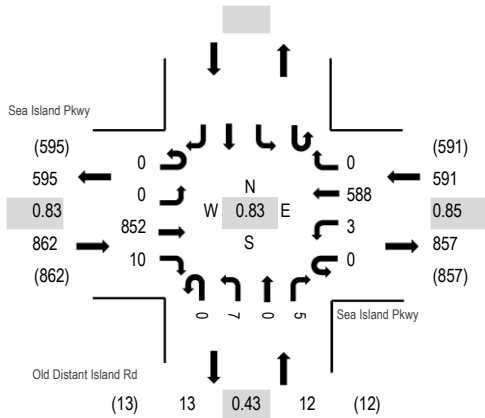
**Location:** 15 Old Distant Island Rd & Sea Island Pkwy PM

**Date and Start Time:** Wednesday, September 7, 2016

**Peak Hour:** 04:30 PM - 05:30 PM

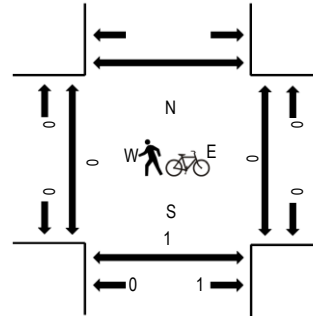
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Old Distant Island Rd<br>Northbound |      |      |       | Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|-------------------------------------|------|------|-------|------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                              | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 0    | 209  | 2     | 0                            | 0    | 125  | 0     | 0                                   | 1    | 0    | 0     |            |      |      |       | 337   | 1,465           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 0    | 198  | 2     | 0                            | 2    | 147  | 0     | 0                                   | 2    | 0    | 0     |            |      |      |       | 351   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 0    | 185  | 5     | 0                            | 0    | 144  | 0     | 0                                   | 1    | 0    | 1     |            |      |      |       | 336   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 0    | 260  | 1     | 0                            | 1    | 172  | 0     | 0                                   | 3    | 0    | 4     |            |      |      |       | 441   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 2    | 0     | 0         | 0    | 7    | 0     | 0          | 0    | 0    | 0     |            |      |      |       | 9     |
| Lights             | 0         | 0    | 836  | 10    | 0         | 3    | 569  | 0     | 0          | 7    | 0    | 5     |            |      |      |       | 1,430 |
| Mediums            | 0         | 0    | 14   | 0     | 0         | 0    | 12   | 0     | 0          | 0    | 0    | 0     |            |      |      |       | 26    |
| Total              | 0         | 0    | 852  | 10    | 0         | 3    | 588  | 0     | 0          | 7    | 0    | 5     |            |      |      |       | 1,465 |



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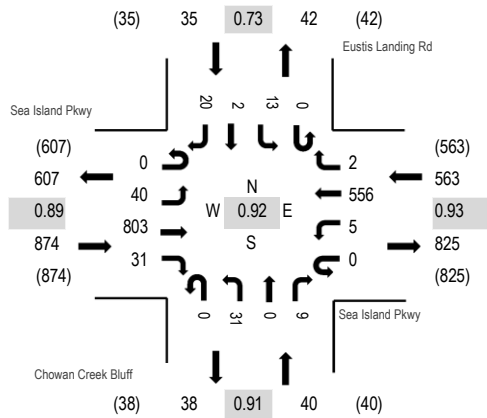
**Location:** 16 Chowan Creek Bluff & Sea Island Pkwy PM

**Date and Start Time:** Wednesday, September 7, 2016

**Peak Hour:** 04:30 PM - 05:30 PM

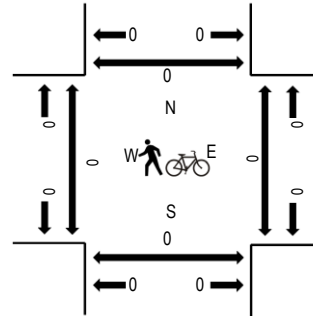
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Sea Island Pkwy<br>Eastbound |      |      |       | Sea Island Pkwy<br>Westbound |      |      |       | Chowan Creek Bluff<br>Northbound |      |      |       | Eustis Landing Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------------|------|------|-------|------------------------------|------|------|-------|----------------------------------|------|------|-------|---------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                       | Left | Thru | Right | U-Turn                       | Left | Thru | Right | U-Turn                           | Left | Thru | Right | U-Turn                          | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                            | 8    | 196  | 11    | 0                            | 0    | 139  | 1     | 0                                | 8    | 0    | 3     | 0                               | 2    | 0    | 2     | 370   | 1,512           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                            | 9    | 182  | 7     | 0                            | 0    | 127  | 1     | 0                                | 10   | 0    | 1     | 0                               | 1    | 2    | 5     | 345   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                            | 9    | 199  | 7     | 0                            | 3    | 149  | 0     | 0                                | 5    | 0    | 2     | 0                               | 5    | 0    | 6     | 385   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                            | 14   | 226  | 6     | 0                            | 2    | 141  | 0     | 0                                | 8    | 0    | 3     | 0                               | 5    | 0    | 7     | 412   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

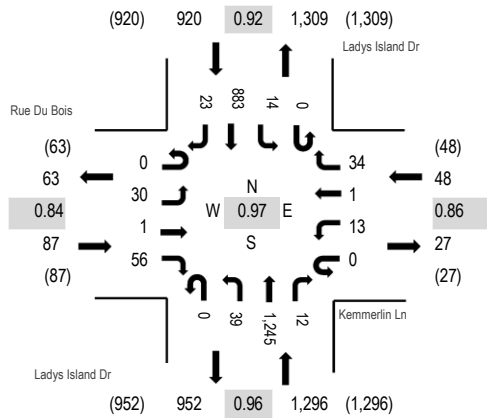
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |      |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 1    | 0     | 0         | 0    | 5    | 0     | 0          | 0    | 0    | 0     | 0          | 0    | 0    | 1     | 7     |
| Lights             | 0         | 35   | 793  | 30    | 0         | 5    | 539  | 2     | 0          | 29   | 0    | 9     | 0          | 13   | 2    | 19    | 1,476 |
| Mediums            | 0         | 5    | 9    | 1     | 0         | 0    | 12   | 0     | 0          | 2    | 0    | 0     | 0          | 0    | 0    | 0     | 29    |
| Total              | 0         | 40   | 803  | 31    | 0         | 5    | 556  | 2     | 0          | 31   | 0    | 9     | 0          | 13   | 2    | 20    | 1,512 |



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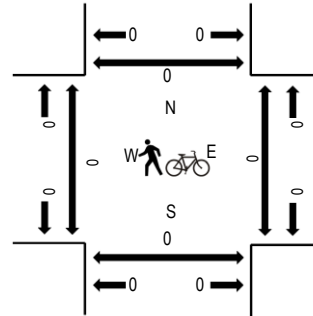
**Location:** 17 Ladys Island Dr & Kemmerlin Ln PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Rue Du Bois<br>Eastbound |      |      |       | Kemmerlin Ln<br>Westbound |      |      |       | Ladys Island Dr<br>Northbound |      |      |       | Ladys Island Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------------|------|------|-------|---------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                   | Left | Thru | Right | U-Turn                    | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                        | 4    | 0    | 16    | 0                         | 4    | 0    | 10    | 0                             | 8    | 323  | 5     | 0                             | 7    | 201  | 7     | 585   | 2,351           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                        | 9    | 1    | 14    | 0                         | 2    | 0    | 9     | 0                             | 5    | 299  | 3     | 0                             | 3    | 222  | 5     | 572   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                        | 12   | 0    | 14    | 0                         | 3    | 0    | 8     | 0                             | 12   | 312  | 0     | 0                             | 2    | 215  | 7     | 585   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                        | 5    | 0    | 12    | 0                         | 4    | 1    | 7     | 0                             | 14   | 311  | 4     | 0                             | 2    | 245  | 4     | 609   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 1     | 0     | 0          | 0    | 5    | 0     | 6     |
| Lights             | 0         | 29   | 1    | 56    | 0         | 13   | 1    | 34    | 0          | 37   | 1,232 | 12    | 0          | 14   | 855  | 23    | 2,307 |
| Mediums            | 0         | 1    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 2    | 12    | 0     | 0          | 0    | 23   | 0     | 38    |
| Total              | 0         | 30   | 1    | 56    | 0         | 13   | 1    | 34    | 0          | 39   | 1,245 | 12    | 0          | 14   | 883  | 23    | 2,351 |

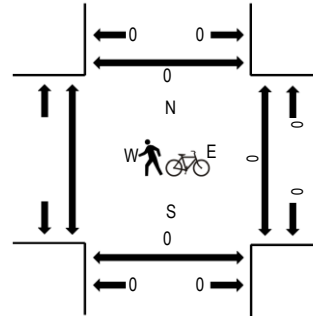
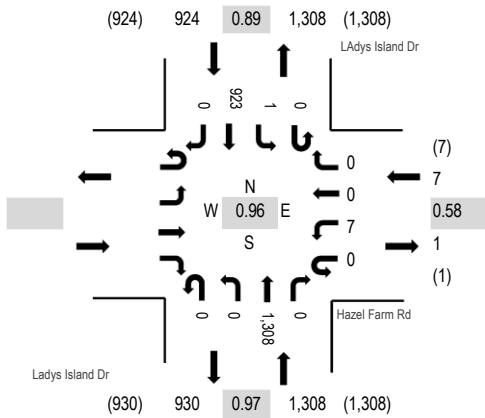


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**Location:** 18 Ladys Island Dr & Hazel Farm Rd PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles in Crosswalk



Note: Total study counts contained in parentheses.

### Traffic Counts

| Interval<br>Start Time | Eastbound |      |      |       | Hazel Farm Rd<br>Westbound |      |      |       | Ladys Island Dr<br>Northbound |      |      |       | LAdys Island Dr<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-----------|------|------|-------|----------------------------|------|------|-------|-------------------------------|------|------|-------|-------------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn    | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                        | Left | Thru | Right | U-Turn                        | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                |           |      |      |       | 0                          | 1    | 0    | 0     | 0                             | 0    | 335  | 0     | 0                             | 0    | 216  | 0     | 552   | 2,239           |                      | 0    | 0     | 0     |
| 4:45 PM                |           |      |      |       | 0                          | 3    | 0    | 0     | 0                             | 0    | 313  | 0     | 0                             | 1    | 230  | 0     | 547   |                 |                      | 0    | 0     | 0     |
| 5:00 PM                |           |      |      |       | 0                          | 3    | 0    | 0     | 0                             | 0    | 338  | 0     | 0                             | 0    | 218  | 0     | 559   |                 |                      | 0    | 0     | 0     |
| 5:15 PM                |           |      |      |       | 0                          | 0    | 0    | 0     | 0                             | 0    | 322  | 0     | 0                             | 0    | 259  | 0     | 581   |                 |                      | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

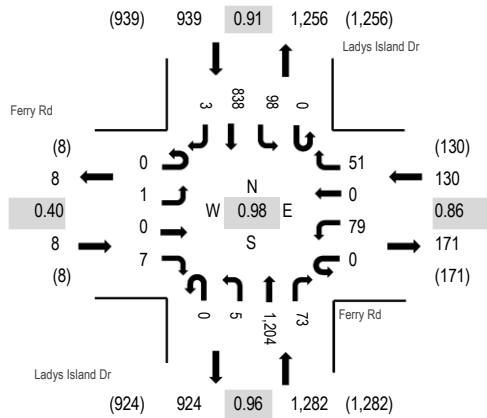
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks |           |      |      |       | 0         | 0    | 0    | 0     | 0          | 0    | 1     | 0     | 0          | 0    | 11   | 0     | 12    |
| Lights             |           |      |      |       | 0         | 7    | 0    | 0     | 0          | 0    | 1,293 | 0     | 0          | 1    | 890  | 0     | 2,191 |
| Mediums            |           |      |      |       | 0         | 0    | 0    | 0     | 0          | 0    | 14    | 0     | 0          | 0    | 22   | 0     | 36    |
| Total              |           |      |      |       | 0         | 7    | 0    | 0     | 0          | 0    | 1,308 | 0     | 0          | 1    | 923  | 0     | 2,239 |



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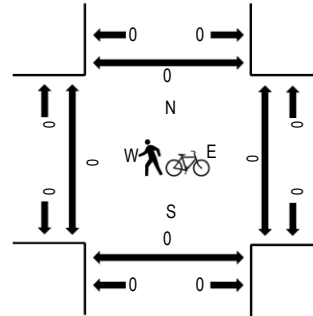
**Location:** 19 Ladys Island Dr & Ferry Rd PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Ferry Rd Eastbound |      |      |       | Ferry Rd Westbound |      |      |       | Ladys Island Dr Northbound |      |      |       | Ladys Island Dr Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|--------------------|------|------|-------|--------------------|------|------|-------|----------------------------|------|------|-------|----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn             | Left | Thru | Right | U-Turn             | Left | Thru | Right | U-Turn                     | Left | Thru | Right | U-Turn                     | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                  | 0    | 0    | 2     | 0                  | 19   | 0    | 10    | 0                          | 2    | 306  | 22    | 0                          | 22   | 194  | 1     | 578   | 2,359           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                  | 1    | 0    | 4     | 0                  | 21   | 0    | 17    | 0                          | 1    | 290  | 19    | 0                          | 26   | 211  | 1     | 591   |                 | 0                    | 0    | 0     | 0     |
| 5:00 PM                | 0                  | 0    | 0    | 0     | 0                  | 20   | 0    | 8     | 0                          | 1    | 315  | 18    | 0                          | 32   | 193  | 0     | 587   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                  | 0    | 0    | 1     | 0                  | 19   | 0    | 16    | 0                          | 1    | 293  | 14    | 0                          | 18   | 240  | 1     | 603   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 1     | 0     | 0          | 0    | 8    | 0     | 9     |
| Lights             | 0         | 1    | 0    | 7     | 0         | 78   | 0    | 51    | 0          | 5    | 1,191 | 73    | 0          | 98   | 805  | 3     | 2,312 |
| Mediums            | 0         | 0    | 0    | 0     | 0         | 1    | 0    | 0     | 0          | 0    | 12    | 0     | 0          | 0    | 25   | 0     | 38    |
| Total              | 0         | 1    | 0    | 7     | 0         | 79   | 0    | 51    | 0          | 5    | 1,204 | 73    | 0          | 98   | 838  | 3     | 2,359 |



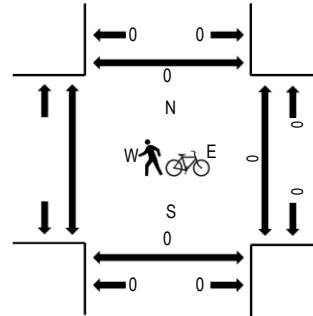
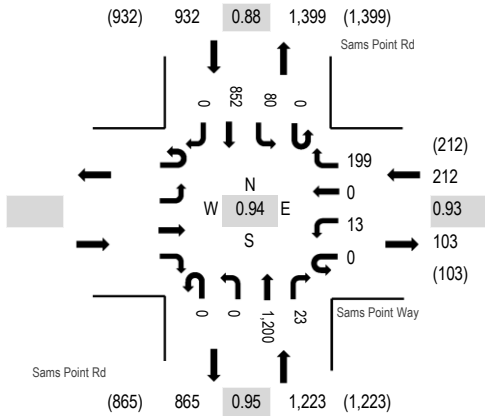


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**Location:** 20 Sams Point Rd & Sams Point Way PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles

### Peak Hour - Pedestrians/Bicycles in Crosswalk



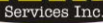
Note: Total study counts contained in parentheses.

### Traffic Counts

| Interval<br>Start Time | Eastbound |      |      |       | Sams Point Way<br>Westbound |      |      |       | Sams Point Rd<br>Northbound |      |      |       | Sams Point Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|-----------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn    | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                |           |      |      |       | 0                           | 4    | 0    | 42    | 0                           | 0    | 276  | 8     | 0                           | 21   | 188  | 0     | 539   | 2,367           |                      | 0    | 0     | 0     |
| 4:45 PM                |           |      |      |       | 0                           | 0    | 0    | 57    | 0                           | 0    | 300  | 7     | 0                           | 16   | 199  | 0     | 579   |                 |                      | 0    | 0     | 0     |
| 5:00 PM                |           |      |      |       | 0                           | 6    | 0    | 51    | 0                           | 0    | 317  | 5     | 0                           | 21   | 221  | 0     | 621   |                 |                      | 0    | 0     | 0     |
| 5:15 PM                |           |      |      |       | 0                           | 3    | 0    | 49    | 0                           | 0    | 307  | 3     | 0                           | 22   | 244  | 0     | 628   |                 |                      | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks |           |      |      |       | 0         | 0    | 0    | 0     | 0          | 0    | 2     | 0     | 0          | 0    | 3    | 0     | 5     |
| Lights             |           |      |      |       | 0         | 13   | 0    | 198   | 0          | 0    | 1,188 | 21    | 0          | 79   | 828  | 0     | 2,327 |
| Mediums            |           |      |      |       | 0         | 0    | 0    | 1     | 0          | 0    | 10    | 2     | 0          | 1    | 21   | 0     | 35    |
| Total              |           |      |      |       | 0         | 13   | 0    | 199   | 0          | 0    | 1,200 | 23    | 0          | 80   | 852  | 0     | 2,367 |



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**Peak 15-Minutes:** 05:15 PM - 05:30 PM

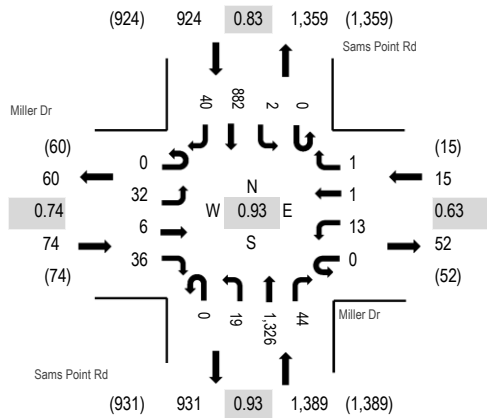
| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 2     | 0     | 0          | 0    | 3    | 0     | 5     |
| Lights             | 0         | 6    | 0    | 8     | 0         | 0    | 0    | 0     | 0          | 15   | 1,381 | 0     | 0          | 0    | 937  | 3     | 2,350 |
| Mediums            | 0         | 0    | 0    | 1     | 0         | 0    | 0    | 0     | 0          | 0    | 10    | 0     | 0          | 0    | 22   | 1     | 34    |
| Total              | 0         | 6    | 0    | 9     | 0         | 0    | 0    | 0     | 0          | 15   | 1,393 | 0     | 0          | 0    | 962  | 4     | 2,389 |



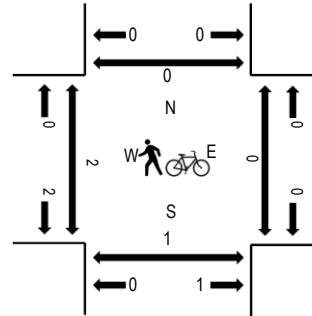
(303) 216-2439  
www.alltrafficdata.net

**Location:** 22 Sams Point Rd & Miller Dr PM  
**Date and Start Time:** Wednesday, September 7, 2016  
**Peak Hour:** 04:30 PM - 05:30 PM  
**Peak 15-Minutes:** 05:15 PM - 05:30 PM

### Peak Hour - All Vehicles



### Peak Hour - Pedestrians/Bicycles in Crosswalk



### Traffic Counts

| Interval<br>Start Time | Miller Dr<br>Eastbound |      |      |       | Miller Dr<br>Westbound |      |      |       | Sams Point Rd<br>Northbound |      |      |       | Sams Point Rd<br>Southbound |      |      |       | Total | Rolling<br>Hour | Pedestrian Crossings |      |       |       |
|------------------------|------------------------|------|------|-------|------------------------|------|------|-------|-----------------------------|------|------|-------|-----------------------------|------|------|-------|-------|-----------------|----------------------|------|-------|-------|
|                        | U-Turn                 | Left | Thru | Right | U-Turn                 | Left | Thru | Right | U-Turn                      | Left | Thru | Right | U-Turn                      | Left | Thru | Right |       |                 | West                 | East | South | North |
| 4:30 PM                | 0                      | 6    | 3    | 7     | 0                      | 3    | 1    | 0     | 0                           | 5    | 311  | 12    | 0                           | 1    | 205  | 10    | 564   | 2,402           | 0                    | 0    | 0     | 0     |
| 4:45 PM                | 0                      | 12   | 3    | 10    | 0                      | 3    | 0    | 0     | 0                           | 5    | 325  | 12    | 0                           | 1    | 193  | 6     | 570   |                 | 1                    | 0    | 0     | 0     |
| 5:00 PM                | 0                      | 8    | 0    | 7     | 0                      | 1    | 0    | 1     | 0                           | 3    | 358  | 13    | 0                           | 0    | 217  | 12    | 620   |                 | 0                    | 0    | 0     | 0     |
| 5:15 PM                | 0                      | 6    | 0    | 12    | 0                      | 6    | 0    | 0     | 0                           | 6    | 332  | 7     | 0                           | 0    | 267  | 12    | 648   |                 | 0                    | 0    | 0     | 0     |

### Peak Rolling Hour Flow Rates

| Vehicle Type       | Eastbound |      |      |       | Westbound |      |      |       | Northbound |      |       |       | Southbound |      |      |       | Total |
|--------------------|-----------|------|------|-------|-----------|------|------|-------|------------|------|-------|-------|------------|------|------|-------|-------|
|                    | U-Turn    | Left | Thru | Right | U-Turn    | Left | Thru | Right | U-Turn     | Left | Thru  | Right | U-Turn     | Left | Thru | Right |       |
| Articulated Trucks | 0         | 0    | 0    | 0     | 0         | 0    | 0    | 0     | 0          | 0    | 2     | 1     | 0          | 0    | 0    | 0     | 3     |
| Lights             | 0         | 32   | 6    | 35    | 0         | 13   | 1    | 1     | 0          | 19   | 1,315 | 43    | 0          | 2    | 860  | 40    | 2,367 |
| Mediums            | 0         | 0    | 0    | 1     | 0         | 0    | 0    | 0     | 0          | 0    | 9     | 0     | 0          | 0    | 22   | 0     | 32    |
| Total              | 0         | 32   | 6    | 36    | 0         | 13   | 1    | 1     | 0          | 19   | 1,326 | 44    | 0          | 2    | 882  | 40    | 2,402 |

# **APPENDIX B**

## **VOLUME DEVELOPMENT**

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Meridian Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT      | NBR       | SBL      | SBT      | SBR      | WBL       | WBT          | WBR      | EBL      | EBT        | EBR       |
|--|-----------|----------|-----------|----------|----------|----------|-----------|--------------|----------|----------|------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>45</b> | <b>0</b> | <b>26</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>41</b> | <b>1003</b>  | <b>2</b> | <b>1</b> | <b>540</b> | <b>31</b> |
| Walmart                                    |           |          |           |          |          |          |           | 60           |          |          | 72         |           |
| Harris Teeter                              |           |          |           |          |          |          |           | 24           |          |          | 36         |           |
| The Village at Oyster Bluff                |           |          |           |          |          |          |           | 10           |          |          | 8          |           |
| Marina Village                             |           |          |           |          |          |          |           | 3            |          |          | 3          |           |
| Taco Bell (New Trips)                      |           |          |           |          |          |          |           | 6            |          |          | 7          |           |
| Lady's Island Shopping Center (additional) |           |          |           |          |          |          |           | 9            |          |          | 14         |           |
| White Hall Plantation                      | 3         |          | 11        |          |          |          | 13        | 56           |          |          | 42         | 3         |
| Total                                      | 3         | 0        | 11        | 0        | 0        | 0        | 13        | 168          | 0        | 0        | 182        | 3         |
| Years To Buildout (2038)                   | 22        | 22       | 22        | 22       | 22       | 22       | 22        | 22           | 22       | 22       | 22         | 22        |
| Background Traffic Growth                  | 11        | 0        | 6         | 0        | 0        | 0        | 10        | 245          | 0        | 0        | 132        | 8         |
| Redistributed Trips by Median              |           |          |           |          |          |          |           |              |          |          |            |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>59</b> | <b>0</b> | <b>43</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>64</b> | <b>1,416</b> | <b>2</b> | <b>1</b> | <b>854</b> | <b>42</b> |
| Redistributed Trips Concept Plan           |           |          |           |          |          |          |           |              |          |          |            |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>59</b> | <b>0</b> | <b>43</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>64</b> | <b>1,416</b> | <b>2</b> | <b>1</b> | <b>854</b> | <b>42</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT      | NBR       | SBL      | SBT      | SBR      | WBL       | WBT          | WBR      | EBL      | EBT          | EBR       |
|--|-----------|----------|-----------|----------|----------|----------|-----------|--------------|----------|----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>46</b> | <b>1</b> | <b>36</b> | <b>1</b> | <b>0</b> | <b>1</b> | <b>36</b> | <b>630</b>   | <b>1</b> | <b>0</b> | <b>902</b>   | <b>54</b> |
| Walmart                                    |           |          |           |          |          |          |           | 86           |          |          | 81           |           |
| Harris Teeter                              |           |          |           |          |          |          |           | 51           |          |          | 52           |           |
| The Village at Oyster Bluff                |           |          |           |          |          |          |           | 15           |          |          | 12           |           |
| Marina Village                             |           |          |           |          |          |          |           | 7            |          |          | 7            |           |
| Taco Bell (New Trips)                      |           |          |           |          |          |          |           | 4            |          |          | 5            |           |
| Lady's Island Shopping Center (additional) |           |          |           |          |          |          |           | 47           |          |          | 44           |           |
| White Hall Plantation                      | 6         |          | 24        |          |          |          | 16        | 67           |          |          | 94           | 4         |
| Total                                      | 6         | 0        | 24        | 0        | 0        | 0        | 16        | 277          | 0        | 0        | 295          | 4         |
| Years To Buildout (2038)                   | 22        | 22       | 22        | 22       | 22       | 22       | 22        | 22           | 22       | 22       | 22           | 22        |
| Background Traffic Growth                  | 11        | 0        | 9         | 0        | 0        | 0        | 9         | 154          | 0        | 0        | 221          | 13        |
| Redistributed Trips by Median              |           |          |           |          |          |          |           |              |          |          |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>63</b> | <b>1</b> | <b>69</b> | <b>1</b> | <b>0</b> | <b>1</b> | <b>61</b> | <b>1,061</b> | <b>1</b> | <b>0</b> | <b>1,418</b> | <b>71</b> |
| Redistributed Trips Concept Plan           |           |          |           |          |          |          |           |              |          |          |              |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>63</b> | <b>1</b> | <b>69</b> | <b>1</b> | <b>0</b> | <b>1</b> | <b>61</b> | <b>1,061</b> | <b>1</b> | <b>0</b> | <b>1,418</b> | <b>71</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Beaufort High School

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT      | NBR       | SBL      | SBT      | SBR      | WBL        | WBT          | WBR      | EBL      | EBT        | EBR       |
|--|-----------|----------|-----------|----------|----------|----------|------------|--------------|----------|----------|------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>28</b> | <b>0</b> | <b>33</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>106</b> | <b>1029</b>  | <b>0</b> | <b>0</b> | <b>502</b> | <b>49</b> |
| Walmart                                    |           |          |           |          |          |          |            | 60           |          |          | 72         |           |
| Harris Teeter                              |           |          |           |          |          |          |            | 24           |          |          | 36         |           |
| The Village at Oyster Bluff                |           |          |           |          |          |          |            | 10           |          |          | 8          |           |
| Marina Village                             |           |          |           |          |          |          |            | 5            |          |          | 5          |           |
| Taco Bell (New Trips)                      |           |          |           |          |          |          |            | 6            |          |          | 7          |           |
| Lady's Island Shopping Center (additional) |           |          |           |          |          |          |            | 9            |          |          | 14         |           |
| White Hall Plantation                      |           |          |           |          |          |          |            | 69           |          |          | 53         |           |
| Total                                      | 0         | 0        | 0         | 0        | 0        | 0        | 0          | 183          | 0        | 0        | 195        | 0         |
| Years To Buildout (2038)                   | 22        | 22       | 22        | 22       | 22       | 22       | 22         | 22           | 22       | 22       | 22         | 22        |
| Background Traffic Growth                  | 7         | 0        | 8         | 0        | 0        | 0        | 26         | 252          | 0        | 0        | 123        | 12        |
| Redistributed Trips by Median              |           |          |           |          |          |          |            |              |          |          |            |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>35</b> | <b>0</b> | <b>41</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>132</b> | <b>1,464</b> | <b>0</b> | <b>0</b> | <b>820</b> | <b>61</b> |
| Redistributed Trips Concept Plan           | -35       |          | -41       |          |          |          | -132       | 35           |          |          |            |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b>  | <b>0</b> | <b>0</b>  | <b>0</b> | <b>0</b> | <b>1</b> | <b>0</b>   | <b>1,499</b> | <b>0</b> | <b>0</b> | <b>820</b> | <b>61</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT      | NBR       | SBL      | SBT      | SBR      | WBL       | WBT          | WBR      | EBL      | EBT          | EBR       |
|--|-----------|----------|-----------|----------|----------|----------|-----------|--------------|----------|----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>40</b> | <b>1</b> | <b>37</b> | <b>4</b> | <b>0</b> | <b>2</b> | <b>20</b> | <b>643</b>   | <b>6</b> | <b>2</b> | <b>929</b>   | <b>15</b> |
| Walmart                                    |           |          |           |          |          |          |           | 86           |          |          | 81           |           |
| Harris Teeter                              |           |          |           |          |          |          |           | 51           |          |          | 52           |           |
| The Village at Oyster Bluff                |           |          |           |          |          |          |           | 15           |          |          | 12           |           |
| Marina Village                             |           |          |           |          |          |          |           | 13           |          |          | 13           |           |
| Taco Bell (New Trips)                      |           |          |           |          |          |          |           | 4            |          |          | 5            |           |
| Lady's Island Shopping Center (additional) |           |          |           |          |          |          |           | 47           |          |          | 44           |           |
| White Hall Plantation                      |           |          |           |          |          |          |           | 83           |          |          | 118          |           |
| Total                                      | 0         | 0        | 0         | 0        | 0        | 0        | 0         | 299          | 0        | 0        | 325          | 0         |
| Years To Buildout (2038)                   | 22        | 22       | 22        | 22       | 22       | 22       | 22        | 22           | 22       | 22       | 22           | 22        |
| Background Traffic Growth                  | 10        | 0        | 9         | 1        | 0        | 0        | 5         | 157          | 1        | 0        | 227          | 4         |
| Redistributed Trips by Median              |           |          |           |          |          |          |           |              |          |          |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>50</b> | <b>1</b> | <b>46</b> | <b>5</b> | <b>0</b> | <b>2</b> | <b>25</b> | <b>1,099</b> | <b>7</b> | <b>2</b> | <b>1,481</b> | <b>19</b> |
| Redistributed Trips Concept Plan           | -50       | -1       | -46       |          |          |          | -25       | 50           | 1        |          |              |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b>  | <b>0</b> | <b>0</b>  | <b>5</b> | <b>0</b> | <b>2</b> | <b>0</b>  | <b>1,149</b> | <b>8</b> | <b>2</b> | <b>1,481</b> | <b>19</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Sunset Boulevard

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT      | NBR       | SBL       | SBT      | SBR        | WBL        | WBT          | WBR       | EBL        | EBT        | EBR       |
|--|-----------|----------|-----------|-----------|----------|------------|------------|--------------|-----------|------------|------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>2</b>  | <b>1</b> | <b>18</b> | <b>8</b>  | <b>1</b> | <b>138</b> | <b>19</b>  | <b>1001</b>  | <b>9</b>  | <b>54</b>  | <b>469</b> | <b>9</b>  |
| Walmart                                    |           |          |           |           |          |            |            | 60           |           |            | 72         |           |
| Harris Teeter                              |           |          |           |           |          |            |            | 24           |           |            | 36         |           |
| The Village at Oyster Bluff                |           |          |           |           |          |            |            | 10           |           |            | 8          |           |
| Marina Village                             |           |          |           | 9         |          | 2          |            | 3            | 8         | 2          | 3          |           |
| Taco Bell (New Trips)                      |           |          |           |           |          |            |            | 6            |           |            | 7          |           |
| Lady's Island Shopping Center (additional) | 9         | 3        | 5         |           | 6        |            | 9          |              |           |            |            | 14        |
| White Hall Plantation                      |           |          |           |           |          |            |            | 69           |           |            | 53         |           |
| Total                                      | 9         | 3        | 5         | 9         | 6        | 2          | 9          | 172          | 8         | 2          | 179        | 14        |
| Years To Buildout (2038)                   | 22        | 22       | 22        | 22        | 22       | 22         | 22         | 22           | 22        | 22         | 22         | 22        |
| Background Traffic Growth                  | 0         | 0        | 4         | 2         | 0        | 34         | 5          | 245          | 2         | 13         | 115        | 2         |
| Redistributed Trips by Median              |           |          |           |           |          |            |            |              |           |            |            |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>11</b> | <b>4</b> | <b>27</b> | <b>19</b> | <b>7</b> | <b>174</b> | <b>33</b>  | <b>1,418</b> | <b>19</b> | <b>69</b>  | <b>763</b> | <b>25</b> |
| Redistributed Trips Concept Plan           | 35        |          | 41        |           |          | 442        | 132        | -442         |           | 144        | -185       |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>46</b> | <b>4</b> | <b>68</b> | <b>19</b> | <b>7</b> | <b>616</b> | <b>165</b> | <b>976</b>   | <b>19</b> | <b>213</b> | <b>578</b> | <b>25</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT       | NBR        | SBL       | SBT       | SBR        | WBL       | WBT          | WBR       | EBL        | EBT          | EBR       |
|--|-----------|-----------|------------|-----------|-----------|------------|-----------|--------------|-----------|------------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>1</b>  | <b>0</b>  | <b>40</b>  | <b>7</b>  | <b>0</b>  | <b>58</b>  | <b>16</b> | <b>615</b>   | <b>27</b> | <b>108</b> | <b>828</b>   | <b>22</b> |
| Walmart                                    |           |           |            |           |           |            |           | 86           |           |            | 81           |           |
| Harris Teeter                              |           |           |            |           |           |            |           | 51           |           |            | 52           |           |
| The Village at Oyster Bluff                |           |           |            |           |           |            |           | 15           |           |            | 12           |           |
| Marina Village                             |           |           |            | 20        |           | 5          |           | 8            | 21        | 5          | 8            |           |
| Taco Bell (New Trips)                      |           |           |            |           |           |            |           | 4            |           |            | 5            |           |
| Lady's Island Shopping Center (additional) | 47        | 19        | 28         |           | 17        |            | 26        |              |           |            |              | 44        |
| White Hall Plantation                      |           |           |            |           |           |            |           | 83           |           |            | 118          |           |
| Total                                      | 47        | 19        | 28         | 20        | 17        | 5          | 26        | 247          | 21        | 5          | 276          | 44        |
| Years To Buildout (2038)                   | 22        | 22        | 22         | 22        | 22        | 22         | 22        | 22           | 22        | 22         | 22           | 22        |
| Background Traffic Growth                  | 0         | 0         | 10         | 2         | 0         | 14         | 4         | 151          | 7         | 26         | 203          | 5         |
| Redistributed Trips by Median              |           |           |            |           |           |            |           |              |           |            |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>48</b> | <b>19</b> | <b>78</b>  | <b>29</b> | <b>17</b> | <b>77</b>  | <b>46</b> | <b>1,013</b> | <b>55</b> | <b>139</b> | <b>1,307</b> | <b>71</b> |
| Redistributed Trips Concept Plan           | 51        |           | 46         |           |           | 251        | 25        | -251         |           | 321        | -367         |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>99</b> | <b>19</b> | <b>124</b> | <b>29</b> | <b>17</b> | <b>328</b> | <b>71</b> | <b>762</b>   | <b>55</b> | <b>460</b> | <b>940</b>   | <b>71</b> |



# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Youmans Drive

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT      | NBR       | SBL      | SBT      | SBR      | WBL        | WBT          | WBR       | EBL      | EBT        | EBR      |
|--|-----------|----------|-----------|----------|----------|----------|------------|--------------|-----------|----------|------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>8</b>  | <b>1</b> | <b>73</b> | <b>0</b> | <b>1</b> | <b>3</b> | <b>132</b> | <b>1046</b>  | <b>8</b>  | <b>4</b> | <b>479</b> | <b>6</b> |
| Walmart                                    |           |          |           |          |          |          |            | 60           |           |          | 72         |          |
| Harris Teeter                              |           |          |           |          |          |          |            | 24           |           |          | 36         |          |
| The Village at Oyster Bluff                |           |          |           |          |          |          |            | 10           |           |          | 8          |          |
| Marina Village                             |           |          |           |          |          |          |            | 11           |           |          | 12         |          |
| Taco Bell (New Trips)                      |           |          |           |          |          |          |            | 6            |           |          | 7          |          |
| Lady's Island Shopping Center (additional) |           |          |           |          |          |          |            | 9            |           |          | 5          |          |
| White Hall Plantation                      |           |          |           |          |          |          |            | 69           |           |          | 53         |          |
| Total                                      | 0         | 0        | 0         | 0        | 0        | 0        | 0          | 189          | 0         | 0        | 193        | 0        |
| Years To Buildout (2038)                   | 22        | 22       | 22        | 22       | 22       | 22       | 22         | 22           | 22        | 22       | 22         | 22       |
| Background Traffic Growth                  | 2         | 0        | 18        | 0        | 0        | 1        | 32         | 256          | 2         | 1        | 117        | 1        |
| Redistributed Trips by Median              |           |          |           |          |          |          |            |              |           |          |            |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>10</b> | <b>1</b> | <b>91</b> | <b>0</b> | <b>1</b> | <b>4</b> | <b>164</b> | <b>1,491</b> | <b>10</b> | <b>5</b> | <b>789</b> | <b>7</b> |
| Redistributed Trips Concept Plan           |           |          |           |          |          |          |            | -442         |           |          | -144       |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>10</b> | <b>1</b> | <b>91</b> | <b>0</b> | <b>1</b> | <b>4</b> | <b>164</b> | <b>1,049</b> | <b>10</b> | <b>5</b> | <b>645</b> | <b>7</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT      | NBR        | SBL      | SBT      | SBR      | WBL       | WBT          | WBR      | EBL      | EBT          | EBR       |
|--|-----------|----------|------------|----------|----------|----------|-----------|--------------|----------|----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>13</b> | <b>1</b> | <b>94</b>  | <b>4</b> | <b>1</b> | <b>7</b> | <b>60</b> | <b>685</b>   | <b>5</b> | <b>3</b> | <b>896</b>   | <b>16</b> |
| Walmart                                    |           |          |            |          |          |          |           | 86           |          |          | 81           |           |
| Harris Teeter                              |           |          |            |          |          |          |           | 51           |          |          | 52           |           |
| The Village at Oyster Bluff                |           |          |            |          |          |          |           | 15           |          |          | 12           |           |
| Marina Village                             |           |          |            |          |          |          |           | 29           |          |          | 28           |           |
| Taco Bell (New Trips)                      |           |          |            |          |          |          |           | 4            |          |          | 5            |           |
| Lady's Island Shopping Center (additional) |           |          |            |          |          |          |           | 26           |          |          | 28           |           |
| White Hall Plantation                      |           |          |            |          |          |          |           | 83           |          |          | 118          |           |
| Total                                      | 0         | 0        | 0          | 0        | 0        | 0        | 0         | 294          | 0        | 0        | 324          | 0         |
| Years To Buildout (2038)                   | 22        | 22       | 22         | 22       | 22       | 22       | 22        | 22           | 22       | 22       | 22           | 22        |
| Background Traffic Growth                  | 3         | 0        | 23         | 1        | 0        | 2        | 15        | 168          | 1        | 1        | 219          | 4         |
| Redistributed Trips by Median              |           |          |            |          |          |          |           |              |          |          |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>16</b> | <b>1</b> | <b>117</b> | <b>5</b> | <b>1</b> | <b>9</b> | <b>75</b> | <b>1,147</b> | <b>6</b> | <b>4</b> | <b>1,439</b> | <b>20</b> |
| Redistributed Trips Concept Plan           |           |          |            |          |          |          |           | -251         |          |          | -321         |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>16</b> | <b>1</b> | <b>117</b> | <b>5</b> | <b>1</b> | <b>9</b> | <b>75</b> | <b>896</b>   | <b>6</b> | <b>4</b> | <b>1,118</b> | <b>20</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Professional Village Circle

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR      | SBL       | SBT      | SBR       | WBL      | WBT          | WBR       | EBL       | EBT        | EBR      |
|--|----------|----------|----------|-----------|----------|-----------|----------|--------------|-----------|-----------|------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b> | <b>0</b> | <b>0</b> | <b>10</b> | <b>0</b> | <b>24</b> | <b>0</b> | <b>1158</b>  | <b>44</b> | <b>34</b> | <b>517</b> | <b>0</b> |
| Walmart                                    |          |          |          |           |          |           |          | 60           |           |           | 72         |          |
| Harris Teeter                              |          |          |          |           |          |           |          | 24           |           |           | 36         |          |
| The Village at Oyster Bluff                |          |          |          |           |          |           |          | 10           |           |           | 8          |          |
| Marina Village                             |          |          |          |           |          |           |          | 11           |           |           | 12         |          |
| Taco Bell (New Trips)                      |          |          |          |           |          |           |          | 6            |           |           | 7          |          |
| Lady's Island Shopping Center (additional) |          |          |          |           |          |           |          | 9            |           |           | 5          |          |
| White Hall Plantation                      |          |          |          |           |          |           |          | 69           |           |           | 53         |          |
| Total                                      | 0        | 0        | 0        | 0         | 0        | 0         | 0        | 189          | 0         | 0         | 193        | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22        | 22       | 22        | 22       | 22           | 22        | 22        | 22         | 22       |
| Background Traffic Growth                  | 0        | 0        | 0        | 2         | 0        | 6         | 0        | 283          | 11        | 8         | 127        | 0        |
| Redistributed Trips by Median              |          |          |          |           |          |           |          |              |           |           |            |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>0</b> | <b>12</b> | <b>0</b> | <b>30</b> | <b>0</b> | <b>1,630</b> | <b>55</b> | <b>42</b> | <b>837</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          |          |          |           |          |           |          | -442         |           |           | -144       |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>12</b> | <b>0</b> | <b>30</b> | <b>0</b> | <b>1,188</b> | <b>55</b> | <b>42</b> | <b>693</b> | <b>0</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT      | NBR      | SBL       | SBT      | SBR       | WBL      | WBT          | WBR       | EBL       | EBT          | EBR      |
|--|----------|----------|----------|-----------|----------|-----------|----------|--------------|-----------|-----------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b> | <b>0</b> | <b>0</b> | <b>35</b> | <b>0</b> | <b>43</b> | <b>0</b> | <b>725</b>   | <b>31</b> | <b>14</b> | <b>1012</b>  | <b>0</b> |
| Walmart                                    |          |          |          |           |          |           |          | 86           |           |           | 81           |          |
| Harris Teeter                              |          |          |          |           |          |           |          | 51           |           |           | 52           |          |
| The Village at Oyster Bluff                |          |          |          |           |          |           |          | 15           |           |           | 12           |          |
| Marina Village                             |          |          |          |           |          |           |          | 29           |           |           | 28           |          |
| Taco Bell (New Trips)                      |          |          |          |           |          |           |          | 4            |           |           | 5            |          |
| Lady's Island Shopping Center (additional) |          |          |          |           |          |           |          | 26           |           |           | 28           |          |
| White Hall Plantation                      |          |          |          |           |          |           |          | 83           |           |           | 118          |          |
| Total                                      | 0        | 0        | 0        | 0         | 0        | 0         | 0        | 294          | 0         | 0         | 324          | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22        | 22       | 22        | 22       | 22           | 22        | 22        | 22           | 22       |
| Background Traffic Growth                  | 0        | 0        | 0        | 9         | 0        | 11        | 0        | 177          | 8         | 3         | 248          | 0        |
| Redistributed Trips by Median              |          |          |          |           |          |           |          |              |           |           |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>0</b> | <b>44</b> | <b>0</b> | <b>54</b> | <b>0</b> | <b>1,196</b> | <b>39</b> | <b>17</b> | <b>1,584</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          |          |          |           |          |           |          | -251         |           |           | -321         |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>44</b> | <b>0</b> | <b>54</b> | <b>0</b> | <b>945</b>   | <b>39</b> | <b>17</b> | <b>1,263</b> | <b>0</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & SC 802 (Sams Point Road)

TRAFFIC CONTROL: Signalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL        | NBT        | NBR        | SBL        | SBT        | SBR        | WBL        | WBT        | WBR        | EBL        | EBT        | EBR        |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>94</b>  | <b>309</b> | <b>270</b> | <b>155</b> | <b>678</b> | <b>675</b> | <b>401</b> | <b>496</b> | <b>91</b>  | <b>183</b> | <b>254</b> | <b>75</b>  |
| Walmart                                    |            |            | 73         | 108        |            |            | 60         | 60         | 91         |            | 72         |            |
| Harris Teeter                              |            | 37         | 9          | 4          | 4          | 4          | 25         | 20         |            | 27         | 9          |            |
| The Village at Oyster Bluff                | 0          | 23         | 0          | 15         | 34         | 10         | 0          | 0          | 12         | 8          | 0          | 0          |
| Marina Village                             | 3          |            |            |            |            | 4          |            | 4          |            | 5          | 4          | 3          |
| Taco Bell (New Trips)                      |            |            | 7          | 10         |            |            | 6          | 6          | 9          |            | 7          |            |
| Lady's Island Shopping Center (additional) | 6          |            |            |            |            | 1          |            | 2          |            | 1          | 1          | 3          |
| White Hall Plantation                      | 17         |            |            |            |            | 26         |            | 26         |            | 20         | 20         | 13         |
| Total                                      | 26         | 60         | 89         | 137        | 38         | 45         | 91         | 118        | 112        | 61         | 113        | 19         |
| Years To Buildout (2038)                   | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         |
| Background Traffic Growth                  | 23         | 76         | 66         | 38         | 166        | 165        | 98         | 121        | 22         | 45         | 62         | 18         |
| Redistributed Trips by Median              |            |            |            |            |            |            |            |            |            |            |            |            |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>143</b> | <b>445</b> | <b>425</b> | <b>330</b> | <b>882</b> | <b>885</b> | <b>590</b> | <b>735</b> | <b>225</b> | <b>289</b> | <b>429</b> | <b>112</b> |
| Redistributed Trips Concept Plan           |            |            | -255       |            |            | -442       | -354       |            |            | -144       |            |            |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>143</b> | <b>445</b> | <b>170</b> | <b>330</b> | <b>882</b> | <b>443</b> | <b>236</b> | <b>735</b> | <b>225</b> | <b>145</b> | <b>429</b> | <b>112</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL        | NBT        | NBR        | SBL        | SBT        | SBR        | WBL        | WBT        | WBR        | EBL        | EBT        | EBR        |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>123</b> | <b>667</b> | <b>404</b> | <b>139</b> | <b>414</b> | <b>345</b> | <b>315</b> | <b>293</b> | <b>81</b>  | <b>430</b> | <b>494</b> | <b>109</b> |
| Walmart                                    |            |            | 81         | 122        |            |            | 86         | 86         | 128        |            | 81         |            |
| Harris Teeter                              |            | 53         | 13         | 8          | 10         | 8          | 53         | 43         |            | 39         | 13         |            |
| The Village at Oyster Bluff                | 0          | 39         | 0          | 15         | 50         | 23         | 0          | 0          | 18         | 12         | 0          | 0          |
| Marina Village                             | 7          |            |            |            |            | 11         |            | 11         |            | 11         | 10         | 7          |
| Taco Bell (New Trips)                      |            |            | 5          | 7          |            |            | 4          | 4          | 6          |            | 5          |            |
| Lady's Island Shopping Center (additional) | 17         |            |            |            |            | 3          |            | 6          |            | 5          | 6          | 17         |
| White Hall Plantation                      | 21         |            |            |            |            | 31         |            | 31         |            | 44         | 44         | 30         |
| Total                                      | 45         | 92         | 99         | 152        | 60         | 76         | 143        | 181        | 152        | 111        | 159        | 54         |
| Years To Buildout (2038)                   | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         | 22         |
| Background Traffic Growth                  | 30         | 163        | 99         | 34         | 101        | 84         | 77         | 72         | 20         | 105        | 121        | 27         |
| Redistributed Trips by Median              |            |            |            |            |            |            |            |            |            |            |            |            |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>198</b> | <b>922</b> | <b>602</b> | <b>325</b> | <b>575</b> | <b>505</b> | <b>535</b> | <b>546</b> | <b>253</b> | <b>646</b> | <b>774</b> | <b>190</b> |
| Redistributed Trips Concept Plan           |            |            | -361       |            |            | -251       | -375       |            |            | -321       |            |            |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>198</b> | <b>922</b> | <b>241</b> | <b>325</b> | <b>575</b> | <b>254</b> | <b>160</b> | <b>546</b> | <b>253</b> | <b>325</b> | <b>774</b> | <b>190</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Sams Point Way

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR       | SBL       | SBT      | SBR        | WBL       | WBT          | WBR       | EBL        | EBT        | EBR       |
|--|----------|----------|-----------|-----------|----------|------------|-----------|--------------|-----------|------------|------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b> | <b>4</b> | <b>10</b> | <b>23</b> | <b>1</b> | <b>128</b> | <b>63</b> | <b>879</b>   | <b>47</b> | <b>83</b>  | <b>540</b> | <b>12</b> |
| Walmart                                    |          |          |           |           |          |            |           | 211          |           |            | 253        |           |
| Harris Teeter                              |          |          |           | 21        |          | 2          |           | 27           | 10        | 18         | 4          |           |
| The Village at Oyster Bluff                |          |          |           |           |          |            |           | 12           |           |            | 15         |           |
| Marina Village                             |          |          |           |           |          |            |           | 4            |           |            | 4          |           |
| Taco Bell (New Trips)                      |          |          |           |           |          |            |           | 21           |           |            | 24         |           |
| Lady's Island Shopping Center (additional) |          |          |           |           |          |            |           | 2            |           |            | 1          |           |
| White Hall Plantation                      |          |          |           |           |          |            |           | 26           |           |            | 20         |           |
| Total                                      | 0        | 0        | 0         | 21        | 0        | 2          | 0         | 303          | 10        | 18         | 321        | 0         |
| Years To Buildout (2038)                   | 22       | 22       | 22        | 22        | 22       | 22         | 22        | 22           | 22        | 22         | 22         | 22        |
| Background Traffic Growth                  | 0        | 1        | 2         | 6         | 0        | 31         | 15        | 215          | 12        | 20         | 132        | 3         |
| Redistributed Trips by Median              |          |          |           |           |          |            |           |              |           |            |            |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>5</b> | <b>12</b> | <b>50</b> | <b>1</b> | <b>161</b> | <b>78</b> | <b>1,397</b> | <b>69</b> | <b>121</b> | <b>993</b> | <b>15</b> |
| Redistributed Trips Concept Plan           |          |          |           |           |          |            |           | -354         |           |            | -255       |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>5</b> | <b>12</b> | <b>50</b> | <b>1</b> | <b>161</b> | <b>78</b> | <b>1,043</b> | <b>69</b> | <b>121</b> | <b>738</b> | <b>15</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT       | NBR       | SBL       | SBT      | SBR        | WBL       | WBT          | WBR       | EBL        | EBT          | EBR       |
|--|-----------|-----------|-----------|-----------|----------|------------|-----------|--------------|-----------|------------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>10</b> | <b>11</b> | <b>58</b> | <b>10</b> | <b>2</b> | <b>102</b> | <b>31</b> | <b>590</b>   | <b>34</b> | <b>157</b> | <b>792</b>   | <b>31</b> |
| Walmart                                    |           |           |           |           |          |            |           | 300          |           |            | 284          |           |
| Harris Teeter                              |           |           |           | 43        |          | 6          |           | 39           | 14        | 26         | 8            |           |
| The Village at Oyster Bluff                |           |           |           |           |          |            |           | 18           |           |            | 23           |           |
| Marina Village                             |           |           |           |           |          |            |           | 11           |           |            | 10           |           |
| Taco Bell (New Trips)                      |           |           |           |           |          |            |           | 14           |           |            | 17           |           |
| Lady's Island Shopping Center (additional) |           |           |           |           |          |            |           | 6            |           |            | 6            |           |
| White Hall Plantation                      |           |           |           |           |          |            |           | 31           |           |            | 44           |           |
| Total                                      | 0         | 0         | 0         | 43        | 0        | 6          | 0         | 419          | 14        | 26         | 392          | 0         |
| Years To Buildout (2038)                   | 22        | 22        | 22        | 22        | 22       | 22         | 22        | 22           | 22        | 22         | 22           | 22        |
| Background Traffic Growth                  | 2         | 3         | 14        | 2         | 0        | 25         | 8         | 144          | 8         | 38         | 194          | 8         |
| Redistributed Trips by Median              |           |           |           |           |          |            |           |              |           |            |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>12</b> | <b>14</b> | <b>72</b> | <b>55</b> | <b>2</b> | <b>133</b> | <b>39</b> | <b>1,153</b> | <b>56</b> | <b>221</b> | <b>1,378</b> | <b>39</b> |
| Redistributed Trips Concept Plan           |           |           |           |           |          |            |           | -375         |           |            | -361         |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>12</b> | <b>14</b> | <b>72</b> | <b>55</b> | <b>2</b> | <b>133</b> | <b>39</b> | <b>778</b>   | <b>56</b> | <b>221</b> | <b>1,017</b> | <b>39</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Ferry Drive

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR       | SBL       | SBT      | SBR       | WBL       | WBT          | WBR       | EBL       | EBT          | EBR      |
|--|----------|----------|-----------|-----------|----------|-----------|-----------|--------------|-----------|-----------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>2</b> | <b>0</b> | <b>13</b> | <b>56</b> | <b>0</b> | <b>21</b> | <b>44</b> | <b>998</b>   | <b>37</b> | <b>23</b> | <b>565</b>   | <b>4</b> |
| Walmart                                    |          |          |           |           |          |           |           | 211          |           |           | 253          |          |
| Harris Teeter                              |          |          |           |           |          |           |           | 37           |           |           | 25           |          |
| The Village at Oyster Bluff                |          |          |           |           |          |           |           | 12           |           |           | 15           |          |
| Marina Village                             |          |          |           |           |          |           |           | 4            |           |           | 4            |          |
| Taco Bell (New Trips)                      |          |          |           |           |          |           |           | 21           |           |           | 24           |          |
| Lady's Island Shopping Center (additional) |          |          |           |           |          |           |           | 2            |           |           | 1            |          |
| White Hall Plantation                      |          |          |           |           |          |           |           | 26           |           |           | 20           |          |
| Total                                      | 0        | 0        | 0         | 0         | 0        | 0         | 0         | 313          | 0         | 0         | 342          | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22        | 22        | 22       | 22        | 22        | 22           | 22        | 22        | 22           | 22       |
| Background Traffic Growth                  | 0        | 0        | 3         | 14        | 0        | 5         | 11        | 244          | 9         | 6         | 138          | 1        |
| Redistributed Trips by Median              |          |          |           |           |          |           |           |              |           |           |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>2</b> | <b>0</b> | <b>16</b> | <b>70</b> | <b>0</b> | <b>26</b> | <b>55</b> | <b>1,555</b> | <b>46</b> | <b>29</b> | <b>1,045</b> | <b>5</b> |
| Redistributed Trips Concept Plan           |          |          |           |           |          |           | -55       | -354         |           |           | -255         |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>2</b> | <b>0</b> | <b>16</b> | <b>70</b> | <b>0</b> | <b>26</b> | <b>0</b>  | <b>1,201</b> | <b>46</b> | <b>29</b> | <b>790</b>   | <b>5</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT      | NBR       | SBL        | SBT      | SBR       | WBL       | WBT          | WBR       | EBL       | EBT          | EBR       |
|--|----------|----------|-----------|------------|----------|-----------|-----------|--------------|-----------|-----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>3</b> | <b>3</b> | <b>20</b> | <b>102</b> | <b>1</b> | <b>46</b> | <b>8</b>  | <b>601</b>   | <b>56</b> | <b>69</b> | <b>793</b>   | <b>9</b>  |
| Walmart                                    |          |          |           |            |          |           |           | 300          |           |           | 284          |           |
| Harris Teeter                              |          |          |           |            |          |           |           | 53           |           |           | 51           |           |
| The Village at Oyster Bluff                |          |          |           |            |          |           |           | 18           |           |           | 23           |           |
| Marina Village                             |          |          |           |            |          |           |           | 11           |           |           | 10           |           |
| Taco Bell (New Trips)                      |          |          |           |            |          |           |           | 14           |           |           | 17           |           |
| Lady's Island Shopping Center (additional) |          |          |           |            |          |           |           | 6            |           |           | 6            |           |
| White Hall Plantation                      |          |          |           |            |          |           |           | 31           |           |           | 44           |           |
| Total                                      | 0        | 0        | 0         | 0          | 0        | 0         | 0         | 433          | 0         | 0         | 435          | 0         |
| Years To Buildout (2038)                   | 22       | 22       | 22        | 22         | 22       | 22        | 22        | 22           | 22        | 22        | 22           | 22        |
| Background Traffic Growth                  | 1        | 1        | 5         | 25         | 0        | 11        | 2         | 147          | 14        | 17        | 194          | 2         |
| Redistributed Trips by Median              |          |          |           |            |          |           |           |              |           |           |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>4</b> | <b>4</b> | <b>25</b> | <b>127</b> | <b>1</b> | <b>57</b> | <b>10</b> | <b>1,181</b> | <b>70</b> | <b>86</b> | <b>1,422</b> | <b>11</b> |
| Redistributed Trips Concept Plan           |          |          |           |            |          |           | -10       | -375         |           |           | -361         |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>4</b> | <b>4</b> | <b>25</b> | <b>127</b> | <b>1</b> | <b>57</b> | <b>0</b>  | <b>806</b>   | <b>70</b> | <b>86</b> | <b>1,061</b> | <b>11</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Gay Drive

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR        | SBL       | SBT      | SBR        | WBL        | WBT          | WBR       | EBL        | EBT          | EBR      |
|--|----------|----------|------------|-----------|----------|------------|------------|--------------|-----------|------------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>4</b> | <b>0</b> | <b>3</b>   | <b>0</b>  | <b>0</b> | <b>3</b>   | <b>6</b>   | <b>1059</b>  | <b>0</b>  | <b>3</b>   | <b>672</b>   | <b>2</b> |
| Walmart                                    |          |          |            |           |          |            |            | 211          |           |            | 253          |          |
| Harris Teeter                              |          |          |            |           |          |            |            | 37           |           |            | 25           |          |
| The Village at Oyster Bluff                |          |          |            |           |          |            |            | 12           |           |            | 15           |          |
| Marina Village                             |          |          |            |           |          |            |            | 4            |           |            | 4            |          |
| Taco Bell (New Trips)                      |          |          |            |           |          |            |            | 21           |           |            | 24           |          |
| Lady's Island Shopping Center (additional) |          |          |            |           |          |            |            | 2            |           |            | 1            |          |
| White Hall Plantation                      |          |          |            |           |          |            |            | 26           |           |            | 20           |          |
| Total                                      | 0        | 0        | 0          | 0         | 0        | 0          | 0          | 313          | 0         | 0          | 342          | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22         | 22        | 22       | 22         | 22         | 22           | 22        | 22         | 22           | 22       |
| Background Traffic Growth                  | 1        | 0        | 1          | 0         | 0        | 1          | 1          | 259          | 0         | 1          | 164          | 0        |
| Redistributed Trips by Median              |          |          |            |           |          |            |            |              |           |            |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>5</b> | <b>0</b> | <b>4</b>   | <b>0</b>  | <b>0</b> | <b>4</b>   | <b>7</b>   | <b>1,631</b> | <b>0</b>  | <b>4</b>   | <b>1,178</b> | <b>2</b> |
| Redistributed Trips Concept Plan           | 2        |          | 255        | 16        |          | 144        | 411        | -498         | 75        | 143        | -405         | 7        |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>7</b> | <b>0</b> | <b>259</b> | <b>16</b> | <b>0</b> | <b>148</b> | <b>418</b> | <b>1,133</b> | <b>75</b> | <b>147</b> | <b>773</b>   | <b>9</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT      | NBR        | SBL      | SBT      | SBR       | WBL        | WBT          | WBR      | EBL      | EBT          | EBR      |
|--|-----------|----------|------------|----------|----------|-----------|------------|--------------|----------|----------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>7</b>  | <b>0</b> | <b>1</b>   | <b>0</b> | <b>0</b> | <b>2</b>  | <b>3</b>   | <b>671</b>   | <b>0</b> | <b>2</b> | <b>923</b>   | <b>4</b> |
| Walmart                                    |           |          |            |          |          |           |            | 300          |          |          | 284          |          |
| Harris Teeter                              |           |          |            |          |          |           |            | 53           |          |          | 51           |          |
| The Village at Oyster Bluff                |           |          |            |          |          |           |            | 18           |          |          | 23           |          |
| Marina Village                             |           |          |            |          |          |           |            | 11           |          |          | 10           |          |
| Taco Bell (New Trips)                      |           |          |            |          |          |           |            | 14           |          |          | 17           |          |
| Lady's Island Shopping Center (additional) |           |          |            |          |          |           |            | 6            |          |          | 6            |          |
| White Hall Plantation                      |           |          |            |          |          |           |            | 31           |          |          | 44           |          |
| Total                                      | 0         | 0        | 0          | 0        | 0        | 0         | 0          | 433          | 0        | 0        | 435          | 0        |
| Years To Buildout (2038)                   | 22        | 22       | 22         | 22       | 22       | 22        | 22         | 22           | 22       | 22       | 22           | 22       |
| Background Traffic Growth                  | 2         | 0        | 0          | 0        | 0        | 0         | 1          | 164          | 0        | 0        | 226          | 1        |
| Redistributed Trips by Median              |           |          |            |          |          |           |            |              |          |          |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>9</b>  | <b>0</b> | <b>1</b>   | <b>0</b> | <b>0</b> | <b>2</b>  | <b>4</b>   | <b>1,268</b> | <b>0</b> | <b>2</b> | <b>1,584</b> | <b>5</b> |
| Redistributed Trips Concept Plan           | 9         |          | 366        | 6        |          | 25        | 389        | -400         | 2        | 7        | -370         | 2        |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>18</b> | <b>0</b> | <b>367</b> | <b>6</b> | <b>0</b> | <b>27</b> | <b>393</b> | <b>868</b>   | <b>2</b> | <b>9</b> | <b>1,214</b> | <b>7</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Cougar Drive

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR      | SBL       | SBT      | SBR        | WBL      | WBT          | WBR       | EBL        | EBT        | EBR      |
|--|----------|----------|----------|-----------|----------|------------|----------|--------------|-----------|------------|------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>2</b> | <b>0</b> | <b>0</b> | <b>13</b> | <b>0</b> | <b>116</b> | <b>2</b> | <b>947</b>   | <b>60</b> | <b>115</b> | <b>514</b> | <b>6</b> |
| Walmart                                    |          |          |          |           |          |            |          | 211          |           |            | 253        |          |
| Harris Teeter                              |          |          |          |           |          |            |          | 37           |           |            | 25         |          |
| The Village at Oyster Bluff                |          |          |          |           |          |            |          | 12           |           |            | 15         |          |
| Marina Village                             |          |          |          |           |          |            |          | 4            |           |            | 4          |          |
| Taco Bell (New Trips)                      |          |          |          |           |          |            |          | 21           |           |            | 24         |          |
| Lady's Island Shopping Center (additional) |          |          |          |           |          |            |          | 2            |           |            | 1          |          |
| White Hall Plantation                      |          |          |          |           |          |            |          | 26           |           |            | 20         |          |
| Total                                      | 0        | 0        | 0        | 0         | 0        | 0          | 0        | 313          | 0         | 0          | 342        | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22        | 22       | 22         | 22       | 22           | 22        | 22         | 22         | 22       |
| Background Traffic Growth                  | 0        | 0        | 0        | 3         | 0        | 28         | 0        | 232          | 15        | 28         | 126        | 1        |
| Redistributed Trips by Median              |          |          |          |           |          |            |          |              |           |            |            |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>2</b> | <b>0</b> | <b>0</b> | <b>16</b> | <b>0</b> | <b>144</b> | <b>2</b> | <b>1,492</b> | <b>75</b> | <b>143</b> | <b>982</b> | <b>7</b> |
| Redistributed Trips Concept Plan           | -2       |          |          | -16       |          | -144       | -2       |              | -75       | -143       | 16         | -7       |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>  | <b>0</b> | <b>0</b>   | <b>0</b> | <b>1,492</b> | <b>0</b>  | <b>0</b>   | <b>998</b> | <b>0</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT      | NBR      | SBL      | SBT      | SBR       | WBL      | WBT          | WBR      | EBL      | EBT          | EBR      |
|--|----------|----------|----------|----------|----------|-----------|----------|--------------|----------|----------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>7</b> | <b>0</b> | <b>4</b> | <b>5</b> | <b>0</b> | <b>20</b> | <b>3</b> | <b>634</b>   | <b>2</b> | <b>6</b> | <b>897</b>   | <b>2</b> |
| Walmart                                    |          |          |          |          |          |           |          | 300          |          |          | 284          |          |
| Harris Teeter                              |          |          |          |          |          |           |          | 53           |          |          | 51           |          |
| The Village at Oyster Bluff                |          |          |          |          |          |           |          | 18           |          |          | 23           |          |
| Marina Village                             |          |          |          |          |          |           |          | 11           |          |          | 10           |          |
| Taco Bell (New Trips)                      |          |          |          |          |          |           |          | 14           |          |          | 17           |          |
| Lady's Island Shopping Center (additional) |          |          |          |          |          |           |          | 6            |          |          | 6            |          |
| White Hall Plantation                      |          |          |          |          |          |           |          | 31           |          |          | 44           |          |
| Total                                      | 0        | 0        | 0        | 0        | 0        | 0         | 0        | 433          | 0        | 0        | 435          | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22       | 22       | 22        | 22       | 22           | 22       | 22       | 22           | 22       |
| Background Traffic Growth                  | 2        | 0        | 1        | 1        | 0        | 5         | 1        | 155          | 0        | 1        | 220          | 0        |
| Redistributed Trips by Median              |          |          |          |          |          |           |          |              |          |          |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>9</b> | <b>0</b> | <b>5</b> | <b>6</b> | <b>0</b> | <b>25</b> | <b>4</b> | <b>1,222</b> | <b>2</b> | <b>7</b> | <b>1,552</b> | <b>2</b> |
| Redistributed Trips Concept Plan           | -9       |          | -5       | -6       |          | -25       | -4       |              | -2       | -7       | 6            | -2       |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>  | <b>0</b> | <b>1,222</b> | <b>0</b> | <b>0</b> | <b>1,558</b> | <b>0</b> |



# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Lost Island Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT      | NBR      | SBL      | SBT      | SBR      | WBL      | WBT          | WBR      | EBL      | EBT        | EBR       |
|--|-----------|----------|----------|----------|----------|----------|----------|--------------|----------|----------|------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>23</b> | <b>0</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>1008</b>  | <b>0</b> | <b>0</b> | <b>518</b> | <b>5</b>  |
| Walmart                                    |           |          |          |          |          |          |          | 211          |          |          | 253        |           |
| Harris Teeter                              |           |          |          |          |          |          |          | 37           |          |          | 25         |           |
| The Village at Oyster Bluff                |           |          |          |          |          |          |          | 12           |          |          | 15         |           |
| Marina Village                             |           |          |          |          |          |          |          | 4            |          |          | 4          |           |
| Taco Bell (New Trips)                      | 21        |          |          |          |          |          | 10       |              |          |          | 10         | 7         |
| Lady's Island Shopping Center (additional) |           |          |          |          |          |          |          | 2            |          |          | 1          |           |
| White Hall Plantation                      |           |          |          |          |          |          |          | 26           |          |          | 20         |           |
| Total                                      | 21        | 0        | 0        | 0        | 0        | 0        | 10       | 292          | 0        | 0        | 328        | 7         |
| Years To Buildout (2038)                   | 22        | 22       | 22       | 22       | 22       | 22       | 22       | 22           | 22       | 22       | 22         | 22        |
| Background Traffic Growth                  | 6         | 0        | 0        | 0        | 0        | 0        | 1        | 247          | 0        | 0        | 127        | 1         |
| Redistributed Trips by Median              | -50       |          |          |          |          |          | -14      | 50           |          |          |            |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b>  | <b>0</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,597</b> | <b>0</b> | <b>0</b> | <b>973</b> | <b>13</b> |
| Redistributed Trips Concept Plan           |           |          |          |          |          |          |          |              |          |          |            |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b>  | <b>0</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,597</b> | <b>0</b> | <b>0</b> | <b>973</b> | <b>13</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT      | NBR      | SBL      | SBT      | SBR      | WBL      | WBT          | WBR      | EBL      | EBT          | EBR       |
|--|-----------|----------|----------|----------|----------|----------|----------|--------------|----------|----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>10</b> | <b>0</b> | <b>5</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>2</b> | <b>624</b>   | <b>0</b> | <b>0</b> | <b>901</b>   | <b>15</b> |
| Walmart                                    |           |          |          |          |          |          |          | 300          |          |          | 284          |           |
| Harris Teeter                              |           |          |          |          |          |          |          | 53           |          |          | 51           |           |
| The Village at Oyster Bluff                |           |          |          |          |          |          |          | 18           |          |          | 23           |           |
| Marina Village                             |           |          |          |          |          |          |          | 11           |          |          | 10           |           |
| Taco Bell (New Trips)                      | 14        |          |          |          |          |          | 7        |              |          |          | 7            | 5         |
| Lady's Island Shopping Center (additional) |           |          |          |          |          |          |          | 6            |          |          | 6            |           |
| White Hall Plantation                      |           |          |          |          |          |          |          | 31           |          |          | 44           |           |
| Total                                      | 14        | 0        | 0        | 0        | 0        | 0        | 7        | 419          | 0        | 0        | 425          | 5         |
| Years To Buildout (2038)                   | 22        | 22       | 22       | 22       | 22       | 22       | 22       | 22           | 22       | 22       | 22           | 22        |
| Background Traffic Growth                  | 2         | 0        | 1        | 0        | 0        | 0        | 0        | 153          | 0        | 0        | 220          | 4         |
| Redistributed Trips by Median              | -26       |          |          |          |          |          | -9       | 26           |          |          |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b>  | <b>0</b> | <b>6</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,222</b> | <b>0</b> | <b>0</b> | <b>1,546</b> | <b>24</b> |
| Redistributed Trips Concept Plan           |           |          |          |          |          |          |          |              |          |          |              |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b>  | <b>0</b> | <b>6</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,222</b> | <b>0</b> | <b>0</b> | <b>1,546</b> | <b>24</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Airport Circle

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT      | NBR      | SBL       | SBT      | SBR        | WBL       | WBT          | WBR      | EBL        | EBT        | EBR      |
|--|-----------|----------|----------|-----------|----------|------------|-----------|--------------|----------|------------|------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b>  | <b>0</b> | <b>0</b> | <b>0</b>  | <b>0</b> | <b>4</b>   | <b>0</b>  | <b>998</b>   | <b>0</b> | <b>9</b>   | <b>509</b> | <b>0</b> |
| Walmart                                    |           |          |          | 60        |          | 121        |           | 90           |          | 108        | 145        |          |
| Harris Teeter                              |           |          |          |           |          |            |           | 37           |          |            | 25         |          |
| The Village at Oyster Bluff                |           |          |          |           |          |            |           | 12           |          |            | 15         |          |
| Marina Village                             |           |          |          |           |          |            |           | 4            |          |            | 4          |          |
| Taco Bell (New Trips)                      |           |          |          |           |          |            |           | 10           |          |            | 10         |          |
| Lady's Island Shopping Center (additional) |           |          |          |           |          |            |           | 2            |          |            | 1          |          |
| White Hall Plantation                      |           |          |          |           |          |            |           | 26           |          |            | 20         |          |
| Total                                      | 0         | 0        | 0        | 60        | 0        | 121        | 0         | 181          | 0        | 108        | 220        | 0        |
| Years To Buildout (2038)                   | 22        | 22       | 22       | 22        | 22       | 22         | 22        | 22           | 22       | 22         | 22         | 22       |
| Background Traffic Growth                  | 0         | 0        | 0        | 0         | 0        | 1          | 0         | 244          | 0        | 2          | 125        | 0        |
| Redistributed Trips by Median              | 50        |          |          |           |          |            | 14        |              |          |            |            |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>50</b> | <b>0</b> | <b>0</b> | <b>60</b> | <b>0</b> | <b>126</b> | <b>14</b> | <b>1,423</b> | <b>0</b> | <b>119</b> | <b>854</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |           |          |          |           |          |            |           |              |          |            |            |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>50</b> | <b>0</b> | <b>0</b> | <b>60</b> | <b>0</b> | <b>126</b> | <b>14</b> | <b>1,423</b> | <b>0</b> | <b>119</b> | <b>854</b> | <b>0</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT      | NBR      | SBL        | SBT      | SBR        | WBL      | WBT          | WBR      | EBL        | EBT          | EBR      |
|--|-----------|----------|----------|------------|----------|------------|----------|--------------|----------|------------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b>  | <b>0</b> | <b>0</b> | <b>0</b>   | <b>0</b> | <b>11</b>  | <b>0</b> | <b>620</b>   | <b>1</b> | <b>4</b>   | <b>885</b>   | <b>0</b> |
| Walmart                                    |           |          |          | 207        |          | 171        |          | 129          |          | 244        | 40           |          |
| Harris Teeter                              |           |          |          |            |          |            |          | 53           |          |            | 51           |          |
| The Village at Oyster Bluff                |           |          |          |            |          |            |          | 18           |          |            | 23           |          |
| Marina Village                             |           |          |          |            |          |            |          | 11           |          |            | 10           |          |
| Taco Bell (New Trips)                      |           |          |          |            |          |            |          | 7            |          |            | 7            |          |
| Lady's Island Shopping Center (additional) |           |          |          |            |          |            |          | 6            |          |            | 6            |          |
| White Hall Plantation                      |           |          |          |            |          |            |          | 31           |          |            | 44           |          |
| Total                                      | 0         | 0        | 0        | 207        | 0        | 171        | 0        | 255          | 0        | 244        | 181          | 0        |
| Years To Buildout (2038)                   | 22        | 22       | 22       | 22         | 22       | 22         | 22       | 22           | 22       | 22         | 22           | 22       |
| Background Traffic Growth                  | 0         | 0        | 0        | 0          | 0        | 3          | 0        | 152          | 0        | 1          | 217          | 0        |
| Redistributed Trips by Median              | 26        |          |          |            |          |            | 9        |              |          |            |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>26</b> | <b>0</b> | <b>0</b> | <b>207</b> | <b>0</b> | <b>185</b> | <b>9</b> | <b>1,027</b> | <b>1</b> | <b>249</b> | <b>1,283</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |           |          |          |            |          |            |          |              |          |            |              |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>26</b> | <b>0</b> | <b>0</b> | <b>207</b> | <b>0</b> | <b>185</b> | <b>9</b> | <b>1,027</b> | <b>1</b> | <b>249</b> | <b>1,283</b> | <b>0</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Old Distant Island Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT      | NBR      | SBL      | SBT      | SBR      | WBL      | WBT          | WBR      | EBL      | EBT        | EBR      |
|--|-----------|----------|----------|----------|----------|----------|----------|--------------|----------|----------|------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>12</b> | <b>0</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>5</b> | <b>964</b>   | <b>0</b> | <b>0</b> | <b>489</b> | <b>6</b> |
| Walmart                                    |           |          |          |          |          |          |          | 108          |          |          | 90         |          |
| Harris Teeter                              |           |          |          |          |          |          |          | 37           |          |          | 25         |          |
| The Village at Oyster Bluff                |           |          |          |          |          |          |          | 12           |          |          | 15         |          |
| Marina Village                             |           |          |          |          |          |          |          | 4            |          |          | 4          |          |
| Taco Bell (New Trips)                      |           |          |          |          |          |          |          | 10           |          |          | 10         |          |
| Lady's Island Shopping Center (additional) |           |          |          |          |          |          |          | 2            |          |          | 1          |          |
| White Hall Plantation                      |           |          |          |          |          |          |          | 26           |          |          | 20         |          |
| Total                                      | 0         | 0        | 0        | 0        | 0        | 0        | 0        | 199          | 0        | 0        | 165        | 0        |
| Years To Buildout (2038)                   | 22        | 22       | 22       | 22       | 22       | 22       | 22       | 22           | 22       | 22       | 22         | 22       |
| Background Traffic Growth                  | 3         | 0        | 0        | 0        | 0        | 0        | 1        | 236          | 0        | 0        | 120        | 1        |
| Redistributed Trips by Median              |           |          |          |          |          |          |          |              |          |          |            |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>15</b> | <b>0</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>6</b> | <b>1,399</b> | <b>0</b> | <b>0</b> | <b>774</b> | <b>7</b> |
| Redistributed Trips Concept Plan           |           |          |          |          |          |          |          |              |          |          |            |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>15</b> | <b>0</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>6</b> | <b>1,399</b> | <b>0</b> | <b>0</b> | <b>774</b> | <b>7</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT      | NBR      | SBL      | SBT      | SBR      | WBL      | WBT        | WBR      | EBL      | EBT          | EBR       |
|--|----------|----------|----------|----------|----------|----------|----------|------------|----------|----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>7</b> | <b>0</b> | <b>5</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>3</b> | <b>588</b> | <b>0</b> | <b>0</b> | <b>852</b>   | <b>10</b> |
| Walmart                                    |          |          |          |          |          |          |          | 122        |          |          | 128          |           |
| Harris Teeter                              |          |          |          |          |          |          |          | 53         |          |          | 51           |           |
| The Village at Oyster Bluff                |          |          |          |          |          |          |          | 18         |          |          | 23           |           |
| Marina Village                             |          |          |          |          |          |          |          | 11         |          |          | 10           |           |
| Taco Bell (New Trips)                      |          |          |          |          |          |          |          | 7          |          |          | 7            |           |
| Lady's Island Shopping Center (additional) |          |          |          |          |          |          |          | 6          |          |          | 6            |           |
| White Hall Plantation                      |          |          |          |          |          |          |          | 31         |          |          | 44           |           |
| Total                                      | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 248        | 0        | 0        | 269          | 0         |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22       | 22       | 22       | 22       | 22         | 22       | 22       | 22           | 22        |
| Background Traffic Growth                  | 2        | 0        | 1        | 0        | 0        | 0        | 1        | 144        | 0        | 0        | 208          | 2         |
| Redistributed Trips by Median              |          |          |          |          |          |          |          |            |          |          |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>9</b> | <b>0</b> | <b>6</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>4</b> | <b>980</b> | <b>0</b> | <b>0</b> | <b>1,329</b> | <b>12</b> |
| Redistributed Trips Concept Plan           |          |          |          |          |          |          |          |            |          |          |              |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>9</b> | <b>0</b> | <b>6</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>4</b> | <b>980</b> | <b>0</b> | <b>0</b> | <b>1,329</b> | <b>12</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Eustis Landing Road

TRAFFIC CONTROL: Signalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL        | NBT      | NBR       | SBL       | SBT      | SBR       | WBL       | WBT          | WBR      | EBL       | EBT        | EBR        |
|--|------------|----------|-----------|-----------|----------|-----------|-----------|--------------|----------|-----------|------------|------------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>108</b> | <b>3</b> | <b>36</b> | <b>13</b> | <b>2</b> | <b>30</b> | <b>45</b> | <b>852</b>   | <b>0</b> | <b>19</b> | <b>382</b> | <b>94</b>  |
| Walmart                                    | 18         |          |           |           |          |           |           | 90           |          |           | 75         | 15         |
| Harris Teeter                              |            |          |           |           |          |           |           | 37           |          |           | 25         |            |
| The Village at Oyster Bluff                |            |          |           |           |          |           |           | 12           |          |           | 15         |            |
| Marina Village                             |            |          |           |           |          |           |           | 4            |          |           | 4          |            |
| Taco Bell (New Trips)                      |            |          |           |           |          |           |           | 10           |          |           | 10         |            |
| Lady's Island Shopping Center (additional) |            |          |           |           |          |           |           | 2            |          |           | 1          |            |
| White Hall Plantation                      |            |          |           |           |          |           |           | 26           |          |           | 20         |            |
| Total                                      | 18         | 0        | 0         | 0         | 0        | 0         | 0         | 181          | 0        | 0         | 150        | 15         |
| Years To Buildout (2038)                   | 22         | 22       | 22        | 22        | 22       | 22        | 22        | 22           | 22       | 22        | 22         | 22         |
| Background Traffic Growth                  | 26         | 1        | 9         | 3         | 0        | 7         | 11        | 208          | 0        | 5         | 93         | 23         |
| Redistributed Trips by Median              |            |          |           |           |          |           |           |              |          |           |            |            |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>152</b> | <b>4</b> | <b>45</b> | <b>16</b> | <b>2</b> | <b>37</b> | <b>56</b> | <b>1,241</b> | <b>0</b> | <b>24</b> | <b>625</b> | <b>132</b> |
| Redistributed Trips Concept Plan           |            |          |           |           |          |           |           |              |          |           |            |            |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>152</b> | <b>4</b> | <b>45</b> | <b>16</b> | <b>2</b> | <b>37</b> | <b>56</b> | <b>1,241</b> | <b>0</b> | <b>24</b> | <b>625</b> | <b>132</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT      | NBR       | SBL       | SBT      | SBR       | WBL      | WBT        | WBR      | EBL       | EBT          | EBR       |
|--|-----------|----------|-----------|-----------|----------|-----------|----------|------------|----------|-----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>31</b> | <b>0</b> | <b>9</b>  | <b>13</b> | <b>2</b> | <b>20</b> | <b>5</b> | <b>556</b> | <b>2</b> | <b>40</b> | <b>803</b>   | <b>31</b> |
| Walmart                                    | 20        |          |           |           |          |           |          | 102        |          |           | 107          | 21        |
| Harris Teeter                              |           |          |           |           |          |           |          | 53         |          |           | 51           |           |
| The Village at Oyster Bluff                |           |          |           |           |          |           |          | 18         |          |           | 23           |           |
| Marina Village                             |           |          |           |           |          |           |          | 11         |          |           | 10           |           |
| Taco Bell (New Trips)                      |           |          |           |           |          |           |          | 7          |          |           | 7            |           |
| Lady's Island Shopping Center (additional) |           |          |           |           |          |           |          | 6          |          |           | 6            |           |
| White Hall Plantation                      |           |          |           |           |          |           |          | 31         |          |           | 44           |           |
| Total                                      | 20        | 0        | 0         | 0         | 0        | 0         | 0        | 228        | 0        | 0         | 248          | 21        |
| Years To Buildout (2038)                   | 22        | 22       | 22        | 22        | 22       | 22        | 22       | 22         | 22       | 22        | 22           | 22        |
| Background Traffic Growth                  | 8         | 0        | 2         | 3         | 0        | 5         | 1        | 136        | 0        | 10        | 197          | 8         |
| Redistributed Trips by Median              |           |          |           |           |          |           |          |            |          |           |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>59</b> | <b>0</b> | <b>11</b> | <b>16</b> | <b>2</b> | <b>25</b> | <b>6</b> | <b>920</b> | <b>2</b> | <b>50</b> | <b>1,248</b> | <b>60</b> |
| Redistributed Trips Concept Plan           |           |          |           |           |          |           |          |            |          |           |              |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>59</b> | <b>0</b> | <b>11</b> | <b>16</b> | <b>2</b> | <b>25</b> | <b>6</b> | <b>920</b> | <b>2</b> | <b>50</b> | <b>1,248</b> | <b>60</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Lasy's Island Drive) & Rue Du Bois

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT          | NBR       | SBL       | SBT          | SBR       | WBL      | WBT      | WBR      | EBL       | EBT      | EBR       |
|--|-----------|--------------|-----------|-----------|--------------|-----------|----------|----------|----------|-----------|----------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>64</b> | <b>715</b>   | <b>18</b> | <b>27</b> | <b>1274</b>  | <b>38</b> | <b>3</b> | <b>0</b> | <b>6</b> | <b>18</b> | <b>1</b> | <b>43</b> |
| Walmart                                    |           | 73           |           |           | 168          |           |          |          |          |           |          |           |
| Harris Teeter                              |           | 46           |           |           | 29           |           |          |          |          |           |          |           |
| The Village at Oyster Bluff                |           | 23           |           |           | 34           |           |          |          |          |           |          |           |
| Marina Village                             |           | 3            |           |           | 3            |           |          |          |          |           |          |           |
| Taco Bell (New Trips)                      |           | 7            |           |           | 6            |           |          |          |          |           |          |           |
| Lady's Island Shopping Center (additional) |           | 6            |           |           | 3            |           |          |          |          |           |          |           |
| White Hall Plantation                      |           | 17           |           |           | 13           |           |          |          |          |           |          |           |
| Total                                      | 0         | 175          | 0         | 0         | 256          | 0         | 0        | 0        | 0        | 0         | 0        | 0         |
| Years To Buildout (2038)                   | 22        | 22           | 22        | 22        | 22           | 22        | 22       | 22       | 22       | 22        | 22       | 22        |
| Background Traffic Growth                  | 16        | 175          | 4         | 7         | 312          | 9         | 1        | 0        | 1        | 4         | 0        | 11        |
| Redistributed Trips by Median              |           |              |           |           |              |           |          |          |          |           |          |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>80</b> | <b>1,065</b> | <b>22</b> | <b>34</b> | <b>1,842</b> | <b>47</b> | <b>4</b> | <b>0</b> | <b>7</b> | <b>22</b> | <b>1</b> | <b>54</b> |
| Redistributed Trips Concept Plan           |           |              |           |           |              |           |          |          |          |           |          |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>80</b> | <b>1,065</b> | <b>22</b> | <b>34</b> | <b>1,842</b> | <b>47</b> | <b>4</b> | <b>0</b> | <b>7</b> | <b>22</b> | <b>1</b> | <b>54</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT          | NBR       | SBL       | SBT          | SBR       | WBL       | WBT      | WBR       | EBL       | EBT      | EBR       |
|--|-----------|--------------|-----------|-----------|--------------|-----------|-----------|----------|-----------|-----------|----------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>39</b> | <b>1245</b>  | <b>12</b> | <b>14</b> | <b>883</b>   | <b>23</b> | <b>13</b> | <b>1</b> | <b>34</b> | <b>30</b> | <b>1</b> | <b>56</b> |
| Walmart                                    |           | 81           |           |           | 208          |           |           |          |           |           |          |           |
| Harris Teeter                              |           | 66           |           |           | 63           |           |           |          |           |           |          |           |
| The Village at Oyster Bluff                |           | 39           |           |           | 50           |           |           |          |           |           |          |           |
| Marina Village                             |           | 7            |           |           | 7            |           |           |          |           |           |          |           |
| Taco Bell (New Trips)                      |           | 5            |           |           | 4            |           |           |          |           |           |          |           |
| Lady's Island Shopping Center (additional) |           | 17           |           |           | 17           |           |           |          |           |           |          |           |
| White Hall Plantation                      |           | 21           |           |           | 30           |           |           |          |           |           |          |           |
| Total                                      | 0         | 236          | 0         | 0         | 379          | 0         | 0         | 0        | 0         | 0         | 0        | 0         |
| Years To Buildout (2038)                   | 22        | 22           | 22        | 22        | 22           | 22        | 22        | 22       | 22        | 22        | 22       | 22        |
| Background Traffic Growth                  | 10        | 305          | 3         | 3         | 216          | 6         | 3         | 0        | 8         | 7         | 0        | 14        |
| Redistributed Trips by Median              |           |              |           |           |              |           |           |          |           |           |          |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>49</b> | <b>1,786</b> | <b>15</b> | <b>17</b> | <b>1,478</b> | <b>29</b> | <b>16</b> | <b>1</b> | <b>42</b> | <b>37</b> | <b>1</b> | <b>70</b> |
| Redistributed Trips Concept Plan           |           |              |           |           |              |           |           |          |           |           |          |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>49</b> | <b>1,786</b> | <b>15</b> | <b>17</b> | <b>1,478</b> | <b>29</b> | <b>16</b> | <b>1</b> | <b>42</b> | <b>37</b> | <b>1</b> | <b>70</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Lady's Island Drive) & Hazel Farm Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT          | NBR        | SBL      | SBT          | SBR      | WBL        | WBT      | WBR      | EBL      | EBT      | EBR      |
|--|----------|--------------|------------|----------|--------------|----------|------------|----------|----------|----------|----------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b> | <b>741</b>   | <b>4</b>   | <b>0</b> | <b>1329</b>  | <b>0</b> | <b>14</b>  | <b>0</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Walmart                                    |          | 73           |            |          | 168          |          |            |          |          |          |          |          |
| Harris Teeter                              |          | 46           |            |          | 29           |          |            |          |          |          |          |          |
| The Village at Oyster Bluff                |          | 23           |            |          | 34           |          |            |          |          |          |          |          |
| Marina Village                             |          | 3            |            |          | 3            |          |            |          |          |          |          |          |
| Taco Bell (New Trips)                      |          | 7            |            |          | 6            |          |            |          |          |          |          |          |
| Lady's Island Shopping Center (additional) |          | 6            |            |          | 3            |          |            |          |          |          |          |          |
| White Hall Plantation                      |          | 17           |            |          | 13           |          |            |          |          |          |          |          |
| Total                                      | 0        | 175          | 0          | 0        | 256          | 0        | 0          | 0        | 0        | 0        | 0        | 0        |
| Years To Buildout (2038)                   | 22       | 22           | 22         | 22       | 22           | 22       | 22         | 22       | 22       | 22       | 22       | 22       |
| Background Traffic Growth                  | 0        | 181          | 1          | 0        | 325          | 0        | 3          | 0        | 0        | 0        | 0        | 0        |
| Redistributed Trips by Median              |          |              |            |          |              |          |            |          |          |          |          |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>1,097</b> | <b>5</b>   | <b>0</b> | <b>1,910</b> | <b>0</b> | <b>17</b>  | <b>0</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          | -255         | 255        |          | -354         |          | 354        |          |          |          |          |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>842</b>   | <b>260</b> | <b>0</b> | <b>1,556</b> | <b>0</b> | <b>371</b> | <b>0</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>0</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT          | NBR        | SBL      | SBT          | SBR      | WBL        | WBT      | WBR      | EBL      | EBT      | EBR      |
|--|----------|--------------|------------|----------|--------------|----------|------------|----------|----------|----------|----------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b> | <b>1308</b>  | <b>0</b>   | <b>1</b> | <b>923</b>   | <b>0</b> | <b>7</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Walmart                                    |          | 81           |            |          | 208          |          |            |          |          |          |          |          |
| Harris Teeter                              |          | 66           |            |          | 63           |          |            |          |          |          |          |          |
| The Village at Oyster Bluff                |          | 39           |            |          | 50           |          |            |          |          |          |          |          |
| Marina Village                             |          | 7            |            |          | 7            |          |            |          |          |          |          |          |
| Taco Bell (New Trips)                      |          | 5            |            |          | 4            |          |            |          |          |          |          |          |
| Lady's Island Shopping Center (additional) |          | 17           |            |          | 17           |          |            |          |          |          |          |          |
| White Hall Plantation                      |          | 21           |            |          | 30           |          |            |          |          |          |          |          |
| Total                                      | 0        | 236          | 0          | 0        | 379          | 0        | 0          | 0        | 0        | 0        | 0        | 0        |
| Years To Buildout (2038)                   | 22       | 22           | 22         | 22       | 22           | 22       | 22         | 22       | 22       | 22       | 22       | 22       |
| Background Traffic Growth                  | 0        | 320          | 0          | 0        | 226          | 0        | 2          | 0        | 0        | 0        | 0        | 0        |
| Redistributed Trips by Median              |          |              |            |          |              |          |            |          |          |          |          |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>1,864</b> | <b>0</b>   | <b>1</b> | <b>1,528</b> | <b>0</b> | <b>9</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          | -361         | 361        |          | -375         |          | 375        |          |          |          |          |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>1,503</b> | <b>361</b> | <b>1</b> | <b>1,153</b> | <b>0</b> | <b>384</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Lady's Island Drive) & Ferry Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT          | NBR       | SBL       | SBT          | SBR       | WBL        | WBT      | WBR       | EBL      | EBT      | EBR       |
|--|-----------|--------------|-----------|-----------|--------------|-----------|------------|----------|-----------|----------|----------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>31</b> | <b>683</b>   | <b>21</b> | <b>21</b> | <b>1211</b>  | <b>51</b> | <b>108</b> | <b>1</b> | <b>18</b> | <b>3</b> | <b>0</b> | <b>17</b> |
| Walmart                                    |           | 73           |           |           | 168          |           |            |          |           |          |          |           |
| Harris Teeter                              |           | 46           |           |           | 29           |           |            |          |           |          |          |           |
| The Village at Oyster Bluff                |           | 23           |           |           | 34           |           |            |          |           |          |          |           |
| Marina Village                             |           | 3            |           |           | 3            |           |            |          |           |          |          |           |
| Taco Bell (New Trips)                      |           | 7            |           |           | 6            |           |            |          |           |          |          |           |
| Lady's Island Shopping Center (additional) |           | 6            |           |           | 3            |           |            |          |           |          |          |           |
| White Hall Plantation                      |           | 17           |           |           | 13           |           |            |          |           |          |          |           |
| Total                                      | 0         | 175          | 0         | 0         | 256          | 0         | 0          | 0        | 0         | 0        | 0        | 0         |
| Years To Buildout (2038)                   | 22        | 22           | 22        | 22        | 22           | 22        | 22         | 22       | 22        | 22       | 22       | 22        |
| Background Traffic Growth                  | 8         | 167          | 5         | 5         | 296          | 12        | 26         | 0        | 4         | 1        | 0        | 4         |
| Redistributed Trips by Median              |           |              |           |           |              |           |            |          |           |          |          |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>39</b> | <b>1,025</b> | <b>26</b> | <b>26</b> | <b>1,763</b> | <b>63</b> | <b>134</b> | <b>1</b> | <b>22</b> | <b>4</b> | <b>0</b> | <b>21</b> |
| Redistributed Trips Concept Plan           |           | -255         |           |           | -354         |           |            |          |           |          |          |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>39</b> | <b>770</b>   | <b>26</b> | <b>26</b> | <b>1,409</b> | <b>63</b> | <b>134</b> | <b>1</b> | <b>22</b> | <b>4</b> | <b>0</b> | <b>21</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT          | NBR       | SBL        | SBT          | SBR      | WBL       | WBT      | WBR       | EBL      | EBT      | EBR      |
|--|----------|--------------|-----------|------------|--------------|----------|-----------|----------|-----------|----------|----------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>5</b> | <b>1204</b>  | <b>73</b> | <b>98</b>  | <b>838</b>   | <b>3</b> | <b>79</b> | <b>0</b> | <b>51</b> | <b>1</b> | <b>0</b> | <b>7</b> |
| Walmart                                    |          | 81           |           |            | 208          |          |           |          |           |          |          |          |
| Harris Teeter                              |          | 66           |           |            | 63           |          |           |          |           |          |          |          |
| The Village at Oyster Bluff                |          | 39           |           |            | 50           |          |           |          |           |          |          |          |
| Marina Village                             |          | 7            |           |            | 7            |          |           |          |           |          |          |          |
| Taco Bell (New Trips)                      |          | 5            |           |            | 4            |          |           |          |           |          |          |          |
| Lady's Island Shopping Center (additional) |          | 17           |           |            | 17           |          |           |          |           |          |          |          |
| White Hall Plantation                      |          | 21           |           |            | 30           |          |           |          |           |          |          |          |
| Total                                      | 0        | 236          | 0         | 0          | 379          | 0        | 0         | 0        | 0         | 0        | 0        | 0        |
| Years To Buildout (2038)                   | 22       | 22           | 22        | 22         | 22           | 22       | 22        | 22       | 22        | 22       | 22       | 22       |
| Background Traffic Growth                  | 1        | 295          | 18        | 24         | 205          | 1        | 19        | 0        | 12        | 0        | 0        | 2        |
| Redistributed Trips by Median              |          |              |           |            |              |          |           |          |           |          |          |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>6</b> | <b>1,735</b> | <b>91</b> | <b>122</b> | <b>1,422</b> | <b>4</b> | <b>98</b> | <b>0</b> | <b>63</b> | <b>1</b> | <b>0</b> | <b>9</b> |
| Redistributed Trips Concept Plan           |          | -361         |           |            | -375         |          |           |          |           |          |          |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>6</b> | <b>1,374</b> | <b>91</b> | <b>122</b> | <b>1,047</b> | <b>4</b> | <b>98</b> | <b>0</b> | <b>63</b> | <b>1</b> | <b>0</b> | <b>9</b> |



# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## SC 802 (Sams Point Road) & Sams Point Way

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT        | NBR       | SBL        | SBT          | SBR      | WBL       | WBT      | WBR        | EBL      | EBT      | EBR      |
|--|----------|------------|-----------|------------|--------------|----------|-----------|----------|------------|----------|----------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b> | <b>572</b> | <b>18</b> | <b>149</b> | <b>1522</b>  | <b>0</b> | <b>9</b>  | <b>0</b> | <b>88</b>  | <b>0</b> | <b>0</b> | <b>0</b> |
| Walmart                                    |          | 91         |           |            | 108          |          |           |          |            |          |          |          |
| Harris Teeter                              |          | 40         |           | 4          | 60           |          |           |          | 2          |          |          |          |
| The Village at Oyster Bluff                |          | 43         |           |            | 34           |          |           |          |            |          |          |          |
| Marina Village                             |          | 5          |           |            | 4            |          |           |          |            |          |          |          |
| Packing Shed                               |          |            |           |            |              |          |           |          |            |          |          |          |
| Taco Bell (New Trips)                      |          | 9          |           |            | 10           |          |           |          |            |          |          |          |
| Lady's Island Shopping Center (additional) |          | 1          |           |            | 1            |          |           |          |            |          |          |          |
| White Hall Plantation                      |          | 20         |           |            | 26           |          |           |          |            |          |          |          |
| Total                                      | 0        | 209        | 0         | 4          | 243          | 0        | 0         | 0        | 2          | 0        | 0        | 0        |
| Years To Buildout (2038)                   | 22       | 22         | 22        | 22         | 22           | 22       | 22        | 22       | 22         | 22       | 22       | 22       |
| Background Traffic Growth                  | 0        | 140        | 4         | 36         | 372          | 0        | 2         | 0        | 22         | 0        | 0        | 0        |
| Redistributed Trips by Median              |          |            |           |            |              |          |           |          |            |          |          |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>921</b> | <b>22</b> | <b>189</b> | <b>2,137</b> | <b>0</b> | <b>11</b> | <b>0</b> | <b>112</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          | -144       |           |            | -422         |          |           |          |            |          |          |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>777</b> | <b>22</b> | <b>189</b> | <b>1,715</b> | <b>0</b> | <b>11</b> | <b>0</b> | <b>112</b> | <b>0</b> | <b>0</b> | <b>0</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT          | NBR       | SBL        | SBT          | SBR      | WBL       | WBT      | WBR        | EBL      | EBT      | EBR      |
|--|----------|--------------|-----------|------------|--------------|----------|-----------|----------|------------|----------|----------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>0</b> | <b>1200</b>  | <b>23</b> | <b>80</b>  | <b>852</b>   | <b>0</b> | <b>13</b> | <b>0</b> | <b>199</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Walmart                                    |          | 128          |           |            | 122          |          |           |          |            |          |          |          |
| Harris Teeter                              |          | 85           |           | 5          | 86           |          |           |          | 5          |          |          |          |
| The Village at Oyster Bluff                |          | 69           |           |            | 88           |          |           |          |            |          |          |          |
| Marina Village                             |          | 11           |           |            | 11           |          |           |          |            |          |          |          |
| Taco Bell (New Trips)                      |          | 6            |           |            | 7            |          |           |          |            |          |          |          |
| Lady's Island Shopping Center (additional) |          | 5            |           |            | 3            |          |           |          |            |          |          |          |
| White Hall Plantation                      |          | 44           |           |            | 31           |          |           |          |            |          |          |          |
| Total                                      | 0        | 348          | 0         | 5          | 348          | 0        | 0         | 0        | 5          | 0        | 0        | 0        |
| Years To Buildout (2038)                   | 22       | 22           | 22        | 22         | 22           | 22       | 22        | 22       | 22         | 22       | 22       | 22       |
| Background Traffic Growth                  | 0        | 294          | 6         | 20         | 208          | 0        | 3         | 0        | 49         | 0        | 0        | 0        |
| Redistributed Trips by Median              |          |              |           |            |              |          |           |          |            |          |          |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>1,842</b> | <b>29</b> | <b>105</b> | <b>1,408</b> | <b>0</b> | <b>16</b> | <b>0</b> | <b>253</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          | -321         |           |            | -251         |          |           |          |            |          |          |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>1,521</b> | <b>29</b> | <b>105</b> | <b>1,157</b> | <b>0</b> | <b>16</b> | <b>0</b> | <b>253</b> | <b>0</b> | <b>0</b> | <b>0</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## SC 802 (Sams Point Road) & Ashland Park Road

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT          | NBR      | SBL      | SBT          | SBR      | WBL      | WBT      | WBR      | EBL      | EBT      | EBR       |
|--|-----------|--------------|----------|----------|--------------|----------|----------|----------|----------|----------|----------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>11</b> | <b>638</b>   | <b>0</b> | <b>1</b> | <b>1691</b>  | <b>6</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>0</b> | <b>9</b>  |
| Walmart                                    |           | 91           |          |          | 108          |          |          |          |          |          |          |           |
| Harris Teeter                              |           | 40           |          |          | 64           |          |          |          |          |          |          |           |
| The Village at Oyster Bluff                |           | 43           |          |          | 34           |          |          |          |          |          |          |           |
| Marina Village                             |           | 5            |          |          | 4            |          |          |          |          |          |          |           |
| Taco Bell (New Trips)                      |           | 9            |          |          | 10           |          |          |          |          |          |          |           |
| Lady's Island Shopping Center (additional) |           | 1            |          |          | 1            |          |          |          |          |          |          |           |
| White Hall Plantation                      |           | 20           |          |          | 26           |          |          |          |          |          |          |           |
| Total                                      | 0         | 209          | 0        | 0        | 247          | 0        | 0        | 0        | 0        | 0        | 0        | 0         |
| Years To Buildout (2038)                   | 22        | 22           | 22       | 22       | 22           | 22       | 22       | 22       | 22       | 22       | 22       | 22        |
| Background Traffic Growth                  | 3         | 156          | 0        | 0        | 414          | 1        | 0        | 0        | 0        | 0        | 0        | 2         |
| Redistributed Trips by Median              |           |              |          |          |              |          |          |          |          |          |          |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>14</b> | <b>1,003</b> | <b>0</b> | <b>1</b> | <b>2,352</b> | <b>7</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>0</b> | <b>11</b> |
| Redistributed Trips Concept Plan           |           | -144         |          |          | -422         |          |          |          |          |          |          |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>14</b> | <b>859</b>   | <b>0</b> | <b>1</b> | <b>1,930</b> | <b>7</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>0</b> | <b>11</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT          | NBR      | SBL      | SBT          | SBR      | WBL      | WBT      | WBR      | EBL      | EBT      | EBR       |
|--|-----------|--------------|----------|----------|--------------|----------|----------|----------|----------|----------|----------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>15</b> | <b>1393</b>  | <b>0</b> | <b>0</b> | <b>962</b>   | <b>4</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>6</b> | <b>0</b> | <b>9</b>  |
| Walmart                                    |           | 128          |          |          | 122          |          |          |          |          |          |          |           |
| Harris Teeter                              |           | 85           |          |          | 91           |          |          |          |          |          |          |           |
| The Village at Oyster Bluff                |           | 69           |          |          | 88           |          |          |          |          |          |          |           |
| Marina Village                             |           | 11           |          |          | 11           |          |          |          |          |          |          |           |
| Taco Bell (New Trips)                      |           | 6            |          |          | 7            |          |          |          |          |          |          |           |
| Lady's Island Shopping Center (additional) |           | 5            |          |          | 3            |          |          |          |          |          |          |           |
| White Hall Plantation                      |           | 44           |          |          | 31           |          |          |          |          |          |          |           |
| Total                                      | 0         | 348          | 0        | 0        | 353          | 0        | 0        | 0        | 0        | 0        | 0        | 0         |
| Years To Buildout (2038)                   | 22        | 22           | 22       | 22       | 22           | 22       | 22       | 22       | 22       | 22       | 22       | 22        |
| Background Traffic Growth                  | 4         | 341          | 0        | 0        | 235          | 1        | 0        | 0        | 0        | 1        | 0        | 2         |
| Redistributed Trips by Median              |           |              |          |          |              |          |          |          |          |          |          |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>19</b> | <b>2,082</b> | <b>0</b> | <b>0</b> | <b>1,550</b> | <b>5</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>7</b> | <b>0</b> | <b>11</b> |
| Redistributed Trips Concept Plan           |           | -321         |          |          | -251         |          |          |          |          |          |          |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>19</b> | <b>1,761</b> | <b>0</b> | <b>0</b> | <b>1,299</b> | <b>5</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>7</b> | <b>0</b> | <b>11</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## SC 802 (Sams Point Road) & Miller Drive

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: September 7, 2016

| AM PEAK HOUR (7:15-8:15 AM)                | NBL       | NBT        | NBR       | SBL      | SBT          | SBR        | WBL       | WBT      | WBR      | EBL        | EBT      | EBR       |
|--|-----------|------------|-----------|----------|--------------|------------|-----------|----------|----------|------------|----------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>13</b> | <b>602</b> | <b>19</b> | <b>3</b> | <b>1631</b>  | <b>125</b> | <b>15</b> | <b>1</b> | <b>4</b> | <b>7</b>   | <b>0</b> | <b>33</b> |
| Walmart                                    |           | 91         |           |          | 108          |            |           |          |          |            |          |           |
| Harris Teeter                              |           | 40         |           |          | 64           |            |           |          |          |            |          |           |
| The Village at Oyster Bluff                |           | 43         |           |          | 34           |            |           |          |          |            |          |           |
| Marina Village                             |           | 5          |           |          | 4            |            |           |          |          |            |          |           |
| Taco Bell (New Trips)                      |           | 9          |           |          | 10           |            |           |          |          |            |          |           |
| Lady's Island Shopping Center (additional) |           | 1          |           |          | 1            |            |           |          |          |            |          |           |
| White Hall Plantation                      |           | 20         |           |          | 26           |            |           |          |          |            |          |           |
| Total                                      | 0         | 209        | 0         | 0        | 247          | 0          | 0         | 0        | 0        | 0          | 0        | 0         |
| Years To Buildout (2038)                   | 22        | 22         | 22        | 22       | 22           | 22         | 22        | 22       | 22       | 22         | 22       | 22        |
| Background Traffic Growth                  | 3         | 147        | 5         | 1        | 399          | 31         | 4         | 0        | 1        | 2          | 0        | 8         |
| Redistributed Trips by Median              |           |            |           |          |              |            |           |          |          |            |          |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>16</b> | <b>958</b> | <b>24</b> | <b>4</b> | <b>2,277</b> | <b>156</b> | <b>19</b> | <b>1</b> | <b>5</b> | <b>9</b>   | <b>0</b> | <b>41</b> |
| Redistributed Trips Concept Plan           |           | -144       |           |          | -442         | 422        |           |          |          | 144        |          |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>16</b> | <b>814</b> | <b>24</b> | <b>4</b> | <b>1,835</b> | <b>578</b> | <b>19</b> | <b>1</b> | <b>5</b> | <b>153</b> | <b>0</b> | <b>41</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL       | NBT          | NBR       | SBL      | SBT          | SBR        | WBL       | WBT      | WBR      | EBL        | EBT      | EBR       |
|--|-----------|--------------|-----------|----------|--------------|------------|-----------|----------|----------|------------|----------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                | <b>19</b> | <b>1326</b>  | <b>44</b> | <b>2</b> | <b>882</b>   | <b>40</b>  | <b>13</b> | <b>1</b> | <b>1</b> | <b>32</b>  | <b>6</b> | <b>36</b> |
| Walmart                                    |           | 128          |           |          | 122          |            |           |          |          |            |          |           |
| Harris Teeter                              |           | 85           |           |          | 91           |            |           |          |          |            |          |           |
| The Village at Oyster Bluff                |           | 69           |           |          | 88           |            |           |          |          |            |          |           |
| Marina Village                             |           | 11           |           |          | 11           |            |           |          |          |            |          |           |
| Taco Bell (New Trips)                      |           | 6            |           |          | 7            |            |           |          |          |            |          |           |
| Lady's Island Shopping Center (additional) |           | 5            |           |          | 3            |            |           |          |          |            |          |           |
| White Hall Plantation                      |           | 44           |           |          | 31           |            |           |          |          |            |          |           |
| Total                                      | 0         | 348          | 0         | 0        | 353          | 0          | 0         | 0        | 0        | 0          | 0        | 0         |
| Years To Buildout (2038)                   | 22        | 22           | 22        | 22       | 22           | 22         | 22        | 22       | 22       | 22         | 22       | 22        |
| Background Traffic Growth                  | 5         | 324          | 11        | 0        | 216          | 10         | 3         | 0        | 0        | 8          | 1        | 9         |
| Redistributed Trips by Median              |           |              |           |          |              |            |           |          |          |            |          |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>24</b> | <b>1,998</b> | <b>55</b> | <b>2</b> | <b>1,451</b> | <b>50</b>  | <b>16</b> | <b>1</b> | <b>1</b> | <b>40</b>  | <b>7</b> | <b>45</b> |
| Redistributed Trips Concept Plan           |           | -321         |           |          | -251         | 251        |           |          |          | 321        |          |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>24</b> | <b>1,677</b> | <b>55</b> | <b>2</b> | <b>1,200</b> | <b>301</b> | <b>16</b> | <b>1</b> | <b>1</b> | <b>361</b> | <b>7</b> | <b>45</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Taco Bell Driveway

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: NA

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR       | SBL      | SBT      | SBR      | WBL      | WBT          | WBR      | EBL      | EBT        | EBR       |
|--|----------|----------|-----------|----------|----------|----------|----------|--------------|----------|----------|------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                |          |          |           |          |          |          |          | <b>1009</b>  |          |          | <b>527</b> |           |
| Walmart                                    |          |          |           |          |          |          |          | 211          |          |          | 253        |           |
| Harris Teeter                              |          |          |           |          |          |          |          | 37           |          |          | 25         |           |
| The Village at Oyster Bluff                |          |          |           |          |          |          |          | 12           |          |          | 15         |           |
| Marina Village                             |          |          |           |          |          |          |          | 4            |          |          | 4          |           |
| Taco Bell (New Trips)                      |          |          | 10        |          |          |          |          | 21           |          |          | 7          | 17        |
| Lady's Island Shopping Center (additional) |          |          |           |          |          |          |          | 2            |          |          | 1          |           |
| White Hall Plantation                      |          |          |           |          |          |          |          | 26           |          |          | 20         |           |
| Total                                      | 0        | 0        | 10        | 0        | 0        | 0        | 0        | 313          | 0        | 0        | 325        | 17        |
| Years To Buildout (2038)                   | 22       | 22       | 22        | 22       | 22       | 22       | 22       | 22           | 22       | 22       | 22         | 22        |
| Background Traffic Growth                  | 0        | 0        | 0         | 0        | 0        | 0        | 0        | 247          | 0        | 0        | 129        | 0         |
| Redistributed Trips by Median              |          |          |           |          |          |          |          |              |          |          |            |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>10</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,569</b> | <b>0</b> | <b>0</b> | <b>981</b> | <b>17</b> |
| Redistributed Trips Concept Plan           |          |          |           |          |          |          |          |              |          |          |            |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>10</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,569</b> | <b>0</b> | <b>0</b> | <b>981</b> | <b>17</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT      | NBR      | SBL      | SBT      | SBR      | WBL      | WBT          | WBR      | EBL      | EBT          | EBR       |
|--|----------|----------|----------|----------|----------|----------|----------|--------------|----------|----------|--------------|-----------|
| <b>2016 TRAFFIC VOLUMES</b>                |          |          |          |          |          |          |          | <b>639</b>   |          |          | <b>906</b>   |           |
| Walmart                                    |          |          |          |          |          |          |          | 300          |          |          | 284          |           |
| Harris Teeter                              |          |          |          |          |          |          |          | 53           |          |          | 51           |           |
| The Village at Oyster Bluff                |          |          |          |          |          |          |          | 18           |          |          | 23           |           |
| Marina Village                             |          |          |          |          |          |          |          | 11           |          |          | 10           |           |
| Taco Bell (New Trips)                      |          |          | 7        |          |          |          |          | 14           |          |          | 5            | 12        |
| Lady's Island Shopping Center (additional) |          |          |          |          |          |          |          | 6            |          |          | 6            |           |
| White Hall Plantation                      |          |          |          |          |          |          |          | 31           |          |          | 44           |           |
| Total                                      | 0        | 0        | 7        | 0        | 0        | 0        | 0        | 433          | 0        | 0        | 423          | 12        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22       | 22       | 22       | 22       | 22           | 22       | 22       | 22           | 22        |
| Background Traffic Growth                  | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 156          | 0        | 0        | 222          | 0         |
| Redistributed Trips by Median              |          |          |          |          |          |          |          |              |          |          |              |           |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>7</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,228</b> | <b>0</b> | <b>0</b> | <b>1,551</b> | <b>12</b> |
| Redistributed Trips Concept Plan           |          |          |          |          |          |          |          |              |          |          |              |           |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>7</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>1,228</b> | <b>0</b> | <b>0</b> | <b>1,551</b> | <b>12</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Walmart Driveway #3

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: NA

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR      | SBL       | SBT      | SBR       | WBL      | WBT          | WBR       | EBL        | EBT        | EBR      |
|--|----------|----------|----------|-----------|----------|-----------|----------|--------------|-----------|------------|------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                |          |          |          |           |          |           |          | <b>998</b>   |           |            | <b>509</b> |          |
| Walmart                                    |          |          |          | 30        |          | 60        |          | 30           | 72        | 145        | 60         |          |
| Harris Teeter                              |          |          |          |           |          |           |          | 37           |           |            | 25         |          |
| The Village at Oyster Bluff                |          |          |          |           |          |           |          | 12           |           |            | 15         |          |
| Marina Village                             |          |          |          |           |          |           |          | 4            |           |            | 4          |          |
| Taco Bell (New Trips)                      |          |          |          |           |          |           |          | 10           |           |            | 10         |          |
| Lady's Island Shopping Center (additional) |          |          |          |           |          |           |          | 2            |           |            | 1          |          |
| White Hall Plantation                      |          |          |          |           |          |           |          | 26           |           |            | 20         |          |
| Total                                      | 0        | 0        | 0        | 30        | 0        | 60        | 0        | 121          | 72        | 145        | 135        | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22        | 22       | 22        | 22       | 22           | 22        | 22         | 22         | 22       |
| Background Traffic Growth                  | 0        | 0        | 0        | 0         | 0        | 0         | 0        | 244          | 0         | 0          | 125        | 0        |
| Redistributed Trips by Median              |          |          |          |           |          |           |          |              |           |            |            |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>0</b> | <b>30</b> | <b>0</b> | <b>60</b> | <b>0</b> | <b>1,363</b> | <b>72</b> | <b>145</b> | <b>769</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          |          |          |           |          |           |          |              |           |            |            |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>30</b> | <b>0</b> | <b>60</b> | <b>0</b> | <b>1,363</b> | <b>72</b> | <b>145</b> | <b>769</b> | <b>0</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT      | NBR      | SBL       | SBT      | SBR       | WBL      | WBT        | WBR       | EBL        | EBT          | EBR      |
|--|----------|----------|----------|-----------|----------|-----------|----------|------------|-----------|------------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                |          |          |          |           |          |           |          | <b>620</b> |           |            | <b>885</b>   |          |
| Walmart                                    |          |          |          | 43        |          | 86        |          | 43         | 81        | 162        | 85           |          |
| Harris Teeter                              |          |          |          |           |          |           |          | 53         |           |            | 51           |          |
| The Village at Oyster Bluff                |          |          |          |           |          |           |          | 18         |           |            | 23           |          |
| Marina Village                             |          |          |          |           |          |           |          | 11         |           |            | 10           |          |
| Taco Bell (New Trips)                      |          |          |          |           |          |           |          | 7          |           |            | 7            |          |
| Lady's Island Shopping Center (additional) |          |          |          |           |          |           |          | 6          |           |            | 6            |          |
| White Hall Plantation                      |          |          |          |           |          |           |          | 31         |           |            | 44           |          |
| Total                                      | 0        | 0        | 0        | 43        | 0        | 86        | 0        | 169        | 81        | 162        | 226          | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22        | 22       | 22        | 22       | 22         | 22        | 22         | 22           | 22       |
| Background Traffic Growth                  | 0        | 0        | 0        | 0         | 0        | 0         | 0        | 152        | 0         | 0          | 217          | 0        |
| Redistributed Trips by Median              |          |          |          |           |          |           |          |            |           |            |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>0</b> | <b>43</b> | <b>0</b> | <b>86</b> | <b>0</b> | <b>941</b> | <b>81</b> | <b>162</b> | <b>1,328</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          |          |          |           |          |           |          |            |           |            |              |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>43</b> | <b>0</b> | <b>86</b> | <b>0</b> | <b>941</b> | <b>81</b> | <b>162</b> | <b>1,328</b> | <b>0</b> |

# INTERSECTION TRAFFIC VOLUME DEVELOPMENT

## US 21 Business (Sea Island Parkway) & Walmart Driveway #4

TRAFFIC CONTROL: Unsignalized

DATE COUNTED: NA

| AM PEAK HOUR (7:15-8:15 AM)                | NBL      | NBT      | NBR      | SBL      | SBT      | SBR       | WBL      | WBT          | WBR       | EBL      | EBT        | EBR      |
|--|----------|----------|----------|----------|----------|-----------|----------|--------------|-----------|----------|------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                |          |          |          |          |          |           |          | <b>998</b>   |           |          | <b>509</b> |          |
| Walmart                                    |          |          |          |          |          | 30        |          | 72           | 36        |          | 90         |          |
| Harris Teeter                              |          |          |          |          |          |           |          | 37           |           |          | 25         |          |
| The Village at Oyster Bluff                |          |          |          |          |          |           |          | 12           |           |          | 15         |          |
| Marina Village                             |          |          |          |          |          |           |          | 4            |           |          | 4          |          |
| Taco Bell (New Trips)                      |          |          |          |          |          |           |          | 10           |           |          | 10         |          |
| Lady's Island Shopping Center (additional) |          |          |          |          |          |           |          | 2            |           |          | 1          |          |
| White Hall Plantation                      |          |          |          |          |          |           |          | 26           |           |          | 20         |          |
| Total                                      | 0        | 0        | 0        | 0        | 0        | 30        | 0        | 163          | 36        | 0        | 165        | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22       | 22       | 22        | 22       | 22           | 22        | 22       | 22         | 22       |
| Background Traffic Growth                  | 0        | 0        | 0        | 0        | 0        | 0         | 0        | 244          | 0         | 0        | 125        | 0        |
| Redistributed Trips by Median              |          |          |          |          |          |           |          |              |           |          |            |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>30</b> | <b>0</b> | <b>1,405</b> | <b>36</b> | <b>0</b> | <b>799</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          |          |          |          |          |           |          |              |           |          |            |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>30</b> | <b>0</b> | <b>1,405</b> | <b>36</b> | <b>0</b> | <b>799</b> | <b>0</b> |

| PM PEAK HOUR (4:30-5:30 PM)                | NBL      | NBT      | NBR      | SBL      | SBT      | SBR       | WBL      | WBT        | WBR       | EBL      | EBT          | EBR      |
|--|----------|----------|----------|----------|----------|-----------|----------|------------|-----------|----------|--------------|----------|
| <b>2016 TRAFFIC VOLUMES</b>                |          |          |          |          |          |           |          | <b>620</b> |           |          | <b>885</b>   |          |
| Walmart                                    |          |          |          |          |          | 43        |          | 81         | 41        |          | 128          |          |
| Harris Teeter                              |          |          |          |          |          |           |          | 53         |           |          | 51           |          |
| The Village at Oyster Bluff                |          |          |          |          |          |           |          | 18         |           |          | 23           |          |
| Marina Village                             |          |          |          |          |          |           |          | 11         |           |          | 10           |          |
| Taco Bell (New Trips)                      |          |          |          |          |          |           |          | 7          |           |          | 7            |          |
| Lady's Island Shopping Center (additional) |          |          |          |          |          |           |          | 6          |           |          | 6            |          |
| White Hall Plantation                      |          |          |          |          |          |           |          | 31         |           |          | 44           |          |
| Total                                      | 0        | 0        | 0        | 0        | 0        | 43        | 0        | 207        | 41        | 0        | 269          | 0        |
| Years To Buildout (2038)                   | 22       | 22       | 22       | 22       | 22       | 22        | 22       | 22         | 22        | 22       | 22           | 22       |
| Background Traffic Growth                  | 0        | 0        | 0        | 0        | 0        | 0         | 0        | 152        | 0         | 0        | 217          | 0        |
| Redistributed Trips by Median              |          |          |          |          |          |           |          |            |           |          |              |          |
| <b>2038 NO-BUILD TRAFFIC VOLUMES</b>       | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>43</b> | <b>0</b> | <b>979</b> | <b>41</b> | <b>0</b> | <b>1,371</b> | <b>0</b> |
| Redistributed Trips Concept Plan           |          |          |          |          |          |           |          |            |           |          |              |          |
| <b>2038 TRAFFIC VOLUMES CONCEPT PLAN</b>   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>43</b> | <b>0</b> | <b>979</b> | <b>41</b> | <b>0</b> | <b>1,371</b> | <b>0</b> |


















# **APPENDIX C**

## **2016 EXISTING SYNCHRO RESULTS**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Meridian Rd/Driveway & US 21 Sea Island Pkwy

2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 1   | 540   | 31  | 1   | 1003  | 2   | 45  | 0   | 26  | 0   | 0   | 1   |
| Future Volume (Veh/h)             | 1   | 540   | 31  | 1   | 1003  | 2   | 45  | 0   | 26  | 0   | 0   | 1   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 600   | 34  | 1   | 1114  | 2   | 50  | 0   | 29  | 0   | 0   | 1   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   | TWLTL   |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh                |   | 2   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1116  |   |   | 634   |   |   | 1736  | 1737  | 617   | 1765  | 1753  | 1115  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 619   | 619   |   | 1117  | 1117  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1117  | 1118  |   | 648   | 636   |   |
| vCu, unblocked vol                | 1116  |   |   | 634   |   |   | 1736  | 1737  | 617   | 1765  | 1753  | 1115  |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 100   |   |   | 78  | 100   | 94  | 100   | 100   | 100   |
| cM capacity (veh/h)               | 626   |   |   | 949   |   |   | 222   | 248   | 490   | 218   | 247   | 253   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NB 1  | SB 1  |   |   |   |   |   |   |   |
| Volume Total                      | 635   | 1   | 1116  | 79  | 1   |   |   |   |   |   |   |   |
| Volume Left                       | 1   | 1   | 0   | 50  | 0   |   |   |   |   |   |   |   |
| Volume Right                      | 34  | 0   | 2   | 29  | 1   |   |   |   |   |   |   |   |
| cSH                               | 626   | 949   | 1700  | 278   | 253   |   |   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.00  | 0.66  | 0.28  | 0.00  |   |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 28  | 0   |   |   |   |   |   |   |   |
| Control Delay (s)                 | 0.0   | 8.8   | 0.0   | 23.0  | 19.3  |   |   |   |   |   |   |   |
| Lane LOS                          | A   | A   |   | C   | C   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   |   | 23.0  | 19.3  |   |   |   |   |   |   |   |
| Approach LOS                      |   |   |   | C   | C   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 1.0   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 70.3%   |   | ICU Level of Service  |   |   |   | C   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |



# Timings 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2016 Existing  
AM Peak Hour

|                      | →     | ↗     | ←     | ↖     | ↑     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | WBL   | WBT   | NBL   | NBT   | SBT   |
| Lane Configurations  | ↔     | ↗     | ↖     |       | ↔     | ↔     |
| Traffic Volume (vph) | 502   | 106   | 1029  | 28    | 0     | 0     |
| Future Volume (vph)  | 502   | 106   | 1029  | 28    | 0     | 0     |
| Turn Type            | NA    | pm+pt | NA    | Perm  | NA    | NA    |
| Protected Phases     | 4     | 3     | 8     |       | 2     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 4     | 3     | 8     | 2     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 46.4  | 10.6  | 57.0  | 23.0  | 23.0  | 23.0  |
| Total Split (%)      | 58.0% | 13.3% | 71.3% | 28.8% | 28.8% | 28.8% |
| Yellow Time (s)      | 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   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   |       | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lead  |       |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   |       |       |       |       |
| Recall Mode          | None  | None  | None  | Max   | Max   | Max   |
| Act Effect Green (s) | 41.6  | 49.8  | 49.8  |       | 18.6  | 18.6  |
| Actuated g/C Ratio   | 0.54  | 0.64  | 0.64  |       | 0.24  | 0.24  |
| v/c Ratio            | 0.62  | 0.29  | 0.95  |       | 0.16  | 0.00  |
| Control Delay        | 16.3  | 7.0   | 31.5  |       | 5.9   | 0.0   |
| Queue Delay          | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   |
| Total Delay          | 16.3  | 7.0   | 31.5  |       | 5.9   | 0.0   |
| LOS                  | B     | A     | C     |       | A     | A     |
| Approach Delay       | 16.3  |       | 29.2  |       | 5.9   |       |
| Approach LOS         | B     |       | C     |       | A     |       |

## Intersection Summary

Cycle Length: 80  
 Actuated Cycle Length: 77.4  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 24.3  
 Intersection Capacity Utilization 105.0%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service G

Splits and Phases: 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

|      |        |        |
|------|--------|--------|
| ↑ Ø2 | ↗ Ø3   | → Ø4   |
| 23 s | 10.6 s | 46.4 s |
| ↓ Ø6 | ↖ Ø8   |        |
| 23 s | 57 s   |        |

Phasings  
2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2016 Existing  
AM Peak Hour

|                         | →     | ↘     | ←     | ↙     | ↑     | ↓     |
|-------------------------|-------|-------|-------|-------|-------|-------|
| Lane Group              | EBT   | WBL   | WBT   | NBL   | NBT   | SBT   |
| Protected Phases        | 4     | 3     | 8     |       | 2     | 6     |
| Permitted Phases        |       | 8     |       | 2     |       |       |
| Minimum Initial (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)         | 46.4  | 10.6  | 57.0  | 23.0  | 23.0  | 23.0  |
| Total Split (%)         | 58.0% | 13.3% | 71.3% | 28.8% | 28.8% | 28.8% |
| Maximum Green (s)       | 41.9  | 6.1   | 52.5  | 18.5  | 18.5  | 18.5  |
| Yellow Time (s)         | 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   |
| Lead/Lag                | Lag   | Lead  |       |       |       |       |
| Lead-Lag Optimize?      | Yes   | Yes   |       |       |       |       |
| Vehicle Extension (s)   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Minimum Gap (s)         | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Recall Mode             | None  | None  | None  | Max   | Max   | Max   |
| Walk Time (s)           | 7.0   |       | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)     | 11.0  |       | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr) | 0     |       | 0     | 0     | 0     | 0     |
| 90th %ile Green (s)     | 41.9  | 6.1   | 52.5  | 18.5  | 18.5  | 18.5  |
| 90th %ile Term Code     | Hold  | Max   | Max   | MaxR  | MaxR  | MaxR  |
| 70th %ile Green (s)     | 41.9  | 6.1   | 52.5  | 18.5  | 18.5  | 18.5  |
| 70th %ile Term Code     | Hold  | Max   | Max   | MaxR  | MaxR  | MaxR  |
| 50th %ile Green (s)     | 41.9  | 6.1   | 52.5  | 18.5  | 18.5  | 18.5  |
| 50th %ile Term Code     | Hold  | Max   | Max   | MaxR  | MaxR  | MaxR  |
| 30th %ile Green (s)     | 41.9  | 6.1   | 52.5  | 18.5  | 18.5  | 18.5  |
| 30th %ile Term Code     | Hold  | Max   | Max   | MaxR  | MaxR  | MaxR  |
| 10th %ile Green (s)     | 39.6  | 0.0   | 39.6  | 18.5  | 18.5  | 18.5  |
| 10th %ile Term Code     | Hold  | Skip  | Gap   | MaxR  | MaxR  | MaxR  |

Intersection Summary

Cycle Length: 80  
 Actuated Cycle Length: 77.4  
 Control Type: Actuated-Uncoordinated  
 90th %ile Actuated Cycle: 80  
 70th %ile Actuated Cycle: 80  
 50th %ile Actuated Cycle: 80  
 30th %ile Actuated Cycle: 80  
 10th %ile Actuated Cycle: 67.1

## Queues

## 2: Geechie Rd/Driveway &amp; US 21 Sea Island Pkwy

2016 Existing

AM Peak Hour

|                         | →    | ↘    | ←    | ↑    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | WBL  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 612  | 118  | 1143 | 68   | 1    |
| v/c Ratio               | 0.62 | 0.29 | 0.95 | 0.16 | 0.00 |
| Control Delay           | 16.3 | 7.0  | 31.5 | 5.9  | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 16.3 | 7.0  | 31.5 | 5.9  | 0.0  |
| Queue Length 50th (ft)  | 201  | 19   | 443  | 0    | 0    |
| Queue Length 95th (ft)  | 309  | 36   | #795 | 25   | 0    |
| Internal Link Dist (ft) | 1300 |      | 417  | 377  | 79   |
| Turn Bay Length (ft)    |      | 200  |      |      |      |
| Base Capacity (vph)     | 1004 | 408  | 1269 | 425  | 469  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.61 | 0.29 | 0.90 | 0.16 | 0.00 |

## Intersection Summary


















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy



















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 0   | 502   | 49  | 106   | 1029  | 0   | 28   | 0   | 33  | 0   | 0   | 1   |
| Future Volume (vph)               | 0   | 502   | 49  | 106   | 1029  | 0   | 28   | 0   | 33  | 0   | 0   | 1   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 0.99  |   | 1.00  | 1.00  |   |  | 0.93  |   |   | 0.86  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.98  |   |   | 1.00  |   |
| Satd. Flow (prot)                 |   | 1841  |   | 1770  | 1863  |   |  | 1652  |   |   | 1611  |   |
| Flt Permitted                     |   | 1.00  |   | 0.25  | 1.00  |   |  | 0.89  |   |   | 1.00  |   |
| Satd. Flow (perm)                 |   | 1841  |   | 475   | 1863  |   |  | 1509  |   |   | 1611  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 558   | 54  | 118   | 1143  | 0   | 31   | 0   | 37  | 0   | 0   | 1   |
| RTOR Reduction (vph)              | 0   | 4   | 0   | 0   | 0   | 0   | 0  | 52  | 0   | 0   | 1   | 0   |
| Lane Group Flow (vph)             | 0   | 608   | 0   | 118   | 1143  | 0   | 0  | 16  | 0   | 0   | 0   | 0   |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%   | 2%  | 6%  | 2%  | 2%  | 2%  |
| Turn Type                         |   | NA  |   | pm+pt   | NA  |   | Perm   | NA  |   |   | NA  |   |
| Protected Phases                  |   | 4   |   | 3   | 8   |   |  | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 41.6  |   | 50.8  | 50.8  |   |  | 18.6  |   |   | 18.6  |   |
| Effective Green, g (s)            |   | 41.6  |   | 50.8  | 50.8  |   |  | 18.6  |   |   | 18.6  |   |
| Actuated g/C Ratio                |   | 0.53  |   | 0.65  | 0.65  |   |  | 0.24  |   |   | 0.24  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 976   |   | 385   | 1207  |   |  | 358   |   |   | 382   |   |
| v/s Ratio Prot                    |   | 0.33  |   | 0.02  | c0.61   |   |  |   |   |   | 0.00  |   |
| v/s Ratio Perm                    |   |   |   | 0.18  |   |   |  | c0.01   |   |   |   |   |
| v/c Ratio                         |   | 0.62  |   | 0.31  | 0.95  |   |  | 0.05  |   |   | 0.00  |   |
| Uniform Delay, d1                 |   | 12.9  |   | 7.9   | 12.6  |   |  | 23.1  |   |   | 22.8  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 1.2   |   | 0.5   | 14.8  |   |  | 0.2   |   |   | 0.0   |   |
| Delay (s)                         |   | 14.1  |   | 8.3   | 27.4  |   |  | 23.3  |   |   | 22.8  |   |
| Level of Service                  |   | B   |   | A   | C   |   |  | C   |   |   | C   |   |
| Approach Delay (s)                |   | 14.1  |   |   | 25.6  |   |  | 23.3  |   |   | 22.8  |   |
| Approach LOS                      |   | B   |   |   | C   |   |  | C   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 21.9  |   |   | HCM 2000 Level of Service   |  |   |   | C   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.75  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 78.4  |   |   | Sum of lost time (s)  |  |   | 13.5  |   |   |   |
| Intersection Capacity Utilization |   |   | 105.0%  |   |   | ICU Level of Service  |  |   | G   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy


















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |      |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|------|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |      |      |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |   |      |      |
| Traffic Volume (veh/h)            | 54  | 469   | 9   | 19  | 1001  | 9   | 2  | 1   | 18  | 8   | 1   | 138   |      |      |
| Future Volume (Veh/h)             | 54  | 469   | 9   | 19  | 1001  | 9   | 2  | 1   | 18  | 8   | 1   | 138   |      |      |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |      |      |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |      |      |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |      |
| Hourly flow rate (vph)            | 60  | 521   | 10  | 21  | 1112  | 10  | 2  | 1   | 20  | 9   | 1   | 153   |      |      |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |      |      |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |      |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |      |      |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |      |      |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |      |      |
| Median type                       | None  |   |   |   | TWLTL   |   |  |   |   |   |   |   |      |      |
| Median storage veh                |   |   |   |   | 2   |   |  |   |   |   |   |   |      |      |
| Upstream signal (ft)              | 497   |   |   |   |   |   |  |   |   |   |   |   |      |      |
| pX, platoon unblocked             |   |   |   | 0.78  |   |   | 0.78   |   |   | 0.78  | 0.78  | 0.78  |      |      |
| vC, conflicting volume            | 1122  |   |   | 531   |   |   | 1954   |   |   | 1810  | 526   | 1820  | 1810 | 1117 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 646  |   |   | 646   |   | 1159  | 1159 |      |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1308   |   |   | 1164  |   | 662   | 651  |      |
| vCu, unblocked vol                | 1122  |   |   | 258   |   |   | 2081   |   |   | 1897  | 251   | 1911  | 1897 | 1117 |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1  |   |   | 6.5   | 6.3   | 7.1   | 6.5  | 6.2  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1  |   |   | 5.5   |   | 6.1   | 5.5  |      |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  |   |   | 4.0   | 3.4   | 3.5   | 4.0  | 3.3  |
| p0 queue free %                   | 90  |   |   | 98  |   |   | 87   |   |   | 99  | 97  | 95  | 100  | 39   |
| cM capacity (veh/h)               | 623   |   |   | 1019  |   |   | 15   |   |   | 182   | 607   | 196   | 218  | 252  |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | NE 1  | SW 1  |  |   |   |   |   |   |      |      |
| Volume Total                      | 60  | 531   | 21  | 1122  | 23  | 163   |  |   |   |   |   |   |      |      |
| Volume Left                       | 60  | 0   | 21  | 0   | 2   | 9   |  |   |   |   |   |   |      |      |
| Volume Right                      | 0   | 10  | 0   | 10  | 20  | 153   |  |   |   |   |   |   |      |      |
| cSH                               | 623   | 1700  | 1019  | 1700  | 134   | 248   |  |   |   |   |   |   |      |      |
| Volume to Capacity                | 0.10  | 0.31  | 0.02  | 0.66  | 0.17  | 0.66  |  |   |   |   |   |   |      |      |
| Queue Length 95th (ft)            | 8   | 0   | 2   | 0   | 15  | 103   |  |   |   |   |   |   |      |      |
| Control Delay (s)                 | 11.4  | 0.0   | 8.6   | 0.0   | 37.4  | 43.6  |  |   |   |   |   |   |      |      |
| Lane LOS                          | B   |   | A   |   | E   | E   |  |   |   |   |   |   |      |      |
| Approach Delay (s)                | 1.2   |   | 0.2   |   | 37.4  | 43.6  |  |   |   |   |   |   |      |      |
| Approach LOS                      |   |   |   |   | E   | E   |  |   |   |   |   |   |      |      |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |      |      |
| Average Delay                     |   |   |   | 4.6   |   |   |  |   |   |   |   |   |      |      |
| Intersection Capacity Utilization |   |   |   | 70.5%   |   |   | ICU Level of Service   |   |   | C   |   |   |      |      |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 4: Youmans Dr/Driveway & US 21 Sea Island Pkwy













2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 4   | 479   | 6   | 132   | 1046  | 8   | 8  | 1   | 73  | 0   | 1   | 3   |
| Future Volume (Veh/h)             | 4   | 479   | 6   | 132   | 1046  | 8   | 8  | 1   | 73  | 0   | 1   | 3   |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 532   | 7   | 147   | 1162  | 9   | 9  | 1   | 81  | 0   | 1   | 3   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   | TWLTL   |   |   | None  |   |  |   |   |   |   |   |
| Median storage (veh)              |   | 2   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   | 1218  |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   | 0.81  |   |   | 0.81   | 0.81  | 0.81  | 0.81  | 0.81  |   |
| vC, conflicting volume            | 1171  |   |   | 539   |   |   | 2003   | 2008  | 536   | 2086  | 2008  | 1166  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 544  | 544   |   | 1460  | 1460  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1460   | 1465  |   | 625   | 547   |   |
| vCu, unblocked vol                | 1171  |   |   | 314   |   |   | 2121   | 2127  | 310   | 2222  | 2126  | 1166  |
| tC, single (s)                    | 4.1   |   |   | 4.2   |   |   | 7.2  | 6.5   | 6.3   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.2  | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.3   |   |   | 3.6  | 4.0   | 3.4   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 99  |   |   | 85  |   |   | 92   | 99  | 86  | 100   | 99  | 99  |
| cM capacity (veh/h)               | 596   |   |   | 983   |   |   | 117  | 150   | 577   | 119   | 148   | 236   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NE 1  | SW 1  |   |  |   |   |   |   |   |
| Volume Total                      | 543   | 147   | 1171  | 91  | 4   |   |  |   |   |   |   |   |
| Volume Left                       | 4   | 147   | 0   | 9   | 0   |   |  |   |   |   |   |   |
| Volume Right                      | 7   | 0   | 9   | 81  | 3   |   |  |   |   |   |   |   |
| cSH                               | 596   | 983   | 1700  | 406   | 206   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.15  | 0.69  | 0.22  | 0.02  |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 1   | 13  | 0   | 21  | 1   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 0.2   | 9.3   | 0.0   | 16.4  | 22.8  |   |  |   |   |   |   |   |
| Lane LOS                          | A   | A   |   | C   | C   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 0.2   | 1.0   |   | 16.4  | 22.8  |   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   | C   | C   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 1.6   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 103.0%  |   | ICU Level of Service  |   |  |   | G   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 5: US 21 Sea Island Pkwy & Professional Village Cir

2016 Existing  
AM Peak Hour





















|                                   |  |    |    |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |   |   |   |   |  |  |
| Traffic Volume (veh/h)            | 34  | 517   | 1158  | 44  | 10  | 24  |
| Future Volume (Veh/h)             | 34  | 517   | 1158  | 44  | 10  | 24  |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 38  | 574   | 1287  | 49  | 11  | 27  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   | None  | None  |   |   |   |
| Median storage (veh)              |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   | 681   |   |   |   |
| pX, platoon unblocked             | 0.85  |   |   |   | 0.85  | 0.85  |
| vC, conflicting volume            | 1336  |   |   |   | 1674  | 668   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 1041  |   |   |   | 1440  | 255   |
| tC, single (s)                    | 4.1   |   |   |   | 7.0   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 2.2   |   |   |   | 3.6   | 3.3   |
| p0 queue free %                   | 93  |   |   |   | 88  | 96  |
| cM capacity (veh/h)               | 564   |   |   |   | 91  | 632   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | SB 1  | SB 2  |
| Volume Total                      | 229   | 383   | 858   | 478   | 11  | 27  |
| Volume Left                       | 38  | 0   | 0   | 0   | 11  | 0   |
| Volume Right                      | 0   | 0   | 0   | 49  | 0   | 27  |
| cSH                               | 564   | 1700  | 1700  | 1700  | 91  | 632   |
| Volume to Capacity                | 0.07  | 0.23  | 0.50  | 0.28  | 0.12  | 0.04  |
| Queue Length 95th (ft)            | 5   | 0   | 0   | 0   | 10  | 3   |
| Control Delay (s)                 | 2.7   | 0.0   | 0.0   | 0.0   | 50.0  | 10.9  |
| Lane LOS                          | A   |   |   |   | E   | B   |
| Approach Delay (s)                | 1.0   |   | 0.0   |   | 22.2  |   |
| Approach LOS                      |   |   |   |   | C   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.7   |   |   |   |
| Intersection Capacity Utilization |   |   | 49.9%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

2016 Existing

AM Peak Hour

|                      |  |  |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | NER  | SWL   | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 183   | 254   | 401   | 496   | 94  | 309   | 270  | 155   | 678   | 675   |
| Future Volume (vph)  | 183   | 254   | 401   | 496   | 94  | 309   | 270  | 155   | 678   | 675   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | NA  | pm+ov  | pm+pt   | NA  | Perm  |
| Protected Phases     | 5   | 2   | 1   | 6   | 3   | 8   | 1  | 7   | 4   |   |
| Permitted Phases     | 2   |   | 6   |   | 8   |   | 8  | 4   |   | 4   |
| Detector Phase       | 5   | 2   | 1   | 6   | 3   | 8   | 1  | 7   | 4   | 4   |
| Switch Phase         |   |   |   |   |   |   |  |   |   |   |
| Minimum Initial (s)  | 6.0   | 25.0  | 6.0   | 25.0  | 6.0   | 15.0  | 6.0  | 6.0   | 15.0  | 15.0  |
| Minimum Split (s)    | 13.3  | 43.0  | 13.3  | 39.0  | 12.3  | 42.3  | 13.3   | 13.3  | 43.3  | 43.3  |
| Total Split (s)      | 26.4  | 43.0  | 26.7  | 43.3  | 12.3  | 58.9  | 26.7   | 16.4  | 63.0  | 63.0  |
| Total Split (%)      | 18.2%   | 29.7%   | 18.4%   | 29.9%   | 8.5%  | 40.6%   | 18.4%  | 11.3%   | 43.4%   | 43.4%   |
| Yellow Time (s)      | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3   | 4.0  | 4.0   | 4.3   | 4.3   |
| All-Red Time (s)     | 3.3   | 2.0   | 3.3   | 2.0   | 2.3   | 2.0   | 3.3  | 2.3   | 2.0   | 2.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 7.3   | 6.0   | 7.3   | 6.0   | 6.3   | 6.3   | 7.3  | 6.3   | 6.3   | 6.3   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | Max   | None  | None  | None   | None  | Max   | Max   |
| Act Effct Green (s)  | 49.3  | 34.2  | 55.3  | 37.3  | 58.8  | 52.8  | 78.6   | 66.6  | 56.7  | 56.7  |
| Actuated g/C Ratio   | 0.35  | 0.24  | 0.39  | 0.26  | 0.41  | 0.37  | 0.55   | 0.47  | 0.40  | 0.40  |
| v/c Ratio            | 0.69  | 0.44  | 1.05  | 0.72  | 0.82  | 0.26  | 0.30   | 0.37  | 1.01  | 0.87  |
| Control Delay        | 40.5  | 44.2  | 92.6  | 52.4  | 69.4  | 32.3  | 2.9  | 24.1  | 79.0  | 30.7  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay          | 40.5  | 44.2  | 92.6  | 52.4  | 69.4  | 32.3  | 2.9  | 24.1  | 79.0  | 30.7  |
| LOS                  | D   | D   | F   | D   | E   | C   | A  | C   | E   | C   |
| Approach Delay       |   | 42.8  |   | 68.7  |   | 25.7  |  |   | 51.7  |   |
| Approach LOS         |   | D   |   | E   |   | C   |  |   | D   |   |

### Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 142.3

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 50.3









Intersection LOS: D

Intersection Capacity Utilization 104.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 26.7 s   | 43 s   | 12.3 s   | 63 s   |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 26.4 s   | 43.3 s   | 16.4 s   | 58.9 s   |













## Phasings

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

2016 Existing

AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | NER  | SWL   | SWT   | SWR   |
| Protected Phases        | 5   | 2   | 1   | 6   | 3   | 8   | 1  | 7   | 4   |   |
| Permitted Phases        | 2   |   | 6   |   | 8   |   | 8  | 4   |   | 4   |
| Minimum Initial (s)     | 6.0   | 25.0  | 6.0   | 25.0  | 6.0   | 15.0  | 6.0  | 6.0   | 15.0  | 15.0  |
| Minimum Split (s)       | 13.3  | 43.0  | 13.3  | 39.0  | 12.3  | 42.3  | 13.3   | 13.3  | 43.3  | 43.3  |
| Total Split (s)         | 26.4  | 43.0  | 26.7  | 43.3  | 12.3  | 58.9  | 26.7   | 16.4  | 63.0  | 63.0  |
| Total Split (%)         | 18.2%   | 29.7%   | 18.4%   | 29.9%   | 8.5%  | 40.6%   | 18.4%  | 11.3%   | 43.4%   | 43.4%   |
| Maximum Green (s)       | 19.1  | 37.0  | 19.4  | 37.3  | 6.0   | 52.6  | 19.4   | 10.1  | 56.7  | 56.7  |
| Yellow Time (s)         | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3   | 4.0  | 4.0   | 4.3   | 4.3   |
| All-Red Time (s)        | 3.3   | 2.0   | 3.3   | 2.0   | 2.3   | 2.0   | 3.3  | 2.3   | 2.0   | 2.0   |
| Lead/Lag                | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?      | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 3.0   | 3.5   | 3.0   | 3.5   | 3.0   | 3.5   | 3.0  | 3.0   | 3.5   | 3.5   |
| Minimum Gap (s)         | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0  | 3.0   | 3.0   | 3.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Recall Mode             | None  | Min   | None  | Max   | None  | None  | None   | None  | Max   | Max   |
| Walk Time (s)           |   | 5.0   |   | 5.0   |   | 5.0   |  |   | 5.0   | 5.0   |
| Flash Dont Walk (s)     |   | 32.0  |   | 28.0  |   | 31.0  |  |   | 28.0  | 28.0  |
| Pedestrian Calls (#/hr) |   | 0   |   | 0   |   | 0   |  |   | 0   | 0   |
| 90th %ile Green (s)     | 19.1  | 37.0  | 19.4  | 37.3  | 6.0   | 52.6  | 19.4   | 10.1  | 56.7  | 56.7  |
| 90th %ile Term Code     | Max   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |
| 70th %ile Green (s)     | 19.1  | 37.0  | 19.4  | 37.3  | 6.0   | 52.6  | 19.4   | 10.1  | 56.7  | 56.7  |
| 70th %ile Term Code     | Max   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |
| 50th %ile Green (s)     | 17.5  | 35.4  | 19.4  | 37.3  | 6.0   | 52.6  | 19.4   | 10.1  | 56.7  | 56.7  |
| 50th %ile Term Code     | Gap   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |
| 30th %ile Green (s)     | 14.8  | 32.7  | 19.4  | 37.3  | 6.0   | 52.6  | 19.4   | 10.1  | 56.7  | 56.7  |
| 30th %ile Term Code     | Gap   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |
| 10th %ile Green (s)     | 11.4  | 29.3  | 19.4  | 37.3  | 6.0   | 53.6  | 19.4   | 9.1   | 56.7  | 56.7  |
| 10th %ile Term Code     | Gap   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Gap   | MaxR  | MaxR  |

## Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 142.3

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 145

70th %ile Actuated Cycle: 145

50th %ile Actuated Cycle: 143.4

30th %ile Actuated Cycle: 140.7











10th %ile Actuated Cycle: 137.3

## Queues

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

2016 Existing

AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | NER  | SWL   | SWT   | SWR   |
| Lane Group Flow (vph)   | 203   | 365   | 446   | 652   | 104   | 343   | 300  | 172   | 753   | 750   |
| v/c Ratio               | 0.69  | 0.44  | 1.05  | 0.72  | 0.82  | 0.26  | 0.30   | 0.37  | 1.01  | 0.87  |
| Control Delay           | 40.5  | 44.2  | 92.6  | 52.4  | 69.4  | 32.3  | 2.9  | 24.1  | 79.0  | 30.7  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay             | 40.5  | 44.2  | 92.6  | 52.4  | 69.4  | 32.3  | 2.9  | 24.1  | 79.0  | 30.7  |
| Queue Length 50th (ft)  | 122   | 141   | ~347  | 288   | 52  | 117   | 5  | 91  | ~745  | 356   |
| Queue Length 95th (ft)  | 183   | 191   | #499  | 365   | #158  | 161   | 50   | 143   | #1010   | #644  |
| Internal Link Dist (ft) |   | 253   |   | 679   |   | 521   |  |   | 619   |   |
| Turn Bay Length (ft)    | 200   |   | 350   |   | 350   |   | 550  | 460   |   |   |
| Base Capacity (vph)     | 329   | 906   | 425   | 902   | 127   | 1301  | 1002   | 467   | 742   | 863   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.62  | 0.40  | 1.05  | 0.72  | 0.82  | 0.26  | 0.30   | 0.37  | 1.01  | 0.87  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.























# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy





















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 183   | 254   | 75  | 401   | 496   | 91  | 94   | 309   | 270   | 155   | 678   | 675   |
| Future Volume (vph)               | 183   | 254   | 75  | 401   | 496   | 91  | 94   | 309   | 270   | 155   | 678   | 675   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 7.3   | 6.0   |   | 7.3   | 6.0   |   | 6.3  | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  |   | 1.00   | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 1.00  | 0.97  |   | 1.00  | 0.98  |   | 1.00   | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  |   | 0.95   | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  |
| Satd. Flow (prot)                 | 1752  | 3411  |   | 1770  | 3400  |   | 1770   | 3505  | 1583  | 1736  | 1863  | 1583  |
| Flt Permitted                     | 0.22  | 1.00  |   | 0.39  | 1.00  |   | 0.08   | 1.00  | 1.00  | 0.47  | 1.00  | 1.00  |
| Satd. Flow (perm)                 | 405   | 3411  |   | 728   | 3400  |   | 141  | 3505  | 1583  | 864   | 1863  | 1583  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 203   | 282   | 83  | 446   | 551   | 101   | 104  | 343   | 300   | 172   | 753   | 750   |
| RTOR Reduction (vph)              | 0   | 19  | 0   | 0   | 10  | 0   | 0  | 0   | 142   | 0   | 0   | 233   |
| Lane Group Flow (vph)             | 203   | 346   | 0   | 446   | 642   | 0   | 104  | 343   | 158   | 172   | 753   | 517   |
| Heavy Vehicles (%)                | 3%  | 2%  | 3%  | 2%  | 2%  | 13%   | 2%   | 3%  | 2%  | 4%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt  | NA  | pm+ov   | pm+pt   | NA  | Perm  |
| Protected Phases                  | 5   | 2   |   | 1   | 6   |   | 3  | 8   | 1   | 7   | 4   |   |
| Permitted Phases                  | 2   |   |   | 6   |   |   | 8  |   | 8   | 4   |   | 4   |
| Actuated Green, G (s)             | 50.5  | 34.2  |   | 56.7  | 37.3  |   | 58.8   | 52.8  | 72.2  | 66.6  | 56.7  | 56.7  |
| Effective Green, g (s)            | 50.5  | 34.2  |   | 56.7  | 37.3  |   | 58.8   | 52.8  | 72.2  | 66.6  | 56.7  | 56.7  |
| Actuated g/C Ratio                | 0.36  | 0.24  |   | 0.40  | 0.26  |   | 0.41   | 0.37  | 0.51  | 0.47  | 0.40  | 0.40  |
| Clearance Time (s)                | 7.3   | 6.0   |   | 7.3   | 6.0   |   | 6.3  | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Vehicle Extension (s)             | 3.0   | 3.5   |   | 3.0   | 3.5   |   | 3.0  | 3.5   | 3.0   | 3.0   | 3.5   | 3.5   |
| Lane Grp Cap (vph)                | 298   | 820   |   | 432   | 891   |   | 127  | 1301  | 803   | 465   | 742   | 631   |
| v/s Ratio Prot                    | 0.08  | 0.10  |   | c0.14   | 0.19  |   | c0.03  | 0.10  | 0.03  | 0.03  | c0.40   |   |
| v/s Ratio Perm                    | 0.16  |   |   | c0.27   |   |   | 0.30   |   | 0.07  | 0.15  |   | 0.33  |
| v/c Ratio                         | 0.68  | 0.42  |   | 1.03  | 0.72  |   | 0.82   | 0.26  | 0.20  | 0.37  | 1.01  | 0.82  |
| Uniform Delay, d1                 | 34.6  | 45.6  |   | 38.8  | 47.7  |   | 34.9   | 31.2  | 19.1  | 22.6  | 42.7  | 38.2  |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Incremental Delay, d2             | 6.3   | 0.4   |   | 51.9  | 5.0   |   | 32.0   | 0.1   | 0.1   | 0.5   | 36.8  | 11.4  |
| Delay (s)                         | 40.9  | 46.1  |   | 90.7  | 52.7  |   | 66.9   | 31.3  | 19.3  | 23.0  | 79.5  | 49.6  |
| Level of Service                  | D   | D   |   | F   | D   |   | E  | C   | B   | C   | E   | D   |
| Approach Delay (s)                |   | 44.2  |   |   | 68.1  |   |  | 31.4  |   |   | 60.3  |   |
| Approach LOS                      |   | D   |   |   | E   |   |  | C   |   |   | E   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 54.9  |   |   |   | HCM 2000 Level of Service  |   |   | D   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.04  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 142.2   |   |   |   | Sum of lost time (s)   |   |   | 25.9  |   |   |
| Intersection Capacity Utilization |   |   | 104.4%  |   |   |   | ICU Level of Service   |   |   | G   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 7: Driveway/Sams Point Way & US 21 Sea Island Pkwy




















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |     |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|-----|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |      |     |
| Lane Configurations               |  |  |   |  |  |   |  |  |  |   |  |  |      |     |
| Traffic Volume (veh/h)            | 83  | 540   | 12  | 63  | 879   | 47  | 0  | 4   | 10  | 23  | 1   | 128   |      |     |
| Future Volume (Veh/h)             | 83  | 540   | 12  | 63  | 879   | 47  | 0  | 4   | 10  | 23  | 1   | 128   |      |     |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |      |     |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |      |     |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |     |
| Hourly flow rate (vph)            | 92  | 600   | 13  | 70  | 977   | 52  | 0  | 4   | 11  | 26  | 1   | 142   |      |     |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| 10                                |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Median type                       | None  |   |   | TWLTL   |   |   |  |   |   |   |   |   |      |     |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Upstream signal (ft)              | 759   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| pX, platoon unblocked             |   |   |   | 0.97  |   |   | 0.97   |   |   | 0.97  | 0.97  | 0.97  |      |     |
| vC, conflicting volume            | 1029  |   |   | 613   |   |   | 1420   |   |   | 1960  | 306   | 1640  | 1940 | 514 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 790  |   |   | 790   | 1143  |   | 1143 |     |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 629  |   |   | 1169  | 497   |   | 797  |     |
| vCu, unblocked vol                | 1029  |   |   | 548   |   |   | 1377   |   |   | 1931  | 234   | 1603  | 1911 | 514 |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5  |   |   | 6.5   | 6.9   | 7.5   | 6.5  | 7.0 |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5  |   |   | 5.5   | 6.5   |   | 5.5  |     |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  |   |   | 4.0   | 3.3   | 3.5   | 4.0  | 3.3 |
| p0 queue free %                   | 86  |   |   | 93  |   |   | 100  |   |   | 97  | 99  | 85  | 99   | 72  |
| cM capacity (veh/h)               | 671   |   |   | 990   |   |   | 173  |   |   | 143   | 748   | 178   | 191  | 502 |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | NB 2  | SB 1  |   |   |   |      |     |
| Volume Total                      | 92  | 400   | 213   | 70  | 651   | 378   | 4  | 11  | 169   |   |   |   |      |     |
| Volume Left                       | 92  | 0   | 0   | 70  | 0   | 0   | 0  | 0   | 26  |   |   |   |      |     |
| Volume Right                      | 0   | 0   | 13  | 0   | 0   | 52  | 0  | 11  | 142   |   |   |   |      |     |
| cSH                               | 671   | 1700  | 1700  | 990   | 1700  | 1700  | 143  | 748   | 598   |   |   |   |      |     |
| Volume to Capacity                | 0.14  | 0.24  | 0.13  | 0.07  | 0.38  | 0.22  | 0.03   | 0.01  | 0.28  |   |   |   |      |     |
| Queue Length 95th (ft)            | 12  | 0   | 0   | 6   | 0   | 0   | 2  | 1   | 29  |   |   |   |      |     |
| Control Delay (s)                 | 11.2  | 0.0   | 0.0   | 8.9   | 0.0   | 0.0   | 30.9   | 9.9   | 17.2  |   |   |   |      |     |
| Lane LOS                          | B   |   |   | A   |   |   | D  |   | A   | C   |   |   |      |     |
| Approach Delay (s)                | 1.5   |   |   | 0.6   |   |   | 15.5   |   | 17.2  |   |   |   |      |     |
| Approach LOS                      |   |   |   |   |   |   | C  |   | C   |   |   |   |      |     |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Average Delay                     |   |   | 2.4   |   |   |   |  |   |   |   |   |   |      |     |
| Intersection Capacity Utilization |   |   | 48.4%   |   | ICU Level of Service  |   |  |   |   | A   |   |   |      |     |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |      |     |

# HCM Unsignalized Intersection Capacity Analysis

## 8: Ferry Drive/Driveway & US 21 Sea Island Pkwy


















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|--|--|--|--|--|--|--|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |  |  |  |  |  |  |  |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 23  | 565   | 4   | 44  | 998   | 37  | 2  | 0   | 13  | 56  | 0   | 21  |  |  |  |  |  |  |  |
| Future Volume (Veh/h)             | 23  | 565   | 4   | 44  | 998   | 37  | 2  | 0   | 13  | 56  | 0   | 21  |  |  |  |  |  |  |  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |  |  |  |  |  |  |  |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |  |  |  |  |  |  |  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |  |  |  |  |  |  |  |
| Hourly flow rate (vph)            | 26  | 628   | 4   | 49  | 1109  | 41  | 2  | 0   | 14  | 62  | 0   | 23  |  |  |  |  |  |  |  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Median type                       | TWLTL   |   |   | TWLTL   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Median storage veh)               | 2   |   |   | 2   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Upstream signal (ft)              | 1208  |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| vC, conflicting volume            | 1150  |   |   | 632   |   |   | 1358   | 1930  | 316   | 1608  | 1912  | 575   |  |  |  |  |  |  |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 682  | 682   |   |   | 1228  | 1228  |  |  |  |  |  |  |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 676  | 1248  |   |   | 380   | 684   |  |  |  |  |  |  |  |
| vCu, unblocked vol                | 1150  |   |   | 632   |   |   | 1358   | 1930  | 316   | 1608  | 1912  | 575   |  |  |  |  |  |  |  |
| tC, single (s)                    | 4.2   |   |   | 4.1   |   |   | 8.5  | 6.5   | 6.9   | 7.5   | 6.5   | 7.0   |  |  |  |  |  |  |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 7.5  | 5.5   |   |   | 6.5   | 5.5   |  |  |  |  |  |  |  |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 4.0  | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |  |  |  |  |  |  |  |
| p0 queue free %                   | 96  |   |   | 95  |   |   | 99   | 100   | 98  | 63  | 100   | 95  |  |  |  |  |  |  |  |
| cM capacity (veh/h)               | 592   |   |   | 947   |   |   | 198  | 186   | 680   | 169   | 202   | 454   |  |  |  |  |  |  |  |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | SB 1  | SB 2  |   |   |   |  |  |  |  |  |  |  |
| Volume Total                      | 26  | 419   | 213   | 49  | 739   | 411   | 16   | 62  | 23  |   |   |   |  |  |  |  |  |  |  |
| Volume Left                       | 26  | 0   | 0   | 49  | 0   | 0   | 2  | 62  | 0   |   |   |   |  |  |  |  |  |  |  |
| Volume Right                      | 0   | 0   | 4   | 0   | 0   | 41  | 14   | 0   | 23  |   |   |   |  |  |  |  |  |  |  |
| cSH                               | 592   | 1700  | 1700  | 947   | 1700  | 1700  | 522  | 169   | 454   |   |   |   |  |  |  |  |  |  |  |
| Volume to Capacity                | 0.04  | 0.25  | 0.13  | 0.05  | 0.43  | 0.24  | 0.03   | 0.37  | 0.05  |   |   |   |  |  |  |  |  |  |  |
| Queue Length 95th (ft)            | 3   | 0   | 0   | 4   | 0   | 0   | 2  | 39  | 4   |   |   |   |  |  |  |  |  |  |  |
| Control Delay (s)                 | 11.4  | 0.0   | 0.0   | 9.0   | 0.0   | 0.0   | 12.1   | 38.0  | 13.4  |   |   |   |  |  |  |  |  |  |  |
| Lane LOS                          | B   |   |   | A   |   |   | B  | E   | B   |   |   |   |  |  |  |  |  |  |  |
| Approach Delay (s)                | 0.4   |   |   | 0.4   |   |   | 12.1   | 31.3  |   |   |   |   |  |  |  |  |  |  |  |
| Approach LOS                      |   |   |   |   |   |   | B  | D   |   |   |   |   |  |  |  |  |  |  |  |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Average Delay                     |   |   |   | 1.8   |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |
| Intersection Capacity Utilization |   |   |   | 51.9%   | ICU Level of Service  |   |  |   | A   |   |   |   |  |  |  |  |  |  |  |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |  |  |  |  |  |  |  |

# HCM Unsignalized Intersection Capacity Analysis

## 9: Gay Dr & US 21 Sea Island Pkwy




















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 3   | 672   | 2   | 6   | 1059  | 0   | 4  | 0   | 3   | 0   | 0   | 3   |
| Future Volume (Veh/h)             | 3   | 672   | 2   | 6   | 1059  | 0   | 4  | 0   | 3   | 0   | 0   | 3   |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 3   | 747   | 2   | 7   | 1177  | 0   | 4  | 0   | 3   | 0   | 0   | 3   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       | TWLTL   |   |   |   | None  |   |  |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1177  |   |   | 749   |   |   | 1360   | 1945  | 374   | 1574  | 1946  | 588   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 754  | 754   |   | 1191  | 1191  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 606  | 1191  |   | 382   | 755   |   |
| vCu, unblocked vol                | 1177  |   |   | 749   |   |   | 1360   | 1945  | 374   | 1574  | 1946  | 588   |
| tC, single (s)                    | 4.1   |   |   | 4.4   |   |   | 7.5  | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5  | 5.5   |   | 6.5   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.4   |   |   | 3.5  | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 99  |   |   | 99  |   |   | 99   | 100   | 100   | 100   | 100   | 99  |
| cM capacity (veh/h)               | 589   |   |   | 764   |   |   | 293  | 218   | 623   | 187   | 219   | 452   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1   |   |   |   |   |   |
| Volume Total                      | 376   | 376   | 7   | 785   | 392   | 7   | 3  |   |   |   |   |   |
| Volume Left                       | 3   | 0   | 7   | 0   | 0   | 4   | 0  |   |   |   |   |   |
| Volume Right                      | 0   | 2   | 0   | 0   | 0   | 3   | 3  |   |   |   |   |   |
| cSH                               | 589   | 1700  | 764   | 1700  | 1700  | 379   | 452  |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.22  | 0.01  | 0.46  | 0.23  | 0.02  | 0.01   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 1   | 0   | 0   | 1   | 1  |   |   |   |   |   |
| Control Delay (s)                 | 0.2   | 0.0   | 9.8   | 0.0   | 0.0   | 14.7  | 13.0   |   |   |   |   |   |
| Lane LOS                          | A   |   | A   |   |   | B   | B  |   |   |   |   |   |
| Approach Delay (s)                | 0.1   |   | 0.1   |   |   | 14.7  | 13.0   |   |   |   |   |   |
| Approach LOS                      |   |   |   |   |   | B   | B  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 39.9%   |   | ICU Level of Service  |   | A  |   |   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 10: Cougar Dr & US 21 Sea Island Pkwy

2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |   |  |   |   |  |  |
| Traffic Volume (veh/h)            | 115   | 514   | 6   | 2   | 947   | 60  | 2   | 0   | 0   | 13  | 0   | 116   |
| Future Volume (Veh/h)             | 115   | 514   | 6   | 2   | 947   | 60  | 2   | 0   | 0   | 13  | 0   | 116   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 128   | 571   | 7   | 2   | 1052  | 67  | 2   | 0   | 0   | 14  | 0   | 129   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | None  |   |   |   |   | None  |   |   |   |   |   |   |
| Median storage (veh)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1119  |   |   | 578   |   |   | 1360  | 1954  | 289   | 1631  | 1924  | 560   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 1119  |   |   | 578   |   |   | 1360  | 1954  | 289   | 1631  | 1924  | 560   |
| tC, single (s)                    | 4.1   |   |   | 5.1   |   |   | 7.5   | 6.5   | 6.9   | 8.1   | 6.5   | 7.0   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| tF (s)                            | 2.2   |   |   | 2.7   |   |   | 3.5   | 4.0   | 3.3   | 3.8   | 4.0   | 3.3   |
| p0 queue free %                   | 79  |   |   | 100   |   |   | 97  | 100   | 100   | 67  | 100   | 72  |
| cM capacity (veh/h)               | 620   |   |   | 725   |   |   | 65  | 50  | 708   | 42  | 52  | 464   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |   |   |   |
| Volume Total                      | 128   | 381   | 197   | 2   | 701   | 418   | 2   | 143   |   |   |   |   |
| Volume Left                       | 128   | 0   | 0   | 2   | 0   | 0   | 2   | 14  |   |   |   |   |
| Volume Right                      | 0   | 0   | 7   | 0   | 0   | 67  | 0   | 129   |   |   |   |   |
| cSH                               | 620   | 1700  | 1700  | 725   | 1700  | 1700  | 65  | 430   |   |   |   |   |
| Volume to Capacity                | 0.21  | 0.22  | 0.12  | 0.00  | 0.41  | 0.25  | 0.03  | 0.33  |   |   |   |   |
| Queue Length 95th (ft)            | 19  | 0   | 0   | 0   | 0   | 0   | 2   | 36  |   |   |   |   |
| Control Delay (s)                 | 12.3  | 0.0   | 0.0   | 10.0  | 0.0   | 0.0   | 62.2  | 26.7  |   |   |   |   |
| Lane LOS                          | B   |   |   | A   |   |   | F   | D   |   |   |   |   |
| Approach Delay (s)                | 2.2   |   |   | 0.0   |   |   | 62.2  | 26.7  |   |   |   |   |
| Approach LOS                      |   |   |   |   |   |   | F   | D   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 2.8   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 48.6%   |   |   | ICU Level of Service  |   |   |   |   | A   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 11: Lost Island Rd & US 21 Sea Island Pkwy

2016 Existing  
AM Peak Hour












|                                   |      |      |       |                      |      |      |
|-----------------------------------|------|------|-------|----------------------|------|------|
|                                   | →    | ↘    | ↙     | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR  | WBL   | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↱    |      |       | ↱↱                   | ↲    |      |
| Traffic Volume (veh/h)            | 518  | 5    | 3     | 1008                 | 23   | 1    |
| Future Volume (Veh/h)             | 518  | 5    | 3     | 1008                 | 23   | 1    |
| Sign Control                      | Free |      |       | Free                 | Stop |      |
| Grade                             | 0%   |      |       | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90                 | 0.90 | 0.90 |
| Hourly flow rate (vph)            | 576  | 6    | 3     | 1120                 | 26   | 1    |
| Pedestrians                       |      |      |       |                      |      |      |
| Lane Width (ft)                   |      |      |       |                      |      |      |
| Walking Speed (ft/s)              |      |      |       |                      |      |      |
| Percent Blockage                  |      |      |       |                      |      |      |
| Right turn flare (veh)            |      |      |       |                      |      |      |
| Median type                       | TWLT |      |       | TWLT                 |      |      |
| Median storage veh)               | 2    |      |       | 2                    |      |      |
| Upstream signal (ft)              |      |      |       |                      |      |      |
| pX, platoon unblocked             |      |      |       |                      |      |      |
| vC, conflicting volume            |      |      | 582   |                      | 1145 | 579  |
| vC1, stage 1 conf vol             |      |      |       |                      | 579  |      |
| vC2, stage 2 conf vol             |      |      |       |                      | 566  |      |
| vCu, unblocked vol                |      |      | 582   |                      | 1145 | 579  |
| tC, single (s)                    |      |      | 4.1   |                      | 6.8  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |                      | 5.8  |      |
| tF (s)                            |      |      | 2.2   |                      | 3.5  | 3.3  |
| p0 queue free %                   |      |      | 100   |                      | 94   | 100  |
| cM capacity (veh/h)               |      |      | 988   |                      | 405  | 458  |
| Direction, Lane #                 | EB 1 | WB 1 | WB 2  | NB 1                 |      |      |
| Volume Total                      | 582  | 376  | 747   | 27                   |      |      |
| Volume Left                       | 0    | 3    | 0     | 26                   |      |      |
| Volume Right                      | 6    | 0    | 0     | 1                    |      |      |
| cSH                               | 1700 | 988  | 1700  | 407                  |      |      |
| Volume to Capacity                | 0.34 | 0.00 | 0.44  | 0.07                 |      |      |
| Queue Length 95th (ft)            | 0    | 0    | 0     | 5                    |      |      |
| Control Delay (s)                 | 0.0  | 0.1  | 0.0   | 14.5                 |      |      |
| Lane LOS                          |      | A    |       | B                    |      |      |
| Approach Delay (s)                | 0.0  | 0.0  |       | 14.5                 |      |      |
| Approach LOS                      |      |      |       | B                    |      |      |
| Intersection Summary              |      |      |       |                      |      |      |
| Average Delay                     |      |      | 0.2   |                      |      |      |
| Intersection Capacity Utilization |      |      | 40.0% | ICU Level of Service |      | A    |
| Analysis Period (min)             |      |      | 15    |                      |      |      |



# HCM Unsignalized Intersection Capacity Analysis

## 12: US 21 Sea Island Pkwy & Airport Cir










2016 Existing  
AM Peak Hour

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |  |  |  |   |  |  |
| Traffic Volume (veh/h)            | 9   | 509   | 998   | 0   | 0   | 4   |
| Future Volume (Veh/h)             | 9   | 509   | 998   | 0   | 0   | 4   |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 10  | 566   | 1109  | 0   | 0   | 4   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   | TWLTL   | TWLTL   |   |   |   |
| Median storage veh)               |   | 2   | 2   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 1109  |   |   |   | 1695  | 1109  |
| vC1, stage 1 conf vol             |   |   |   |   | 1109  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 586   |   |
| vCu, unblocked vol                | 1109  |   |   |   | 1695  | 1109  |
| tC, single (s)                    | 4.2   |   |   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            | 2.3   |   |   |   | 3.5   | 3.3   |
| p0 queue free %                   | 98  |   |   |   | 100   | 98  |
| cM capacity (veh/h)               | 597   |   |   |   | 280   | 255   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | SB 1  |   |   |
| Volume Total                      | 10  | 566   | 1109  | 4   |   |   |
| Volume Left                       | 10  | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 0   | 0   | 4   |   |   |
| cSH                               | 597   | 1700  | 1700  | 255   |   |   |
| Volume to Capacity                | 0.02  | 0.33  | 0.65  | 0.02  |   |   |
| Queue Length 95th (ft)            | 1   | 0   | 0   | 1   |   |   |
| Control Delay (s)                 | 11.1  | 0.0   | 0.0   | 19.3  |   |   |
| Lane LOS                          | B   |   |   | C   |   |   |
| Approach Delay (s)                | 0.2   |   | 0.0   | 19.3  |   |   |
| Approach LOS                      |   |   |   | C   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 62.5%   | ICU Level of Service  |   | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 13: Old Distant Island Rd & US 21 Sea Island Pkwy

2016 Existing  
AM Peak Hour














|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |   |
| Traffic Volume (veh/h)            | 489   | 6   | 5   | 964   | 12  | 2   |
| Future Volume (Veh/h)             | 489   | 6   | 5   | 964   | 12  | 2   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 543   | 7   | 6   | 1071  | 13  | 2   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLTL   |   | TWLTL   |   |   |   |
| Median storage veh)               | 2   |   | 2   |   |   |   |
| Upstream signal (ft)              |   |   | 1133  |   |   |   |
| pX, platoon unblocked             |   |   | 0.49  |   |   |   |
| vC, conflicting volume            |   |   | 550   |   | 1630  | 546   |
| vC1, stage 1 conf vol             |   |   |   |   | 546   |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1083  |   |
| vCu, unblocked vol                |   |   | 550   |   | 1763  | 546   |
| tC, single (s)                    |   |   | 4.1   |   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.5   |   |
| tF (s)                            |   |   | 2.2   |   | 3.6   | 3.3   |
| p0 queue free %                   |   |   | 99  |   | 94  | 100   |
| cM capacity (veh/h)               |   |   | 1020  |   | 223   | 537   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  |   |   |   |
| Volume Total                      | 550   | 1077  | 15  |   |   |   |
| Volume Left                       | 0   | 6   | 13  |   |   |   |
| Volume Right                      | 7   | 0   | 2   |   |   |   |
| cSH                               | 1700  | 1020  | 241   |   |   |   |
| Volume to Capacity                | 0.32  | 0.01  | 0.06  |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 5   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.2   | 20.9  |   |   |   |
| Lane LOS                          |   | A   | C   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.2   | 20.9  |   |   |   |
| Approach LOS                      |   |   | C   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.3   |   |   |   |
| Intersection Capacity Utilization |   |   | 64.7%   | ICU Level of Service  | C   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

2016 Existing

AM Peak Hour

|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 19  | 382   | 45  | 852   | 108   | 3   | 13   | 2   |
| Future Volume (vph)  | 19  | 382   | 45  | 852   | 108   | 3   | 13   | 2   |
| Turn Type            | Perm  | NA  | Perm  | NA  | Perm  | NA  | Perm   | NA  |
| Protected Phases     |   | 4   |   | 8   |   | 2   |  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 4   | 4   | 8   | 8   | 2   | 2   | 6  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  |
| Total Split (s)      | 42.0  | 42.0  | 42.0  | 42.0  | 23.0  | 23.0  | 23.0   | 23.0  |
| Total Split (%)      | 64.6%   | 64.6%   | 64.6%   | 64.6%   | 35.4%   | 35.4%   | 35.4%  | 35.4%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             |   |   |   |   |   |   |  |   |
| Lead-Lag Optimize?   |   |   |   |   |   |   |  |   |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   | Max  | Max   |
| Act Effect Green (s) |   | 35.1  | 35.1  | 35.1  |   | 18.6  |  | 18.6  |
| Actuated g/C Ratio   |   | 0.56  | 0.56  | 0.56  |   | 0.30  |  | 0.30  |
| v/c Ratio            |   | 0.74  | 0.12  | 0.93  |   | 0.39  |  | 0.11  |
| Control Delay        |   | 17.0  | 7.1   | 29.7  |   | 19.1  |  | 9.9   |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 17.0  | 7.1   | 29.7  |   | 19.1  |  | 9.9   |
| LOS                  |   | B   | A   | C   |   | B   |  | A   |
| Approach Delay       |   | 17.0  |   | 28.6  |   | 19.1  |  | 9.9   |
| Approach LOS         |   | B   |   | C   |   | B   |  | A   |

### Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 62.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 23.6





Intersection LOS: C

Intersection Capacity Utilization 67.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy









|  |  |
|--|--|
|  Ø2 |  Ø4 |
| 23 s   | 42 s   |
|  Ø6 |  Ø8 |
| 23 s   | 42 s   |

## Phasings

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

2016 Existing

AM Peak Hour

|                         |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL   | SBT   |
| Protected Phases        |   | 4   |   | 8   |   | 2   |   | 6   |
| Permitted Phases        | 4   |   | 8   |   | 2   |   | 6   |   |
| Minimum Initial (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)         | 42.0  | 42.0  | 42.0  | 42.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (%)         | 64.6%   | 64.6%   | 64.6%   | 64.6%   | 35.4%   | 35.4%   | 35.4%   | 35.4%   |
| Maximum Green (s)       | 37.5  | 37.5  | 37.5  | 37.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| Yellow Time (s)         | 3.5   | 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   | 1.0   |
| Lead/Lag                |   |   |   |   |   |   |   |   |
| Lead-Lag Optimize?      |   |   |   |   |   |   |   |   |
| Vehicle Extension (s)   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Minimum Gap (s)         | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Recall Mode             | None  | None  | None  | None  | Max   | Max   | Max   | Max   |
| Walk Time (s)           | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)     | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 90th %ile Green (s)     | 37.5  | 37.5  | 37.5  | 37.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| 90th %ile Term Code     | Max   | Max   | Max   | Max   | MaxR  | MaxR  | MaxR  | MaxR  |
| 70th %ile Green (s)     | 37.5  | 37.5  | 37.5  | 37.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| 70th %ile Term Code     | Hold  | Hold  | Max   | Max   | MaxR  | MaxR  | MaxR  | MaxR  |
| 50th %ile Green (s)     | 37.5  | 37.5  | 37.5  | 37.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| 50th %ile Term Code     | Hold  | Hold  | Max   | Max   | MaxR  | MaxR  | MaxR  | MaxR  |
| 30th %ile Green (s)     | 36.6  | 36.6  | 36.6  | 36.6  | 18.5  | 18.5  | 18.5  | 18.5  |
| 30th %ile Term Code     | Hold  | Hold  | Gap   | Gap   | MaxR  | MaxR  | MaxR  | MaxR  |
| 10th %ile Green (s)     | 26.8  | 26.8  | 26.8  | 26.8  | 18.5  | 18.5  | 18.5  | 18.5  |
| 10th %ile Term Code     | Hold  | Hold  | Gap   | Gap   | MaxR  | MaxR  | MaxR  | MaxR  |

## Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 62.7

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 65

70th %ile Actuated Cycle: 65

50th %ile Actuated Cycle: 65

30th %ile Actuated Cycle: 64.1

10th %ile Actuated Cycle: 54.3

## Queues

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

2016 Existing

AM Peak Hour

|                         | →    | ↙    | ←    | ↑    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | WBL  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 549  | 50   | 947  | 163  | 49   |
| v/c Ratio               | 0.74 | 0.12 | 0.93 | 0.39 | 0.11 |
| Control Delay           | 17.0 | 7.1  | 29.7 | 19.1 | 9.9  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 17.0 | 7.1  | 29.7 | 19.1 | 9.9  |
| Queue Length 50th (ft)  | 132  | 8    | 294  | 43   | 5    |
| Queue Length 95th (ft)  | 251  | 22   | #564 | 92   | 27   |
| Internal Link Dist (ft) | 1053 |      | 490  | 351  | 331  |
| Turn Bay Length (ft)    |      | 290  |      |      |      |
| Base Capacity (vph)     | 797  | 467  | 1098 | 417  | 446  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.69 | 0.11 | 0.86 | 0.39 | 0.11 |

## Intersection Summary


















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy





















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 19  | 382   | 94  | 45  | 852   | 0   | 108  | 3   | 36  | 13  | 2   | 30  |
| Future Volume (vph)               | 19  | 382   | 94  | 45  | 852   | 0   | 108  | 3   | 36  | 13  | 2   | 30  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 0.97  |   | 1.00  | 1.00  |   |  | 0.97  |   |   | 0.91  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.96  |   |   | 0.99  |   |
| Satd. Flow (prot)                 |   | 1771  |   | 1736  | 1827  |   |  | 1721  |   |   | 1532  |   |
| Flt Permitted                     |   | 0.74  |   | 0.43  | 1.00  |   |  | 0.75  |   |   | 0.92  |   |
| Satd. Flow (perm)                 |   | 1306  |   | 779   | 1827  |   |  | 1346  |   |   | 1426  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 21  | 424   | 104   | 50  | 947   | 0   | 120  | 3   | 40  | 14  | 2   | 33  |
| RTOR Reduction (vph)              | 0   | 14  | 0   | 0   | 0   | 0   | 0  | 18  | 0   | 0   | 23  | 0   |
| Lane Group Flow (vph)             | 0   | 535   | 0   | 50  | 947   | 0   | 0  | 145   | 0   | 0   | 26  | 0   |
| Heavy Vehicles (%)                | 2%  | 5%  | 2%  | 4%  | 4%  | 2%  | 3%   | 2%  | 3%  | 8%  | 2%  | 13%   |
| Turn Type                         | Perm  | NA  |   | Perm  | NA  |   | Perm   | NA  |   | Perm  | NA  |   |
| Protected Phases                  |   | 4   |   |   | 8   |   |  | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 35.0  |   | 35.0  | 35.0  |   |  | 18.6  |   |   | 18.6  |   |
| Effective Green, g (s)            |   | 35.0  |   | 35.0  | 35.0  |   |  | 18.6  |   |   | 18.6  |   |
| Actuated g/C Ratio                |   | 0.56  |   | 0.56  | 0.56  |   |  | 0.30  |   |   | 0.30  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 730   |   | 435   | 1021  |   |  | 399   |   |   | 423   |   |
| v/s Ratio Prot                    |   |   |   |   | c0.52   |   |  |   |   |   |   |   |
| v/s Ratio Perm                    |   | 0.41  |   | 0.06  |   |   |  | c0.11   |   |   | 0.02  |   |
| v/c Ratio                         |   | 0.73  |   | 0.11  | 0.93  |   |  | 0.36  |   |   | 0.06  |   |
| Uniform Delay, d1                 |   | 10.3  |   | 6.5   | 12.6  |   |  | 17.3  |   |   | 15.7  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 3.8   |   | 0.1   | 13.8  |   |  | 2.6   |   |   | 0.3   |   |
| Delay (s)                         |   | 14.1  |   | 6.6   | 26.5  |   |  | 19.9  |   |   | 16.0  |   |
| Level of Service                  |   | B   |   | A   | C   |   |  | B   |   |   | B   |   |
| Approach Delay (s)                |   | 14.1  |   |   | 25.5  |   |  | 19.9  |   |   | 16.0  |   |
| Approach LOS                      |   | B   |   |   | C   |   |  | B   |   |   | B   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 21.1  |   |   | HCM 2000 Level of Service   |  |   |   | C   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.73  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 62.6  |   |   | Sum of lost time (s)  |  |   | 9.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 67.3%   |   |   | ICU Level of Service  |  |   | C   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 15: US 21 Lady's Island Rd & Rue Du Bois/Driveway










2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 18  | 1   | 43  | 3   | 0   | 6   | 64   | 715   | 18  | 27  | 1274  | 38  |
| Future Volume (Veh/h)             | 18  | 1   | 43  | 3   | 0   | 6   | 64   | 715   | 18  | 27  | 1274  | 38  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 20  | 1   | 48  | 3   | 0   | 7   | 71   | 794   | 20  | 30  | 1416  | 42  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | None   |   |   | TWLTL   |   |   |
| Median storage veh)               |   |   |   |   |   |   |  |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 2022  | 2432  | 708   | 1762  | 2464  | 407   | 1458   |   |   | 814   |   |   |
| vC1, stage 1 conf vol             | 1476  | 1476  |   | 946   | 946   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 546   | 956   |   | 816   | 1518  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 2022  | 2432  | 708   | 1762  | 2464  | 407   | 1458   |   |   | 814   |   |   |
| tC, single (s)                    | 7.6   | 8.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.2  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.6   | 7.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.6   | 5.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2  |   |   | 2.2   |   |   |
| p0 queue free %                   | 83  | 98  | 87  | 98  | 100   | 99  | 84   |   |   | 96  |   |   |
| cM capacity (veh/h)               | 114   | 61  | 377   | 157   | 95  | 593   | 445  |   |   | 809   |   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1   | SB 2  | SB 3  | SB 4  |   |   |
| Volume Total                      | 21  | 48  | 10  | 71  | 529   | 285   | 30   | 708   | 708   | 42  |   |   |
| Volume Left                       | 20  | 0   | 3   | 71  | 0   | 0   | 30   | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 48  | 7   | 0   | 0   | 20  | 0  | 0   | 0   | 42  |   |   |
| cSH                               | 110   | 377   | 323   | 445   | 1700  | 1700  | 809  | 1700  | 1700  | 1700  |   |   |
| Volume to Capacity                | 0.19  | 0.13  | 0.03  | 0.16  | 0.31  | 0.17  | 0.04   | 0.42  | 0.42  | 0.02  |   |   |
| Queue Length 95th (ft)            | 17  | 11  | 2   | 14  | 0   | 0   | 3  | 0   | 0   | 0   |   |   |
| Control Delay (s)                 | 45.4  | 15.9  | 16.5  | 14.6  | 0.0   | 0.0   | 9.6  | 0.0   | 0.0   | 0.0   |   |   |
| Lane LOS                          | E   | C   | C   | B   |   |   | A  |   |   |   |   |   |
| Approach Delay (s)                | 24.9  |   | 16.5  | 1.2   |   |   | 0.2  |   |   |   |   |   |
| Approach LOS                      | C   |   | C   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 1.3   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 52.1%   | ICU Level of Service  |   |   |  |   | A   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 16: US 21 Lady's Island Rd & Hazel Farm Rd

2016 Existing  
AM Peak Hour





















|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | WBL   | WBR   | NET   | NER   | SWL   | SWT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 14  | 1   | 741   | 4   | 0   | 1329  |
| Future Volume (Veh/h)             | 14  | 1   | 741   | 4   | 0   | 1329  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 16  | 1   | 823   | 4   | 0   | 1477  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage veh)               |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 1564  | 414   |   |   | 827   |   |
| vC1, stage 1 conf vol             | 825   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 738   |   |   |   |   |   |
| vCu, unblocked vol                | 1564  | 414   |   |   | 827   |   |
| tC, single (s)                    | 6.8   | 6.9   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 5.8   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 95  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 300   | 588   |   |   | 800   |   |
| Direction, Lane #                 | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  |   |
| Volume Total                      | 17  | 549   | 278   | 492   | 985   |   |
| Volume Left                       | 16  | 0   | 0   | 0   | 0   |   |
| Volume Right                      | 1   | 0   | 4   | 0   | 0   |   |
| cSH                               | 309   | 1700  | 1700  | 800   | 1700  |   |
| Volume to Capacity                | 0.05  | 0.32  | 0.16  | 0.00  | 0.58  |   |
| Queue Length 95th (ft)            | 4   | 0   | 0   | 0   | 0   |   |
| Control Delay (s)                 | 17.3  | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Lane LOS                          | C   |   |   |   |   |   |
| Approach Delay (s)                | 17.3  | 0.0   |   | 0.0   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 46.7%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 17: US 21 Lady's Island Rd & Ferry Dr











2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |  |   |  |  |  |  |  |  |  |   |
| Traffic Volume (veh/h)            | 3   | 0   | 17  | 108   | 1   | 18  | 31   | 683   | 21  | 21  | 1211  | 51  |
| Future Volume (Veh/h)             | 3   | 0   | 17  | 108   | 1   | 18  | 31   | 683   | 21  | 21  | 1211  | 51  |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free   |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 3   | 0   | 19  | 120   | 1   | 20  | 34   | 759   | 23  | 23  | 1346  | 57  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            | 5   |   |   | 5   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL  |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   | 2  |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   | 1003  |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1878  | 2270  | 702   | 1558  | 2288  | 391   | 1403   |   |   |   | 782   |   |
| vC1, stage 1 conf vol             | 1420  | 1420  |   | 838   | 838   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 458   | 850   |   | 719   | 1449  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1878  | 2270  | 702   | 1558  | 2288  | 391   | 1403   |   |   |   | 782   |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.0   | 7.5   | 6.5   | 7.0   | 4.1  |   |   |   | 4.2   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.4   | 2.2  |   |   |   | 2.2   |   |
| p0 queue free %                   | 98  | 100   | 95  | 47  | 99  | 97  | 93   |   |   |   | 97  |   |
| cM capacity (veh/h)               | 132   | 165   | 372   | 225   | 140   | 597   | 483  |   |   |   | 812   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  | SW 3   |   |   |   |   |   |
| Volume Total                      | 22  | 141   | 414   | 402   | 23  | 897   | 506  |   |   |   |   |   |
| Volume Left                       | 3   | 120   | 34  | 0   | 23  | 0   | 0  |   |   |   |   |   |
| Volume Right                      | 19  | 20  | 0   | 23  | 0   | 0   | 57   |   |   |   |   |   |
| cSH                               | 431   | 261   | 483   | 1700  | 812   | 1700  | 1700   |   |   |   |   |   |
| Volume to Capacity                | 0.05  | 0.54  | 0.07  | 0.24  | 0.03  | 0.53  | 0.30   |   |   |   |   |   |
| Queue Length 95th (ft)            | 4   | 73  | 6   | 0   | 2   | 0   | 0  |   |   |   |   |   |
| Control Delay (s)                 | 17.6  | 34.5  | 2.2   | 0.0   | 9.6   | 0.0   | 0.0  |   |   |   |   |   |
| Lane LOS                          | C   | D   | A   |   | A   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 17.6  | 34.5  | 1.1   |   | 0.2   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | D   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 2.6   |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 61.8%   |   |   | ICU Level of Service  |   |   |  | B   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 18: SC 802 Sams Point Rd & Sams Point Way

















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |  |  |
| Traffic Volume (veh/h)            | 9   | 88  | 572   | 18  | 149   | 1522  |
| Future Volume (Veh/h)             | 9   | 88  | 572   | 18  | 149   | 1522  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 10  | 98  | 636   | 20  | 166   | 1691  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLTL   |   | TWLTL   |   |
| Median storage (veh)              |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 1824  | 328   |   |   | 656   |   |
| vC1, stage 1 conf vol             | 646   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1178  |   |   |   |   |   |
| vCu, unblocked vol                | 1824  | 328   |   |   | 656   |   |
| tC, single (s)                    | 7.2   | 6.9   |   |   | 4.2   |   |
| tC, 2 stage (s)                   | 6.2   |   |   |   |   |   |
| tF (s)                            | 3.7   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 94  | 85  |   |   | 82  |   |
| cM capacity (veh/h)               | 163   | 668   |   |   | 914   |   |
| Direction, Lane #                 | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  | SB 3  |
| Volume Total                      | 108   | 424   | 232   | 166   | 846   | 846   |
| Volume Left                       | 10  | 0   | 0   | 166   | 0   | 0   |
| Volume Right                      | 98  | 0   | 20  | 0   | 0   | 0   |
| cSH                               | 519   | 1700  | 1700  | 914   | 1700  | 1700  |
| Volume to Capacity                | 0.21  | 0.25  | 0.14  | 0.18  | 0.50  | 0.50  |
| Queue Length 95th (ft)            | 19  | 0   | 0   | 17  | 0   | 0   |
| Control Delay (s)                 | 13.7  | 0.0   | 0.0   | 9.8   | 0.0   | 0.0   |
| Lane LOS                          | B   |   |   | A   |   |   |
| Approach Delay (s)                | 13.7  | 0.0   |   | 0.9   |   |   |
| Approach LOS                      | B   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 1.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 54.7%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 19: SC 802 Sams Point Rd & Ashland Park Rd/Driveway



















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 1   | 0   | 9   | 0   | 0   | 0   | 11   | 638   | 0   | 1   | 1691  | 6   |
| Future Volume (Veh/h)             | 1   | 0   | 9   | 0   | 0   | 0   | 11   | 638   | 0   | 1   | 1691  | 6   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 10  | 0   | 0   | 0   | 12   | 709   | 0   | 1   | 1879  | 7   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  | TWLTL   |   |   | TWLTL   |   |
| Median storage veh)               |   |   |   |   |   |   |  | 2   |   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 2263  | 2618  | 943   | 1684  | 2621  | 354   | 1886   |   |   | 709   |   |   |
| vC1, stage 1 conf vol             | 1884  | 1884  |   | 733   | 733   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 378   | 733   |   | 952   | 1888  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 2263  | 2618  | 943   | 1684  | 2621  | 354   | 1886   |   |   | 709   |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.1  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2  |   |   | 2.2   |   |   |
| p0 queue free %                   | 99  | 100   | 96  | 100   | 100   | 100   | 96   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 71  | 111   | 264   | 211   | 100   | 642   | 314  |   |   | 886   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  |  |   |   |   |   |   |
| Volume Total                      | 11  | 0   | 366   | 354   | 940   | 946   |  |   |   |   |   |   |
| Volume Left                       | 1   | 0   | 12  | 0   | 1   | 0   |  |   |   |   |   |   |
| Volume Right                      | 10  | 0   | 0   | 0   | 0   | 7   |  |   |   |   |   |   |
| cSH                               | 211   | 1700  | 314   | 1700  | 886   | 1700  |  |   |   |   |   |   |
| Volume to Capacity                | 0.05  | 0.00  | 0.04  | 0.21  | 0.00  | 0.56  |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 4   | 0   | 3   | 0   | 0   | 0   |  |   |   |   |   |   |
| Control Delay (s)                 | 23.0  | 0.0   | 1.3   | 0.0   | 0.0   | 0.0   |  |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   | A   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 23.0  | 0.0   | 0.7   |   | 0.0   |   |  |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 0.3   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 57.6%   |   | ICU Level of Service  |   |  |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E


















2016 Existing  
AM Peak Hour

|                                   |  |  |  |  |  |  |    |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 7   | 0   | 33  | 15  | 1   | 4   | 13  | 602   | 19  | 3   | 1631  | 125   |
| Future Volume (Veh/h)             | 7   | 0   | 33  | 15  | 1   | 4   | 13  | 602   | 19  | 3   | 1631  | 125   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 8   | 0   | 37  | 17  | 1   | 4   | 14  | 669   | 21  | 3   | 1812  | 139   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |   | TWLTL   |   |   | TWLTL   |   |
| Median storage veh                |   |   |   |   |   |   |   | 2   |   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 2254  | 2606  | 976   | 1656  | 2664  | 345   | 1951  |   |   | 690   |   |   |
| vC1, stage 1 conf vol             | 1888  | 1888  |   | 708   | 708   |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 367   | 718   |   | 949   | 1957  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 2254  | 2606  | 976   | 1656  | 2664  | 345   | 1951  |   |   | 690   |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.0   | 7.5   | 6.5   | 6.9   | 4.3   |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.3   | 2.3   |   |   | 2.2   |   |   |
| p0 queue free %                   | 89  | 100   | 85  | 91  | 99  | 99  | 95  |   |   | 100   |   |   |
| cM capacity (veh/h)               | 70  | 110   | 244   | 191   | 90  | 651   | 273   |   |   | 900   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  |   |   |   |   |
| Volume Total                      | 45  | 22  | 14  | 446   | 244   | 3   | 1208  | 743   |   |   |   |   |
| Volume Left                       | 8   | 17  | 14  | 0   | 0   | 3   | 0   | 0   |   |   |   |   |
| Volume Right                      | 37  | 4   | 0   | 0   | 21  | 0   | 0   | 139   |   |   |   |   |
| cSH                               | 169   | 207   | 273   | 1700  | 1700  | 900   | 1700  | 1700  |   |   |   |   |
| Volume to Capacity                | 0.27  | 0.11  | 0.05  | 0.26  | 0.14  | 0.00  | 0.71  | 0.44  |   |   |   |   |
| Queue Length 95th (ft)            | 25  | 9   | 4   | 0   | 0   | 0   | 0   | 0   |   |   |   |   |
| Control Delay (s)                 | 33.8  | 24.4  | 18.9  | 0.0   | 0.0   | 9.0   | 0.0   | 0.0   |   |   |   |   |
| Lane LOS                          | D   | C   | C   |   |   | A   |   |   |   |   |   |   |
| Approach Delay (s)                | 33.8  | 24.4  | 0.4   |   |   | 0.0   |   |   |   |   |   |   |
| Approach LOS                      | D   | C   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.9   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 59.4%   |   | ICU Level of Service  |   |   |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis














## 1: Meridian Rd/Driveway & US 21 Sea Island Pkwy

2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 0   | 902   | 54  | 36  | 630   | 1   | 46  | 1   | 36  | 1   | 0   | 1   |
| Future Volume (Veh/h)             | 0   | 902   | 54  | 36  | 630   | 1   | 46  | 1   | 36  | 1   | 0   | 1   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 1002  | 60  | 40  | 700   | 1   | 51  | 1   | 40  | 1   | 0   | 1   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   | TWLTL   |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh                |   | 2   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 701   |   |   | 1062  |   |   | 1813  | 1813  | 1032  | 1853  | 1842  | 700   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1032  | 1032  |   | 780   | 780   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 781   | 781   |   | 1072  | 1062  |   |
| vCu, unblocked vol                | 701   |   |   | 1062  |   |   | 1813  | 1813  | 1032  | 1853  | 1842  | 700   |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 94  |   |   | 77  | 100   | 86  | 99  | 100   | 100   |
| cM capacity (veh/h)               | 896   |   |   | 656   |   |   | 223   | 245   | 283   | 167   | 219   | 439   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NB 1  | SB 1  |   |   |   |   |   |   |   |
| Volume Total                      | 1062  | 40  | 701   | 92  | 2   |   |   |   |   |   |   |   |
| Volume Left                       | 0   | 40  | 0   | 51  | 1   |   |   |   |   |   |   |   |
| Volume Right                      | 60  | 0   | 1   | 40  | 1   |   |   |   |   |   |   |   |
| cSH                               | 896   | 656   | 1700  | 246   | 242   |   |   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.06  | 0.41  | 0.37  | 0.01  |   |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 5   | 0   | 41  | 1   |   |   |   |   |   |   |   |
| Control Delay (s)                 | 0.0   | 10.8  | 0.0   | 28.2  | 20.0  |   |   |   |   |   |   |   |
| Lane LOS                          |   | B   |   | D   | C   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.6   |   | 28.2  | 20.0  |   |   |   |   |   |   |   |
| Approach LOS                      |   |   |   | D   | C   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 1.6   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 63.7%   |   |   | ICU Level of Service  |   |   |   | B   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

# Timings 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2016 Existing  
PM Peak






|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 2   | 929   | 20  | 643   | 40  | 1   | 4  | 0   |
| Future Volume (vph)  | 2   | 929   | 20  | 643   | 40  | 1   | 4  | 0   |
| Turn Type            | Perm  | NA  | pm+pt   | NA  | Perm  | NA  | Perm   | NA  |
| Protected Phases     |   | 4   | 3   | 8   |   | 2   |  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 4   | 4   | 3   | 8   | 2   | 2   | 6  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  |
| Total Split (s)      | 83.0  | 83.0  | 9.5   | 92.5  | 22.5  | 22.5  | 22.5   | 22.5  |
| Total Split (%)      | 72.2%   | 72.2%   | 8.3%  | 80.4%   | 19.6%   | 19.6%   | 19.6%  | 19.6%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             | Lag   | Lag   | Lead  |   |   |   |  |   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   |   |   |   |  |   |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   | Max  | Max   |
| Act Effct Green (s)  |   | 52.9  | 55.8  | 55.8  |   | 19.3  |  | 19.3  |
| Actuated g/C Ratio   |   | 0.62  | 0.66  | 0.66  |   | 0.23  |  | 0.23  |
| v/c Ratio            |   | 0.91  | 0.06  | 0.59  |   | 0.23  |  | 0.01  |
| Control Delay        |   | 25.8  | 4.0   | 9.2   |   | 26.2  |  | 0.0   |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 25.8  | 4.0   | 9.2   |   | 26.2  |  | 0.0   |
| LOS                  |   | C   | A   | A   |   | C   |  | A   |
| Approach Delay       |   | 25.8  |   | 9.0   |   | 26.2  |  |   |
| Approach LOS         |   | C   |   | A   |   | C   |  |   |

## Intersection Summary

Cycle Length: 115  
 Actuated Cycle Length: 84.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 19.1  
 Intersection Capacity Utilization 63.8%  
 Analysis Period (min) 15









Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

|  |  |  |
|--|--|--|
|  Ø2 |  Ø3 |  Ø4 |
| 22.5 s   | 9.5 s  | 83 s   |
|  Ø6 |  Ø8 |  |
| 22.5 s   | 92.5 s   |  |

Phasings  
2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2016 Existing  
PM Peak

|                         |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL   | SBT   |
| Protected Phases        |   | 4   | 3   | 8   |   | 2   |   | 6   |
| Permitted Phases        | 4   |   | 8   |   | 2   |   | 6   |   |
| Minimum Initial (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 22.5  | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)         | 83.0  | 83.0  | 9.5   | 92.5  | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (%)         | 72.2%   | 72.2%   | 8.3%  | 80.4%   | 19.6%   | 19.6%   | 19.6%   | 19.6%   |
| Maximum Green (s)       | 78.5  | 78.5  | 5.0   | 88.0  | 18.0  | 18.0  | 18.0  | 18.0  |
| Yellow Time (s)         | 3.5   | 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   | 1.0   |
| Lead/Lag                | Lag   | Lag   | Lead  |   |   |   |   |   |
| Lead-Lag Optimize?      | Yes   | Yes   | Yes   |   |   |   |   |   |
| Vehicle Extension (s)   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Minimum Gap (s)         | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Recall Mode             | None  | None  | None  | None  | Max   | Max   | Max   | Max   |
| Walk Time (s)           | 7.0   | 7.0   |   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)     | 11.0  | 11.0  |   | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr) | 0   | 0   |   | 0   | 0   | 0   | 0   | 0   |
| 90th %ile Green (s)     | 78.5  | 78.5  | 5.0   | 88.0  | 18.0  | 18.0  | 18.0  | 18.0  |
| 90th %ile Term Code     | Max   | Max   | Max   | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 70th %ile Green (s)     | 72.8  | 72.8  | 5.0   | 82.3  | 18.0  | 18.0  | 18.0  | 18.0  |
| 70th %ile Term Code     | Gap   | Gap   | Max   | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 50th %ile Green (s)     | 47.4  | 47.4  | 0.0   | 47.4  | 18.0  | 18.0  | 18.0  | 18.0  |
| 50th %ile Term Code     | Gap   | Gap   | Skip  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 30th %ile Green (s)     | 40.2  | 40.2  | 0.0   | 40.2  | 18.0  | 18.0  | 18.0  | 18.0  |
| 30th %ile Term Code     | Gap   | Gap   | Skip  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 10th %ile Green (s)     | 31.1  | 31.1  | 0.0   | 31.1  | 18.0  | 18.0  | 18.0  | 18.0  |
| 10th %ile Term Code     | Gap   | Gap   | Skip  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |

Intersection Summary

Cycle Length: 115  
 Actuated Cycle Length: 84.8  
 Control Type: Actuated-Uncoordinated  
 90th %ile Actuated Cycle: 115  
 70th %ile Actuated Cycle: 109.3  
 50th %ile Actuated Cycle: 74.4  
 30th %ile Actuated Cycle: 67.2  
 10th %ile Actuated Cycle: 58.1

## Queues

2016 Existing

## 2: Geechie Rd/Driveway &amp; US 21 Sea Island Pkwy

PM Peak


















|                         | →    | ↘    | ←    | ↑    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | WBL  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 1051 | 22   | 721  | 86   | 6    |
| v/c Ratio               | 0.91 | 0.06 | 0.59 | 0.23 | 0.01 |
| Control Delay           | 25.8 | 4.0  | 9.2  | 26.2 | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 25.8 | 4.0  | 9.2  | 26.2 | 0.0  |
| Queue Length 50th (ft)  | 353  | 3    | 171  | 19   | 0    |
| Queue Length 95th (ft)  | 742  | 9    | 239  | 83   | 0    |
| Internal Link Dist (ft) | 1321 |      | 417  | 377  | 79   |
| Turn Bay Length (ft)    |      | 200  |      |      |      |
| Base Capacity (vph)     | 1635 | 349  | 1701 | 370  | 407  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.64 | 0.06 | 0.42 | 0.23 | 0.01 |
| Intersection Summary    |      |      |      |      |      |



# HCM Signalized Intersection Capacity Analysis

## 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2016 Existing  
PM Peak



















|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (vph)              | 2   | 929   | 15  | 20  | 643   | 6   | 40  | 1   | 37  | 4   | 0   | 2   |
| Future Volume (vph)               | 2   | 929   | 15  | 20  | 643   | 6   | 40  | 1   | 37  | 4   | 0   | 2   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |   | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |   | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 1.00  |   | 1.00  | 1.00  |   |   | 0.94  |   |   | 0.95  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |   | 0.98  |   |   | 0.97  |   |
| Satd. Flow (prot)                 |   | 1859  |   | 1770  | 1860  |   |   | 1699  |   |   | 1722  |   |
| Flt Permitted                     |   | 1.00  |   | 0.21  | 1.00  |   |   | 0.86  |   |   | 0.90  |   |
| Satd. Flow (perm)                 |   | 1857  |   | 399   | 1860  |   |   | 1507  |   |   | 1593  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 2   | 1032  | 17  | 22  | 714   | 7   | 44  | 1   | 41  | 4   | 0   | 2   |
| RTOR Reduction (vph)              | 0   | 1   | 0   | 0   | 0   | 0   | 0   | 26  | 0   | 0   | 5   | 0   |
| Lane Group Flow (vph)             | 0   | 1050  | 0   | 22  | 721   | 0   | 0   | 60  | 0   | 0   | 1   | 0   |
| Turn Type                         | Perm  | NA  |   | pm+pt   | NA  |   | Perm  | NA  |   | Perm  | NA  |   |
| Protected Phases                  |   | 4   |   | 3   | 8   |   |   | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2   |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 52.9  |   | 58.9  | 58.9  |   |   | 19.3  |   |   | 19.3  |   |
| Effective Green, g (s)            |   | 52.9  |   | 58.9  | 58.9  |   |   | 19.3  |   |   | 19.3  |   |
| Actuated g/C Ratio                |   | 0.61  |   | 0.68  | 0.68  |   |   | 0.22  |   |   | 0.22  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |   | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |   | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 1126  |   | 293   | 1256  |   |   | 333   |   |   | 352   |   |
| v/s Ratio Prot                    |   |   |   | 0.00  | c0.39   |   |   |   |   |   |   |   |
| v/s Ratio Perm                    |   | c0.57   |   | 0.05  |   |   |   | c0.04   |   |   | 0.00  |   |
| v/c Ratio                         |   | 0.93  |   | 0.08  | 0.57  |   |   | 0.18  |   |   | 0.00  |   |
| Uniform Delay, d1                 |   | 15.5  |   | 7.4   | 7.5   |   |   | 27.5  |   |   | 26.5  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |   | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 13.6  |   | 0.1   | 0.6   |   |   | 1.2   |   |   | 0.0   |   |
| Delay (s)                         |   | 29.1  |   | 7.5   | 8.1   |   |   | 28.7  |   |   | 26.5  |   |
| Level of Service                  |   | C   |   | A   | A   |   |   | C   |   |   | C   |   |
| Approach Delay (s)                |   | 29.1  |   |   | 8.1   |   |   | 28.7  |   |   | 26.5  |   |
| Approach LOS                      |   | C   |   |   | A   |   |   | C   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 20.8  |   |   | HCM 2000 Level of Service   |   |   |   | C   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.74  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 87.2  |   |   | Sum of lost time (s)  |   |   | 13.5  |   |   |   |
| Intersection Capacity Utilization |   |   | 63.8%   |   |   | ICU Level of Service  |   |   | B   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy


















2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|--|--|--|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |  |  |  |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |   |  |  |  |
| Traffic Volume (veh/h)            | 108   | 828   | 22  | 16  | 615   | 27  | 1  | 0   | 40  | 7   | 0   | 58  |  |  |  |
| Future Volume (Veh/h)             | 108   | 828   | 22  | 16  | 615   | 27  | 1  | 0   | 40  | 7   | 0   | 58  |  |  |  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |  |  |  |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |  |  |  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |  |  |  |
| Hourly flow rate (vph)            | 120   | 920   | 24  | 18  | 683   | 30  | 1  | 0   | 44  | 8   | 0   | 64  |  |  |  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |
| Median type                       | None  |   |   |   | TWLTL   |   |  |   |   |   |   |   |  |  |  |
| Median storage veh                |   |   |   |   | 2   |   |  |   |   |   |   |   |  |  |  |
| Upstream signal (ft)              | 497   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |
| pX, platoon unblocked             |   |   |   | 0.46  |   |   | 0.46   |   |   | 0.46  |   |   |  |  |  |
| vC, conflicting volume            | 713   |   |   | 944   |   |   | 1955   |   |   | 1921  |   |   |  |  |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1172   |   |   | 1172  |   |   |  |  |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 783  |   |   | 749   |   |   |  |  |  |
| vCu, unblocked vol                | 713   |   |   | 287   |   |   | 2493   |   |   | 2419  |   |   |  |  |  |
| tC, single (s)                    | 4.1   |   |   | 4.2   |   |   | 7.1  |   |   | 6.5   |   |   |  |  |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1  |   |   | 5.5   |   |   |  |  |  |
| tF (s)                            | 2.2   |   |   | 2.3   |   |   | 3.5  |   |   | 4.0   |   |   |  |  |  |
| p0 queue free %                   | 86  |   |   | 97  |   |   | 99   |   |   | 100   |   |   |  |  |  |
| cM capacity (veh/h)               | 887   |   |   | 574   |   |   | 114  |   |   | 133   |   |   |  |  |  |
|                                   |   |   |   |   |   |   | 355  |   |   | 98  |   |   |  |  |  |
|                                   |   |   |   |   |   |   |  |   |   | 126   |   |   |  |  |  |
|                                   |   |   |   |   |   |   |  |   |   | 440   |   |   |  |  |  |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | NE 1  | SW 1  |  |   |   |   |   |   |  |  |  |
| Volume Total                      | 120   | 944   | 18  | 713   | 45  | 72  |  |   |   |   |   |   |  |  |  |
| Volume Left                       | 120   | 0   | 18  | 0   | 1   | 8   |  |   |   |   |   |   |  |  |  |
| Volume Right                      | 0   | 24  | 0   | 30  | 44  | 64  |  |   |   |   |   |   |  |  |  |
| cSH                               | 887   | 1700  | 574   | 1700  | 340   | 317   |  |   |   |   |   |   |  |  |  |
| Volume to Capacity                | 0.14  | 0.56  | 0.03  | 0.42  | 0.13  | 0.23  |  |   |   |   |   |   |  |  |  |
| Queue Length 95th (ft)            | 12  | 0   | 2   | 0   | 11  | 21  |  |   |   |   |   |   |  |  |  |
| Control Delay (s)                 | 9.7   | 0.0   | 11.5  | 0.0   | 17.2  | 19.7  |  |   |   |   |   |   |  |  |  |
| Lane LOS                          | A   |   | B   |   | C   | C   |  |   |   |   |   |   |  |  |  |
| Approach Delay (s)                | 1.1   |   | 0.3   |   | 17.2  | 19.7  |  |   |   |   |   |   |  |  |  |
| Approach LOS                      |   |   |   |   | C   | C   |  |   |   |   |   |   |  |  |  |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |  |  |  |
| Average Delay                     |   |   |   | 1.9   |   |   |  |   |   |   |   |   |  |  |  |
| Intersection Capacity Utilization |   |   |   | 65.9%   |   |   | ICU Level of Service   |   |   | C   |   |   |  |  |  |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |  |  |  |

# HCM Unsignalized Intersection Capacity Analysis

## 4: Youmans Dr/Driveway & US 21 Sea Island Pkwy

2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |      |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |      |
| Traffic Volume (veh/h)            | 3   | 896   | 16  | 60  | 685   | 5   | 13   | 1   | 94  | 4   | 1   | 7   |      |
| Future Volume (Veh/h)             | 3   | 896   | 16  | 60  | 685   | 5   | 13   | 1   | 94  | 4   | 1   | 7   |      |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |      |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |      |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |
| Hourly flow rate (vph)            | 3   | 996   | 18  | 67  | 761   | 6   | 14   | 1   | 104   | 4   | 1   | 8   |      |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Median type                       | TWLTL   |   |   | None  |   |   |  |   |   |   |   |   |      |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |      |
| Upstream signal (ft)              | 1218  |   |   |   |   |   |  |   |   |   |   |   |      |
| pX, platoon unblocked             |   |   |   | 0.46  |   |   | 0.46   |   |   | 0.46  | 0.46  | 0.46  |      |
| vC, conflicting volume            | 767   |   |   |   | 1014  |   |  | 1914  |   |   | 1912  | 1005  | 2014 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1011   |   |   | 1011  | 898   |   | 898  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 904  |   |   | 901   | 1116  |   | 1020 |
| vCu, unblocked vol                | 767   |   |   |   | 439   |   |  | 2405  |   |   | 2399  | 420   | 2621 |
| tC, single (s)                    | 4.1   |   |   |   | 4.2   |   |  | 7.1   |   |   | 6.5   | 6.2   | 7.1  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1  |   |   | 5.5   | 6.1   |   | 5.5  |
| tF (s)                            | 2.2   |   |   |   | 2.3   |   |  | 3.5   |   |   | 4.0   | 3.3   | 3.5  |
| p0 queue free %                   | 100   |   |   |   | 86  |   |  | 92  |   |   | 99  | 64  | 93   |
| cM capacity (veh/h)               | 847   |   |   |   | 495   |   |  | 182   |   |   | 189   | 290   | 61   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NE 1  | SW 1  |   |  |   |   |   |   |   |      |
| Volume Total                      | 1017  | 67  | 767   | 119   | 13  |   |  |   |   |   |   |   |      |
| Volume Left                       | 3   | 67  | 0   | 14  | 4   |   |  |   |   |   |   |   |      |
| Volume Right                      | 18  | 0   | 6   | 104   | 8   |   |  |   |   |   |   |   |      |
| cSH                               | 847   | 495   | 1700  | 270   | 142   |   |  |   |   |   |   |   |      |
| Volume to Capacity                | 0.00  | 0.14  | 0.45  | 0.44  | 0.09  |   |  |   |   |   |   |   |      |
| Queue Length 95th (ft)            | 0   | 12  | 0   | 53  | 7   |   |  |   |   |   |   |   |      |
| Control Delay (s)                 | 0.1   | 13.4  | 0.0   | 28.4  | 32.9  |   |  |   |   |   |   |   |      |
| Lane LOS                          | A   | B   |   | D   | D   |   |  |   |   |   |   |   |      |
| Approach Delay (s)                | 0.1   | 1.1   |   | 28.4  | 32.9  |   |  |   |   |   |   |   |      |
| Approach LOS                      |   |   |   | D   | D   |   |  |   |   |   |   |   |      |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Average Delay                     |   |   |   | 2.4   |   |   |  |   |   |   |   |   |      |
| Intersection Capacity Utilization |   |   |   | 64.2%   |   | ICU Level of Service  |  |   |   | C   |   |   |      |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |      |

# HCM Unsignalized Intersection Capacity Analysis

## 5: US 21 Sea Island Pkwy & Professional Village Cir

2016 Existing  
PM Peak























| Movement                          | EBL  | EBT  | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations               |      | ↔↗   | ↔↗    |      | ↔↗                   | ↔↗   |
| Traffic Volume (veh/h)            | 14   | 1012 | 725   | 31   | 35                   | 43   |
| Future Volume (Veh/h)             | 14   | 1012 | 725   | 31   | 35                   | 43   |
| Sign Control                      |      | Free | Free  |      | Stop                 |      |
| Grade                             |      | 0%   | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 16   | 1124 | 806   | 34   | 39                   | 48   |
| Pedestrians                       |      |      |       |      |                      |      |
| Lane Width (ft)                   |      |      |       |      |                      |      |
| Walking Speed (ft/s)              |      |      |       |      |                      |      |
| Percent Blockage                  |      |      |       |      |                      |      |
| Right turn flare (veh)            |      |      |       |      |                      |      |
| Median type                       |      | None | None  |      |                      |      |
| Median storage (veh)              |      |      |       |      |                      |      |
| Upstream signal (ft)              |      |      | 681   |      |                      |      |
| pX, platoon unblocked             | 0.94 |      |       |      | 0.94                 | 0.94 |
| vC, conflicting volume            | 840  |      |       |      | 1417                 | 420  |
| vC1, stage 1 conf vol             |      |      |       |      |                      |      |
| vC2, stage 2 conf vol             |      |      |       |      |                      |      |
| vCu, unblocked vol                | 709  |      |       |      | 1321                 | 264  |
| tC, single (s)                    | 4.1  |      |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |      |                      |      |
| tF (s)                            | 2.2  |      |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 98   |      |       |      | 72                   | 93   |
| cM capacity (veh/h)               | 835  |      |       |      | 137                  | 693  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | SB 1                 | SB 2 |
| Volume Total                      | 391  | 749  | 537   | 303  | 39                   | 48   |
| Volume Left                       | 16   | 0    | 0     | 0    | 39                   | 0    |
| Volume Right                      | 0    | 0    | 0     | 34   | 0                    | 48   |
| cSH                               | 835  | 1700 | 1700  | 1700 | 137                  | 693  |
| Volume to Capacity                | 0.02 | 0.44 | 0.32  | 0.18 | 0.28                 | 0.07 |
| Queue Length 95th (ft)            | 1    | 0    | 0     | 0    | 27                   | 6    |
| Control Delay (s)                 | 0.6  | 0.0  | 0.0   | 0.0  | 41.5                 | 10.6 |
| Lane LOS                          | A    |      |       |      | E                    | B    |
| Approach Delay (s)                | 0.2  |      | 0.0   |      | 24.4                 |      |
| Approach LOS                      |      |      |       |      | C                    |      |
| Intersection Summary              |      |      |       |      |                      |      |
| Average Delay                     |      |      | 1.1   |      |                      |      |
| Intersection Capacity Utilization |      |      | 47.9% |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |

# Timings

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

2016 Existing

PM Peak

|                      |  |  |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | NER  | SWL   | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 430   | 494   | 315   | 293   | 123   | 667   | 404  | 139   | 414   | 345   |
| Future Volume (vph)  | 430   | 494   | 315   | 293   | 123   | 667   | 404  | 139   | 414   | 345   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | NA  | pm+ov  | pm+pt   | NA  | Perm  |
| Protected Phases     | 5   | 2   | 1   | 6   | 3   | 8   | 1  | 7   | 4   |   |
| Permitted Phases     | 2   |   | 6   |   | 8   |   | 8  | 4   |   | 4   |
| Detector Phase       | 5   | 2   | 1   | 6   | 3   | 8   | 1  | 7   | 4   | 4   |
| Switch Phase         |   |   |   |   |   |   |  |   |   |   |
| Minimum Initial (s)  | 6.0   | 25.0  | 6.0   | 25.0  | 6.0   | 15.0  | 6.0  | 6.0   | 15.0  | 15.0  |
| Minimum Split (s)    | 13.3  | 43.0  | 13.3  | 39.0  | 12.3  | 42.3  | 13.3   | 13.3  | 43.3  | 43.3  |
| Total Split (s)      | 19.0  | 43.4  | 16.0  | 40.4  | 12.3  | 42.3  | 16.0   | 13.3  | 43.3  | 43.3  |
| Total Split (%)      | 16.5%   | 37.7%   | 13.9%   | 35.1%   | 10.7%   | 36.8%   | 13.9%  | 11.6%   | 37.7%   | 37.7%   |
| Yellow Time (s)      | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3   | 4.0  | 4.0   | 4.3   | 4.3   |
| All-Red Time (s)     | 3.3   | 2.0   | 3.3   | 2.0   | 2.3   | 2.0   | 3.3  | 2.3   | 2.0   | 2.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 7.3   | 6.0   | 7.3   | 6.0   | 6.3   | 6.3   | 7.3  | 6.3   | 6.3   | 6.3   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | Max   | None  | None  | None   | None  | Max   | Max   |
| Act Effct Green (s)  | 47.8  | 37.4  | 41.8  | 34.4  | 42.0  | 36.0  | 51.0   | 44.0  | 37.0  | 37.0  |
| Actuated g/C Ratio   | 0.42  | 0.33  | 0.36  | 0.30  | 0.37  | 0.31  | 0.44   | 0.38  | 0.32  | 0.32  |
| v/c Ratio            | 1.16  | 0.59  | 1.24  | 0.40  | 0.61  | 0.67  | 0.58   | 0.68  | 0.77  | 0.50  |
| Control Delay        | 123.6   | 33.7  | 161.8   | 30.9  | 34.6  | 37.9  | 19.7   | 38.3  | 45.1  | 5.3   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay          | 123.6   | 33.7  | 161.8   | 30.9  | 34.6  | 37.9  | 19.7   | 38.3  | 45.1  | 5.3   |
| LOS                  | F   | C   | F   | C   | C   | D   | B  | D   | D   | A   |
| Approach Delay       |   | 71.2  |   | 90.7  |   | 31.4  |  |   | 28.7  |   |
| Approach LOS         |   | E   |   | F   |   | C   |  |   | C   |   |

### Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 52.3









Intersection LOS: D

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy











|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4  |
| 16 s   | 43.4 s   | 12.3 s   | 43.3 s   |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 19 s   | 40.4 s   | 13.3 s   | 42.3 s   |

## Phasings

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

2016 Existing

PM Peak

|                         |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | NER  | SWL   | SWT   | SWR   |
| Protected Phases        | 5   | 2   | 1   | 6   | 3   | 8   | 1  | 7   | 4   |   |
| Permitted Phases        | 2   |   | 6   |   | 8   |   | 8  | 4   |   | 4   |
| Minimum Initial (s)     | 6.0   | 25.0  | 6.0   | 25.0  | 6.0   | 15.0  | 6.0  | 6.0   | 15.0  | 15.0  |
| Minimum Split (s)       | 13.3  | 43.0  | 13.3  | 39.0  | 12.3  | 42.3  | 13.3   | 13.3  | 43.3  | 43.3  |
| Total Split (s)         | 19.0  | 43.4  | 16.0  | 40.4  | 12.3  | 42.3  | 16.0   | 13.3  | 43.3  | 43.3  |
| Total Split (%)         | 16.5%   | 37.7%   | 13.9%   | 35.1%   | 10.7%   | 36.8%   | 13.9%  | 11.6%   | 37.7%   | 37.7%   |
| Maximum Green (s)       | 11.7  | 37.4  | 8.7   | 34.4  | 6.0   | 36.0  | 8.7  | 7.0   | 37.0  | 37.0  |
| Yellow Time (s)         | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3   | 4.0  | 4.0   | 4.3   | 4.3   |
| All-Red Time (s)        | 3.3   | 2.0   | 3.3   | 2.0   | 2.3   | 2.0   | 3.3  | 2.3   | 2.0   | 2.0   |
| Lead/Lag                | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?      | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   |
| Vehicle Extension (s)   | 3.0   | 3.5   | 3.0   | 3.5   | 3.0   | 3.5   | 3.0  | 3.0   | 3.5   | 3.5   |
| Minimum Gap (s)         | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0  | 3.0   | 3.0   | 3.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Recall Mode             | None  | Min   | None  | Max   | None  | None  | None   | None  | Max   | Max   |
| Walk Time (s)           |   | 5.0   |   | 5.0   |   | 5.0   |  |   | 5.0   | 5.0   |
| Flash Dont Walk (s)     |   | 32.0  |   | 28.0  |   | 31.0  |  |   | 28.0  | 28.0  |
| Pedestrian Calls (#/hr) |   | 0   |   | 0   |   | 0   |  |   | 0   | 0   |
| 90th %ile Green (s)     | 11.7  | 37.4  | 8.7   | 34.4  | 6.0   | 36.0  | 8.7  | 7.0   | 37.0  | 37.0  |
| 90th %ile Term Code     | Max   | Hold  | Max   | MaxR  | Max   | Max   | Max  | Max   | MaxR  | MaxR  |
| 70th %ile Green (s)     | 11.7  | 37.4  | 8.7   | 34.4  | 6.0   | 36.0  | 8.7  | 7.0   | 37.0  | 37.0  |
| 70th %ile Term Code     | Max   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |
| 50th %ile Green (s)     | 11.7  | 37.4  | 8.7   | 34.4  | 6.0   | 36.0  | 8.7  | 7.0   | 37.0  | 37.0  |
| 50th %ile Term Code     | Max   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |
| 30th %ile Green (s)     | 11.7  | 37.4  | 8.7   | 34.4  | 6.0   | 36.0  | 8.7  | 7.0   | 37.0  | 37.0  |
| 30th %ile Term Code     | Max   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |
| 10th %ile Green (s)     | 11.7  | 37.4  | 8.7   | 34.4  | 6.0   | 36.0  | 8.7  | 7.0   | 37.0  | 37.0  |
| 10th %ile Term Code     | Max   | Hold  | Max   | MaxR  | Max   | Hold  | Max  | Max   | MaxR  | MaxR  |

## Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 115

70th %ile Actuated Cycle: 115

50th %ile Actuated Cycle: 115

30th %ile Actuated Cycle: 115











10th %ile Actuated Cycle: 115

## Queues

2016 Existing

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

PM Peak

|                         |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | NER  | SWL   | SWT   | SWR   |
| Lane Group Flow (vph)   | 478   | 670   | 350   | 416   | 137   | 741   | 449  | 154   | 460   | 383   |
| v/c Ratio               | 1.16  | 0.59  | 1.24  | 0.40  | 0.61  | 0.67  | 0.58   | 0.68  | 0.77  | 0.50  |
| Control Delay           | 123.6   | 33.7  | 161.8   | 30.9  | 34.6  | 37.9  | 19.7   | 38.3  | 45.1  | 5.3   |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |
| Total Delay             | 123.6   | 33.7  | 161.8   | 30.9  | 34.6  | 37.9  | 19.7   | 38.3  | 45.1  | 5.3   |
| Queue Length 50th (ft)  | ~324  | 209   | ~234  | 118   | 62  | 250   | 169  | 70  | 305   | 0   |
| Queue Length 95th (ft)  | #590  | 271   | #439  | 165   | 105   | 318   | 275  | #127  | 433   | 68  |
| Internal Link Dist (ft) |   | 376   |   | 679   |   | 587   |  |   | 543   |   |
| Turn Bay Length (ft)    | 200   |   | 350   |   | 350   |   | 550  | 460   |   |   |
| Base Capacity (vph)     | 412   | 1136  | 282   | 1046  | 226   | 1107  | 776  | 228   | 599   | 769   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   |
| Reduced v/c Ratio       | 1.16  | 0.59  | 1.24  | 0.40  | 0.61  | 0.67  | 0.58   | 0.68  | 0.77  | 0.50  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.























# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

2016 Existing  
PM Peak





















|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL   | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 430   | 494   | 109   | 315   | 293   | 81  | 123   | 667   | 404   | 139   | 414   | 345   |
| Future Volume (vph)               | 430   | 494   | 109   | 315   | 293   | 81  | 123   | 667   | 404   | 139   | 414   | 345   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 7.3   | 6.0   |   | 7.3   | 6.0   |   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  |   | 1.00  | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 1.00  | 0.97  |   | 1.00  | 0.97  |   | 1.00  | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  |   | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  |
| Satd. Flow (prot)                 | 1770  | 3443  |   | 1752  | 3424  |   | 1770  | 3539  | 1583  | 1752  | 1863  | 1583  |
| Flt Permitted                     | 0.40  | 1.00  |   | 0.28  | 1.00  |   | 0.23  | 1.00  | 1.00  | 0.20  | 1.00  | 1.00  |
| Satd. Flow (perm)                 | 740   | 3443  |   | 521   | 3424  |   | 426   | 3539  | 1583  | 377   | 1863  | 1583  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 478   | 549   | 121   | 350   | 326   | 90  | 137   | 741   | 449   | 154   | 460   | 383   |
| RTOR Reduction (vph)              | 0   | 16  | 0   | 0   | 22  | 0   | 0   | 0   | 82  | 0   | 0   | 260   |
| Lane Group Flow (vph)             | 478   | 654   | 0   | 350   | 394   | 0   | 137   | 741   | 367   | 154   | 460   | 123   |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 3%  | 2%  | 2%  | 2%  | 2%  | 2%  | 3%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt   | NA  | pm+ov   | pm+pt   | NA  | Perm  |
| Protected Phases                  | 5   | 2   |   | 1   | 6   |   | 3   | 8   | 1   | 7   | 4   |   |
| Permitted Phases                  | 2   |   |   | 6   |   |   | 8   |   | 8   | 4   |   | 4   |
| Actuated Green, G (s)             | 49.1  | 37.4  |   | 43.1  | 34.4  |   | 42.0  | 36.0  | 44.7  | 44.0  | 37.0  | 37.0  |
| Effective Green, g (s)            | 49.1  | 37.4  |   | 43.1  | 34.4  |   | 42.0  | 36.0  | 44.7  | 44.0  | 37.0  | 37.0  |
| Actuated g/C Ratio                | 0.43  | 0.33  |   | 0.37  | 0.30  |   | 0.37  | 0.31  | 0.39  | 0.38  | 0.32  | 0.32  |
| Clearance Time (s)                | 7.3   | 6.0   |   | 7.3   | 6.0   |   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Vehicle Extension (s)             | 3.0   | 3.5   |   | 3.0   | 3.5   |   | 3.0   | 3.5   | 3.0   | 3.0   | 3.5   | 3.5   |
| Lane Grp Cap (vph)                | 420   | 1119  |   | 288   | 1024  |   | 225   | 1107  | 615   | 227   | 599   | 509   |
| v/s Ratio Prot                    | c0.12   | 0.19  |   | 0.09  | 0.12  |   | 0.03  | 0.21  | 0.05  | c0.04   | c0.25   |   |
| v/s Ratio Perm                    | c0.37   |   |   | 0.36  |   |   | 0.19  |   | 0.19  | 0.22  |   | 0.08  |
| v/c Ratio                         | 1.14  | 0.58  |   | 1.22  | 0.39  |   | 0.61  | 0.67  | 0.60  | 0.68  | 0.77  | 0.24  |
| Uniform Delay, d1                 | 30.6  | 32.3  |   | 33.0  | 31.9  |   | 27.3  | 34.3  | 28.0  | 25.6  | 35.1  | 28.7  |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Incremental Delay, d2             | 87.3  | 0.8   |   | 124.4   | 1.1   |   | 4.6   | 1.6   | 1.6   | 7.8   | 9.1   | 1.1   |
| Delay (s)                         | 117.9   | 33.2  |   | 157.4   | 33.0  |   | 32.0  | 35.9  | 29.5  | 33.4  | 44.3  | 29.8  |
| Level of Service                  | F   | C   |   | F   | C   |   | C   | D   | C   | C   | D   | C   |
| Approach Delay (s)                |   | 68.4  |   |   | 89.8  |   |   | 33.4  |   |   | 37.0  |   |
| Approach LOS                      |   | E   |   |   | F   |   |   | C   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 53.9  |   |   |   | HCM 2000 Level of Service   |   |   | D   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.00  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 115.0   |   |   |   | Sum of lost time (s)  |   | 25.9  |   |   |   |
| Intersection Capacity Utilization |   |   | 93.8%   |   |   |   | ICU Level of Service  |   | F   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |   |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 7: Driveway/Sams Point Way & US 21 Sea Island Pkwy




















2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|------|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |      |
| Lane Configurations               |  |  |   |  |  |   |   |  |  |   |  |  |      |
| Traffic Volume (veh/h)            | 157   | 792   | 31  | 31  | 590   | 34  | 10  | 11  | 58  | 10  | 2   | 102   |      |
| Future Volume (Veh/h)             | 157   | 792   | 31  | 31  | 590   | 34  | 10  | 11  | 58  | 10  | 2   | 102   |      |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |      |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |      |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |
| Hourly flow rate (vph)            | 174   | 880   | 34  | 34  | 656   | 38  | 11  | 12  | 64  | 11  | 2   | 113   |      |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |      |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |      |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |      |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |      |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   | 10  |      |
| Median type                       | None  |   |   | TWLTL   |   |   |   |   |   |   |   |   |      |
| Median storage veh                | 2   |   |   |   |   |   |   |   |   |   |   |   |      |
| Upstream signal (ft)              | 759   |   |   |   |   |   |   |   |   |   |   |   |      |
| pX, platoon unblocked             |   |   |   | 0.90  |   |   | 0.90  |   |   | 0.90  | 0.90  | 0.90  |      |
| vC, conflicting volume            | 694   |   |   |   | 914   |   |   |   |   | 1642  | 2007  | 457   | 1601 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1245  |   |   | 1245  |   |   | 743  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 397   |   |   | 762   |   |   | 858  |
| vCu, unblocked vol                | 694   |   |   |   | 683   |   |   |   |   | 1491  | 1897  | 175   | 1446 |
| tC, single (s)                    | 4.1   |   |   |   | 4.1   |   |   |   |   | 7.5   | 6.5   | 6.9   | 7.5  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5   |   |   | 5.5   |   |   | 6.5  |
| tF (s)                            | 2.2   |   |   |   | 2.2   |   |   |   |   | 3.5   | 4.0   | 3.3   | 3.5  |
| p0 queue free %                   | 81  |   |   |   | 96  |   |   |   |   | 93  | 92  | 92  | 95   |
| cM capacity (veh/h)               | 897   |   |   |   | 816   |   |   |   |   | 154   | 159   | 754   | 203  |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | NB 2  | SB 1  |   |   |   |      |
| Volume Total                      | 174   | 587   | 327   | 34  | 437   | 257   | 23  | 64  | 126   |   |   |   |      |
| Volume Left                       | 174   | 0   | 0   | 34  | 0   | 0   | 11  | 0   | 11  |   |   |   |      |
| Volume Right                      | 0   | 0   | 34  | 0   | 0   | 38  | 0   | 64  | 113   |   |   |   |      |
| cSH                               | 897   | 1700  | 1700  | 816   | 1700  | 1700  | 157   | 754   | 724   |   |   |   |      |
| Volume to Capacity                | 0.19  | 0.35  | 0.19  | 0.04  | 0.26  | 0.15  | 0.15  | 0.08  | 0.17  |   |   |   |      |
| Queue Length 95th (ft)            | 18  | 0   | 0   | 3   | 0   | 0   | 13  | 7   | 16  |   |   |   |      |
| Control Delay (s)                 | 10.0  | 0.0   | 0.0   | 9.6   | 0.0   | 0.0   | 31.9  | 10.2  | 13.0  |   |   |   |      |
| Lane LOS                          | A   |   |   |   | A   |   | D   |   |   | B   | B   |   |      |
| Approach Delay (s)                | 1.6   |   |   |   | 0.4   |   | 15.9  |   |   | 13.0  |   |   |      |
| Approach LOS                      |   |   |   |   |   |   | C   |   |   | B   |   |   |      |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |      |
| Average Delay                     |   |   |   | 2.5   |   |   |   |   |   |   |   |   |      |
| Intersection Capacity Utilization |   |   |   | 44.0%   |   |   | ICU Level of Service  |   |   | A   |   |   |      |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |      |

# HCM Unsignalized Intersection Capacity Analysis

## 8: Ferry Drive/Driveway & US 21 Sea Island Pkwy


















2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |  |  |
| Lane Configurations               |  |  |   |  |  |   |   |  |   |   |  |  |  |  |
| Traffic Volume (veh/h)            | 69  | 793   | 9   | 8   | 601   | 56  | 3   | 3   | 20  | 102   | 1   | 46  |  |  |
| Future Volume (Veh/h)             | 69  | 793   | 9   | 8   | 601   | 56  | 3   | 3   | 20  | 102   | 1   | 46  |  |  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |  |  |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |  |  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |  |  |
| Hourly flow rate (vph)            | 77  | 881   | 10  | 9   | 668   | 62  | 3   | 3   | 22  | 113   | 1   | 51  |  |  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| Median type                       | TWLTL   |   |   | TWLTL   |   |   |   |   |   |   |   |   |  |  |
| Median storage veh)               | 2   |   |   | 2   |   |   |   |   |   |   |   |   |  |  |
| Upstream signal (ft)              | 1208  |   |   |   |   |   |   |   |   |   |   |   |  |  |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| vC, conflicting volume            | 730   |   |   | 891   |   |   | 1444  | 1788  | 446   | 1335  | 1762  | 365   |  |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1040  | 1040  |   |   | 717   | 717   |  |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 404   | 748   |   |   | 618   | 1045  |  |  |
| vCu, unblocked vol                | 730   |   |   | 891   |   |   | 1444  | 1788  | 446   | 1335  | 1762  | 365   |  |  |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   |  |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5   | 5.5   |   |   | 6.5   | 5.5   |  |  |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |  |  |
| p0 queue free %                   | 91  |   |   | 99  |   |   | 99  | 99  | 96  | 59  | 100   | 92  |  |  |
| cM capacity (veh/h)               | 870   |   |   | 757   |   |   | 206   | 220   | 560   | 278   | 231   | 632   |  |  |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  | SB 2  |   |   |   |  |  |
| Volume Total                      | 77  | 587   | 304   | 9   | 445   | 285   | 28  | 114   | 51  |   |   |   |  |  |
| Volume Left                       | 77  | 0   | 0   | 9   | 0   | 0   | 3   | 113   | 0   |   |   |   |  |  |
| Volume Right                      | 0   | 0   | 10  | 0   | 0   | 62  | 22  | 0   | 51  |   |   |   |  |  |
| cSH                               | 870   | 1700  | 1700  | 757   | 1700  | 1700  | 415   | 278   | 632   |   |   |   |  |  |
| Volume to Capacity                | 0.09  | 0.35  | 0.18  | 0.01  | 0.26  | 0.17  | 0.07  | 0.41  | 0.08  |   |   |   |  |  |
| Queue Length 95th (ft)            | 7   | 0   | 0   | 1   | 0   | 0   | 5   | 48  | 7   |   |   |   |  |  |
| Control Delay (s)                 | 9.5   | 0.0   | 0.0   | 9.8   | 0.0   | 0.0   | 14.3  | 26.7  | 11.2  |   |   |   |  |  |
| Lane LOS                          | A   |   |   | A   |   |   | B   | D   | B   |   |   |   |  |  |
| Approach Delay (s)                | 0.8   |   |   | 0.1   |   |   | 14.3  | 21.9  |   |   |   |   |  |  |
| Approach LOS                      |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |
| Average Delay                     |   |   |   | 2.5   |   |   |   |   |   |   |   |   |  |  |
| Intersection Capacity Utilization |   |   |   | 47.9%   | ICU Level of Service  |   |   |   | A   |   |   |   |  |  |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |  |  |

# HCM Unsignalized Intersection Capacity Analysis

## 9: Gay Dr & US 21 Sea Island Pkwy




















2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 2   | 923   | 4   | 3   | 671   | 0   | 7   | 0   | 1   | 0   | 0   | 2   |
| Future Volume (Veh/h)             | 2   | 923   | 4   | 3   | 671   | 0   | 7   | 0   | 1   | 0   | 0   | 2   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 2   | 1026  | 4   | 3   | 746   | 0   | 8   | 0   | 1   | 0   | 0   | 2   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   | None  |   |   |   |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 746   |   |   | 1030  |   |   | 1413  | 1784  | 515   | 1270  | 1786  | 373   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1032  | 1032  |   | 752   | 752   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 381   | 752   |   | 518   | 1034  |   |
| vCu, unblocked vol                | 746   |   |   | 1030  |   |   | 1413  | 1784  | 515   | 1270  | 1786  | 373   |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 100   |   |   | 97  | 100   | 100   | 100   | 100   | 100   |
| cM capacity (veh/h)               | 858   |   |   | 670   |   |   | 233   | 252   | 505   | 311   | 250   | 624   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |   |   |   |   |
| Volume Total                      | 515   | 517   | 3   | 497   | 249   | 9   | 2   |   |   |   |   |   |
| Volume Left                       | 2   | 0   | 3   | 0   | 0   | 8   | 0   |   |   |   |   |   |
| Volume Right                      | 0   | 4   | 0   | 0   | 0   | 1   | 2   |   |   |   |   |   |
| cSH                               | 858   | 1700  | 670   | 1700  | 1700  | 248   | 624   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.30  | 0.00  | 0.29  | 0.15  | 0.04  | 0.00  |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 0   | 3   | 0   |   |   |   |   |   |
| Control Delay (s)                 | 0.1   | 0.0   | 10.4  | 0.0   | 0.0   | 20.1  | 10.8  |   |   |   |   |   |
| Lane LOS                          | A   |   | B   |   |   | C   | B   |   |   |   |   |   |
| Approach Delay (s)                | 0.0   |   | 0.0   |   |   | 20.1  | 10.8  |   |   |   |   |   |
| Approach LOS                      |   |   |   |   |   | C   | B   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 0.1   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 39.8%   |   |   | ICU Level of Service  |   |   | A   |   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 10: Cougar Dr & US 21 Sea Island Pkwy










2016 Existing  
PM Peak

|                                   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |  |  |  |  |
| Lane Configurations               |  |  |   |  |  |   |   |  |   |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 6   | 897   | 2   | 3   | 634   | 2   | 7   | 0   | 4   | 5   | 0   | 20  |  |  |  |  |
| Future Volume (Veh/h)             | 6   | 897   | 2   | 3   | 634   | 2   | 7   | 0   | 4   | 5   | 0   | 20  |  |  |  |  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |  |  |  |  |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |  |  |  |  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |  |  |  |  |
| Hourly flow rate (vph)            | 7   | 997   | 2   | 3   | 704   | 2   | 8   | 0   | 4   | 6   | 0   | 22  |  |  |  |  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   | 12  |  |  |  |  |
| Median type                       | None  |   |   |   |   | None  |   |   |   |   |   |   |  |  |  |  |
| Median storage (veh)              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| vC, conflicting volume            | 706   |   |   | 999   |   |   | 1370  | 1724  | 500   | 1228  | 1724  | 353   |  |  |  |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| vCu, unblocked vol                | 706   |   |   | 999   |   |   | 1370  | 1724  | 500   | 1228  | 1724  | 353   |  |  |  |  |
| tC, single (s)                    | 4.8   |   |   | 4.1   |   |   | 7.5   | 6.5   | 7.9   | 7.9   | 6.5   | 7.1   |  |  |  |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| tF (s)                            | 2.5   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.8   | 3.7   | 4.0   | 3.4   |  |  |  |  |
| p0 queue free %                   | 99  |   |   | 100   |   |   | 92  | 100   | 99  | 95  | 100   | 96  |  |  |  |  |
| cM capacity (veh/h)               | 710   |   |   | 689   |   |   | 100   | 87  | 407   | 113   | 87  | 621   |  |  |  |  |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |   |   |   |  |  |  |  |
| Volume Total                      | 7   | 665   | 334   | 3   | 469   | 237   | 12  | 28  |   |   |   |   |  |  |  |  |
| Volume Left                       | 7   | 0   | 0   | 3   | 0   | 0   | 8   | 6   |   |   |   |   |  |  |  |  |
| Volume Right                      | 0   | 0   | 2   | 0   | 0   | 2   | 4   | 22  |   |   |   |   |  |  |  |  |
| cSH                               | 710   | 1700  | 1700  | 689   | 1700  | 1700  | 134   | 529   |   |   |   |   |  |  |  |  |
| Volume to Capacity                | 0.01  | 0.39  | 0.20  | 0.00  | 0.28  | 0.14  | 0.09  | 0.05  |   |   |   |   |  |  |  |  |
| Queue Length 95th (ft)            | 1   | 0   | 0   | 0   | 0   | 0   | 7   | 4   |   |   |   |   |  |  |  |  |
| Control Delay (s)                 | 10.1  | 0.0   | 0.0   | 10.3  | 0.0   | 0.0   | 34.4  | 16.9  |   |   |   |   |  |  |  |  |
| Lane LOS                          | B   |   |   | B   |   |   | D   | C   |   |   |   |   |  |  |  |  |
| Approach Delay (s)                | 0.1   |   |   | 0.0   |   |   | 34.4  | 16.9  |   |   |   |   |  |  |  |  |
| Approach LOS                      |   |   |   |   |   |   | D   | C   |   |   |   |   |  |  |  |  |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |
| Average Delay                     |   |   |   | 0.6   |   |   |   |   |   |   |   |   |  |  |  |  |
| Intersection Capacity Utilization |   |   |   | 38.3%   | ICU Level of Service  |   |   |   | A   |   |   |   |  |  |  |  |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |  |  |  |  |

# HCM Unsignalized Intersection Capacity Analysis

## 11: Lost Island Rd & US 21 Sea Island Pkwy












2016 Existing  
PM Peak

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |   |
| Traffic Volume (veh/h)            | 901   | 15  | 2   | 624   | 10  | 5   |
| Future Volume (Veh/h)             | 901   | 15  | 2   | 624   | 10  | 5   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1001  | 17  | 2   | 693   | 11  | 6   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLT  |   |   | TWLT  |   |   |
| Median storage veh)               | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            |   |   | 1018  |   | 1360  | 1010  |
| vC1, stage 1 conf vol             |   |   |   |   | 1010  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 350   |   |
| vCu, unblocked vol                |   |   | 1018  |   | 1360  | 1010  |
| tC, single (s)                    |   |   | 4.1   |   | 7.0   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   | 6.0   |   |
| tF (s)                            |   |   | 2.2   |   | 3.6   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 96  | 97  |
| cM capacity (veh/h)               |   |   | 677   |   | 277   | 238   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NB 1  |   |   |
| Volume Total                      | 1018  | 233   | 462   | 17  |   |   |
| Volume Left                       | 0   | 2   | 0   | 11  |   |   |
| Volume Right                      | 17  | 0   | 0   | 6   |   |   |
| cSH                               | 1700  | 677   | 1700  | 262   |   |   |
| Volume to Capacity                | 0.60  | 0.00  | 0.27  | 0.06  |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 5   |   |   |
| Control Delay (s)                 | 0.0   | 0.1   | 0.0   | 19.7  |   |   |
| Lane LOS                          |   | A   |   | C   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   |   | 19.7  |   |   |
| Approach LOS                      |   |   |   | C   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 58.3%   | ICU Level of Service  |   | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 12: US 21 Sea Island Pkwy & Airport Cir











2016 Existing  
PM Peak

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |  |  |  |   |  |  |
| Traffic Volume (veh/h)            | 4   | 885   | 620   | 1   | 0   | 11  |
| Future Volume (Veh/h)             | 4   | 885   | 620   | 1   | 0   | 11  |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 983   | 689   | 1   | 0   | 12  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   | TWLTL   | TWLTL   |   |   |   |
| Median storage veh)               |   | 2   | 2   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 690   |   |   |   | 1680  | 690   |
| vC1, stage 1 conf vol             |   |   |   |   | 690   |   |
| vC2, stage 2 conf vol             |   |   |   |   | 991   |   |
| vCu, unblocked vol                | 690   |   |   |   | 1680  | 690   |
| tC, single (s)                    | 4.1   |   |   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            | 2.2   |   |   |   | 3.5   | 3.3   |
| p0 queue free %                   | 100   |   |   |   | 100   | 97  |
| cM capacity (veh/h)               | 905   |   |   |   | 299   | 445   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | SB 1  |   |   |
| Volume Total                      | 4   | 983   | 690   | 12  |   |   |
| Volume Left                       | 4   | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 0   | 1   | 12  |   |   |
| cSH                               | 905   | 1700  | 1700  | 445   |   |   |
| Volume to Capacity                | 0.00  | 0.58  | 0.41  | 0.03  |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 2   |   |   |
| Control Delay (s)                 | 9.0   | 0.0   | 0.0   | 13.3  |   |   |
| Lane LOS                          | A   |   |   | B   |   |   |
| Approach Delay (s)                | 0.0   |   | 0.0   | 13.3  |   |   |
| Approach LOS                      |   |   |   | B   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 56.6%   | ICU Level of Service  |   | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 13: Old Distant Island Rd & US 21 Sea Island Pkwy

2016 Existing  
PM Peak














|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |  |
| Traffic Volume (veh/h)            | 852   | 10  | 3   | 588   | 7   | 5   |
| Future Volume (Veh/h)             | 852   | 10  | 3   | 588   | 7   | 5   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 947   | 11  | 3   | 653   | 8   | 6   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   | TWLTL   |   |   |
| Median storage veh)               | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   | 1133  |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.78  |   |
| vC, conflicting volume            |   |   | 958   |   | 1612  | 952   |
| vC1, stage 1 conf vol             |   |   |   |   | 952   |   |
| vC2, stage 2 conf vol             |   |   |   |   | 659   |   |
| vCu, unblocked vol                |   |   | 958   |   | 1643  | 952   |
| tC, single (s)                    |   |   | 4.1   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 97  | 98  |
| cM capacity (veh/h)               |   |   | 718   |   | 305   | 314   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  |   |   |   |
| Volume Total                      | 958   | 656   | 14  |   |   |   |
| Volume Left                       | 0   | 3   | 8   |   |   |   |
| Volume Right                      | 11  | 0   | 6   |   |   |   |
| cSH                               | 1700  | 718   | 309   |   |   |   |
| Volume to Capacity                | 0.56  | 0.00  | 0.05  |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 4   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.1   | 17.2  |   |   |   |
| Lane LOS                          |   | A   | C   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.1   | 17.2  |   |   |   |
| Approach LOS                      |   |   | C   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 55.4%   | ICU Level of Service  |   | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

2016 Existing

PM Peak

|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 40  | 803   | 5   | 556   | 31  | 0   | 13   | 2   |
| Future Volume (vph)  | 40  | 803   | 5   | 556   | 31  | 0   | 13   | 2   |
| Turn Type            | Perm  | NA  | Perm  | NA  | Perm  | NA  | Perm   | NA  |
| Protected Phases     |   | 4   |   | 8   |   | 2   |  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 4   | 4   | 8   | 8   | 2   | 2   | 6  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  |
| Total Split (s)      | 47.0  | 47.0  | 47.0  | 47.0  | 23.0  | 23.0  | 23.0   | 23.0  |
| Total Split (%)      | 67.1%   | 67.1%   | 67.1%   | 67.1%   | 32.9%   | 32.9%   | 32.9%  | 32.9%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             |   |   |   |   |   |   |  |   |
| Lead-Lag Optimize?   |   |   |   |   |   |   |  |   |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   | Max  | Max   |
| Act Effect Green (s) |   | 39.3  | 39.3  | 39.3  |   | 18.6  |  | 18.6  |
| Actuated g/C Ratio   |   | 0.59  | 0.59  | 0.59  |   | 0.28  |  | 0.28  |
| v/c Ratio            |   | 0.94  | 0.02  | 0.57  |   | 0.10  |  | 0.08  |
| Control Delay        |   | 30.4  | 5.8   | 10.8  |   | 12.9  |  | 12.4  |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 30.4  | 5.8   | 10.8  |   | 12.9  |  | 12.4  |
| LOS                  |   | C   | A   | B   |   | B   |  | B   |
| Approach Delay       |   | 30.4  |   | 10.8  |   | 12.9  |  | 12.4  |
| Approach LOS         |   | C   |   | B   |   | B   |  | B   |

### Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 67

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 22.2





Intersection LOS: C

Intersection Capacity Utilization 88.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

|  |  |
|--|--|
|  Ø2 |  Ø4 |
| 23 s   | 47 s   |
|  Ø6 |  Ø8 |
| 23 s   | 47 s   |











## Phasings

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

2016 Existing

PM Peak

|                         |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL   | SBT   |
| Protected Phases        |   | 4   |   | 8   |   | 2   |   | 6   |
| Permitted Phases        | 4   |   | 8   |   | 2   |   | 6   |   |
| Minimum Initial (s)     | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)       | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)         | 47.0  | 47.0  | 47.0  | 47.0  | 23.0  | 23.0  | 23.0  | 23.0  |
| Total Split (%)         | 67.1%   | 67.1%   | 67.1%   | 67.1%   | 32.9%   | 32.9%   | 32.9%   | 32.9%   |
| Maximum Green (s)       | 42.5  | 42.5  | 42.5  | 42.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| Yellow Time (s)         | 3.5   | 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   | 1.0   |
| Lead/Lag                |   |   |   |   |   |   |   |   |
| Lead-Lag Optimize?      |   |   |   |   |   |   |   |   |
| Vehicle Extension (s)   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Minimum Gap (s)         | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |
| Time Before Reduce (s)  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Time To Reduce (s)      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Recall Mode             | None  | None  | None  | None  | Max   | Max   | Max   | Max   |
| Walk Time (s)           | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   | 7.0   |
| Flash Dont Walk (s)     | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr) | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| 90th %ile Green (s)     | 42.5  | 42.5  | 42.5  | 42.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| 90th %ile Term Code     | Max   | Max   | Hold  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 70th %ile Green (s)     | 42.5  | 42.5  | 42.5  | 42.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| 70th %ile Term Code     | Max   | Max   | Hold  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 50th %ile Green (s)     | 42.5  | 42.5  | 42.5  | 42.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| 50th %ile Term Code     | Max   | Max   | Hold  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 30th %ile Green (s)     | 40.5  | 40.5  | 40.5  | 40.5  | 18.5  | 18.5  | 18.5  | 18.5  |
| 30th %ile Term Code     | Gap   | Gap   | Hold  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |
| 10th %ile Green (s)     | 29.6  | 29.6  | 29.6  | 29.6  | 18.5  | 18.5  | 18.5  | 18.5  |
| 10th %ile Term Code     | Gap   | Gap   | Hold  | Hold  | MaxR  | MaxR  | MaxR  | MaxR  |

## Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 67

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 70

70th %ile Actuated Cycle: 70

50th %ile Actuated Cycle: 70

30th %ile Actuated Cycle: 68

10th %ile Actuated Cycle: 57.1

## Queues

2016 Existing

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

PM Peak

|                         | →    | ↘    | ←    | ↑    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | WBL  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 970  | 6    | 620  | 44   | 38   |
| v/c Ratio               | 0.94 | 0.02 | 0.57 | 0.10 | 0.08 |
| Control Delay           | 30.4 | 5.8  | 10.8 | 12.9 | 12.4 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 30.4 | 5.8  | 10.8 | 12.9 | 12.4 |
| Queue Length 50th (ft)  | 320  | 1    | 139  | 7    | 5    |
| Queue Length 95th (ft)  | #614 | 5    | 220  | 29   | 26   |
| Internal Link Dist (ft) | 1053 |      | 490  | 351  | 331  |
| Turn Bay Length (ft)    |      | 290  |      |      |      |
| Base Capacity (vph)     | 1127 | 314  | 1189 | 428  | 456  |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.86 | 0.02 | 0.52 | 0.10 | 0.08 |

## Intersection Summary


















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy






















2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 40  | 803   | 31  | 5   | 556   | 2   | 31   | 0   | 9   | 13  | 2   | 20  |
| Future Volume (vph)               | 40  | 803   | 31  | 5   | 556   | 2   | 31   | 0   | 9   | 13  | 2   | 20  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 1.00  |   | 1.00  | 1.00  |   |  | 0.97  |   |   | 0.92  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.96  |   |   | 0.98  |   |
| Satd. Flow (prot)                 |   | 1840  |   | 1770  | 1862  |   |  | 1738  |   |   | 1686  |   |
| Flt Permitted                     |   | 0.96  |   | 0.26  | 1.00  |   |  | 0.82  |   |   | 0.92  |   |
| Satd. Flow (perm)                 |   | 1764  |   | 494   | 1862  |   |  | 1481  |   |   | 1585  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 44  | 892   | 34  | 6   | 618   | 2   | 34   | 0   | 10  | 14  | 2   | 22  |
| RTOR Reduction (vph)              | 0   | 2   | 0   | 0   | 0   | 0   | 0  | 17  | 0   | 0   | 16  | 0   |
| Lane Group Flow (vph)             | 0   | 968   | 0   | 6   | 620   | 0   | 0  | 27  | 0   | 0   | 22  | 0   |
| Heavy Vehicles (%)                | 13%   | 2%  | 3%  | 2%  | 2%  | 2%  | 2%   | 7%  | 2%  | 2%  | 2%  | 2%  |
| Turn Type                         | Perm  | NA  |   | Perm  | NA  |   | Perm   | NA  |   | Perm  | NA  |   |
| Protected Phases                  |   | 4   |   |   | 8   |   |  | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 39.3  |   | 39.3  | 39.3  |   |  | 18.6  |   |   | 18.6  |   |
| Effective Green, g (s)            |   | 39.3  |   | 39.3  | 39.3  |   |  | 18.6  |   |   | 18.6  |   |
| Actuated g/C Ratio                |   | 0.59  |   | 0.59  | 0.59  |   |  | 0.28  |   |   | 0.28  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 1036  |   | 290   | 1093  |   |  | 411   |   |   | 440   |   |
| v/s Ratio Prot                    |   |   |   |   | 0.33  |   |  |   |   |   |   |   |
| v/s Ratio Perm                    |   | c0.55   |   | 0.01  |   |   |  | c0.02   |   |   | 0.01  |   |
| v/c Ratio                         |   | 0.93  |   | 0.02  | 0.57  |   |  | 0.07  |   |   | 0.05  |   |
| Uniform Delay, d1                 |   | 12.6  |   | 5.8   | 8.5   |   |  | 17.8  |   |   | 17.7  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 14.7  |   | 0.0   | 0.7   |   |  | 0.3   |   |   | 0.2   |   |
| Delay (s)                         |   | 27.3  |   | 5.8   | 9.2   |   |  | 18.1  |   |   | 17.9  |   |
| Level of Service                  |   | C   |   | A   | A   |   |  | B   |   |   | B   |   |
| Approach Delay (s)                |   | 27.3  |   |   | 9.2   |   |  | 18.1  |   |   | 17.9  |   |
| Approach LOS                      |   | C   |   |   | A   |   |  | B   |   |   | B   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 20.1  |   |   |   |  |   |   |   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.66  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 66.9  |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 88.7%   |   |   |   |  |   |   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 15: US 21 Lady's Island Rd & Rue Du Bois/Driveway










2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |    |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 30  | 1   | 56  | 13  | 1   | 34  | 39  | 1245  | 12  | 14  | 883   | 23  |
| Future Volume (Veh/h)             | 30  | 1   | 56  | 13  | 1   | 34  | 39  | 1245  | 12  | 14  | 883   | 23  |
| Sign Control                      | Stop  |   |   |   | Stop  |   |   |   | Free  |   |   |   |
| Grade                             | 0%  |   |   |   | 0%  |   |   |   | 0%  |   |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 33  | 1   | 62  | 14  | 1   | 38  | 43  | 1383  | 13  | 16  | 981   | 26  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | None  |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   |   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1829  | 2495  | 490   | 2060  | 2514  | 698   | 1007  |   |   |   | 1396  |   |
| vC1, stage 1 conf vol             | 1013  | 1013  |   | 1476  | 1476  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 816   | 1482  |   | 585   | 1039  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 1829  | 2495  | 490   | 2060  | 2514  | 698   | 1007  |   |   |   | 1396  |   |
| tC, single (s)                    | 7.6   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.2   |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.6   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   |   | 2.2   |   |
| p0 queue free %                   | 82  | 99  | 88  | 88  | 99  | 90  | 94  |   |   |   | 97  |   |
| cM capacity (veh/h)               | 178   | 138   | 524   | 115   | 141   | 383   | 666   |   |   |   | 486   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  | SB 4  |   |   |
| Volume Total                      | 34  | 62  | 53  | 43  | 922   | 474   | 16  | 490   | 490   | 26  |   |   |
| Volume Left                       | 33  | 0   | 14  | 43  | 0   | 0   | 16  | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 62  | 38  | 0   | 0   | 13  | 0   | 0   | 0   | 26  |   |   |
| cSH                               | 177   | 524   | 232   | 666   | 1700  | 1700  | 486   | 1700  | 1700  | 1700  |   |   |
| Volume to Capacity                | 0.19  | 0.12  | 0.23  | 0.06  | 0.54  | 0.28  | 0.03  | 0.29  | 0.29  | 0.02  |   |   |
| Queue Length 95th (ft)            | 17  | 10  | 21  | 5   | 0   | 0   | 3   | 0   | 0   | 0   |   |   |
| Control Delay (s)                 | 30.1  | 12.8  | 25.0  | 10.8  | 0.0   | 0.0   | 12.7  | 0.0   | 0.0   | 0.0   |   |   |
| Lane LOS                          | D   | B   | D   | B   |   |   |   | B   |   |   |   |   |
| Approach Delay (s)                | 18.9  |   | 25.0  | 0.3   |   |   |   | 0.2   |   |   |   |   |
| Approach LOS                      | C   |   | D   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 1.5   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 51.0%   |   |   | ICU Level of Service  |   |   |   |   | A   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 16: US 21 Lady's Island Rd & Hazel Farm Rd




















2016 Existing  
PM Peak

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | WBL   | WBR   | NET   | NER   | SWL   | SWT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 7   | 0   | 1308  | 0   | 1   | 923   |
| Future Volume (Veh/h)             | 7   | 0   | 1308  | 0   | 1   | 923   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 8   | 0   | 1453  | 0   | 1   | 1026  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage veh)               |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 1968  | 726   |   |   | 1453  |   |
| vC1, stage 1 conf vol             | 1453  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 515   |   |   |   |   |   |
| vCu, unblocked vol                | 1968  | 726   |   |   | 1453  |   |
| tC, single (s)                    | 6.8   | 6.9   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 5.8   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 95  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 171   | 367   |   |   | 462   |   |
| Direction, Lane #                 | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  |   |
| Volume Total                      | 8   | 969   | 484   | 343   | 684   |   |
| Volume Left                       | 8   | 0   | 0   | 1   | 0   |   |
| Volume Right                      | 0   | 0   | 0   | 0   | 0   |   |
| cSH                               | 171   | 1700  | 1700  | 462   | 1700  |   |
| Volume to Capacity                | 0.05  | 0.57  | 0.28  | 0.00  | 0.40  |   |
| Queue Length 95th (ft)            | 4   | 0   | 0   | 0   | 0   |   |
| Control Delay (s)                 | 27.1  | 0.0   | 0.0   | 0.1   | 0.0   |   |
| Lane LOS                          | D   |   |   | A   |   |   |
| Approach Delay (s)                | 27.1  | 0.0   |   | 0.0   |   |   |
| Approach LOS                      | D   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 46.2%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 17: US 21 Lady's Island Rd & Ferry Rd











2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |  |   |  |  |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 1   | 0   | 7   | 79  | 0   | 51  | 5  | 1204  | 73  | 98  | 838   | 3   |
| Future Volume (Veh/h)             | 1   | 0   | 7   | 79  | 0   | 51  | 5  | 1204  | 73  | 98  | 838   | 3   |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free   |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 8   | 88  | 0   | 57  | 6  | 1338  | 81  | 109   | 931   | 3   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            | 5   |   |   | 5   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL  |   |   | TWLTL   |   |   |
| Median storage veh)               |   |   |   |   |   |   | 2  |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   | 1003  |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1860  | 2582  | 467   | 2074  | 2542  | 710   | 934  |   |   |   | 1419  |   |
| vC1, stage 1 conf vol             | 1150  | 1150  |   | 1390  | 1390  |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 710   | 1431  |   | 684   | 1152  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1860  | 2582  | 467   | 2074  | 2542  | 710   | 934  |   |   |   | 1419  |   |
| tC, single (s)                    | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.1  |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2  |   |   |   | 2.2   |   |
| p0 queue free %                   | 99  | 100   | 99  | 32  | 100   | 85  | 99   |   |   |   | 77  |   |
| cM capacity (veh/h)               | 130   | 80  | 542   | 130   | 139   | 376   | 729  |   |   |   | 476   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  | SW 3   |   |   |   |   |   |
| Volume Total                      | 9   | 145   | 675   | 750   | 109   | 621   | 313  |   |   |   |   |   |
| Volume Left                       | 1   | 88  | 6   | 0   | 109   | 0   | 0  |   |   |   |   |   |
| Volume Right                      | 8   | 57  | 0   | 81  | 0   | 0   | 3  |   |   |   |   |   |
| cSH                               | 610   | 215   | 729   | 1700  | 476   | 1700  | 1700   |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.68  | 0.01  | 0.44  | 0.23  | 0.37  | 0.18   |   |   |   |   |   |
| Queue Length 95th (ft)            | 1   | 105   | 1   | 0   | 22  | 0   | 0  |   |   |   |   |   |
| Control Delay (s)                 | 14.1  | 53.0  | 0.2   | 0.0   | 14.8  | 0.0   | 0.0  |   |   |   |   |   |
| Lane LOS                          | B   | F   | A   |   | B   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 14.1  | 53.0  | 0.1   |   | 1.5   |   |  |   |   |   |   |   |
| Approach LOS                      | B   | F   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 3.7   |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 80.1%   |   |   | ICU Level of Service  |   |   |  | D   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 18: SC 802 Sams Point Rd & Sams Point Way

















2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |  |  |
| Traffic Volume (veh/h)            | 13  | 199   | 1200  | 23  | 80  | 852   |
| Future Volume (Veh/h)             | 13  | 199   | 1200  | 23  | 80  | 852   |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 14  | 221   | 1333  | 26  | 89  | 947   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage (veh)              |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 1998  | 680   |   |   | 1359  |   |
| vC1, stage 1 conf vol             | 1346  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 652   |   |   |   |   |   |
| vCu, unblocked vol                | 1998  | 680   |   |   | 1359  |   |
| tC, single (s)                    | 6.8   | 6.9   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 5.8   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 92  | 44  |   |   | 82  |   |
| cM capacity (veh/h)               | 182   | 394   |   |   | 502   |   |
| Direction, Lane #                 | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  | SB 3  |
| Volume Total                      | 235   | 889   | 470   | 89  | 474   | 474   |
| Volume Left                       | 14  | 0   | 0   | 89  | 0   | 0   |
| Volume Right                      | 221   | 0   | 26  | 0   | 0   | 0   |
| cSH                               | 368   | 1700  | 1700  | 502   | 1700  | 1700  |
| Volume to Capacity                | 0.64  | 0.52  | 0.28  | 0.18  | 0.28  | 0.28  |
| Queue Length 95th (ft)            | 106   | 0   | 0   | 16  | 0   | 0   |
| Control Delay (s)                 | 30.5  | 0.0   | 0.0   | 13.7  | 0.0   | 0.0   |
| Lane LOS                          | D   |   |   | B   |   |   |
| Approach Delay (s)                | 30.5  | 0.0   |   | 1.2   |   |   |
| Approach LOS                      | D   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 3.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 61.4%   |   | ICU Level of Service  | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 19: SC 802 Sams Point Rd & Ashland Park Rd/Driveway

2016 Existing  
PM Peak



















|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 6   | 0   | 9   | 0   | 0   | 0   | 15  | 1393  | 0   | 0   | 962   | 4   |
| Future Volume (Veh/h)             | 6   | 0   | 9   | 0   | 0   | 0   | 15  | 1393  | 0   | 0   | 962   | 4   |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 7   | 0   | 10  | 0   | 0   | 0   | 17  | 1548  | 0   | 0   | 1069  | 4   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL   |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1879  | 2653  | 536   | 2126  | 2655  | 774   | 1073  | 1548  |   |   |   |   |
| vC1, stage 1 conf vol             | 1071  | 1071  |   | 1582  | 1582  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 808   | 1582  |   | 544   | 1073  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 1879  | 2653  | 536   | 2126  | 2655  | 774   | 1073  | 1548  |   |   |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.1   | 7.5   | 6.5   | 6.9   | 4.1   | 4.1   |   |   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.3   | 2.2   | 2.2   |   |   |   |   |
| p0 queue free %                   | 96  | 100   | 98  | 100   | 100   | 100   | 97  | 100   |   |   |   |   |
| cM capacity (veh/h)               | 190   | 138   | 466   | 105   | 136   | 341   | 645   | 424   |   |   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  |   |   |   |   |   |   |
| Volume Total                      | 17  | 0   | 791   | 774   | 534   | 538   |   |   |   |   |   |   |
| Volume Left                       | 7   | 0   | 17  | 0   | 0   | 0   |   |   |   |   |   |   |
| Volume Right                      | 10  | 0   | 0   | 0   | 0   | 4   |   |   |   |   |   |   |
| cSH                               | 292   | 1700  | 645   | 1700  | 424   | 1700  |   |   |   |   |   |   |
| Volume to Capacity                | 0.06  | 0.00  | 0.03  | 0.46  | 0.00  | 0.32  |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 5   | 0   | 2   | 0   | 0   | 0   |   |   |   |   |   |   |
| Control Delay (s)                 | 18.1  | 0.0   | 0.7   | 0.0   | 0.0   | 0.0   |   |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 18.1  | 0.0   | 0.4   | 0.0   |   |   |   |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.3   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 59.1%   | ICU Level of Service  |   |   |   |   | B   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E

2016 Existing  
PM Peak

|                                   |  |  |  |  |  |  |    |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 32  | 6   | 36  | 13  | 1   | 1   | 19  | 1326  | 44  | 2   | 882   | 40  |
| Future Volume (Veh/h)             | 32  | 6   | 36  | 13  | 1   | 1   | 19  | 1326  | 44  | 2   | 882   | 40  |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 36  | 7   | 40  | 14  | 1   | 1   | 21  | 1473  | 49  | 2   | 980   | 44  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL   |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1786  | 2570  | 512   | 2077  | 2568  | 761   | 1024  |   |   |   | 1522  |   |
| vC1, stage 1 conf vol             | 1006  | 1006  |   | 1540  | 1540  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 780   | 1564  |   | 538   | 1028  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 1786  | 2570  | 512   | 2077  | 2568  | 761   | 1024  |   |   |   | 1522  |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.0   | 7.5   | 6.5   | 6.9   | 4.1   |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   |   | 2.2   |   |
| p0 queue free %                   | 82  | 95  | 92  | 87  | 99  | 100   | 97  |   |   |   | 100   |   |
| cM capacity (veh/h)               | 204   | 141   | 504   | 111   | 143   | 348   | 674   |   |   |   | 434   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  |   |   |   |   |
| Volume Total                      | 83  | 16  | 21  | 982   | 540   | 2   | 653   | 371   |   |   |   |   |
| Volume Left                       | 36  | 14  | 21  | 0   | 0   | 2   | 0   | 0   |   |   |   |   |
| Volume Right                      | 40  | 1   | 0   | 0   | 49  | 0   | 0   | 44  |   |   |   |   |
| cSH                               | 272   | 117   | 674   | 1700  | 1700  | 434   | 1700  | 1700  |   |   |   |   |
| Volume to Capacity                | 0.31  | 0.14  | 0.03  | 0.58  | 0.32  | 0.00  | 0.38  | 0.22  |   |   |   |   |
| Queue Length 95th (ft)            | 31  | 11  | 2   | 0   | 0   | 0   | 0   | 0   |   |   |   |   |
| Control Delay (s)                 | 23.9  | 40.5  | 10.5  | 0.0   | 0.0   | 13.3  | 0.0   | 0.0   |   |   |   |   |
| Lane LOS                          | C   | E   | B   |   |   |   | B   |   |   |   |   |   |
| Approach Delay (s)                | 23.9  | 40.5  | 0.1   |   |   |   | 0.0   |   |   |   |   |   |
| Approach LOS                      | C   | E   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   |   | 1.1   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 48.8%   | ICU Level of Service  |   |   |   | A   |   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |


















## **APPENDIX D**

### **2038 NO BUILD SYNCHRO RESULTS**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Meridian Rd/Driveway & US 21 Sea Island Pkwy

2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 1   | 854   | 42  | 64  | 1416  | 2   | 59  | 0   | 43  | 0   | 0   | 1   |
| Future Volume (Veh/h)             | 1   | 854   | 42  | 64  | 1416  | 2   | 59  | 0   | 43  | 0   | 0   | 1   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 949   | 47  | 71  | 1573  | 2   | 66  | 0   | 48  | 0   | 0   | 1   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh)               | 2   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1575  |   |   | 996   |   |   | 2690  | 2692  | 972   | 2738  | 2714  | 1574  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 974   | 974   |   | 1716  | 1716  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1716  | 1717  |   | 1022  | 998   |   |
| vCu, unblocked vol                | 1575  |   |   | 996   |   |   | 2690  | 2692  | 972   | 2738  | 2714  | 1574  |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 90  |   |   | 29  | 100   | 84  | 100   | 100   | 99  |
| cM capacity (veh/h)               | 418   |   |   | 695   |   |   | 93  | 117   | 306   | 84  | 112   | 135   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NB 1  | SB 1  |   |   |   |   |   |   |   |
| Volume Total                      | 997   | 71  | 1575  | 114   | 1   |   |   |   |   |   |   |   |
| Volume Left                       | 1   | 71  | 0   | 66  | 0   |   |   |   |   |   |   |   |
| Volume Right                      | 47  | 0   | 2   | 48  | 1   |   |   |   |   |   |   |   |
| cSH                               | 418   | 695   | 1700  | 131   | 135   |   |   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.10  | 0.93  | 0.87  | 0.01  |   |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 9   | 0   | 139   | 1   |   |   |   |   |   |   |   |
| Control Delay (s)                 | 0.1   | 10.8  | 0.0   | 110.7   | 31.8  |   |   |   |   |   |   |   |
| Lane LOS                          | A   | B   |   | F   | D   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 0.1   | 0.5   |   | 110.7   | 31.8  |   |   |   |   |   |   |   |
| Approach LOS                      |   |   |   | F   | D   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   |   | 4.9   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 93.9%   | ICU Level of Service  |   |   |   | F   |   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |

# Timings 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2038 No Build  
AM Peak Hour

|                      | →     | ↗     | ←     | ↖     | ↑     | ↓     |
|----------------------|-------|-------|-------|-------|-------|-------|
| Lane Group           | EBT   | WBL   | WBT   | NBL   | NBT   | SBT   |
| Lane Configurations  | ↔     | ↗     | ↖     |       | ↔     | ↔     |
| Traffic Volume (vph) | 820   | 132   | 1464  | 35    | 0     | 0     |
| Future Volume (vph)  | 820   | 132   | 1464  | 35    | 0     | 0     |
| Turn Type            | NA    | pm+pt | NA    | Perm  | NA    | NA    |
| Protected Phases     | 4     | 3     | 8     |       | 2     | 6     |
| Permitted Phases     |       | 8     |       | 2     |       |       |
| Detector Phase       | 4     | 3     | 8     | 2     | 2     | 6     |
| Switch Phase         |       |       |       |       |       |       |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 112.2 | 14.8  | 127.0 | 23.0  | 23.0  | 23.0  |
| Total Split (%)      | 74.8% | 9.9%  | 84.7% | 15.3% | 15.3% | 15.3% |
| Yellow Time (s)      | 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   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   |       | 4.5   | 4.5   |
| Lead/Lag             | Lag   | Lead  |       |       |       |       |
| Lead-Lag Optimize?   | Yes   | Yes   |       |       |       |       |
| Recall Mode          | None  | None  | None  | Max   | Max   | Max   |
| Act Effect Green (s) | 110.0 | 122.5 | 122.5 |       | 18.5  | 18.5  |
| Actuated g/C Ratio   | 0.73  | 0.82  | 0.82  |       | 0.12  | 0.12  |
| v/c Ratio            | 0.72  | 0.42  | 1.07  |       | 0.39  | 0.00  |
| Control Delay        | 15.3  | 6.5   | 60.0  |       | 36.9  | 0.0   |
| Queue Delay          | 0.0   | 0.0   | 0.0   |       | 0.0   | 0.0   |
| Total Delay          | 15.3  | 6.5   | 60.0  |       | 36.9  | 0.0   |
| LOS                  | B     | A     | E     |       | D     | A     |
| Approach Delay       | 15.3  |       | 55.6  |       | 36.9  |       |
| Approach LOS         | B     |       | E     |       | D     |       |

## Intersection Summary

Cycle Length: 150  
Actuated Cycle Length: 150  
Natural Cycle: 150  
Control Type: Actuated-Uncoordinated  
Maximum v/c Ratio: 1.07  
Intersection Signal Delay: 41.1  
Intersection Capacity Utilization 128.3%  
Analysis Period (min) 15

Intersection LOS: D  
ICU Level of Service H

Splits and Phases: 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

|      |        |         |
|------|--------|---------|
| ↑ Ø2 | ↗ Ø3   | → Ø4    |
| 23 s | 14.8 s | 112.2 s |
| ↓ Ø6 | ↖ Ø8   |         |
| 23 s | 127 s  |         |

## Queues

2038 No Build

## 2: Geechie Rd/Driveway &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         | →    | ↘    | ←     | ↑    | ↓    |
|-------------------------|------|------|-------|------|------|
| Lane Group              | EBT  | WBL  | WBT   | NBT  | SBT  |
| Lane Group Flow (vph)   | 979  | 147  | 1627  | 85   | 1    |
| v/c Ratio               | 0.72 | 0.42 | 1.07  | 0.39 | 0.00 |
| Control Delay           | 15.3 | 6.5  | 60.0  | 36.9 | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  |
| Total Delay             | 15.3 | 6.5  | 60.0  | 36.9 | 0.0  |
| Queue Length 50th (ft)  | 488  | 24   | ~1757 | 37   | 0    |
| Queue Length 95th (ft)  | 678  | 38   | #2021 | 94   | 0    |
| Internal Link Dist (ft) | 1300 |      | 417   | 377  | 79   |
| Turn Bay Length (ft)    |      | 200  |       |      |      |
| Base Capacity (vph)     | 1355 | 370  | 1521  | 218  | 266  |
| Starvation Cap Reductn  | 0    | 0    | 0     | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0     | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0     | 0    | 0    |
| Reduced v/c Ratio       | 0.72 | 0.40 | 1.07  | 0.39 | 0.00 |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.


















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy



















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (vph)              | 0   | 820   | 61  | 132   | 1464  | 0   | 35  | 0   | 41  | 0   | 0   | 1   |
| Future Volume (vph)               | 0   | 820   | 61  | 132   | 1464  | 0   | 35  | 0   | 41  | 0   | 0   | 1   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |   | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |   | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 0.99  |   | 1.00  | 1.00  |   |   | 0.93  |   |   | 0.86  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |   | 0.98  |   |   | 1.00  |   |
| Satd. Flow (prot)                 |   | 1845  |   | 1770  | 1863  |   |   | 1653  |   |   | 1611  |   |
| Flt Permitted                     |   | 1.00  |   | 0.18  | 1.00  |   |   | 0.86  |   |   | 1.00  |   |
| Satd. Flow (perm)                 |   | 1845  |   | 334   | 1863  |   |   | 1459  |   |   | 1611  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 0   | 911   | 68  | 147   | 1627  | 0   | 39  | 0   | 46  | 0   | 0   | 1   |
| RTOR Reduction (vph)              | 0   | 2   | 0   | 0   | 0   | 0   | 0   | 39  | 0   | 0   | 1   | 0   |
| Lane Group Flow (vph)             | 0   | 977   | 0   | 147   | 1627  | 0   | 0   | 46  | 0   | 0   | 0   | 0   |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  | 6%  | 2%  | 2%  | 2%  |
| Turn Type                         |   | NA  |   | pm+pt   | NA  |   | Perm  | NA  |   |   | NA  |   |
| Protected Phases                  |   | 4   |   | 3   | 8   |   |   | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2   |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 110.0   |   | 122.5   | 122.5   |   |   | 18.5  |   |   | 18.5  |   |
| Effective Green, g (s)            |   | 110.0   |   | 122.5   | 122.5   |   |   | 18.5  |   |   | 18.5  |   |
| Actuated g/C Ratio                |   | 0.73  |   | 0.82  | 0.82  |   |   | 0.12  |   |   | 0.12  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |   | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |   | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 1353  |   | 349   | 1521  |   |   | 179   |   |   | 198   |   |
| v/s Ratio Prot                    |   | 0.53  |   | 0.02  | c0.87   |   |   |   |   |   | 0.00  |   |
| v/s Ratio Perm                    |   |   |   | 0.32  |   |   |   | c0.03   |   |   |   |   |
| v/c Ratio                         |   | 0.72  |   | 0.42  | 1.07  |   |   | 0.26  |   |   | 0.00  |   |
| Uniform Delay, d1                 |   | 11.3  |   | 13.0  | 13.8  |   |   | 59.5  |   |   | 57.6  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |   | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 1.9   |   | 0.8   | 44.2  |   |   | 3.5   |   |   | 0.0   |   |
| Delay (s)                         |   | 13.3  |   | 13.8  | 58.0  |   |   | 63.0  |   |   | 57.7  |   |
| Level of Service                  |   | B   |   | B   | E   |   |   | E   |   |   | E   |   |
| Approach Delay (s)                |   | 13.3  |   |   | 54.3  |   |   | 63.0  |   |   | 57.7  |   |
| Approach LOS                      |   | B   |   |   | D   |   |   | E   |   |   | E   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 40.4  |   |   | HCM 2000 Level of Service   |   |   |   | D   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.99  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 150.0   |   |   | Sum of lost time (s)  |   |   | 13.5  |   |   |   |
| Intersection Capacity Utilization |   |   | 128.3%  |   |   | ICU Level of Service  |   |   | H   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy


















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 69  | 763   | 25  | 33  | 1418  | 19  | 11   | 4   | 27  | 19  | 7   | 174   |
| Future Volume (Veh/h)             | 69  | 763   | 25  | 33  | 1418  | 19  | 11   | 4   | 27  | 19  | 7   | 174   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 77  | 848   | 28  | 37  | 1576  | 21  | 12   | 4   | 30  | 21  | 8   | 193   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       | None  |   |   |   | TWLTL   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   | 2   |   |  |   |   |   |   |   |
| Upstream signal (ft)              | 497   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   | 0.69  |   |   | 0.69   |   |   | 0.69  |   |   |
| vC, conflicting volume            | 1597  |   |   | 876   |   |   | 2863   |   |   | 2687  |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1016   |   |   | 1660  |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1847   |   |   | 1034  |   |   |
| vCu, unblocked vol                | 1597  |   |   | 596   |   |   | 3474   |   |   | 3219  |   |   |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1  |   |   | 6.5   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1  |   |   | 5.5   |   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  |   |   | 4.0   |   |   |
| p0 queue free %                   | 81  |   |   | 95  |   |   | 0  |   |   | 94  |   |   |
| cM capacity (veh/h)               | 410   |   |   | 677   |   |   | 0  |   |   | 62  |   |   |
|                                   |   |   |   |   |   |   | 352  |   |   | 85  |   |   |
|                                   |   |   |   |   |   |   | 106  |   |   | 133   |   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | NE 1  | SW 1  |  |   |   |   |   |   |
| Volume Total                      | 77  | 876   | 37  | 1597  | 46  | 222   |  |   |   |   |   |   |
| Volume Left                       | 77  | 0   | 37  | 0   | 12  | 21  |  |   |   |   |   |   |
| Volume Right                      | 0   | 28  | 0   | 21  | 30  | 193   |  |   |   |   |   |   |
| cSH                               | 410   | 1700  | 677   | 1700  | 0   | 125   |  |   |   |   |   |   |
| Volume to Capacity                | 0.19  | 0.52  | 0.05  | 0.94  | Err   | 1.77  |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 17  | 0   | 4   | 0   | Err   | 425   |  |   |   |   |   |   |
| Control Delay (s)                 | 15.8  | 0.0   | 10.6  | 0.0   | Err   | 437.3   |  |   |   |   |   |   |
| Lane LOS                          | C   |   | B   |   | F   | F   |  |   |   |   |   |   |
| Approach Delay (s)                | 1.3   |   | 0.2   |   | Err   | 437.3   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   |   | F   | F   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   |   | Err   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 95.7%   |   |   | ICU Level of Service   |   |   | F   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 4: Youmans Dr/Driveway & US 21 Sea Island Pkwy

2038 No Build  
AM Peak Hour













|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 5   | 789   | 7   | 164   | 1491  | 10  | 10   | 1   | 91  | 0   | 1   | 4   |
| Future Volume (Veh/h)             | 5   | 789   | 7   | 164   | 1491  | 10  | 10   | 1   | 91  | 0   | 1   | 4   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 6   | 877   | 8   | 182   | 1657  | 11  | 11   | 1   | 101   | 0   | 1   | 4   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       | TWLTL   |   |   | None  |   |   |  |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              | 1218  |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   | 0.69  |   |   |  | 0.69  | 0.69  | 0.69  | 0.69  | 0.69  |
| vC, conflicting volume            | 1668  |   |   |   | 885   |   |  |   | 2918  | 2925  | 881   | 3021  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 893  | 893   |   |   |   | 2026  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 2026   | 2032  |   |   |   | 994   |
| vCu, unblocked vol                | 1668  |   |   |   | 611   |   |  |   | 3550  | 3559  | 606   | 3698  |
| tC, single (s)                    | 4.1   |   |   |   | 4.2   |   |  |   | 7.2   | 6.5   | 6.3   | 7.1   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.2  | 5.5   |   |   |   | 6.1   |
| tF (s)                            | 2.2   |   |   |   | 2.3   |   |  |   | 3.6   | 4.0   | 3.4   | 3.5   |
| p0 queue free %                   | 98  |   |   |   | 72  |   |  |   | 73  | 98  | 70  | 100   |
| cM capacity (veh/h)               | 385   |   |   |   | 650   |   |  |   | 40  | 63  | 334   | 4   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NE 1  | SW 1  |   |  |   |   |   |   |   |
| Volume Total                      | 891   | 182   | 1668  | 113   | 5   |   |  |   |   |   |   |   |
| Volume Left                       | 6   | 182   | 0   | 11  | 0   |   |  |   |   |   |   |   |
| Volume Right                      | 8   | 0   | 11  | 101   | 4   |   |  |   |   |   |   |   |
| cSH                               | 385   | 650   | 1700  | 191   | 101   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.02  | 0.28  | 0.98  | 0.59  | 0.05  |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 1   | 29  | 0   | 81  | 4   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 0.6   | 12.7  | 0.0   | 47.8  | 42.6  |   |  |   |   |   |   |   |
| Lane LOS                          | A   | B   |   | E   | E   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 0.6   | 1.2   |   | 47.8  | 42.6  |   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   | E   | E   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   |   | 2.9   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 144.2%  | ICU Level of Service  |   |  |   | H   |   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 5: US 21 Sea Island Pkwy & Professional Village Cir

2038 No Build  
AM Peak Hour























|                                   |  |    |    |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |   |   |   |   |  |  |
| Traffic Volume (veh/h)            | 42  | 837   | 1630  | 55  | 12  | 30  |
| Future Volume (Veh/h)             | 42  | 837   | 1630  | 55  | 12  | 30  |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 47  | 930   | 1811  | 61  | 13  | 33  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   | None  | None  |   |   |   |
| Median storage (veh)              |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   | 681   |   |   |   |
| pX, platoon unblocked             | 0.78  |   |   |   | 0.78  | 0.78  |
| vC, conflicting volume            | 1872  |   |   |   | 2400  | 936   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 1554  |   |   |   | 2232  | 355   |
| tC, single (s)                    | 4.1   |   |   |   | 7.0   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 2.2   |   |   |   | 3.6   | 3.3   |
| p0 queue free %                   | 86  |   |   |   | 40  | 93  |
| cM capacity (veh/h)               | 329   |   |   |   | 22  | 501   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | SB 1  | SB 2  |
| Volume Total                      | 357   | 620   | 1207  | 665   | 13  | 33  |
| Volume Left                       | 47  | 0   | 0   | 0   | 13  | 0   |
| Volume Right                      | 0   | 0   | 0   | 61  | 0   | 33  |
| cSH                               | 329   | 1700  | 1700  | 1700  | 22  | 501   |
| Volume to Capacity                | 0.14  | 0.36  | 0.71  | 0.39  | 0.60  | 0.07  |
| Queue Length 95th (ft)            | 12  | 0   | 0   | 0   | 43  | 5   |
| Control Delay (s)                 | 5.0   | 0.0   | 0.0   | 0.0   | 308.3   | 12.7  |
| Lane LOS                          | A   |   |   |   | F   | B   |
| Approach Delay (s)                | 1.8   |   | 0.0   |   | 96.2  |   |
| Approach LOS                      |   |   |   |   | F   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 2.1   |   |   |   |
| Intersection Capacity Utilization |   |   | 64.2%   |   | ICU Level of Service  | C   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

2038 No Build

AM Peak Hour

|                      |  |  |  |  |  |  |   |  |  |  |  |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 289   | 429   | 590   | 735   | 225   | 143   | 445   | 425   | 330   | 882   | 885   |
| Future Volume (vph)  | 289   | 429   | 590   | 735   | 225   | 143   | 445   | 425   | 330   | 882   | 885   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | pm+pt   | NA  | pm+ov   | pm+pt   | NA  | Perm  |
| Protected Phases     | 5   | 2   | 1   | 6   |   | 3   | 8   | 1   | 7   | 4   |   |
| Permitted Phases     | 2   |   | 6   |   | 6   | 8   |   | 8   | 4   |   | 4   |
| Detector Phase       | 5   | 2   | 1   | 6   | 6   | 3   | 8   | 1   | 7   | 4   | 4   |
| Switch Phase         |   |   |   |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 6.0   | 25.0  | 6.0   | 25.0  | 25.0  | 6.0   | 15.0  | 6.0   | 6.0   | 15.0  | 15.0  |
| Minimum Split (s)    | 13.3  | 43.0  | 13.3  | 39.0  | 39.0  | 12.3  | 42.3  | 13.3  | 13.3  | 43.3  | 43.3  |
| Total Split (s)      | 28.7  | 44.7  | 27.0  | 43.0  | 43.0  | 12.3  | 43.5  | 27.0  | 29.8  | 61.0  | 61.0  |
| Total Split (%)      | 19.8%   | 30.8%   | 18.6%   | 29.7%   | 29.7%   | 8.5%  | 30.0%   | 18.6%   | 20.6%   | 42.1%   | 42.1%   |
| Yellow Time (s)      | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3   | 4.0   | 4.0   | 4.3   | 4.3   |
| All-Red Time (s)     | 3.3   | 2.0   | 3.3   | 2.0   | 2.0   | 2.3   | 2.0   | 3.3   | 2.3   | 2.0   | 2.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 7.3   | 6.0   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | Max   | Max   | None  | None  | None  | None  | Max   | Max   |
| Act Effct Green (s)  | 58.8  | 38.7  | 55.4  | 37.0  | 37.0  | 44.0  | 38.0  | 64.0  | 67.0  | 54.7  | 54.7  |
| Actuated g/C Ratio   | 0.41  | 0.27  | 0.38  | 0.26  | 0.26  | 0.30  | 0.26  | 0.44  | 0.46  | 0.38  | 0.38  |
| v/c Ratio            | 1.05  | 0.65  | 1.84  | 0.90  | 0.51  | 1.28  | 0.54  | 0.62  | 0.86  | 1.40  | 1.20  |
| Control Delay        | 106.0   | 49.1  | 413.6   | 66.6  | 18.1  | 203.9   | 48.8  | 26.8  | 47.5  | 222.2   | 128.4   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 106.0   | 49.1  | 413.6   | 66.6  | 18.1  | 203.9   | 48.8  | 26.8  | 47.5  | 222.2   | 128.4   |
| LOS                  | F   | D   | F   | E   | B   | F   | D   | C   | D   | F   | F   |
| Approach Delay       |   | 68.9  |   | 191.7   |   |   | 61.5  |   |   | 155.1   |   |
| Approach LOS         |   | E   |   | F   |   |   | E   |   |   | F   |   |

### Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.84

Intersection Signal Delay: 135.1









Intersection LOS: F

Intersection Capacity Utilization 128.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy












|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4   |
| 27 s   | 44.7 s   | 12.3 s   | 61 s   |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 28.7 s   | 43 s   | 29.8 s   | 43.5 s   |

## Queues

2038 No Build

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET  | NER   | SWL   | SWT   | SWR   |
| Lane Group Flow (vph)   | 321   | 601   | 656   | 817   | 250   | 159   | 494  | 472   | 367   | 980   | 983   |
| v/c Ratio               | 1.05  | 0.65  | 1.84  | 0.90  | 0.51  | 1.28  | 0.54   | 0.62  | 0.86  | 1.40  | 1.20  |
| Control Delay           | 106.0   | 49.1  | 413.6   | 66.6  | 18.1  | 203.9   | 48.8   | 26.8  | 47.5  | 222.2   | 128.4   |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 106.0   | 49.1  | 413.6   | 66.6  | 18.1  | 203.9   | 48.8   | 26.8  | 47.5  | 222.2   | 128.4   |
| Queue Length 50th (ft)  | ~279  | 256   | ~827  | 396   | 56  | ~138  | 213  | 257   | 233   | ~1231   | ~905  |
| Queue Length 95th (ft)  | #477  | 324   | #1072   | #510  | 146   | #294  | 273  | 381   | #345  | #1492   | #1169   |
| Internal Link Dist (ft) |   | 376   |   | 679   |   |   | 587  |   |   | 549   |   |
| Turn Bay Length (ft)    | 200   |   | 350   |   | 200   | 350   |  | 550   | 460   |   |   |
| Base Capacity (vph)     | 307   | 929   | 356   | 903   | 494   | 124   | 917  | 765   | 434   | 702   | 818   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 1.05  | 0.65  | 1.84  | 0.90  | 0.51  | 1.28  | 0.54   | 0.62  | 0.85  | 1.40  | 1.20  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.
























# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy





















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL   | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)              | 289   | 429   | 112   | 590   | 735   | 225   | 143   | 445   | 425   | 330   | 882   | 885   |
| Future Volume (vph)               | 289   | 429   | 112   | 590   | 735   | 225   | 143   | 445   | 425   | 330   | 882   | 885   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 1.00  | 0.97  |   | 1.00  | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  |
| Satd. Flow (prot)                 | 1752  | 3423  |   | 1770  | 3539  | 1429  | 1770  | 3505  | 1583  | 1736  | 1863  | 1583  |
| Flt Permitted                     | 0.10  | 1.00  |   | 0.25  | 1.00  | 1.00  | 0.11  | 1.00  | 1.00  | 0.28  | 1.00  | 1.00  |
| Satd. Flow (perm)                 | 191   | 3423  |   | 471   | 3539  | 1429  | 196   | 3505  | 1583  | 510   | 1863  | 1583  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 321   | 477   | 124   | 656   | 817   | 250   | 159   | 494   | 472   | 367   | 980   | 983   |
| RTOR Reduction (vph)              | 0   | 16  | 0   | 0   | 0   | 130   | 0   | 0   | 72  | 0   | 0   | 222   |
| Lane Group Flow (vph)             | 321   | 585   | 0   | 656   | 817   | 120   | 159   | 494   | 400   | 367   | 980   | 761   |
| Heavy Vehicles (%)                | 3%  | 2%  | 3%  | 2%  | 2%  | 13%   | 2%  | 3%  | 2%  | 4%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  | Perm  | pm+pt   | NA  | pm+ov   | pm+pt   | NA  | Perm  |
| Protected Phases                  | 5   | 2   |   | 1   | 6   |   | 3   | 8   | 1   | 7   | 4   |   |
| Permitted Phases                  | 2   |   |   | 6   |   | 6   | 8   |   | 8   | 4   |   | 4   |
| Actuated Green, G (s)             | 60.1  | 38.7  |   | 56.7  | 37.0  | 37.0  | 44.0  | 38.0  | 57.7  | 67.0  | 54.7  | 54.7  |
| Effective Green, g (s)            | 60.1  | 38.7  |   | 56.7  | 37.0  | 37.0  | 44.0  | 38.0  | 57.7  | 67.0  | 54.7  | 54.7  |
| Actuated g/C Ratio                | 0.41  | 0.27  |   | 0.39  | 0.26  | 0.26  | 0.30  | 0.26  | 0.40  | 0.46  | 0.38  | 0.38  |
| Clearance Time (s)                | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Vehicle Extension (s)             | 3.0   | 3.5   |   | 3.0   | 3.5   | 3.5   | 3.0   | 3.5   | 3.0   | 3.0   | 3.5   | 3.5   |
| Lane Grp Cap (vph)                | 309   | 913   |   | 360   | 903   | 364   | 124   | 918   | 629   | 427   | 702   | 597   |
| v/s Ratio Prot                    | 0.15  | 0.17  |   | c0.25   | 0.23  |   | 0.05  | 0.14  | 0.09  | c0.13   | c0.53   |   |
| v/s Ratio Perm                    | 0.28  |   |   | c0.46   |   | 0.08  | 0.33  |   | 0.17  | 0.26  |   | 0.48  |
| v/c Ratio                         | 1.04  | 0.64  |   | 1.82  | 0.90  | 0.33  | 1.28  | 0.54  | 0.64  | 0.86  | 1.40  | 1.28  |
| Uniform Delay, d1                 | 45.3  | 47.0  |   | 37.5  | 52.3  | 43.9  | 47.5  | 46.0  | 35.2  | 28.6  | 45.1  | 45.1  |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Incremental Delay, d2             | 61.6  | 1.6   |   | 380.8   | 14.2  | 2.4   | 174.9   | 0.7   | 2.1   | 15.7  | 186.8   | 136.5   |
| Delay (s)                         | 106.9   | 48.6  |   | 418.3   | 66.5  | 46.3  | 222.4   | 46.6  | 37.3  | 44.3  | 232.0   | 181.7   |
| Level of Service                  | F   | D   |   | F   | E   | D   | F   | D   | D   | D   | F   | F   |
| Approach Delay (s)                |   | 68.9  |   |   | 197.5   |   |   | 67.6  |   |   | 181.2   |   |
| Approach LOS                      |   | E   |   |   | F   |   |   | E   |   |   | F   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 147.9   |   |   |   | HCM 2000 Level of Service   |   |   | F   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.58  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 145.0   |   |   |   | Sum of lost time (s)  |   |   | 25.9  |   |   |
| Intersection Capacity Utilization |   |   | 128.4%  |   |   |   | ICU Level of Service  |   |   | H   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 7: Driveway/Sams Point Way & US 21 Sea Island Pkwy




















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |      |
| Lane Configurations               |  |  |   |  |  |   |  |  |  |   |  |  |      |
| Traffic Volume (veh/h)            | 121   | 993   | 15  | 78  | 1397  | 69  | 0  | 5   | 12  | 50  | 1   | 161   |      |
| Future Volume (Veh/h)             | 121   | 993   | 15  | 78  | 1397  | 69  | 0  | 5   | 12  | 50  | 1   | 161   |      |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |      |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |      |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |
| Hourly flow rate (vph)            | 134   | 1103  | 17  | 87  | 1552  | 77  | 0  | 6   | 13  | 56  | 1   | 179   |      |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |      |
| 10                                |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Median type                       | None  |   |   | TWLTL   |   |   |  |   |   |   |   |   |      |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |      |
| Upstream signal (ft)              | 759   |   |   |   |   |   |  |   |   |   |   |   |      |
| pX, platoon unblocked             |   |   |   | 0.89  |   |   | 0.89   |   |   | 0.89  | 0.89  | 0.89  | 0.89 |
| vC, conflicting volume            | 1629  |   |   | 1120  |   |   | 2330   |   |   | 3182  | 560   | 2600  | 3152 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1380   |   |   | 1380  |   | 1764  | 1764 |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 950  |   |   | 1803  |   | 836   | 1388 |
| vCu, unblocked vol                | 1629  |   |   | 881   |   |   | 2245   |   |   | 3206  | 250   | 2549  | 3172 |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5  |   |   | 6.5   | 6.9   | 7.5   | 6.5  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5  |   |   | 5.5   |   | 6.5   | 5.5  |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  |   |   | 4.0   | 3.3   | 3.5   | 4.0  |
| p0 queue free %                   | 66  |   |   | 87  |   |   | 100  |   |   | 0   | 98  | 15  | 98   |
| cM capacity (veh/h)               | 395   |   |   | 677   |   |   | 6  |   |   | 5   | 665   | 66  | 55   |
|                                   |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | NB 2  | SB 1  |   |   |   |      |
| Volume Total                      | 134   | 735   | 385   | 87  | 1035  | 594   | 6  | 13  | 236   |   |   |   |      |
| Volume Left                       | 134   | 0   | 0   | 87  | 0   | 0   | 0  | 0   | 56  |   |   |   |      |
| Volume Right                      | 0   | 0   | 17  | 0   | 0   | 77  | 0  | 13  | 179   |   |   |   |      |
| cSH                               | 395   | 1700  | 1700  | 677   | 1700  | 1700  | 5  | 665   | 271   |   |   |   |      |
| Volume to Capacity                | 0.34  | 0.43  | 0.23  | 0.13  | 0.61  | 0.35  | 1.20   | 0.02  | 0.87  |   |   |   |      |
| Queue Length 95th (ft)            | 37  | 0   | 0   | 11  | 0   | 0   | 39   | 1   | 187   |   |   |   |      |
| Control Delay (s)                 | 18.7  | 0.0   | 0.0   | 11.1  | 0.0   | 0.0   | 1401.3   | 10.5  | 66.2  |   |   |   |      |
| Lane LOS                          | C   |   |   | B   |   |   | F  | B   | F   |   |   |   |      |
| Approach Delay (s)                | 2.0   |   |   | 0.6   |   |   | 449.7  |   | 66.2  |   |   |   |      |
| Approach LOS                      |   |   |   |   |   |   | F  |   | F   |   |   |   |      |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Average Delay                     | 8.6   |   |   |   |   |   |  |   |   |   |   |   |      |
| Intersection Capacity Utilization | 67.0%   |   |   | ICU Level of Service  |   |   |  |   | C   |   |   |   |      |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |      |

# HCM Unsignalized Intersection Capacity Analysis

## 8: Ferry Drive/Driveway & US 21 Sea Island Pkwy


















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |     |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|-----|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |      |     |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |  |      |     |
| Traffic Volume (veh/h)            | 29  | 1045  | 5   | 55  | 1555  | 46  | 2  | 0   | 16  | 70  | 0   | 26  |      |     |
| Future Volume (Veh/h)             | 29  | 1045  | 5   | 55  | 1555  | 46  | 2  | 0   | 16  | 70  | 0   | 26  |      |     |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |      |     |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |      |     |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |     |
| Hourly flow rate (vph)            | 32  | 1161  | 6   | 61  | 1728  | 51  | 2  | 0   | 18  | 78  | 0   | 29  |      |     |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Median type                       | TWLTL   |   |   | TWLTL   |   |   |  |   |   |   |   |   |      |     |
| Median storage veh                | 2   |   |   | 2   |   |   |  |   |   |   |   |   |      |     |
| Upstream signal (ft)              | 1208  |   |   |   |   |   |  |   |   |   |   |   |      |     |
| pX, platoon unblocked             |   |   |   | 0.92  |   |   | 0.92   |   |   | 0.92  | 0.92  | 0.92  |      |     |
| vC, conflicting volume            | 1779  |   |   | 1167  |   |   | 2243   |   |   | 3129  | 584   | 2538  | 3106 | 890 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1228   |   |   | 1228  |   | 1876  | 1876 |     |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1015   |   |   | 1901  |   | 662   | 1231 |     |
| vCu, unblocked vol                | 1779  |   |   | 1016  |   |   | 2181   |   |   | 3140  | 384   | 2500  | 3115 | 890 |
| tC, single (s)                    | 4.2   |   |   | 4.1   |   |   | 8.5  |   |   | 6.5   | 6.9   | 7.5   | 6.5  | 7.0 |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 7.5  |   |   | 5.5   |   | 6.5   | 5.5  |     |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 4.0  |   |   | 4.0   | 3.3   | 3.5   | 4.0  | 3.3 |
| p0 queue free %                   | 90  |   |   | 90  |   |   | 98   |   |   | 100   | 97  | 0   | 100  | 90  |
| cM capacity (veh/h)               | 337   |   |   | 627   |   |   | 84   |   |   | 67  | 567   | 64  | 88   | 280 |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | SB 1  | SB 2  |   |   |   |      |     |
| Volume Total                      | 32  | 774   | 393   | 61  | 1152  | 627   | 20   | 78  | 29  |   |   |   |      |     |
| Volume Left                       | 32  | 0   | 0   | 61  | 0   | 0   | 2  | 78  | 0   |   |   |   |      |     |
| Volume Right                      | 0   | 0   | 6   | 0   | 0   | 51  | 18   | 0   | 29  |   |   |   |      |     |
| cSH                               | 337   | 1700  | 1700  | 627   | 1700  | 1700  | 360  | 64  | 280   |   |   |   |      |     |
| Volume to Capacity                | 0.10  | 0.46  | 0.23  | 0.10  | 0.68  | 0.37  | 0.06   | 1.22  | 0.10  |   |   |   |      |     |
| Queue Length 95th (ft)            | 8   | 0   | 0   | 8   | 0   | 0   | 4  | 159   | 9   |   |   |   |      |     |
| Control Delay (s)                 | 16.8  | 0.0   | 0.0   | 11.4  | 0.0   | 0.0   | 15.6   | 291.8   | 19.3  |   |   |   |      |     |
| Lane LOS                          | C   |   |   | B   |   |   | C  | F   | C   |   |   |   |      |     |
| Approach Delay (s)                | 0.4   |   |   | 0.4   |   |   | 15.6   | 217.9   |   |   |   |   |      |     |
| Approach LOS                      |   |   |   |   |   |   | C  | F   |   |   |   |   |      |     |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |      |     |
| Average Delay                     |   |   |   | 7.9   |   |   |  |   |   |   |   |   |      |     |
| Intersection Capacity Utilization |   |   |   | 62.9%   |   |   | ICU Level of Service   |   |   | B   |   |   |      |     |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |      |     |

# HCM Unsignalized Intersection Capacity Analysis

## 9: Gay Dr & US 21 Sea Island Pkwy




















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 4   | 1178  | 2   | 7   | 1631  | 0   | 5   | 0   | 4   | 0   | 0   | 4   |
| Future Volume (Veh/h)             | 4   | 1178  | 2   | 7   | 1631  | 0   | 5   | 0   | 4   | 0   | 0   | 4   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 1309  | 2   | 8   | 1812  | 0   | 6   | 0   | 4   | 0   | 0   | 4   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1812  |   |   | 1311  |   |   | 2244  | 3146  | 656   | 2494  | 3147  | 906   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1318  | 1318  |   | 1828  | 1828  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 926   | 1828  |   | 666   | 1319  |   |
| vCu, unblocked vol                | 1812  |   |   | 1311  |   |   | 2244  | 3146  | 656   | 2494  | 3147  | 906   |
| tC, single (s)                    | 4.1   |   |   | 4.4   |   |   | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.4   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 99  |   |   | 98  |   |   | 96  | 100   | 99  | 100   | 100   | 99  |
| cM capacity (veh/h)               | 335   |   |   | 450   |   |   | 137   | 101   | 408   | 75  | 102   | 279   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |   |   |   |   |
| Volume Total                      | 658   | 656   | 8   | 1208  | 604   | 10  | 4   |   |   |   |   |   |
| Volume Left                       | 4   | 0   | 8   | 0   | 0   | 6   | 0   |   |   |   |   |   |
| Volume Right                      | 0   | 2   | 0   | 0   | 0   | 4   | 4   |   |   |   |   |   |
| cSH                               | 335   | 1700  | 450   | 1700  | 1700  | 187   | 279   |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.39  | 0.02  | 0.71  | 0.36  | 0.05  | 0.01  |   |   |   |   |   |
| Queue Length 95th (ft)            | 1   | 0   | 1   | 0   | 0   | 4   | 1   |   |   |   |   |   |
| Control Delay (s)                 | 0.4   | 0.0   | 13.1  | 0.0   | 0.0   | 25.4  | 18.1  |   |   |   |   |   |
| Lane LOS                          | A   |   | B   |   |   | D   | C   |   |   |   |   |   |
| Approach Delay (s)                | 0.2   |   | 0.1   |   |   | 25.4  | 18.1  |   |   |   |   |   |
| Approach LOS                      |   |   |   |   |   | D   | C   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 56.7%   |   | ICU Level of Service  |   |   |   | B   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 10: Cougar Dr & US 21 Sea Island Pkwy

2038 No Build  
AM Peak Hour











|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |   |  |   |   |  |  |
| Traffic Volume (veh/h)            | 143   | 982   | 7   | 2   | 1492  | 75  | 2   | 0   | 0   | 16  | 0   | 144   |
| Future Volume (Veh/h)             | 143   | 982   | 7   | 2   | 1492  | 75  | 2   | 0   | 0   | 16  | 0   | 144   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 159   | 1091  | 8   | 2   | 1658  | 83  | 2   | 0   | 0   | 18  | 0   | 160   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   | 12  |
| Median type                       | None  |   |   | None  |   |   |   |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1741  |   |   | 1099  |   |   | 2246  | 3158  | 550   | 2567  | 3120  | 870   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 1741  |   |   | 1099  |   |   | 2246  | 3158  | 550   | 2567  | 3120  | 870   |
| tC, single (s)                    | 4.1   |   |   | 5.1   |   |   | 7.5   | 6.5   | 6.9   | 8.1   | 6.5   | 7.0   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| tF (s)                            | 2.2   |   |   | 2.7   |   |   | 3.5   | 4.0   | 3.3   | 3.8   | 4.0   | 3.3   |
| p0 queue free %                   | 55  |   |   | 100   |   |   | 70  | 100   | 100   | 0   | 100   | 45  |
| cM capacity (veh/h)               | 357   |   |   | 413   |   |   | 7   | 6   | 479   | 5   | 6   | 289   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |   |   |   |
| Volume Total                      | 159   | 727   | 372   | 2   | 1105  | 636   | 2   | 178   |   |   |   |   |
| Volume Left                       | 159   | 0   | 0   | 2   | 0   | 0   | 2   | 18  |   |   |   |   |
| Volume Right                      | 0   | 0   | 8   | 0   | 0   | 83  | 0   | 160   |   |   |   |   |
| cSH                               | 357   | 1700  | 1700  | 413   | 1700  | 1700  | 7   | 54  |   |   |   |   |
| Volume to Capacity                | 0.45  | 0.43  | 0.22  | 0.00  | 0.65  | 0.37  | 0.30  | 3.30  |   |   |   |   |
| Queue Length 95th (ft)            | 55  | 0   | 0   | 0   | 0   | 0   | 16  | Err   |   |   |   |   |
| Control Delay (s)                 | 22.9  | 0.0   | 0.0   | 13.8  | 0.0   | 0.0   | 705.5   | Err   |   |   |   |   |
| Lane LOS                          | C   |   |   | B   |   |   | F   | F   |   |   |   |   |
| Approach Delay (s)                | 2.9   |   |   | 0.0   |   |   | 705.5   | Err   |   |   |   |   |
| Approach LOS                      |   |   |   |   |   |   | F   | F   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 561.1   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 65.9%   |   |   | ICU Level of Service  |   |   |   |   | C   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 11: Lost Island Rd & US 21 Sea Island Pkwy

2038 No Build  
AM Peak Hour















|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |  |   |  |   |  |
| Traffic Volume (veh/h)            | 973   | 13  | 0   | 1597  | 0   | 1   |
| Future Volume (Veh/h)             | 973   | 13  | 0   | 1597  | 0   | 1   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1081  | 14  | 0   | 1774  | 0   | 1   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLT  |   |   | TWLT  |   |   |
| Median storage (veh)              | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   | 612   |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.67  |   |
| vC, conflicting volume            |   |   | 1095  |   | 1968  | 1081  |
| vC1, stage 1 conf vol             |   |   |   |   | 1081  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 887   |   |
| vCu, unblocked vol                |   |   | 1095  |   | 1466  | 1081  |
| tC, single (s)                    |   |   | 4.1   |   | 6.8   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   | 5.8   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 100   | 100   |
| cM capacity (veh/h)               |   |   | 633   |   | 264   | 213   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | NB 1  |   |
| Volume Total                      | 1086  | 9   | 591   | 1183  | 1   |   |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   |   |
| Volume Right                      | 5   | 9   | 0   | 0   | 1   |   |
| cSH                               | 1700  | 1700  | 633   | 1700  | 213   |   |
| Volume to Capacity                | 0.64  | 0.01  | 0.00  | 0.70  | 0.00  |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 0   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 22.0  |   |
| Lane LOS                          |   |   |   |   | C   |   |
| Approach Delay (s)                | 0.0   |   | 0.0   |   | 22.0  |   |
| Approach LOS                      |   |   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 61.5%   |   | ICU Level of Service  | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

## 12: New Frontage Road/Airport Cir & US 21 Sea Island Pkwy

2038 No Build

AM Peak Hour

|                      |  |  |  |  |  |  |   |  |
|----------------------|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | SBL   | SBT   | Ø2  |
| Lane Configurations  |  |  |   |  |  |  |  |   |
| Traffic Volume (vph) | 119   | 854   | 14  | 1423  | 50  | 60  | 0   |   |
| Future Volume (vph)  | 119   | 854   | 14  | 1423  | 50  | 60  | 0   |   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | pm+pt   | NA  |   |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 1   | 6   | 2   |
| Permitted Phases     | 4   |   | 8   |   | 2   | 6   |   |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 1   | 6   |   |
| Switch Phase         |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 10.3  | 74.8  | 9.5   | 74.0  | 9.9   | 22.5  | 35.8  | 23.2  |
| Total Split (%)      | 7.9%  | 57.5%   | 7.3%  | 56.9%   | 7.6%  | 17.3%   | 27.5%   | 18%   |
| Yellow Time (s)      | 3.5   | 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   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Lost Time (s)  | 4.5   | 4.5   |   | 4.5   | 4.5   | 4.5   | 4.5   |   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | Min   |
| Act Effct Green (s)  | 79.9  | 79.9  |   | 69.6  | 11.8  | 19.2  | 12.0  |   |
| Actuated g/C Ratio   | 0.74  | 0.74  |   | 0.64  | 0.11  | 0.18  | 0.11  |   |
| v/c Ratio            | 0.72  | 0.71  |   | 0.76  | 0.34  | 0.29  | 0.56  |   |
| Control Delay        | 33.9  | 12.3  |   | 17.4  | 43.5  | 40.9  | 28.2  |   |
| Queue Delay          | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Delay          | 33.9  | 12.3  |   | 17.4  | 43.5  | 40.9  | 28.2  |   |
| LOS                  | C   | B   |   | B   | D   | D   | C   |   |
| Approach Delay       |   | 14.9  |   | 17.4  |   |   | 32.3  |   |
| Approach LOS         |   | B   |   | B   |   |   | C   |   |

### Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 108.7

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 18.0









Intersection LOS: B

Intersection Capacity Utilization 111.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 12: New Frontage Road/Airport Cir & US 21 Sea Island Pkwy







|   |   |   |   |
|---|---|---|---|
|  |  |  |  |
| Ø1  | Ø2  | Ø3  | Ø4  |
| 22.5 s  | 23.2 s  | 9.5 s   | 74.8 s  |
|  |  |  |  |
| Ø5  | Ø6  | Ø7  | Ø8  |
| 9.9 s   | 35.8 s  | 10.3 s  | 74 s  |

## Queues

2038 No Build

## 12: New Frontage Road/Airport Cir &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBT   | NBL   | SBL   | SBT   |
| Lane Group Flow (vph)   | 132   | 949   | 1596  | 54  | 67  | 140   |
| v/c Ratio               | 0.72  | 0.71  | 0.76  | 0.34  | 0.29  | 0.56  |
| Control Delay           | 33.9  | 12.3  | 17.4  | 43.5  | 40.9  | 28.2  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 33.9  | 12.3  | 17.4  | 43.5  | 40.9  | 28.2  |
| Queue Length 50th (ft)  | 22  | 302   | 368   | 32  | 40  | 35  |
| Queue Length 95th (ft)  | #78   | 556   | 542   | 68  | 80  | 98  |
| Internal Link Dist (ft) |   | 532   | 392   |   |   | 381   |
| Turn Bay Length (ft)    | 375   |   |   |   | 250   |   |
| Base Capacity (vph)     | 183   | 1342  | 2094  | 161   | 311   | 519   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.72  | 0.71  | 0.76  | 0.34  | 0.22  | 0.27  |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 12: New Frontage Road/Airport Cir & US 21 Sea Island Pkwy

2038 No Build










AM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |   |  |  |  |  |   |  |  |  |
| Traffic Volume (vph)              | 119   | 854   | 0   | 14  | 1423  | 0   | 50  | 0   | 0   | 60  | 0   | 126   |
| Future Volume (vph)               | 119   | 854   | 0   | 14  | 1423  | 0   | 50  | 0   | 0   | 60  | 0   | 126   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 4.5   | 4.5   |   |   | 4.5   |   | 4.5   |   |   | 4.5   | 4.5   |   |
| Lane Util. Factor                 | 1.00  | 1.00  |   |   | 0.95  |   | 1.00  |   |   | 1.00  | 1.00  |   |
| Frt                               | 1.00  | 1.00  |   |   | 1.00  |   | 1.00  |   |   | 1.00  | 0.85  |   |
| Flt Protected                     | 0.95  | 1.00  |   |   | 1.00  |   | 0.95  |   |   | 0.95  | 1.00  |   |
| Satd. Flow (prot)                 | 1626  | 1827  |   |   | 3470  |   | 1770  |   |   | 1770  | 1583  |   |
| Flt Permitted                     | 0.08  | 1.00  |   |   | 0.94  |   | 0.67  |   |   | 0.47  | 1.00  |   |
| Satd. Flow (perm)                 | 142   | 1827  |   |   | 3273  |   | 1244  |   |   | 877   | 1583  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.92  | 0.92  | 0.90  | 0.90  | 0.92  | 0.92  | 0.92  | 0.90  | 0.92  | 0.90  |
| Adj. Flow (vph)                   | 132   | 949   | 0   | 15  | 1581  | 0   | 54  | 0   | 0   | 67  | 0   | 140   |
| RTOR Reduction (vph)              | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 78  | 0   |
| Lane Group Flow (vph)             | 132   | 949   | 0   | 0   | 1596  | 0   | 54  | 0   | 0   | 67  | 62  | 0   |
| Heavy Vehicles (%)                | 11%   | 4%  | 2%  | 2%  | 4%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt   |   |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5   | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2   |   |   | 6   |   |   |
| Actuated Green, G (s)             | 79.9  | 79.9  |   |   | 69.6  |   | 11.7  |   |   | 20.8  | 12.0  |   |
| Effective Green, g (s)            | 79.9  | 79.9  |   |   | 69.6  |   | 11.7  |   |   | 20.8  | 12.0  |   |
| Actuated g/C Ratio                | 0.73  | 0.73  |   |   | 0.63  |   | 0.11  |   |   | 0.19  | 0.11  |   |
| Clearance Time (s)                | 4.5   | 4.5   |   |   | 4.5   |   | 4.5   |   |   | 4.5   | 4.5   |   |
| Vehicle Extension (s)             | 3.0   | 3.0   |   |   | 3.0   |   | 3.0   |   |   | 3.0   | 3.0   |   |
| Lane Grp Cap (vph)                | 181   | 1330  |   |   | 2076  |   | 153   |   |   | 238   | 173   |   |
| v/s Ratio Prot                    | 0.04  | c0.52   |   |   |   |   | 0.01  |   |   | c0.02   | c0.04   |   |
| v/s Ratio Perm                    | 0.49  |   |   |   | c0.49   |   | 0.02  |   |   | 0.03  |   |   |
| v/c Ratio                         | 0.73  | 0.71  |   |   | 0.77  |   | 0.35  |   |   | 0.28  | 0.36  |   |
| Uniform Delay, d1                 | 15.4  | 8.4   |   |   | 14.3  |   | 45.2  |   |   | 37.5  | 45.3  |   |
| Progression Factor                | 1.00  | 1.00  |   |   | 1.00  |   | 1.00  |   |   | 1.00  | 1.00  |   |
| Incremental Delay, d2             | 13.7  | 1.8   |   |   | 1.8   |   | 1.4   |   |   | 0.7   | 1.3   |   |
| Delay (s)                         | 29.1  | 10.3  |   |   | 16.1  |   | 46.6  |   |   | 38.2  | 46.5  |   |
| Level of Service                  | C   | B   |   |   | B   |   | D   |   |   | D   | D   |   |
| Approach Delay (s)                |   | 12.6  |   |   | 16.1  |   |   | 46.6  |   |   | 43.8  |   |
| Approach LOS                      |   | B   |   |   | B   |   |   | D   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 17.3  |   |   |   | HCM 2000 Level of Service   |   |   | B   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.71  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 109.7   |   |   |   | Sum of lost time (s)  |   |   | 18.0  |   |   |
| Intersection Capacity Utilization |   |   | 111.7%  |   |   |   | ICU Level of Service  |   |   | H   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 13: Old Distant Island Rd & US 21 Sea Island Pkwy

2038 No Build  
AM Peak Hour














|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |   |
| Traffic Volume (veh/h)            | 774   | 7   | 6   | 1399  | 15  | 2   |
| Future Volume (Veh/h)             | 774   | 7   | 6   | 1399  | 15  | 2   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 860   | 8   | 7   | 1554  | 17  | 2   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLTL   |   | TWLTL   |   |   |   |
| Median storage veh)               | 2   |   | 2   |   |   |   |
| Upstream signal (ft)              |   |   | 1133  |   |   |   |
| pX, platoon unblocked             |   |   | 0.22  |   |   |   |
| vC, conflicting volume            |   |   | 868   |   | 2432  | 864   |
| vC1, stage 1 conf vol             |   |   |   |   | 864   |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1568  |   |
| vCu, unblocked vol                |   |   | 868   |   | 5798  | 864   |
| tC, single (s)                    |   |   | 4.1   |   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.5   |   |
| tF (s)                            |   |   | 2.2   |   | 3.6   | 3.3   |
| p0 queue free %                   |   |   | 99  |   | 41  | 99  |
| cM capacity (veh/h)               |   |   | 776   |   | 29  | 354   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  |   |   |   |
| Volume Total                      | 868   | 1561  | 19  |   |   |   |
| Volume Left                       | 0   | 7   | 17  |   |   |   |
| Volume Right                      | 8   | 0   | 2   |   |   |   |
| cSH                               | 1700  | 776   | 32  |   |   |   |
| Volume to Capacity                | 0.51  | 0.01  | 0.60  |   |   |   |
| Queue Length 95th (ft)            | 0   | 1   | 50  |   |   |   |
| Control Delay (s)                 | 0.0   | 1.1   | 224.7   |   |   |   |
| Lane LOS                          |   | A   | F   |   |   |   |
| Approach Delay (s)                | 0.0   | 1.1   | 224.7   |   |   |   |
| Approach LOS                      |   |   | F   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 2.4   |   |   |   |
| Intersection Capacity Utilization |   |   | 88.4%   | ICU Level of Service  | E   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

2038 No Build

AM Peak Hour

|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 24  | 625   | 56  | 1241  | 152   | 4   | 16   | 2   |
| Future Volume (vph)  | 24  | 625   | 56  | 1241  | 152   | 4   | 16   | 2   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | NA  | pm+pt  | NA  |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 9.5  | 22.5  |
| Total Split (s)      | 9.5   | 108.0   | 9.5   | 108.0   | 9.5   | 23.0  | 9.5  | 23.0  |
| Total Split (%)      | 6.3%  | 72.0%   | 6.3%  | 72.0%   | 6.3%  | 15.3%   | 6.3%   | 15.3%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Max   | None   | Max   |
| Act Effct Green (s)  |   | 103.6   | 111.1   | 111.1   |   | 18.5  |  | 18.5  |
| Actuated g/C Ratio   |   | 0.75  | 0.80  | 0.80  |   | 0.13  |  | 0.13  |
| v/c Ratio            |   | 1.09  | 0.13  | 0.94  |   | 1.24  |  | 0.27  |
| Control Delay        |   | 80.5  | 3.4   | 25.6  |   | 191.3   |  | 26.7  |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 80.5  | 3.4   | 25.6  |   | 191.3   |  | 26.7  |
| LOS                  |   | F   | A   | C   |   | F   |  | C   |
| Approach Delay       |   | 80.5  |   | 24.7  |   | 191.3   |  | 26.7  |
| Approach LOS         |   | F   |   | C   |   | F   |  | C   |

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 138.6

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 57.7









Intersection LOS: E

Intersection Capacity Utilization 90.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |

## Queues

2038 No Build

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         | →     | ↙    | ←     | ↑     | ↓    |
|-------------------------|-------|------|-------|-------|------|
| Lane Group              | EBT   | WBL  | WBT   | NBT   | SBT  |
| Lane Group Flow (vph)   | 868   | 62   | 1379  | 223   | 61   |
| v/c Ratio               | 1.09  | 0.13 | 0.94  | 1.24  | 0.27 |
| Control Delay           | 80.5  | 3.4  | 25.6  | 191.3 | 26.7 |
| Queue Delay             | 0.0   | 0.0  | 0.0   | 0.0   | 0.0  |
| Total Delay             | 80.5  | 3.4  | 25.6  | 191.3 | 26.7 |
| Queue Length 50th (ft)  | ~902  | 10   | 841   | ~248  | 16   |
| Queue Length 95th (ft)  | #1160 | 18   | #1487 | #420  | 61   |
| Internal Link Dist (ft) | 1053  |      | 490   | 351   | 331  |
| Turn Bay Length (ft)    |       | 290  |       |       |      |
| Base Capacity (vph)     | 793   | 493  | 1464  | 180   | 229  |
| Starvation Cap Reductn  | 0     | 0    | 0     | 0     | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0     | 0     | 0    |
| Storage Cap Reductn     | 0     | 0    | 0     | 0     | 0    |
| Reduced v/c Ratio       | 1.09  | 0.13 | 0.94  | 1.24  | 0.27 |

## Intersection Summary


















- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

2038 No Build






















AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 24  | 625   | 132   | 56  | 1241  | 0   | 152  | 4   | 45  | 16  | 2   | 37  |
| Future Volume (vph)               | 24  | 625   | 132   | 56  | 1241  | 0   | 152  | 4   | 45  | 16  | 2   | 37  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 0.98  |   | 1.00  | 1.00  |   |  | 0.97  |   |   | 0.91  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.96  |   |   | 0.99  |   |
| Satd. Flow (prot)                 |   | 1776  |   | 1736  | 1827  |   |  | 1724  |   |   | 1532  |   |
| Flt Permitted                     |   | 0.59  |   | 0.31  | 1.00  |   |  | 0.73  |   |   | 0.93  |   |
| Satd. Flow (perm)                 |   | 1056  |   | 563   | 1827  |   |  | 1301  |   |   | 1447  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 27  | 694   | 147   | 62  | 1379  | 0   | 169  | 4   | 50  | 18  | 2   | 41  |
| RTOR Reduction (vph)              | 0   | 5   | 0   | 0   | 0   | 0   | 0  | 7   | 0   | 0   | 36  | 0   |
| Lane Group Flow (vph)             | 0   | 863   | 0   | 62  | 1379  | 0   | 0  | 216   | 0   | 0   | 25  | 0   |
| Heavy Vehicles (%)                | 2%  | 5%  | 2%  | 4%  | 4%  | 2%  | 3%   | 2%  | 3%  | 8%  | 2%  | 13%   |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt  | NA  |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 103.6   |   | 112.0   | 112.0   |   |  | 18.5  |   |   | 18.5  |   |
| Effective Green, g (s)            |   | 103.6   |   | 112.0   | 112.0   |   |  | 18.5  |   |   | 18.5  |   |
| Actuated g/C Ratio                |   | 0.74  |   | 0.80  | 0.80  |   |  | 0.13  |   |   | 0.13  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 784   |   | 484   | 1466  |   |  | 172   |   |   | 191   |   |
| v/s Ratio Prot                    |   |   |   | 0.00  | c0.75   |   |  |   |   |   |   |   |
| v/s Ratio Perm                    |   | c0.82   |   | 0.10  |   |   |  | c0.17   |   |   | 0.02  |   |
| v/c Ratio                         |   | 1.10  |   | 0.13  | 0.94  |   |  | 1.26  |   |   | 0.13  |   |
| Uniform Delay, d1                 |   | 18.0  |   | 4.0   | 11.1  |   |  | 60.5  |   |   | 53.4  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 63.5  |   | 0.1   | 12.1  |   |  | 153.8   |   |   | 0.3   |   |
| Delay (s)                         |   | 81.4  |   | 4.1   | 23.2  |   |  | 214.3   |   |   | 53.7  |   |
| Level of Service                  |   | F   |   | A   | C   |   |  | F   |   |   | D   |   |
| Approach Delay (s)                |   | 81.4  |   |   | 22.4  |   |  | 214.3   |   |   | 53.7  |   |
| Approach LOS                      |   | F   |   |   | C   |   |  | F   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 59.4  |   |   | HCM 2000 Level of Service   |  |   |   | E   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.18  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 139.5   |   |   | Sum of lost time (s)  |  |   | 18.0  |   |   |   |
| Intersection Capacity Utilization |   |   | 90.9%   |   |   | ICU Level of Service  |  |   | E   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis 15: US 21 Lady's Island Rd & Rue Du Bois/Driveway










2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |    |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 22  | 1   | 54  | 4   | 0   | 7   | 80  | 1065  | 22  | 34  | 1842  | 47  |
| Future Volume (Veh/h)             | 22  | 1   | 54  | 4   | 0   | 7   | 80  | 1065  | 22  | 34  | 1842  | 47  |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 24  | 1   | 60  | 4   | 0   | 8   | 89  | 1183  | 24  | 38  | 2047  | 52  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | None  |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   | 2   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 2900  | 3508  | 1024  | 2533  | 3548  | 604   | 2099  |   |   |   | 1207  |   |
| vC1, stage 1 conf vol             | 2123  | 2123  |   | 1373  | 1373  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 778   | 1385  |   | 1160  | 2175  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 2900  | 3508  | 1024  | 2533  | 3548  | 604   | 2099  |   |   |   | 1207  |   |
| tC, single (s)                    | 7.6   | 8.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.2   |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.6   | 7.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.6   | 5.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   |   | 2.2   |   |
| p0 queue free %                   | 44  | 93  | 74  | 91  | 100   | 98  | 64  |   |   |   | 93  |   |
| cM capacity (veh/h)               | 43  | 15  | 233   | 43  | 3   | 442   | 248   |   |   |   | 574   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  | SB 4  |   |   |
| Volume Total                      | 25  | 60  | 12  | 89  | 789   | 418   | 38  | 1024  | 1024  | 52  |   |   |
| Volume Left                       | 24  | 0   | 4   | 89  | 0   | 0   | 38  | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 60  | 8   | 0   | 0   | 24  | 0   | 0   | 0   | 52  |   |   |
| cSH                               | 40  | 233   | 108   | 248   | 1700  | 1700  | 574   | 1700  | 1700  | 1700  |   |   |
| Volume to Capacity                | 0.63  | 0.26  | 0.11  | 0.36  | 0.46  | 0.25  | 0.07  | 0.60  | 0.60  | 0.03  |   |   |
| Queue Length 95th (ft)            | 57  | 25  | 9   | 39  | 0   | 0   | 5   | 0   | 0   | 0   |   |   |
| Control Delay (s)                 | 192.9   | 25.7  | 42.6  | 27.4  | 0.0   | 0.0   | 11.7  | 0.0   | 0.0   | 0.0   |   |   |
| Lane LOS                          | F   | D   | E   | D   | B   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 74.9  |   | 42.6  | 1.9   | 0.2   |   |   |   |   |   |   |   |
| Approach LOS                      | F   |   | E   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 2.8   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 69.7%   |   |   | ICU Level of Service  |   |   |   |   | C   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 16: US 21 Lady's Island Rd & Hazel Farm Rd




















2038 No Build  
AM Peak Hour

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | WBL   | WBR   | NET   | NER   | SWL   | SWT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 17  | 1   | 1097  | 5   | 0   | 1910  |
| Future Volume (Veh/h)             | 17  | 1   | 1097  | 5   | 0   | 1910  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 19  | 1   | 1219  | 6   | 0   | 2122  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage veh)               |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 2283  | 612   |   |   | 1225  |   |
| vC1, stage 1 conf vol             | 1222  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1061  |   |   |   |   |   |
| vCu, unblocked vol                | 2283  | 612   |   |   | 1225  |   |
| tC, single (s)                    | 6.8   | 6.9   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 5.8   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 90  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 183   | 436   |   |   | 565   |   |
| Direction, Lane #                 | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  |   |
| Volume Total                      | 20  | 813   | 412   | 707   | 1415  |   |
| Volume Left                       | 19  | 0   | 0   | 0   | 0   |   |
| Volume Right                      | 1   | 0   | 6   | 0   | 0   |   |
| cSH                               | 188   | 1700  | 1700  | 565   | 1700  |   |
| Volume to Capacity                | 0.11  | 0.48  | 0.24  | 0.00  | 0.83  |   |
| Queue Length 95th (ft)            | 9   | 0   | 0   | 0   | 0   |   |
| Control Delay (s)                 | 26.4  | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Lane LOS                          | D   |   |   |   |   |   |
| Approach Delay (s)                | 26.4  | 0.0   |   | 0.0   |   |   |
| Approach LOS                      | D   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 62.8%   | ICU Level of Service  |   | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 17: US 21 Lady's Island Rd & Ferry Rd











2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |  |   |  |  |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 4   | 0   | 21  | 134   | 1   | 22  | 39   | 1025  | 26  | 26  | 1763  | 63  |
| Future Volume (Veh/h)             | 4   | 0   | 21  | 134   | 1   | 22  | 39   | 1025  | 26  | 26  | 1763  | 63  |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free   |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 0   | 23  | 149   | 1   | 24  | 43   | 1139  | 29  | 29  | 1959  | 70  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            | 5   |   |   | 5   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL  |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   | 2  |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   | 1003  |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 2720  | 3306  | 1014  | 2277  | 3326  | 584   | 2029   |   |   |   | 1168  |   |
| vC1, stage 1 conf vol             | 2052  | 2052  |   | 1240  | 1240  |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 668   | 1254  |   | 1038  | 2087  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 2720  | 3306  | 1014  | 2277  | 3326  | 584   | 2029   |   |   |   | 1168  |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.0   | 7.5   | 6.5   | 7.0   | 4.1  |   |   |   | 4.2   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.4   | 2.2  |   |   |   | 2.2   |   |
| p0 queue free %                   | 92  | 100   | 90  | 0   | 98  | 95  | 84   |   |   |   | 95  |   |
| cM capacity (veh/h)               | 52  | 78  | 229   | 111   | 43  | 445   | 276  |   |   |   | 577   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  | SW 3   |   |   |   |   |   |
| Volume Total                      | 27  | 174   | 612   | 598   | 29  | 1306  | 723  |   |   |   |   |   |
| Volume Left                       | 4   | 149   | 43  | 0   | 29  | 0   | 0  |   |   |   |   |   |
| Volume Right                      | 23  | 24  | 0   | 29  | 0   | 0   | 70   |   |   |   |   |   |
| cSH                               | 269   | 125   | 276   | 1700  | 577   | 1700  | 1700   |   |   |   |   |   |
| Volume to Capacity                | 0.10  | 1.40  | 0.16  | 0.35  | 0.05  | 0.77  | 0.43   |   |   |   |   |   |
| Queue Length 95th (ft)            | 8   | 293   | 14  | 0   | 4   | 0   | 0  |   |   |   |   |   |
| Control Delay (s)                 | 31.0  | 284.4   | 5.9   | 0.0   | 11.6  | 0.0   | 0.0  |   |   |   |   |   |
| Lane LOS                          | D   | F   | A   |   | B   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 31.0  | 284.4   | 3.0   |   | 0.2   |   |  |   |   |   |   |   |
| Approach LOS                      | D   | F   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 15.6  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 78.5%   |   |   | ICU Level of Service  |   |   |  | D   |   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 18: SC 802 Sams Point Rd & Sams Point Way

















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |  |  |
| Traffic Volume (veh/h)            | 11  | 112   | 921   | 22  | 189   | 2137  |
| Future Volume (Veh/h)             | 11  | 112   | 921   | 22  | 189   | 2137  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 12  | 124   | 1023  | 24  | 210   | 2374  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage (veh)              |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 2642  | 524   |   |   | 1047  |   |
| vC1, stage 1 conf vol             | 1035  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1607  |   |   |   |   |   |
| vCu, unblocked vol                | 2642  | 524   |   |   | 1047  |   |
| tC, single (s)                    | 7.2   | 6.9   |   |   | 4.2   |   |
| tC, 2 stage (s)                   | 6.2   |   |   |   |   |   |
| tF (s)                            | 3.7   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 84  | 75  |   |   | 68  |   |
| cM capacity (veh/h)               | 76  | 498   |   |   | 648   |   |
| Direction, Lane #                 | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  | SB 3  |
| Volume Total                      | 136   | 682   | 365   | 210   | 1187  | 1187  |
| Volume Left                       | 12  | 0   | 0   | 210   | 0   | 0   |
| Volume Right                      | 124   | 0   | 24  | 0   | 0   | 0   |
| cSH                               | 335   | 1700  | 1700  | 648   | 1700  | 1700  |
| Volume to Capacity                | 0.41  | 0.40  | 0.21  | 0.32  | 0.70  | 0.70  |
| Queue Length 95th (ft)            | 48  | 0   | 0   | 35  | 0   | 0   |
| Control Delay (s)                 | 22.9  | 0.0   | 0.0   | 13.2  | 0.0   | 0.0   |
| Lane LOS                          | C   |   |   | B   |   |   |
| Approach Delay (s)                | 22.9  | 0.0   |   | 1.1   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 1.6   |   |   |   |
| Intersection Capacity Utilization |   |   | 73.3%   |   | ICU Level of Service  | D   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 19: SC 802 Sams Point Rd & Ashland Park Rd/Driveway



















2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 1   | 0   | 11  | 0   | 0   | 0   | 14  | 1003  | 0   | 1   | 2352  | 7   |
| Future Volume (Veh/h)             | 1   | 0   | 11  | 0   | 0   | 0   | 14  | 1003  | 0   | 1   | 2352  | 7   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 12  | 0   | 0   | 0   | 16  | 1114  | 0   | 1   | 2613  | 8   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |   | TWLTL   |   |   | TWLTL   |   |
| Median storage veh                |   |   |   |   |   |   |   | 2   |   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 3208  | 3765  | 1310  | 2466  | 3769  | 557   | 2621  |   |   | 1114  |   |   |
| vC1, stage 1 conf vol             | 2619  | 2619  |   | 1146  | 1146  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 589   | 1146  |   | 1320  | 2623  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 3208  | 3765  | 1310  | 2466  | 3769  | 557   | 2621  |   |   | 1114  |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.1   |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   | 2.2   |   |   |
| p0 queue free %                   | 96  | 100   | 92  | 100   | 100   | 100   | 90  |   |   | 100   |   |   |
| cM capacity (veh/h)               | 24  | 47  | 149   | 106   | 32  | 474   | 161   |   |   | 623   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  |   |   |   |   |   |   |
| Volume Total                      | 13  | 0   | 573   | 557   | 1308  | 1314  |   |   |   |   |   |   |
| Volume Left                       | 1   | 0   | 16  | 0   | 1   | 0   |   |   |   |   |   |   |
| Volume Right                      | 12  | 0   | 0   | 0   | 0   | 8   |   |   |   |   |   |   |
| cSH                               | 106   | 1700  | 161   | 1700  | 623   | 1700  |   |   |   |   |   |   |
| Volume to Capacity                | 0.12  | 0.00  | 0.10  | 0.33  | 0.00  | 0.77  |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 10  | 0   | 8   | 0   | 0   | 0   |   |   |   |   |   |   |
| Control Delay (s)                 | 43.6  | 0.0   | 5.1   | 0.0   | 0.1   | 0.0   |   |   |   |   |   |   |
| Lane LOS                          | E   | A   | A   |   | A   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 43.6  | 0.0   | 2.6   |   | 0.0   |   |   |   |   |   |   |   |
| Approach LOS                      | E   | A   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 1.0   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 75.9%   |   | ICU Level of Service  |   |   |   |   | D   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E

2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |    |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 9   | 0   | 41  | 19  | 1   | 5   | 16  | 958   | 24  | 4   | 2277  | 156   |
| Future Volume (Veh/h)             | 9   | 0   | 41  | 19  | 1   | 5   | 16  | 958   | 24  | 4   | 2277  | 156   |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 10  | 0   | 46  | 21  | 1   | 6   | 18  | 1064  | 27  | 4   | 2530  | 173   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL   |   |   | TWLTL   |   |   |
| Median storage veh)               |   |   |   |   |   |   | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 3199  | 3752  | 1352  | 2432  | 3824  | 546   | 2703  |   |   |   | 1091  |   |
| vC1, stage 1 conf vol             | 2624  | 2624  |   | 1114  | 1114  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 574   | 1127  |   | 1319  | 2711  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 3199  | 3752  | 1352  | 2432  | 3824  | 546   | 2703  |   |   |   | 1091  |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.0   | 7.5   | 6.5   | 6.9   | 4.3   |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.3   | 2.3   |   |   |   | 2.2   |   |
| p0 queue free %                   | 57  | 100   | 66  | 73  | 96  | 99  | 87  |   |   |   | 99  |   |
| cM capacity (veh/h)               | 23  | 46  | 135   | 79  | 25  | 482   | 135   |   |   |   | 635   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  |   |   |   |   |
| Volume Total                      | 56  | 28  | 18  | 709   | 382   | 4   | 1687  | 1016  |   |   |   |   |
| Volume Left                       | 10  | 21  | 18  | 0   | 0   | 4   | 0   | 0   |   |   |   |   |
| Volume Right                      | 46  | 6   | 0   | 0   | 27  | 0   | 0   | 173   |   |   |   |   |
| cSH                               | 73  | 88  | 135   | 1700  | 1700  | 635   | 1700  | 1700  |   |   |   |   |
| Volume to Capacity                | 0.77  | 0.32  | 0.13  | 0.42  | 0.22  | 0.01  | 0.99  | 0.60  |   |   |   |   |
| Queue Length 95th (ft)            | 91  | 30  | 11  | 0   | 0   | 0   | 0   | 0   |   |   |   |   |
| Control Delay (s)                 | 142.8   | 64.0  | 35.8  | 0.0   | 0.0   | 10.7  | 0.0   | 0.0   |   |   |   |   |
| Lane LOS                          | F   | F   | E   |   |   |   | B   |   |   |   |   |   |
| Approach Delay (s)                | 142.8   | 64.0  | 0.6   |   |   |   | 0.0   |   |   |   |   |   |
| Approach LOS                      | F   | F   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   |   | 2.7   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 79.1%   | ICU Level of Service  |   |   |   | D   |   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis













## 21: Taco Bell Driveway & US 21 Sea Island Pkwy

2038 No Build  
AM Peak Hour

|                                   | →    | ↘    | ↙     | ←     | ↖                    | ↗    |
|-----------------------------------|------|------|-------|-------|----------------------|------|
| Movement                          | EBT  | EBR  | WBL   | WBT   | NBL                  | NBR  |
| Lane Configurations               | ↑    | ↗    |       | ↑↑    |                      | ↗    |
| Traffic Volume (veh/h)            | 981  | 17   | 0     | 1569  | 0                    | 10   |
| Future Volume (Veh/h)             | 981  | 17   | 0     | 1569  | 0                    | 10   |
| Sign Control                      | Free |      |       | Free  | Stop                 |      |
| Grade                             | 0%   |      |       | 0%    | 0%                   |      |
| Peak Hour Factor                  | 0.92 | 0.92 | 0.92  | 0.92  | 0.92                 | 0.92 |
| Hourly flow rate (vph)            | 1066 | 18   | 0     | 1705  | 0                    | 11   |
| Pedestrians                       |      |      |       |       |                      |      |
| Lane Width (ft)                   |      |      |       |       |                      |      |
| Walking Speed (ft/s)              |      |      |       |       |                      |      |
| Percent Blockage                  |      |      |       |       |                      |      |
| Right turn flare (veh)            |      |      |       |       |                      |      |
| Median type                       | None |      |       | TWLTL |                      |      |
| Median storage veh                |      |      |       | 2     |                      |      |
| Upstream signal (ft)              |      |      |       | 897   |                      |      |
| pX, platoon unblocked             |      |      |       |       | 0.67                 |      |
| vC, conflicting volume            |      |      | 1084  |       | 1918                 | 1066 |
| vC1, stage 1 conf vol             |      |      |       |       | 1066                 |      |
| vC2, stage 2 conf vol             |      |      |       |       | 852                  |      |
| vCu, unblocked vol                |      |      | 1084  |       | 1393                 | 1066 |
| tC, single (s)                    |      |      | 4.1   |       | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |       | 5.8                  |      |
| tF (s)                            |      |      | 2.2   |       | 3.5                  | 3.3  |
| p0 queue free %                   |      |      | 100   |       | 100                  | 95   |
| cM capacity (veh/h)               |      |      | 639   |       | 270                  | 218  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2  | NB 1                 |      |
| Volume Total                      | 1066 | 18   | 852   | 852   | 11                   |      |
| Volume Left                       | 0    | 0    | 0     | 0     | 0                    |      |
| Volume Right                      | 0    | 18   | 0     | 0     | 11                   |      |
| cSH                               | 1700 | 1700 | 1700  | 1700  | 218                  |      |
| Volume to Capacity                | 0.63 | 0.01 | 0.50  | 0.50  | 0.05                 |      |
| Queue Length 95th (ft)            | 0    | 0    | 0     | 0     | 4                    |      |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0   | 22.4                 |      |
| Lane LOS                          |      |      |       |       | C                    |      |
| Approach Delay (s)                | 0.0  |      | 0.0   |       | 22.4                 |      |
| Approach LOS                      |      |      |       |       | C                    |      |
| <b>Intersection Summary</b>       |      |      |       |       |                      |      |
| Average Delay                     |      |      | 0.1   |       |                      |      |
| Intersection Capacity Utilization |      |      | 61.6% |       | ICU Level of Service | B    |
| Analysis Period (min)             |      |      | 15    |       |                      |      |

# HCM Unsignalized Intersection Capacity Analysis 22: US 21 Sea Island Pkwy & Walmart Driveway #3

2038 No Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 145   | 769   | 1363  | 72  | 30  | 60  |
| Future Volume (Veh/h)             | 145   | 769   | 1363  | 72  | 30  | 60  |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 158   | 836   | 1482  | 78  | 33  | 65  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   | 7   |
| Median type                       |   | TWLTL   | TWLTL   |   |   |   |
| Median storage (veh)              |   | 2   | 2   |   |   |   |
| Upstream signal (ft)              |   | 472   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.70  |   |
| vC, conflicting volume            | 1560  |   |   |   | 2634  | 1482  |
| vC1, stage 1 conf vol             |   |   |   |   | 1482  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1152  |   |
| vCu, unblocked vol                | 1560  |   |   |   | 3113  | 1482  |
| tC, single (s)                    | 4.1   |   |   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            | 2.2   |   |   |   | 3.5   | 3.3   |
| p0 queue free %                   | 63  |   |   |   | 72  | 58  |
| cM capacity (veh/h)               | 424   |   |   |   | 117   | 154   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | SB 1  |   |
| Volume Total                      | 158   | 836   | 1482  | 78  | 98  |   |
| Volume Left                       | 158   | 0   | 0   | 0   | 33  |   |
| Volume Right                      | 0   | 0   | 0   | 78  | 65  |   |
| cSH                               | 424   | 1700  | 1700  | 1700  | 232   |   |
| Volume to Capacity                | 0.37  | 0.49  | 0.87  | 0.05  | 0.42  |   |
| Queue Length 95th (ft)            | 42  | 0   | 0   | 0   | 49  |   |
| Control Delay (s)                 | 18.5  | 0.0   | 0.0   | 0.0   | 45.5  |   |
| Lane LOS                          | C   |   |   |   | E   |   |
| Approach Delay (s)                | 2.9   |   | 0.0   |   | 45.5  |   |
| Approach LOS                      |   |   |   |   | E   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 2.8   |   |   |   |
| Intersection Capacity Utilization |   |   | 93.1%   |   | ICU Level of Service  | F   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 23: US 21 Sea Island Pkwy & Walmart Driveway #4

2038 No Build  
AM Peak Hour




















| Movement                          | EBL  | EBT   | WBT   | WBR                  | SBL  | SBR  |
|-----------------------------------|------|-------|-------|----------------------|------|------|
| Lane Configurations               |      | ↑     | ↑     | ↗                    |      | ↗    |
| Traffic Volume (veh/h)            | 0    | 799   | 1405  | 36                   | 0    | 30   |
| Future Volume (Veh/h)             | 0    | 799   | 1405  | 36                   | 0    | 30   |
| Sign Control                      |      | Free  | Free  |                      | Stop |      |
| Grade                             |      | 0%    | 0%    |                      | 0%   |      |
| Peak Hour Factor                  | 0.92 | 0.92  | 0.92  | 0.92                 | 0.92 | 0.92 |
| Hourly flow rate (vph)            | 0    | 868   | 1527  | 39                   | 0    | 33   |
| Pedestrians                       |      |       |       |                      |      |      |
| Lane Width (ft)                   |      |       |       |                      |      |      |
| Walking Speed (ft/s)              |      |       |       |                      |      |      |
| Percent Blockage                  |      |       |       |                      |      |      |
| Right turn flare (veh)            |      |       |       |                      |      |      |
| Median type                       |      | TWLTL | TWLTL |                      |      |      |
| Median storage veh                |      | 2     | 2     |                      |      |      |
| Upstream signal (ft)              |      | 911   |       |                      |      |      |
| pX, platoon unblocked             |      |       |       |                      | 0.70 |      |
| vC, conflicting volume            | 1566 |       |       |                      | 2395 | 1527 |
| vC1, stage 1 conf vol             |      |       |       |                      | 1527 |      |
| vC2, stage 2 conf vol             |      |       |       |                      | 868  |      |
| vCu, unblocked vol                | 1566 |       |       |                      | 2775 | 1527 |
| tC, single (s)                    | 4.1  |       |       |                      | 6.4  | 6.2  |
| tC, 2 stage (s)                   |      |       |       |                      | 5.4  |      |
| tF (s)                            | 2.2  |       |       |                      | 3.5  | 3.3  |
| p0 queue free %                   | 100  |       |       |                      | 100  | 77   |
| cM capacity (veh/h)               | 421  |       |       |                      | 168  | 145  |
| Direction, Lane #                 | EB 1 | WB 1  | WB 2  | SB 1                 |      |      |
| Volume Total                      | 868  | 1527  | 39    | 33                   |      |      |
| Volume Left                       | 0    | 0     | 0     | 0                    |      |      |
| Volume Right                      | 0    | 0     | 39    | 33                   |      |      |
| cSH                               | 1700 | 1700  | 1700  | 145                  |      |      |
| Volume to Capacity                | 0.51 | 0.90  | 0.02  | 0.23                 |      |      |
| Queue Length 95th (ft)            | 0    | 0     | 0     | 21                   |      |      |
| Control Delay (s)                 | 0.0  | 0.0   | 0.0   | 37.1                 |      |      |
| Lane LOS                          |      |       |       | E                    |      |      |
| Approach Delay (s)                | 0.0  | 0.0   |       | 37.1                 |      |      |
| Approach LOS                      |      |       |       | E                    |      |      |
| Intersection Summary              |      |       |       |                      |      |      |
| Average Delay                     |      |       | 0.5   |                      |      |      |
| Intersection Capacity Utilization |      |       | 83.9% | ICU Level of Service |      | E    |
| Analysis Period (min)             |      |       | 15    |                      |      |      |

# HCM Unsignalized Intersection Capacity Analysis














## 1: Meridian Rd/Driveway & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 0   | 1418  | 71  | 61  | 1061  | 2   | 63  | 1   | 69  | 1   | 0   | 1   |
| Future Volume (Veh/h)             | 0   | 1418  | 71  | 61  | 1061  | 2   | 63  | 1   | 69  | 1   | 0   | 1   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 1576  | 79  | 68  | 1179  | 2   | 70  | 1   | 77  | 1   | 0   | 1   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1181  |   |   | 1655  |   |   | 2932  | 2932  | 1616  | 3009  | 2971  | 1180  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1616  | 1616  |   | 1316  | 1316  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1316  | 1317  |   | 1693  | 1655  |   |
| vCu, unblocked vol                | 1181  |   |   | 1655  |   |   | 2932  | 2932  | 1616  | 3009  | 2971  | 1180  |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 83  |   |   | 27  | 99  | 40  | 65  | 100   | 100   |
| cM capacity (veh/h)               | 591   |   |   | 390   |   |   | 96  | 117   | 128   | 3   | 77  | 232   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NB 1  | SB 1  |   |   |   |   |   |   |   |
| Volume Total                      | 1655  | 68  | 1181  | 148   | 2   |   |   |   |   |   |   |   |
| Volume Left                       | 0   | 68  | 0   | 70  | 1   |   |   |   |   |   |   |   |
| Volume Right                      | 79  | 0   | 2   | 77  | 1   |   |   |   |   |   |   |   |
| cSH                               | 591   | 390   | 1700  | 110   | 6   |   |   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.17  | 0.69  | 1.34  | 0.36  |   |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 16  | 0   | 254   | 17  |   |   |   |   |   |   |   |
| Control Delay (s)                 | 0.0   | 16.2  | 0.0   | 274.4   | 855.8   |   |   |   |   |   |   |   |
| Lane LOS                          |   | C   |   | F   | F   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.9   |   | 274.4   | 855.8   |   |   |   |   |   |   |   |
| Approach LOS                      |   |   |   | F   | F   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 14.2  |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 95.1%   |   | ICU Level of Service  |   |   |   | F   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

# Timings 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour





|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 2   | 1481  | 25  | 1099  | 50  | 1   | 5  | 0   |
| Future Volume (vph)  | 2   | 1481  | 25  | 1099  | 50  | 1   | 5  | 0   |
| Turn Type            | Perm  | NA  | Perm  | NA  | Perm  | NA  | Perm   | NA  |
| Protected Phases     |   | 4   |   | 8   |   | 2   |  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 4   | 4   | 8   | 8   | 2   | 2   | 6  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  |
| Total Split (s)      | 127.0   | 127.0   | 127.0   | 127.0   | 23.0  | 23.0  | 23.0   | 23.0  |
| Total Split (%)      | 84.7%   | 84.7%   | 84.7%   | 84.7%   | 15.3%   | 15.3%   | 15.3%  | 15.3%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             |   |   |   |   |   |   |  |   |
| Lead-Lag Optimize?   |   |   |   |   |   |   |  |   |
| Recall Mode          | None  | None  | None  | None  | Max   | Max   | Max  | Max   |
| Act Effct Green (s)  |   | 122.5   | 122.5   | 122.5   |   | 18.5  |  | 18.5  |
| Actuated g/C Ratio   |   | 0.82  | 0.82  | 0.82  |   | 0.12  |  | 0.12  |
| v/c Ratio            |   | 1.10  | 0.12  | 0.81  |   | 0.54  |  | 0.04  |
| Control Delay        |   | 72.3  | 4.0   | 12.9  |   | 58.6  |  | 22.4  |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 72.3  | 4.0   | 12.9  |   | 58.6  |  | 22.4  |
| LOS                  |   | E   | A   | B   |   | E   |  | C   |
| Approach Delay       |   | 72.3  |   | 12.7  |   | 58.6  |  | 22.4  |
| Approach LOS         |   | E   |   | B   |   | E   |  | C   |

## Intersection Summary

Cycle Length: 150  
Actuated Cycle Length: 150  
Natural Cycle: 150  
Control Type: Actuated-Uncoordinated  
Maximum v/c Ratio: 1.10  
Intersection Signal Delay: 47.0  
Intersection Capacity Utilization 94.1%  
Analysis Period (min) 15

Intersection LOS: D  
ICU Level of Service F

Splits and Phases: 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

|  |  |
|--|--|
|  Ø2 |  Ø4 |
| 23 s   | 127 s  |
|  Ø6 |  Ø8 |
| 23 s   | 127 s  |

## Queues

2038 No Build

## 2: Geechie Rd/Driveway &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         | →     | ↘    | ←    | ↑    | ↓    |
|-------------------------|-------|------|------|------|------|
| Lane Group              | EBT   | WBL  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 1669  | 28   | 1229 | 108  | 8    |
| v/c Ratio               | 1.10  | 0.12 | 0.81 | 0.54 | 0.04 |
| Control Delay           | 72.3  | 4.0  | 12.9 | 58.6 | 22.4 |
| Queue Delay             | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 72.3  | 4.0  | 12.9 | 58.6 | 22.4 |
| Queue Length 50th (ft)  | ~1851 | 5    | 541  | 78   | 0    |
| Queue Length 95th (ft)  | #2116 | 12   | 758  | 146  | 15   |
| Internal Link Dist (ft) | 1321  |      | 417  | 377  | 79   |
| Turn Bay Length (ft)    |       | 200  |      |      |      |
| Base Capacity (vph)     | 1516  | 234  | 1520 | 200  | 204  |
| Starvation Cap Reductn  | 0     | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.10  | 0.12 | 0.81 | 0.54 | 0.04 |


















## Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour



















|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 2   | 1481  | 19  | 25  | 1099  | 7   | 50   | 1   | 46  | 5   | 0   | 2   |
| Future Volume (vph)               | 2   | 1481  | 19  | 25  | 1099  | 7   | 50   | 1   | 46  | 5   | 0   | 2   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 1.00  |   | 1.00  | 1.00  |   |  | 0.94  |   |   | 0.97  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.97  |   |   | 0.96  |   |
| Satd. Flow (prot)                 |   | 1859  |   | 1770  | 1861  |   |  | 1700  |   |   | 1735  |   |
| Flt Permitted                     |   | 1.00  |   | 0.15  | 1.00  |   |  | 0.83  |   |   | 0.88  |   |
| Satd. Flow (perm)                 |   | 1858  |   | 287   | 1861  |   |  | 1453  |   |   | 1584  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 2   | 1646  | 21  | 28  | 1221  | 8   | 56   | 1   | 51  | 6   | 0   | 2   |
| RTOR Reduction (vph)              | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 21  | 0   | 0   | 7   | 0   |
| Lane Group Flow (vph)             | 0   | 1669  | 0   | 28  | 1229  | 0   | 0  | 87  | 0   | 0   | 1   | 0   |
| Turn Type                         | Perm  | NA  |   | Perm  | NA  |   | Perm   | NA  |   | Perm  | NA  |   |
| Protected Phases                  |   | 4   |   |   | 8   |   |  | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 122.5   |   | 122.5   | 122.5   |   |  | 18.5  |   |   | 18.5  |   |
| Effective Green, g (s)            |   | 122.5   |   | 122.5   | 122.5   |   |  | 18.5  |   |   | 18.5  |   |
| Actuated g/C Ratio                |   | 0.82  |   | 0.82  | 0.82  |   |  | 0.12  |   |   | 0.12  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 1517  |   | 234   | 1519  |   |  | 179   |   |   | 195   |   |
| v/s Ratio Prot                    |   |   |   |   | 0.66  |   |  |   |   |   |   |   |
| v/s Ratio Perm                    |   | c0.90   |   | 0.10  |   |   |  | c0.06   |   |   | 0.00  |   |
| v/c Ratio                         |   | 1.10  |   | 0.12  | 0.81  |   |  | 0.49  |   |   | 0.01  |   |
| Uniform Delay, d1                 |   | 13.8  |   | 2.8   | 7.4   |   |  | 61.3  |   |   | 57.7  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 55.6  |   | 0.2   | 3.3   |   |  | 9.1   |   |   | 0.0   |   |
| Delay (s)                         |   | 69.3  |   | 3.0   | 10.7  |   |  | 70.5  |   |   | 57.7  |   |
| Level of Service                  |   | E   |   | A   | B   |   |  | E   |   |   | E   |   |
| Approach Delay (s)                |   | 69.3  |   |   | 10.5  |   |  | 70.5  |   |   | 57.7  |   |
| Approach LOS                      |   | E   |   |   | B   |   |  | E   |   |   | E   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 45.0  |   |   | HCM 2000 Level of Service   |  |   |   | D   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.02  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 150.0   |   |   | Sum of lost time (s)  |  |   |   | 9.0   |   |   |
| Intersection Capacity Utilization |   |   | 94.1%   |   |   | ICU Level of Service  |  |   |   | F   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy


















2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 139   | 1307  | 71  | 46  | 1013  | 55  | 48   | 19  | 78  | 29  | 17  | 77  |
| Future Volume (Veh/h)             | 139   | 1307  | 71  | 46  | 1013  | 55  | 48   | 19  | 78  | 29  | 17  | 77  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 154   | 1452  | 79  | 51  | 1126  | 61  | 53   | 21  | 87  | 32  | 19  | 86  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       | None  |   |   | TWLTL   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   | 2   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              | 497   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   | 0.24  |   |   | 0.24   |   |   | 0.24  |   |   |
| vC, conflicting volume            | 1187  |   |   | 1531  |   |   | 3123   |   |   | 3088  |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1800   |   |   | 1258  |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1324   |   |   | 1858  |   |   |
| vCu, unblocked vol                | 1187  |   |   | 1632  |   |   | 8403   |   |   | 8256  |   |   |
| tC, single (s)                    | 4.1   |   |   | 4.2   |   |   | 7.1  |   |   | 6.5   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1  |   |   | 5.5   |   |   |
| tF (s)                            | 2.2   |   |   | 2.3   |   |   | 3.5  |   |   | 4.0   |   |   |
| p0 queue free %                   | 74  |   |   | 44  |   |   | 0  |   |   | 0   |   |   |
| cM capacity (veh/h)               | 588   |   |   | 91  |   |   | 0  |   |   | 37  |   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | NE 1  | SW 1  |  |   |   |   |   |   |
| Volume Total                      | 154   | 1531  | 51  | 1187  | 161   | 137   |  |   |   |   |   |   |
| Volume Left                       | 154   | 0   | 51  | 0   | 53  | 32  |  |   |   |   |   |   |
| Volume Right                      | 0   | 79  | 0   | 61  | 87  | 86  |  |   |   |   |   |   |
| cSH                               | 588   | 1700  | 91  | 1700  | 0   | 0   |  |   |   |   |   |   |
| Volume to Capacity                | 0.26  | 0.90  | 0.56  | 0.70  | Err   | Err   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 26  | 0   | 63  | 0   | Err   | Err   |  |   |   |   |   |   |
| Control Delay (s)                 | 13.3  | 0.0   | 86.3  | 0.0   | Err   | Err   |  |   |   |   |   |   |
| Lane LOS                          | B   |   | F   |   | F   | F   |  |   |   |   |   |   |
| Approach Delay (s)                | 1.2   |   | 3.6   |   | Err   | Err   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   |   | F   | F   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   |   | Err   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 99.4%   |   |   | ICU Level of Service   |   |   | F   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 4: Youmans Dr/Driveway & US 21 Sea Island Pkwy













2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 4   | 1439  | 20  | 75  | 1147  | 5   | 16   | 1   | 117   | 5   | 1   | 9   |
| Future Volume (Veh/h)             | 4   | 1439  | 20  | 75  | 1147  | 5   | 16   | 1   | 117   | 5   | 1   | 9   |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 1599  | 22  | 83  | 1274  | 6   | 18   | 1   | 130   | 6   | 1   | 10  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   | TWLT  |   |   | None  |   |  |   |   |   |   |   |
| Median storage veh                |   | 2   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   | 1218  |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   | 0.24  |   |   | 0.24   | 0.24  | 0.24  | 0.24  | 0.24  |   |
| vC, conflicting volume            | 1280  |   |   | 1621  |   |   | 3068   | 3064  | 1610  | 3192  | 3072  | 1277  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1618   | 1618  |   | 1443  | 1443  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1450   | 1446  |   | 1748  | 1629  |   |
| vCu, unblocked vol                | 1280  |   |   | 2005  |   |   | 8043   | 8024  | 1959  | 8556  | 8057  | 1277  |
| tC, single (s)                    | 4.1   |   |   | 4.2   |   |   | 7.1  | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1  | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.3   |   |   | 3.5  | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 99  |   |   | 0   |   |   | 0  | 0   | 0   | 0   | 0   | 95  |
| cM capacity (veh/h)               | 542   |   |   | 64  |   |   | 0  | 0   | 19  | 0   | 0   | 203   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NE 1  | SW 1  |   |  |   |   |   |   |   |
| Volume Total                      | 1625  | 83  | 1280  | 149   | 17  |   |  |   |   |   |   |   |
| Volume Left                       | 4   | 83  | 0   | 18  | 6   |   |  |   |   |   |   |   |
| Volume Right                      | 22  | 0   | 6   | 130   | 10  |   |  |   |   |   |   |   |
| cSH                               | 542   | 64  | 1700  | 0   | 0   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 1.29  | 0.75  | Err   | Err   |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 1   | 172   | 0   | Err   | Err   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 1.9   | 318.1   | 0.0   | Err   | Err   |   |  |   |   |   |   |   |
| Lane LOS                          | A   | F   |   | F   | F   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 1.9   | 19.4  |   | Err   | Err   |   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   | F   | F   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | Err   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 95.5%   |   | ICU Level of Service  |   |  |   | F   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 5: US 21 Sea Island Pkwy & Professional Village Cir

2038 No Build  
PM Peak Hour

|                                   |  |    |    |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |   |   |   |   |  |  |
| Traffic Volume (veh/h)            | 17  | 1584  | 1196  | 39  | 44  | 54  |
| Future Volume (Veh/h)             | 17  | 1584  | 1196  | 39  | 44  | 54  |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 19  | 1760  | 1329  | 43  | 49  | 60  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   | None  | None  |   |   |   |
| Median storage (veh)              |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   | 681   |   |   |   |
| pX, platoon unblocked             | 0.86  |   |   |   | 0.86  | 0.86  |
| vC, conflicting volume            | 1372  |   |   |   | 2268  | 686   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 1096  |   |   |   | 2144  | 294   |
| tC, single (s)                    | 4.1   |   |   |   | 6.8   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 2.2   |   |   |   | 3.5   | 3.3   |
| p0 queue free %                   | 96  |   |   |   | 0   | 90  |
| cM capacity (veh/h)               | 541   |   |   |   | 34  | 601   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | SB 1  | SB 2  |
| Volume Total                      | 606   | 1173  | 886   | 486   | 49  | 60  |
| Volume Left                       | 19  | 0   | 0   | 0   | 49  | 0   |
| Volume Right                      | 0   | 0   | 0   | 43  | 0   | 60  |
| cSH                               | 541   | 1700  | 1700  | 1700  | 34  | 601   |
| Volume to Capacity                | 0.04  | 0.69  | 0.52  | 0.29  | 1.43  | 0.10  |
| Queue Length 95th (ft)            | 3   | 0   | 0   | 0   | 133   | 8   |
| Control Delay (s)                 | 1.0   | 0.0   | 0.0   | 0.0   | 483.7   | 11.7  |
| Lane LOS                          | A   |   |   |   | F   | B   |
| Approach Delay (s)                | 0.3   |   | 0.0   |   | 223.9   |   |
| Approach LOS                      |   |   |   |   | F   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 7.7   |   |   |   |
| Intersection Capacity Utilization |   |   | 65.7%   |   | ICU Level of Service  | C   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

























# Timings

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

2038 No Build

PM Peak Hour

|                      |  |  |  |  |  |  |   |  |  |  |  |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 646   | 774   | 535   | 546   | 253   | 198   | 922   | 602   | 325   | 575   | 505   |
| Future Volume (vph)  | 646   | 774   | 535   | 546   | 253   | 198   | 922   | 602   | 325   | 575   | 505   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | pm+pt   | NA  | pm+ov   | pm+pt   | NA  | Perm  |
| Protected Phases     | 5   | 2   | 1   | 6   |   | 3   | 8   | 1   | 7   | 4   |   |
| Permitted Phases     | 2   |   | 6   |   | 6   | 8   |   | 8   | 4   |   | 4   |
| Detector Phase       | 5   | 2   | 1   | 6   | 6   | 3   | 8   | 1   | 7   | 4   | 4   |
| Switch Phase         |   |   |   |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 6.0   | 25.0  | 6.0   | 25.0  | 25.0  | 6.0   | 15.0  | 6.0   | 6.0   | 15.0  | 15.0  |
| Minimum Split (s)    | 13.3  | 43.0  | 13.3  | 39.0  | 39.0  | 12.3  | 42.3  | 13.3  | 13.3  | 43.3  | 43.3  |
| Total Split (s)      | 33.0  | 47.0  | 33.0  | 47.0  | 47.0  | 15.0  | 44.0  | 33.0  | 21.0  | 50.0  | 50.0  |
| Total Split (%)      | 22.8%   | 32.4%   | 22.8%   | 32.4%   | 32.4%   | 10.3%   | 30.3%   | 22.8%   | 14.5%   | 34.5%   | 34.5%   |
| Yellow Time (s)      | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3   | 4.0   | 4.0   | 4.3   | 4.3   |
| All-Red Time (s)     | 3.3   | 2.0   | 3.3   | 2.0   | 2.0   | 2.3   | 2.0   | 3.3   | 2.3   | 2.0   | 2.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 7.3   | 6.0   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | Min   | None  | Max   | Max   | None  | None  | None  | None  | Max   | Max   |
| Act Effct Green (s)  | 65.4  | 41.0  | 65.4  | 41.0  | 41.0  | 46.4  | 37.7  | 69.7  | 58.4  | 43.7  | 43.7  |
| Actuated g/C Ratio   | 0.45  | 0.28  | 0.45  | 0.28  | 0.28  | 0.32  | 0.26  | 0.48  | 0.40  | 0.30  | 0.30  |
| v/c Ratio            | 1.62  | 1.09  | 1.65  | 0.61  | 0.51  | 1.40  | 1.11  | 0.84  | 1.58  | 1.14  | 0.78  |
| Control Delay        | 316.4   | 102.7   | 335.6   | 48.1  | 24.5  | 243.4   | 114.4   | 40.3  | 312.0   | 127.8   | 26.0  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 316.4   | 102.7   | 335.6   | 48.1  | 24.5  | 243.4   | 114.4   | 40.3  | 312.0   | 127.8   | 26.0  |
| LOS                  | F   | F   | F   | D   | C   | F   | F   | D   | F   | F   | C   |
| Approach Delay       |   | 188.5   |   | 158.8   |   |   | 103.3   |   |   | 133.8   |   |
| Approach LOS         |   | F   |   | F   |   |   | F   |   |   | F   |   |

### Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.65

Intersection Signal Delay: 145.1







Intersection LOS: F

Intersection Capacity Utilization 122.2%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy












|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 33 s   | 47 s   | 15 s   | 50 s   |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 33 s   | 47 s   | 21 s   | 44 s   |

## Queues

2038 No Build

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET  | NER   | SWL   | SWT   | SWR   |
| Lane Group Flow (vph)   | 718   | 1071  | 594   | 607   | 281   | 220   | 1024   | 669   | 361   | 639   | 561   |
| v/c Ratio               | 1.62  | 1.09  | 1.65  | 0.61  | 0.51  | 1.40  | 1.11   | 0.84  | 1.58  | 1.14  | 0.78  |
| Control Delay           | 316.4   | 102.7   | 335.6   | 48.1  | 24.5  | 243.4   | 114.4  | 40.3  | 312.0   | 127.8   | 26.0  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 316.4   | 102.7   | 335.6   | 48.1  | 24.5  | 243.4   | 114.4  | 40.3  | 312.0   | 127.8   | 26.0  |
| Queue Length 50th (ft)  | ~851  | ~589  | ~768  | 262   | 108   | ~227  | ~581   | 494   | ~435  | ~702  | 202   |
| Queue Length 95th (ft)  | #1101   | #729  | #1008   | 328   | 201   | #402  | #718   | 692   | #642  | #941  | 366   |
| Internal Link Dist (ft) |   | 376   |   | 679   |   |   | 587  |   |   | 517   |   |
| Turn Bay Length (ft)    | 200   |   | 350   |   | 200   | 350   |  | 550   | 460   |   |   |
| Base Capacity (vph)     | 442   | 985   | 360   | 1000  | 549   | 157   | 920  | 797   | 228   | 561   | 716   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 1.62  | 1.09  | 1.65  | 0.61  | 0.51  | 1.40  | 1.11   | 0.84  | 1.58  | 1.14  | 0.78  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.
























# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy





















2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)              | 646   | 774   | 190   | 535   | 546   | 253   | 198  | 922   | 602   | 325   | 575   | 505   |
| Future Volume (vph)               | 646   | 774   | 190   | 535   | 546   | 253   | 198  | 922   | 602   | 325   | 575   | 505   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3  | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  | 1.00  | 1.00   | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                               | 1.00  | 0.97  |   | 1.00  | 1.00  | 0.85  | 1.00   | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  | 1.00  | 0.95   | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  |
| Satd. Flow (prot)                 | 1770  | 3435  |   | 1752  | 3539  | 1583  | 1770   | 3539  | 1583  | 1752  | 1863  | 1583  |
| Flt Permitted                     | 0.25  | 1.00  |   | 0.10  | 1.00  | 1.00  | 0.11   | 1.00  | 1.00  | 0.09  | 1.00  | 1.00  |
| Satd. Flow (perm)                 | 471   | 3435  |   | 180   | 3539  | 1583  | 198  | 3539  | 1583  | 169   | 1863  | 1583  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 718   | 860   | 211   | 594   | 607   | 281   | 220  | 1024  | 669   | 361   | 639   | 561   |
| RTOR Reduction (vph)              | 0   | 15  | 0   | 0   | 0   | 102   | 0  | 0   | 39  | 0   | 0   | 240   |
| Lane Group Flow (vph)             | 718   | 1056  | 0   | 594   | 607   | 179   | 220  | 1024  | 630   | 361   | 639   | 321   |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 3%  | 2%  | 2%  | 2%   | 2%  | 2%  | 3%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  | Perm  | pm+pt  | NA  | pm+ov   | pm+pt   | NA  | Perm  |
| Protected Phases                  | 5   | 2   |   | 1   | 6   |   | 3  | 8   | 1   | 7   | 4   |   |
| Permitted Phases                  | 2   |   |   | 6   |   | 6   | 8  |   | 8   | 4   |   | 4   |
| Actuated Green, G (s)             | 66.7  | 41.0  |   | 66.7  | 41.0  | 41.0  | 46.4   | 37.7  | 63.4  | 58.4  | 43.7  | 43.7  |
| Effective Green, g (s)            | 66.7  | 41.0  |   | 66.7  | 41.0  | 41.0  | 46.4   | 37.7  | 63.4  | 58.4  | 43.7  | 43.7  |
| Actuated g/C Ratio                | 0.46  | 0.28  |   | 0.46  | 0.28  | 0.28  | 0.32   | 0.26  | 0.44  | 0.40  | 0.30  | 0.30  |
| Clearance Time (s)                | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3  | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Vehicle Extension (s)             | 3.0   | 3.5   |   | 3.0   | 3.5   | 3.5   | 3.0  | 3.5   | 3.0   | 3.0   | 3.5   | 3.5   |
| Lane Grp Cap (vph)                | 446   | 971   |   | 361   | 1000  | 447   | 157  | 920   | 692   | 228   | 561   | 477   |
| v/s Ratio Prot                    | 0.28  | 0.31  |   | c0.29   | 0.17  |   | 0.08   | 0.29  | 0.16  | c0.16   | 0.34  |   |
| v/s Ratio Perm                    | 0.45  |   |   | c0.46   |   | 0.11  | 0.36   |   | 0.24  | c0.48   |   | 0.20  |
| v/c Ratio                         | 1.61  | 1.09  |   | 1.65  | 0.61  | 0.40  | 1.40   | 1.11  | 0.91  | 1.58  | 1.14  | 0.67  |
| Uniform Delay, d1                 | 31.0  | 52.0  |   | 46.5  | 45.0  | 42.1  | 43.4   | 53.6  | 38.1  | 43.7  | 50.6  | 44.4  |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Incremental Delay, d2             | 284.7   | 55.7  |   | 302.6   | 2.7   | 2.7   | 214.3  | 65.8  | 15.9  | 282.4   | 82.5  | 7.4   |
| Delay (s)                         | 315.7   | 107.7   |   | 349.1   | 47.8  | 44.7  | 257.7  | 119.4   | 54.0  | 326.1   | 133.2   | 51.8  |
| Level of Service                  | F   | F   |   | F   | D   | D   | F  | F   | D   | F   | F   | D   |
| Approach Delay (s)                |   | 191.1   |   |   | 168.0   |   |  | 112.4   |   |   | 148.6   |   |
| Approach LOS                      |   | F   |   |   | F   |   |  | F   |   |   | F   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 153.9   |   |   |   | HCM 2000 Level of Service  |   |   | F   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.65  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 145.0   |   |   |   | Sum of lost time (s)   |   |   | 25.9  |   |   |
| Intersection Capacity Utilization |   |   | 122.2%  |   |   |   | ICU Level of Service   |   |   | H   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 7: Driveway/Sams Point Way & US 21 Sea Island Pkwy




















2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |      |
| Lane Configurations               |  |  |   |  |  |   |  |  |  |   |  |  |      |
| Traffic Volume (veh/h)            | 221   | 1378  | 39  | 39  | 1153  | 56  | 12   | 14  | 72  | 55  | 2   | 133   |      |
| Future Volume (Veh/h)             | 221   | 1378  | 39  | 39  | 1153  | 56  | 12   | 14  | 72  | 55  | 2   | 133   |      |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |      |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |      |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |
| Hourly flow rate (vph)            | 246   | 1531  | 43  | 43  | 1281  | 62  | 13   | 16  | 80  | 61  | 2   | 148   |      |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |      |
| 10                                |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Median type                       | None  |   |   | TWLTL   |   |   |  |   |   |   |   |   |      |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |      |
| Upstream signal (ft)              | 759   |   |   |   |   |   |  |   |   |   |   |   |      |
| pX, platoon unblocked             |   |   |   | 0.75  |   |   | 0.75   |   |   | 0.75  | 0.75  | 0.75  | 0.75 |
| vC, conflicting volume            | 1343  |   |   | 1574  |   |   | 2772   |   |   | 3474  | 787   | 2744  | 3464 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 2044   |   |   | 2044  |   | 1398  | 1398 |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 728  |   |   | 1429  |   | 1346  | 2066 |
| vCu, unblocked vol                | 1343  |   |   | 1096  |   |   | 2696   |   |   | 3632  | 45  | 2657  | 3620 |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5  |   |   | 6.5   | 6.9   | 7.5   | 6.5  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5  |   |   | 5.5   |   | 6.5   | 5.5  |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  |   |   | 4.0   | 3.3   | 3.5   | 4.0  |
| p0 queue free %                   | 52  |   |   | 91  |   |   | 0  |   |   | 0   | 89  | 0   | 80   |
| cM capacity (veh/h)               | 509   |   |   | 474   |   |   | 2  |   |   | 2   | 761   | 39  | 10   |
| 399                               |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | NB 2  | SB 1  |   |   |   |      |
| Volume Total                      | 246   | 1021  | 553   | 43  | 854   | 489   | 29   | 80  | 211   |   |   |   |      |
| Volume Left                       | 246   | 0   | 0   | 43  | 0   | 0   | 13   | 0   | 61  |   |   |   |      |
| Volume Right                      | 0   | 0   | 43  | 0   | 0   | 62  | 0  | 80  | 148   |   |   |   |      |
| cSH                               | 509   | 1700  | 1700  | 474   | 1700  | 1700  | 2  | 761   | 124   |   |   |   |      |
| Volume to Capacity                | 0.48  | 0.60  | 0.33  | 0.09  | 0.50  | 0.29  | 14.41  | 0.11  | 1.70  |   |   |   |      |
| Queue Length 95th (ft)            | 65  | 0   | 0   | 7   | 0   | 0   | Err  | 9   | 396   |   |   |   |      |
| Control Delay (s)                 | 18.5  | 0.0   | 0.0   | 13.4  | 0.0   | 0.0   | Err  | 10.3  | 407.8   |   |   |   |      |
| Lane LOS                          | C   |   |   | B   |   |   | F  | B   | F   |   |   |   |      |
| Approach Delay (s)                | 2.5   |   |   | 0.4   |   |   | 2667.8   |   | 407.8   |   |   |   |      |
| Approach LOS                      |   |   |   |   |   |   | F  |   | F   |   |   |   |      |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |      |
| Average Delay                     | 108.3   |   |   |   |   |   |  |   |   |   |   |   |      |
| Intersection Capacity Utilization | 65.7%   |   |   |   |   |   |  |   |   |   |   |   |      |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |      |
| ICU Level of Service              |   |   |   |   |   |   |  |   |   |   |   |   |      |
| C                                 |   |   |   |   |   |   |  |   |   |   |   |   |      |

# HCM Unsignalized Intersection Capacity Analysis

## 8: Ferry Drive/Driveway & US 21 Sea Island Pkwy


















2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |     |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|------|-----|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |      |     |
| Lane Configurations               |  |  |   |  |  |   |   |  |   |   |  |  |      |     |
| Traffic Volume (veh/h)            | 86  | 1422  | 11  | 10  | 1181  | 70  | 4   | 4   | 25  | 127   | 1   | 57  |      |     |
| Future Volume (Veh/h)             | 86  | 1422  | 11  | 10  | 1181  | 70  | 4   | 4   | 25  | 127   | 1   | 57  |      |     |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |      |     |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |      |     |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |     |
| Hourly flow rate (vph)            | 96  | 1580  | 12  | 11  | 1312  | 78  | 4   | 4   | 28  | 141   | 1   | 63  |      |     |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Median type                       | TWLTL   |   |   | TWLTL   |   |   |   |   |   |   |   |   |      |     |
| Median storage veh                | 2   |   |   | 2   |   |   |   |   |   |   |   |   |      |     |
| Upstream signal (ft)              | 1208  |   |   |   |   |   |   |   |   |   |   |   |      |     |
| pX, platoon unblocked             |   |   |   | 0.78  |   |   | 0.78  |   |   | 0.78  | 0.78  | 0.78  |      |     |
| vC, conflicting volume            | 1390  |   |   | 1592  |   |   | 2520  |   |   | 3190  | 796   | 2385  | 3157 | 695 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1778  |   |   | 1778  |   | 1373  | 1373 |     |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 742   |   |   | 1412  |   | 1012  | 1784 |     |
| vCu, unblocked vol                | 1390  |   |   | 1202  |   |   | 2386  |   |   | 3243  | 185   | 2214  | 3201 | 695 |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5   |   |   | 6.5   | 6.9   | 7.5   | 6.5  | 6.9 |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5   |   |   | 5.5   |   | 6.5   | 5.5  |     |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   |   |   | 4.0   | 3.3   | 3.5   | 4.0  | 3.3 |
| p0 queue free %                   | 80  |   |   | 98  |   |   | 95  |   |   | 95  | 96  | 0   | 99   | 84  |
| cM capacity (veh/h)               | 488   |   |   | 451   |   |   | 78  |   |   | 74  | 646   | 129   | 93   | 385 |
|                                   |   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  | SB 2  |   |   |   |      |     |
| Volume Total                      | 96  | 1053  | 539   | 11  | 875   | 515   | 36  | 142   | 63  |   |   |   |      |     |
| Volume Left                       | 96  | 0   | 0   | 11  | 0   | 0   | 4   | 141   | 0   |   |   |   |      |     |
| Volume Right                      | 0   | 0   | 12  | 0   | 0   | 78  | 28  | 0   | 63  |   |   |   |      |     |
| cSH                               | 488   | 1700  | 1700  | 451   | 1700  | 1700  | 242   | 129   | 385   |   |   |   |      |     |
| Volume to Capacity                | 0.20  | 0.62  | 0.32  | 0.02  | 0.51  | 0.30  | 0.15  | 1.10  | 0.16  |   |   |   |      |     |
| Queue Length 95th (ft)            | 18  | 0   | 0   | 2   | 0   | 0   | 13  | 204   | 14  |   |   |   |      |     |
| Control Delay (s)                 | 14.2  | 0.0   | 0.0   | 13.2  | 0.0   | 0.0   | 22.4  | 174.8   | 16.2  |   |   |   |      |     |
| Lane LOS                          | B   |   |   | B   |   |   | C   | F   | C   |   |   |   |      |     |
| Approach Delay (s)                | 0.8   |   |   | 0.1   |   |   | 22.4  | 126.1   |   |   |   |   |      |     |
| Approach LOS                      |   |   |   |   |   |   | C   | F   |   |   |   |   |      |     |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Average Delay                     | 8.5   |   |   |   |   |   |   |   |   |   |   |   |      |     |
| Intersection Capacity Utilization | 66.7%   |   |   | ICU Level of Service  |   |   | C   |   |   |   |   |   |      |     |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |      |     |

# HCM Unsignalized Intersection Capacity Analysis

## 9: Gay Dr & US 21 Sea Island Pkwy




















2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 2   | 1584  | 5   | 4   | 1268  | 0   | 9   | 0   | 1   | 0   | 0   | 2   |
| Future Volume (Veh/h)             | 2   | 1584  | 5   | 4   | 1268  | 0   | 9   | 0   | 1   | 0   | 0   | 2   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 2   | 1760  | 6   | 4   | 1409  | 0   | 10  | 0   | 1   | 0   | 0   | 2   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   | None  |   |   |   |   |   |   |   |   |
| Median storage veh)               | 2   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1409  |   |   | 1766  |   |   | 2482  | 3184  | 883   | 2302  | 3187  | 704   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1767  | 1767  |   | 1417  | 1417  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 714   | 1417  |   | 885   | 1770  |   |
| vCu, unblocked vol                | 1409  |   |   | 1766  |   |   | 2482  | 3184  | 883   | 2302  | 3187  | 704   |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 99  |   |   | 88  | 100   | 100   | 100   | 100   | 99  |
| cM capacity (veh/h)               | 480   |   |   | 349   |   |   | 82  | 106   | 289   | 125   | 104   | 379   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |   |   |   |   |
| Volume Total                      | 882   | 886   | 4   | 939   | 470   | 11  | 2   |   |   |   |   |   |
| Volume Left                       | 2   | 0   | 4   | 0   | 0   | 10  | 0   |   |   |   |   |   |
| Volume Right                      | 0   | 6   | 0   | 0   | 0   | 1   | 2   |   |   |   |   |   |
| cSH                               | 480   | 1700  | 349   | 1700  | 1700  | 88  | 379   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.52  | 0.01  | 0.55  | 0.28  | 0.13  | 0.01  |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 1   | 0   | 0   | 10  | 0   |   |   |   |   |   |
| Control Delay (s)                 | 0.1   | 0.0   | 15.4  | 0.0   | 0.0   | 51.8  | 14.5  |   |   |   |   |   |
| Lane LOS                          | A   |   | C   |   |   | F   | B   |   |   |   |   |   |
| Approach Delay (s)                | 0.1   |   | 0.0   |   |   | 51.8  | 14.5  |   |   |   |   |   |
| Approach LOS                      |   |   |   |   |   | F   | B   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   |   | 0.2   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 59.2%   | ICU Level of Service  |   |   |   | B   |   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 10: Cougar Dr & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour

|                                   |   |   |   |   |   |   |  |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |  |
| Traffic Volume (veh/h)            | 7   | 1552  | 2   | 4   | 1222  | 2   | 9  | 0   | 5   | 6   | 0   | 25  |
| Future Volume (Veh/h)             | 7   | 1552  | 2   | 4   | 1222  | 2   | 9  | 0   | 5   | 6   | 0   | 25  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 8   | 1724  | 2   | 4   | 1358  | 2   | 10   | 0   | 6   | 7   | 0   | 28  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   | 12  |
| Median type                       | None  |   |   | None  |   |   |  |   |   |   |   |   |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 1360  |   |   | 1726  |   |   | 2428   | 3109  | 863   | 2251  | 3109  | 680   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1360  |   |   | 1726  |   |   | 2428   | 3109  | 863   | 2251  | 3109  | 680   |
| tC, single (s)                    | 4.8   |   |   | 4.1   |   |   | 7.5  | 6.5   | 7.9   | 7.9   | 6.5   | 7.1   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 2.5   |   |   | 2.2   |   |   | 3.5  | 4.0   | 3.8   | 3.7   | 4.0   | 3.4   |
| p0 queue free %                   | 98  |   |   | 99  |   |   | 33   | 100   | 97  | 59  | 100   | 93  |
| cM capacity (veh/h)               | 366   |   |   | 362   |   |   | 15   | 11  | 217   | 17  | 11  | 375   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | SB 1  |   |   |   |   |
| Volume Total                      | 8   | 1149  | 577   | 4   | 905   | 455   | 16   | 35  |   |   |   |   |
| Volume Left                       | 8   | 0   | 0   | 4   | 0   | 0   | 10   | 7   |   |   |   |   |
| Volume Right                      | 0   | 0   | 2   | 0   | 0   | 2   | 6  | 28  |   |   |   |   |
| cSH                               | 366   | 1700  | 1700  | 362   | 1700  | 1700  | 23   | 85  |   |   |   |   |
| Volume to Capacity                | 0.02  | 0.68  | 0.34  | 0.01  | 0.53  | 0.27  | 0.70   | 0.41  |   |   |   |   |
| Queue Length 95th (ft)            | 2   | 0   | 0   | 1   | 0   | 0   | 51   | 42  |   |   |   |   |
| Control Delay (s)                 | 15.1  | 0.0   | 0.0   | 15.1  | 0.0   | 0.0   | 325.5  | 77.1  |   |   |   |   |
| Lane LOS                          | C   |   |   | C   |   |   | F  | F   |   |   |   |   |
| Approach Delay (s)                | 0.1   |   |   | 0.0   |   |   | 325.5  | 77.1  |   |   |   |   |
| Approach LOS                      |   |   |   |   |   |   | F  | F   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   |   | 2.6   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 57.1%   | ICU Level of Service  |   |  |   | B   |   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 11: Lost Island Rd & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour

|                                   | →    | ↘    | ↙     | ←    | ↖                    | ↗    |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Movement                          | EBT  | EBR  | WBL   | WBT  | NBL                  | NBR  |
| Lane Configurations               | ↑    | ↗    |       | ↖↑   |                      | ↗    |
| Traffic Volume (veh/h)            | 1545 | 24   | 0     | 1222 | 0                    | 6    |
| Future Volume (Veh/h)             | 1545 | 24   | 0     | 1222 | 0                    | 6    |
| Sign Control                      | Free |      |       | Free | Stop                 |      |
| Grade                             | 0%   |      |       | 0%   | 0%                   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 1717 | 27   | 0     | 1358 | 0                    | 7    |
| Pedestrians                       |      |      |       |      |                      |      |
| Lane Width (ft)                   |      |      |       |      |                      |      |
| Walking Speed (ft/s)              |      |      |       |      |                      |      |
| Percent Blockage                  |      |      |       |      |                      |      |
| Right turn flare (veh)            |      |      |       |      |                      |      |
| Median type                       | TWLT |      |       | TWLT |                      |      |
| Median storage (veh)              | 2    |      |       | 2    |                      |      |
| Upstream signal (ft)              |      |      |       | 612  |                      |      |
| pX, platoon unblocked             |      |      |       |      | 0.79                 |      |
| vC, conflicting volume            |      |      | 1744  |      | 2396                 | 1717 |
| vC1, stage 1 conf vol             |      |      |       |      | 1717                 |      |
| vC2, stage 2 conf vol             |      |      |       |      | 679                  |      |
| vCu, unblocked vol                |      |      | 1744  |      | 2238                 | 1717 |
| tC, single (s)                    |      |      | 4.1   |      | 7.0                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |      | 6.0                  |      |
| tF (s)                            |      |      | 2.2   |      | 3.6                  | 3.3  |
| p0 queue free %                   |      |      | 100   |      | 100                  | 91   |
| cM capacity (veh/h)               |      |      | 356   |      | 115                  | 79   |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | NB 1                 |      |
| Volume Total                      | 1717 | 27   | 453   | 905  | 7                    |      |
| Volume Left                       | 0    | 0    | 0     | 0    | 0                    |      |
| Volume Right                      | 0    | 27   | 0     | 0    | 7                    |      |
| cSH                               | 1700 | 1700 | 356   | 1700 | 79                   |      |
| Volume to Capacity                | 1.01 | 0.02 | 0.00  | 0.53 | 0.09                 |      |
| Queue Length 95th (ft)            | 0    | 0    | 0     | 0    | 7                    |      |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0  | 55.0                 |      |
| Lane LOS                          |      |      |       |      | F                    |      |
| Approach Delay (s)                | 0.0  |      | 0.0   |      | 55.0                 |      |
| Approach LOS                      |      |      |       |      | F                    |      |
| <b>Intersection Summary</b>       |      |      |       |      |                      |      |
| Average Delay                     |      |      | 0.1   |      |                      |      |
| Intersection Capacity Utilization |      |      | 91.3% |      | ICU Level of Service | F    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |

















# Timings

## 12: New Frontage Rd/Airport Cir & US 21 Sea Island Pkwy

2038 No Build

PM Peak Hour

|                      |  |  |  |  |  |  |   |  |
|----------------------|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | SBL   | SBT   | Ø2  |
| Lane Configurations  |  |  |   |  |  |  |  |   |
| Traffic Volume (vph) | 249   | 1283  | 9   | 1027  | 26  | 207   | 0   |   |
| Future Volume (vph)  | 249   | 1283  | 9   | 1027  | 26  | 207   | 0   |   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | pm+pt   | NA  |   |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 1   | 6   | 2   |
| Permitted Phases     | 4   |   | 8   |   | 2   | 6   |   |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 1   | 6   |   |
| Switch Phase         |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 22.0  | 95.0  | 9.5   | 82.5  | 9.6   | 22.5  | 35.9  | 23.0  |
| Total Split (%)      | 14.7%   | 63.3%   | 6.3%  | 55.0%   | 6.4%  | 15.0%   | 23.9%   | 15%   |
| Yellow Time (s)      | 3.5   | 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   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Lost Time (s)  | 4.5   | 4.5   |   | 4.5   | 4.5   | 4.5   | 4.5   |   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | Min   |
| Act Effct Green (s)  | 91.8  | 91.8  |   | 74.6  | 10.6  | 27.0  | 21.3  |   |
| Actuated g/C Ratio   | 0.72  | 0.72  |   | 0.58  | 0.08  | 0.21  | 0.17  |   |
| v/c Ratio            | 0.77  | 1.07  |   | 0.74  | 0.23  | 0.76  | 0.48  |   |
| Control Delay        | 25.8  | 64.1  |   | 23.9  | 46.8  | 62.7  | 12.4  |   |
| Queue Delay          | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Delay          | 25.8  | 64.1  |   | 23.9  | 46.8  | 62.7  | 12.4  |   |
| LOS                  | C   | E   |   | C   | D   | E   | B   |   |
| Approach Delay       |   | 57.9  |   | 23.9  |   |   | 38.9  |   |
| Approach LOS         |   | E   |   | C   |   |   | D   |   |

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 127.8

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 43.5









Intersection LOS: D

Intersection Capacity Utilization 126.8%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 12: New Frontage Rd/Airport Cir & US 21 Sea Island Pkwy







|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 22.5 s   | 23 s   | 9.5 s  | 95 s   |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.6 s  | 35.9 s   | 22 s   | 82.5 s   |

## Queues

2038 No Build

## 12: New Frontage Rd/Airport Cir &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBT   | NBL   | SBL   | SBT   |
| Lane Group Flow (vph)   | 277   | 1426  | 1152  | 28  | 230   | 206   |
| v/c Ratio               | 0.77  | 1.07  | 0.74  | 0.23  | 0.76  | 0.48  |
| Control Delay           | 25.8  | 64.1  | 23.9  | 46.8  | 62.7  | 12.4  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 25.8  | 64.1  | 23.9  | 46.8  | 62.7  | 12.4  |
| Queue Length 50th (ft)  | 71  | ~1312   | 355   | 19  | 172   | 8   |
| Queue Length 95th (ft)  | 160   | #1620   | 490   | 47  | #296  | 84  |
| Internal Link Dist (ft) |   | 532   | 413   |   |   | 381   |
| Turn Bay Length (ft)    | 375   |   |   |   | 250   |   |
| Base Capacity (vph)     | 414   | 1337  | 1625  | 121   | 311   | 536   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.67  | 1.07  | 0.71  | 0.23  | 0.74  | 0.38  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 12: New Frontage Rd/Airport Cir & US 21 Sea Island Pkwy

2038 No Build

PM Peak Hour










|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |   |  |  |  |  |   |  |  |  |
| Traffic Volume (vph)              | 249   | 1283  | 0   | 9   | 1027  | 1   | 26  | 0   | 0   | 207   | 0   | 185   |
| Future Volume (vph)               | 249   | 1283  | 0   | 9   | 1027  | 1   | 26  | 0   | 0   | 207   | 0   | 185   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 4.5   | 4.5   |   |   | 4.5   |   | 4.5   |   |   | 4.5   | 4.5   |   |
| Lane Util. Factor                 | 1.00  | 1.00  |   |   | 0.95  |   | 1.00  |   |   | 1.00  | 1.00  |   |
| Frt                               | 1.00  | 1.00  |   |   | 1.00  |   | 1.00  |   |   | 1.00  | 0.85  |   |
| Flt Protected                     | 0.95  | 1.00  |   |   | 1.00  |   | 0.95  |   |   | 0.95  | 1.00  |   |
| Satd. Flow (prot)                 | 1770  | 1863  |   |   | 3537  |   | 1770  |   |   | 1770  | 1583  |   |
| Flt Permitted                     | 0.16  | 1.00  |   |   | 0.75  |   | 0.63  |   |   | 0.47  | 1.00  |   |
| Satd. Flow (perm)                 | 297   | 1863  |   |   | 2662  |   | 1171  |   |   | 873   | 1583  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.92  | 0.92  | 0.90  | 0.90  | 0.92  | 0.92  | 0.92  | 0.90  | 0.92  | 0.90  |
| Adj. Flow (vph)                   | 277   | 1426  | 0   | 10  | 1141  | 1   | 28  | 0   | 0   | 230   | 0   | 206   |
| RTOR Reduction (vph)              | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 163   | 0   |
| Lane Group Flow (vph)             | 277   | 1426  | 0   | 0   | 1152  | 0   | 28  | 0   | 0   | 230   | 43  | 0   |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt   |   |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5   | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2   |   |   | 6   |   |   |
| Actuated Green, G (s)             | 91.7  | 91.7  |   |   | 74.6  |   | 10.3  |   |   | 28.8  | 21.3  |   |
| Effective Green, g (s)            | 91.7  | 91.7  |   |   | 74.6  |   | 10.3  |   |   | 28.8  | 21.3  |   |
| Actuated g/C Ratio                | 0.71  | 0.71  |   |   | 0.58  |   | 0.08  |   |   | 0.22  | 0.16  |   |
| Clearance Time (s)                | 4.5   | 4.5   |   |   | 4.5   |   | 4.5   |   |   | 4.5   | 4.5   |   |
| Vehicle Extension (s)             | 3.0   | 3.0   |   |   | 3.0   |   | 3.0   |   |   | 3.0   | 3.0   |   |
| Lane Grp Cap (vph)                | 353   | 1319  |   |   | 1533  |   | 107   |   |   | 311   | 260   |   |
| v/s Ratio Prot                    | 0.08  | c0.77   |   |   |   |   | 0.01  |   |   | c0.10   | 0.03  |   |
| v/s Ratio Perm                    | 0.48  |   |   |   | 0.43  |   | 0.01  |   |   | c0.07   |   |   |
| v/c Ratio                         | 0.78  | 1.08  |   |   | 0.75  |   | 0.26  |   |   | 0.74  | 0.17  |   |
| Uniform Delay, d1                 | 14.1  | 18.9  |   |   | 20.5  |   | 55.7  |   |   | 45.1  | 46.5  |   |
| Progression Factor                | 1.00  | 1.00  |   |   | 1.00  |   | 1.00  |   |   | 1.00  | 1.00  |   |
| Incremental Delay, d2             | 10.9  | 49.8  |   |   | 2.1   |   | 1.3   |   |   | 8.9   | 0.3   |   |
| Delay (s)                         | 25.0  | 68.7  |   |   | 22.6  |   | 57.0  |   |   | 54.0  | 46.8  |   |
| Level of Service                  | C   | E   |   |   | C   |   | E   |   |   | D   | D   |   |
| Approach Delay (s)                |   | 61.6  |   |   | 22.6  |   |   | 57.0  |   |   | 50.6  |   |
| Approach LOS                      |   | E   |   |   | C   |   |   | E   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 46.6  |   |   |   | HCM 2000 Level of Service   |   |   | D   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.07  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 129.5   |   |   |   | Sum of lost time (s)  |   |   | 18.0  |   |   |
| Intersection Capacity Utilization |   |   | 126.8%  |   |   |   | ICU Level of Service  |   |   | H   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 13: Old Distant Island Rd & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour














|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |   |
| Traffic Volume (veh/h)            | 1329  | 12  | 4   | 980   | 9   | 6   |
| Future Volume (Veh/h)             | 1329  | 12  | 4   | 980   | 9   | 6   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1477  | 13  | 4   | 1089  | 10  | 7   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLTL   |   | TWLTL   |   |   |   |
| Median storage veh)               | 2   |   | 2   |   |   |   |
| Upstream signal (ft)              |   |   | 1133  |   |   |   |
| pX, platoon unblocked             |   |   | 0.23  |   |   |   |
| vC, conflicting volume            |   |   | 1490  |   | 2580  | 1484  |
| vC1, stage 1 conf vol             |   |   |   |   | 1484  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1097  |   |
| vCu, unblocked vol                |   |   | 1490  |   | 6139  | 1484  |
| tC, single (s)                    |   |   | 4.1   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 99  |   | 93  | 95  |
| cM capacity (veh/h)               |   |   | 451   |   | 144   | 153   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  |   |   |   |
| Volume Total                      | 1490  | 1093  | 17  |   |   |   |
| Volume Left                       | 0   | 4   | 10  |   |   |   |
| Volume Right                      | 13  | 0   | 7   |   |   |   |
| cSH                               | 1700  | 451   | 148   |   |   |   |
| Volume to Capacity                | 0.88  | 0.01  | 0.12  |   |   |   |
| Queue Length 95th (ft)            | 0   | 1   | 10  |   |   |   |
| Control Delay (s)                 | 0.0   | 0.4   | 32.6  |   |   |   |
| Lane LOS                          |   | A   | D   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.4   | 32.6  |   |   |   |
| Approach LOS                      |   |   | D   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.4   |   |   |   |
| Intersection Capacity Utilization |   |   | 80.7%   | ICU Level of Service  | D   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

2038 No Build

PM Peak Hour

|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 50  | 1248  | 6   | 920   | 59  | 0   | 16   | 2   |
| Future Volume (vph)  | 50  | 1248  | 6   | 920   | 59  | 0   | 16   | 2   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | NA  | pm+pt  | NA  |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 9.5  | 22.5  |
| Total Split (s)      | 9.5   | 108.0   | 9.5   | 108.0   | 9.5   | 23.0  | 9.5  | 23.0  |
| Total Split (%)      | 6.3%  | 72.0%   | 6.3%  | 72.0%   | 6.3%  | 15.3%   | 6.3%   | 15.3%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Max   | None   | Max   |
| Act Effct Green (s)  |   | 103.6   | 105.4   | 105.4   |   | 18.5  |  | 18.5  |
| Actuated g/C Ratio   |   | 0.78  | 0.79  | 0.79  |   | 0.14  |  | 0.14  |
| v/c Ratio            |   | 1.19  | 0.02  | 0.69  |   | 0.34  |  | 0.20  |
| Control Delay        |   | 111.6   | 3.0   | 9.3   |   | 30.5  |  | 29.5  |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 111.6   | 3.0   | 9.3   |   | 30.5  |  | 29.5  |
| LOS                  |   | F   | A   | A   |   | C   |  | C   |
| Approach Delay       |   | 111.6   |   | 9.3   |   | 30.5  |  | 29.5  |
| Approach LOS         |   | F   |   | A   |   | C   |  | C   |

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 132.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 68.2









Intersection LOS: E

Intersection Capacity Utilization 125.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |

## Queues

2038 No Build

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         | →     | ↘    | ←    | ↑    | ↓    |
|-------------------------|-------|------|------|------|------|
| Lane Group              | EBT   | WBL  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 1510  | 7    | 1024 | 78   | 48   |
| v/c Ratio               | 1.19  | 0.02 | 0.69 | 0.34 | 0.20 |
| Control Delay           | 111.6 | 3.0  | 9.3  | 30.5 | 29.5 |
| Queue Delay             | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 111.6 | 3.0  | 9.3  | 30.5 | 29.5 |
| Queue Length 50th (ft)  | ~1534 | 1    | 340  | 26   | 15   |
| Queue Length 95th (ft)  | #2004 | 4    | 460  | 81   | 56   |
| Internal Link Dist (ft) | 1053  |      | 490  | 351  | 331  |
| Turn Bay Length (ft)    |       | 290  |      |      |      |
| Base Capacity (vph)     | 1270  | 301  | 1476 | 228  | 237  |
| Starvation Cap Reductn  | 0     | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.19  | 0.02 | 0.69 | 0.34 | 0.20 |


















## Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis





















## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 50  | 1248  | 60  | 6   | 920   | 2   | 59   | 0   | 11  | 16  | 2   | 25  |
| Future Volume (vph)               | 50  | 1248  | 60  | 6   | 920   | 2   | 59   | 0   | 11  | 16  | 2   | 25  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 0.99  |   | 1.00  | 1.00  |   |  | 0.98  |   |   | 0.92  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.96  |   |   | 0.98  |   |
| Satd. Flow (prot)                 |   | 1840  |   | 1770  | 1862  |   |  | 1750  |   |   | 1684  |   |
| Flt Permitted                     |   | 0.88  |   | 0.17  | 1.00  |   |  | 0.75  |   |   | 0.89  |   |
| Satd. Flow (perm)                 |   | 1627  |   | 311   | 1862  |   |  | 1370  |   |   | 1532  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 56  | 1387  | 67  | 7   | 1022  | 2   | 66   | 0   | 12  | 18  | 2   | 28  |
| RTOR Reduction (vph)              | 0   | 1   | 0   | 0   | 0   | 0   | 0  | 38  | 0   | 0   | 24  | 0   |
| Lane Group Flow (vph)             | 0   | 1509  | 0   | 7   | 1024  | 0   | 0  | 40  | 0   | 0   | 24  | 0   |
| Heavy Vehicles (%)                | 13%   | 2%  | 3%  | 2%  | 2%  | 2%  | 2%   | 7%  | 2%  | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt  | NA  |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 103.6   |   | 109.0   | 109.0   |   |  | 18.5  |   |   | 18.5  |   |
| Effective Green, g (s)            |   | 103.6   |   | 109.0   | 109.0   |   |  | 18.5  |   |   | 18.5  |   |
| Actuated g/C Ratio                |   | 0.76  |   | 0.80  | 0.80  |   |  | 0.14  |   |   | 0.14  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 1234  |   | 257   | 1486  |   |  | 185   |   |   | 207   |   |
| v/s Ratio Prot                    |   |   |   | 0.00  | c0.55   |   |  |   |   |   |   |   |
| v/s Ratio Perm                    |   | c0.93   |   | 0.02  |   |   |  | c0.03   |   |   | 0.02  |   |
| v/c Ratio                         |   | 1.22  |   | 0.03  | 0.69  |   |  | 0.22  |   |   | 0.11  |   |
| Uniform Delay, d1                 |   | 16.5  |   | 4.9   | 6.2   |   |  | 52.5  |   |   | 51.8  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 107.7   |   | 0.0   | 1.4   |   |  | 0.6   |   |   | 0.2   |   |
| Delay (s)                         |   | 124.2   |   | 4.9   | 7.5   |   |  | 53.1  |   |   | 52.1  |   |
| Level of Service                  |   | F   |   | A   | A   |   |  | D   |   |   | D   |   |
| Approach Delay (s)                |   | 124.2   |   |   | 7.5   |   |  | 53.1  |   |   | 52.1  |   |
| Approach LOS                      |   | F   |   |   | A   |   |  | D   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 75.7  |   |   | HCM 2000 Level of Service   |  |   |   | E   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.12  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 136.5   |   |   | Sum of lost time (s)  |  |   | 18.0  |   |   |   |
| Intersection Capacity Utilization |   |   | 125.5%  |   |   | ICU Level of Service  |  |   | H   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis 15: US 21 Lady's Island Rd & Rue Du Bois/Driveway

2038 No Build  
PM Peak Hour










|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |  |  |   |  |  |  |
| Traffic Volume (veh/h)            | 37  | 1   | 70  | 16  | 1   | 42  | 49  | 1786  | 15  | 17  | 1478  | 29  |
| Future Volume (Veh/h)             | 37  | 1   | 70  | 16  | 1   | 42  | 49  | 1786  | 15  | 17  | 1478  | 29  |
| Sign Control                      | Stop  |   |   |   | Stop  |   | Free  |   |   |   | Free  |   |
| Grade                             | 0%  |   |   |   | 0%  |   | 0%  |   |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 41  | 1   | 78  | 18  | 1   | 47  | 54  | 1984  | 17  | 19  | 1642  | 32  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | None  |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   |   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 2828  | 3789  | 821   | 3038  | 3812  | 1000  | 1674  |   |   |   | 2001  |   |
| vC1, stage 1 conf vol             | 1680  | 1680  |   | 2100  | 2100  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1148  | 2109  |   | 938   | 1712  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 2828  | 3789  | 821   | 3038  | 3812  | 1000  | 1674  |   |   |   | 2001  |   |
| tC, single (s)                    | 7.6   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.2   |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.6   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   |   | 2.2   |   |
| p0 queue free %                   | 41  | 98  | 75  | 57  | 98  | 81  | 85  |   |   |   | 93  |   |
| cM capacity (veh/h)               | 69  | 51  | 318   | 42  | 53  | 241   | 366   |   |   |   | 283   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  | SB 4  |   |   |
| Volume Total                      | 42  | 78  | 66  | 54  | 1323  | 678   | 19  | 821   | 821   | 32  |   |   |
| Volume Left                       | 41  | 0   | 18  | 54  | 0   | 0   | 19  | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 78  | 47  | 0   | 0   | 17  | 0   | 0   | 0   | 32  |   |   |
| cSH                               | 69  | 318   | 102   | 366   | 1700  | 1700  | 283   | 1700  | 1700  | 1700  |   |   |
| Volume to Capacity                | 0.61  | 0.25  | 0.65  | 0.15  | 0.78  | 0.40  | 0.07  | 0.48  | 0.48  | 0.02  |   |   |
| Queue Length 95th (ft)            | 66  | 24  | 80  | 13  | 0   | 0   | 5   | 0   | 0   | 0   |   |   |
| Control Delay (s)                 | 118.7   | 20.0  | 89.6  | 16.5  | 0.0   | 0.0   | 18.7  | 0.0   | 0.0   | 0.0   |   |   |
| Lane LOS                          | F   | C   | F   | C   |   |   |   | C   |   |   |   |   |
| Approach Delay (s)                | 54.5  |   | 89.6  | 0.4   |   |   |   | 0.2   |   |   |   |   |
| Approach LOS                      | F   |   | F   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 3.5   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 66.7%   |   |   | ICU Level of Service  |   |   |   |   | C   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 16: US 21 Lady's Island Rd & Hazel Farm Rd




















2038 No Build  
PM Peak Hour

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | WBL   | WBR   | NET   | NER   | SWL   | SWT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 9   | 0   | 1864  | 0   | 1   | 1528  |
| Future Volume (Veh/h)             | 9   | 0   | 1864  | 0   | 1   | 1528  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 10  | 0   | 2071  | 0   | 1   | 1698  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage veh)               |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 2922  | 1036  |   |   | 2071  |   |
| vC1, stage 1 conf vol             | 2071  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 851   |   |   |   |   |   |
| vCu, unblocked vol                | 2922  | 1036  |   |   | 2071  |   |
| tC, single (s)                    | 6.8   | 6.9   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 5.8   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 87  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 79  | 229   |   |   | 265   |   |
| Direction, Lane #                 | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  |   |
| Volume Total                      | 10  | 1381  | 690   | 567   | 1132  |   |
| Volume Left                       | 10  | 0   | 0   | 1   | 0   |   |
| Volume Right                      | 0   | 0   | 0   | 0   | 0   |   |
| cSH                               | 79  | 1700  | 1700  | 265   | 1700  |   |
| Volume to Capacity                | 0.13  | 0.81  | 0.41  | 0.00  | 0.67  |   |
| Queue Length 95th (ft)            | 10  | 0   | 0   | 0   | 0   |   |
| Control Delay (s)                 | 57.2  | 0.0   | 0.0   | 0.1   | 0.0   |   |
| Lane LOS                          | F   |   |   | A   |   |   |
| Approach Delay (s)                | 57.2  | 0.0   |   | 0.0   |   |   |
| Approach LOS                      | F   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.2   |   |   |   |
| Intersection Capacity Utilization |   |   | 61.5%   | ICU Level of Service  |   | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 17: US 21 Lady's Island Rd & Ferry Rd











2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |  |   |  |  |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 1   | 0   | 9   | 98  | 0   | 63  | 6  | 1735  | 91  | 122   | 1422  | 4   |
| Future Volume (Veh/h)             | 1   | 0   | 9   | 98  | 0   | 63  | 6  | 1735  | 91  | 122   | 1422  | 4   |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free   |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 10  | 109   | 0   | 70  | 7  | 1928  | 101   | 136   | 1580  | 4   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            | 5   |   |   | 5   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL  |   |   | TWLTL   |   |   |
| Median storage (veh)              |   |   |   |   |   |   | 2  |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   | 1003  |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 2867  | 3897  | 792   | 3054  | 3848  | 1014  | 1584   |   |   |   | 2029  |   |
| vC1, stage 1 conf vol             | 1854  | 1854  |   | 1992  | 1992  |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1013  | 2043  |   | 1062  | 1856  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 2867  | 3897  | 792   | 3054  | 3848  | 1014  | 1584   |   |   |   | 2029  |   |
| tC, single (s)                    | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.1  |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2  |   |   |   | 2.2   |   |
| p0 queue free %                   | 96  | 100   | 97  | 0   | 100   | 70  | 98   |   |   |   | 51  |   |
| cM capacity (veh/h)               | 27  | 2   | 332   | 51  | 46  | 236   | 411  |   |   |   | 276   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  | SW 3   |   |   |   |   |   |
| Volume Total                      | 11  | 179   | 971   | 1065  | 136   | 1053  | 531  |   |   |   |   |   |
| Volume Left                       | 1   | 109   | 7   | 0   | 136   | 0   | 0  |   |   |   |   |   |
| Volume Right                      | 10  | 70  | 0   | 101   | 0   | 0   | 4  |   |   |   |   |   |
| cSH                               | 296   | 75  | 411   | 1700  | 276   | 1700  | 1700   |   |   |   |   |   |
| Volume to Capacity                | 0.04  | 2.37  | 0.02  | 0.63  | 0.49  | 0.62  | 0.31   |   |   |   |   |   |
| Queue Length 95th (ft)            | 3   | 423   | 1   | 0   | 64  | 0   | 0  |   |   |   |   |   |
| Control Delay (s)                 | 27.8  | 744.2   | 0.6   | 0.0   | 30.1  | 0.0   | 0.0  |   |   |   |   |   |
| Lane LOS                          | D   | F   | A   |   | D   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 27.8  | 744.2   | 0.3   |   | 2.4   |   |  |   |   |   |   |   |
| Approach LOS                      | D   | F   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 35.0  |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 112.6%  |   |   | ICU Level of Service  |   |   |  |   | H   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 18: SC 802 Sams Point Rd & Sams Point Way

















2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |  |  |
| Traffic Volume (veh/h)            | 16  | 253   | 1842  | 29  | 105   | 1408  |
| Future Volume (Veh/h)             | 16  | 253   | 1842  | 29  | 105   | 1408  |
| Sign Control                      | Stop  |   | Free  |   | Free  | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 18  | 281   | 2047  | 32  | 117   | 1564  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage (veh)              |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 3079  | 1040  |   |   | 2079  |   |
| vC1, stage 1 conf vol             | 2063  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1016  |   |   |   |   |   |
| vCu, unblocked vol                | 3079  | 1040  |   |   | 2079  |   |
| tC, single (s)                    | 6.8   | 6.9   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 5.8   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 75  | 0   |   |   | 56  |   |
| cM capacity (veh/h)               | 72  | 227   |   |   | 263   |   |
| Direction, Lane #                 | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  | SB 3  |
| Volume Total                      | 299   | 1365  | 714   | 117   | 782   | 782   |
| Volume Left                       | 18  | 0   | 0   | 117   | 0   | 0   |
| Volume Right                      | 281   | 0   | 32  | 0   | 0   | 0   |
| cSH                               | 201   | 1700  | 1700  | 263   | 1700  | 1700  |
| Volume to Capacity                | 1.49  | 0.80  | 0.42  | 0.44  | 0.46  | 0.46  |
| Queue Length 95th (ft)            | 459   | 0   | 0   | 54  | 0   | 0   |
| Control Delay (s)                 | 287.5   | 0.0   | 0.0   | 29.1  | 0.0   | 0.0   |
| Lane LOS                          | F   |   |   | D   |   |   |
| Approach Delay (s)                | 287.5   | 0.0   |   | 2.0   |   |   |
| Approach LOS                      | F   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 22.0  |   |   |   |
| Intersection Capacity Utilization |   |   | 84.2%   |   | ICU Level of Service  | E   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 19: SC 802 Sams Point Rd & Ashland Park Rd/Driveway



















2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 7   | 0   | 11  | 0   | 0   | 0   | 19   | 2082  | 0   | 0   | 1550  | 5   |
| Future Volume (Veh/h)             | 7   | 0   | 11  | 0   | 0   | 0   | 19   | 2082  | 0   | 0   | 1550  | 5   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 8   | 0   | 12  | 0   | 0   | 0   | 21   | 2313  | 0   | 0   | 1722  | 6   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  | TWLTL   |   |   | TWLTL   |   |
| Median storage veh                |   |   |   |   |   |   |  | 2   |   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 2924  | 4080  | 864   | 3228  | 4083  | 1156  | 1728   |   |   | 2313  |   |   |
| vC1, stage 1 conf vol             | 1725  | 1725  |   | 2355  | 2355  |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1198  | 2355  |   | 873   | 1728  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 2924  | 4080  | 864   | 3228  | 4083  | 1156  | 1728   |   |   | 2313  |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.1   | 7.5   | 6.5   | 6.9   | 4.1  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.3   | 2.2  |   |   | 2.2   |   |   |
| p0 queue free %                   | 90  | 100   | 96  | 100   | 100   | 100   | 94   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 79  | 55  | 280   | 33  | 53  | 190   | 361  |   |   | 213   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  |  |   |   |   |   |   |
| Volume Total                      | 20  | 0   | 1178  | 1156  | 861   | 867   |  |   |   |   |   |   |
| Volume Left                       | 8   | 0   | 21  | 0   | 0   | 0   |  |   |   |   |   |   |
| Volume Right                      | 12  | 0   | 0   | 0   | 0   | 6   |  |   |   |   |   |   |
| cSH                               | 138   | 1700  | 361   | 1700  | 213   | 1700  |  |   |   |   |   |   |
| Volume to Capacity                | 0.14  | 0.00  | 0.06  | 0.68  | 0.00  | 0.51  |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 12  | 0   | 5   | 0   | 0   | 0   |  |   |   |   |   |   |
| Control Delay (s)                 | 35.3  | 0.0   | 3.1   | 0.0   | 0.0   | 0.0   |  |   |   |   |   |   |
| Lane LOS                          | E   | A   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 35.3  | 0.0   | 1.5   |   | 0.0   |   |  |   |   |   |   |   |
| Approach LOS                      | E   | A   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 1.1   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 80.9%   |   | ICU Level of Service  |   |  |   |   | D   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E

2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |    |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 40  | 7   | 45  | 16  | 1   | 1   | 24  | 1998  | 55  | 2   | 1451  | 50  |
| Future Volume (Veh/h)             | 40  | 7   | 45  | 16  | 1   | 1   | 24  | 1998  | 55  | 2   | 1451  | 50  |
| Sign Control                      |   | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 44  | 8   | 50  | 18  | 1   | 1   | 27  | 2220  | 61  | 2   | 1612  | 56  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |   | TWLT  |   |   | TWLT  |   |
| Median storage veh                |   |   |   |   |   |   |   | 2   |   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 2810  | 3979  | 834   | 3168  | 3976  | 1140  | 1668  |   |   | 2281  |   |   |
| vC1, stage 1 conf vol             | 1644  | 1644  |   | 2304  | 2304  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1166  | 2335  |   | 864   | 1672  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 2810  | 3979  | 834   | 3168  | 3976  | 1140  | 1668  |   |   | 2281  |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.0   | 7.5   | 6.5   | 6.9   | 4.1   |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   | 2.2   |   |   |
| p0 queue free %                   | 49  | 85  | 84  | 48  | 98  | 99  | 93  |   |   | 99  |   |   |
| cM capacity (veh/h)               | 86  | 55  | 309   | 35  | 55  | 194   | 381   |   |   | 219   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  |   |   |   |   |
| Volume Total                      | 102   | 20  | 27  | 1480  | 801   | 2   | 1075  | 593   |   |   |   |   |
| Volume Left                       | 44  | 18  | 27  | 0   | 0   | 2   | 0   | 0   |   |   |   |   |
| Volume Right                      | 50  | 1   | 0   | 0   | 61  | 0   | 0   | 56  |   |   |   |   |
| cSH                               | 124   | 37  | 381   | 1700  | 1700  | 219   | 1700  | 1700  |   |   |   |   |
| Volume to Capacity                | 0.82  | 0.54  | 0.07  | 0.87  | 0.47  | 0.01  | 0.63  | 0.35  |   |   |   |   |
| Queue Length 95th (ft)            | 123   | 47  | 6   | 0   | 0   | 1   | 0   | 0   |   |   |   |   |
| Control Delay (s)                 | 104.3   | 183.8   | 15.2  | 0.0   | 0.0   | 21.6  | 0.0   | 0.0   |   |   |   |   |
| Lane LOS                          | F   | F   | C   |   |   | C   |   |   |   |   |   |   |
| Approach Delay (s)                | 104.3   | 183.8   | 0.2   |   |   | 0.0   |   |   |   |   |   |   |
| Approach LOS                      | F   | F   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 3.6   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 68.6%   |   | ICU Level of Service  |   |   |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis













## 21: Taco Bell Driveway & US 21 Sea Island Pkwy

2038 No Build  
PM Peak Hour

|                                   | →    | ↘    | ↙     | ←     | ↖                    | ↗    |
|-----------------------------------|------|------|-------|-------|----------------------|------|
| Movement                          | EBT  | EBR  | WBL   | WBT   | NBL                  | NBR  |
| Lane Configurations               | ↑    | ↗    |       | ↑↑    |                      | ↗    |
| Traffic Volume (veh/h)            | 1551 | 12   | 0     | 1228  | 0                    | 7    |
| Future Volume (Veh/h)             | 1551 | 12   | 0     | 1228  | 0                    | 7    |
| Sign Control                      | Free |      |       | Free  | Stop                 |      |
| Grade                             | 0%   |      |       | 0%    | 0%                   |      |
| Peak Hour Factor                  | 0.92 | 0.92 | 0.92  | 0.92  | 0.92                 | 0.92 |
| Hourly flow rate (vph)            | 1686 | 13   | 0     | 1335  | 0                    | 8    |
| Pedestrians                       |      |      |       |       |                      |      |
| Lane Width (ft)                   |      |      |       |       |                      |      |
| Walking Speed (ft/s)              |      |      |       |       |                      |      |
| Percent Blockage                  |      |      |       |       |                      |      |
| Right turn flare (veh)            |      |      |       |       |                      |      |
| Median type                       | None |      |       | TWLTL |                      |      |
| Median storage veh                |      |      |       | 2     |                      |      |
| Upstream signal (ft)              |      |      |       | 905   |                      |      |
| pX, platoon unblocked             |      |      |       |       | 0.79                 |      |
| vC, conflicting volume            |      |      | 1699  |       | 2354                 | 1686 |
| vC1, stage 1 conf vol             |      |      |       |       | 1686                 |      |
| vC2, stage 2 conf vol             |      |      |       |       | 668                  |      |
| vCu, unblocked vol                |      |      | 1699  |       | 2185                 | 1686 |
| tC, single (s)                    |      |      | 4.1   |       | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |       | 5.8                  |      |
| tF (s)                            |      |      | 2.2   |       | 3.5                  | 3.3  |
| p0 queue free %                   |      |      | 100   |       | 100                  | 90   |
| cM capacity (veh/h)               |      |      | 371   |       | 130                  | 83   |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2  | NB 1                 |      |
| Volume Total                      | 1686 | 13   | 668   | 668   | 8                    |      |
| Volume Left                       | 0    | 0    | 0     | 0     | 0                    |      |
| Volume Right                      | 0    | 13   | 0     | 0     | 8                    |      |
| cSH                               | 1700 | 1700 | 1700  | 1700  | 83                   |      |
| Volume to Capacity                | 0.99 | 0.01 | 0.39  | 0.39  | 0.10                 |      |
| Queue Length 95th (ft)            | 0    | 0    | 0     | 0     | 8                    |      |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0   | 53.0                 |      |
| Lane LOS                          |      |      |       |       | F                    |      |
| Approach Delay (s)                | 0.0  |      | 0.0   |       | 53.0                 |      |
| Approach LOS                      |      |      |       |       | F                    |      |
| <b>Intersection Summary</b>       |      |      |       |       |                      |      |
| Average Delay                     |      |      | 0.1   |       |                      |      |
| Intersection Capacity Utilization |      |      | 91.6% |       | ICU Level of Service | F    |
| Analysis Period (min)             |      |      | 15    |       |                      |      |

# HCM Unsignalized Intersection Capacity Analysis 22: US 21 Sea Island Pkwy & Walmart Driveway #3











2038 No Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 162   | 1328  | 941   | 81  | 43  | 86  |
| Future Volume (Veh/h)             | 162   | 1328  | 941   | 81  | 43  | 86  |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 176   | 1443  | 1023  | 88  | 47  | 93  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   | 7   |
| Median type                       |   | TWLTL   | TWLTL   |   |   |   |
| Median storage (veh)              |   | 2   | 2   |   |   |   |
| Upstream signal (ft)              |   | 493   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.19  |   |
| vC, conflicting volume            | 1111  |   |   |   | 2818  | 1023  |
| vC1, stage 1 conf vol             |   |   |   |   | 1023  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1795  |   |
| vCu, unblocked vol                | 1111  |   |   |   | 8420  | 1023  |
| tC, single (s)                    | 4.1   |   |   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            | 2.2   |   |   |   | 3.5   | 3.3   |
| p0 queue free %                   | 72  |   |   |   | 0   | 67  |
| cM capacity (veh/h)               | 629   |   |   |   | 4   | 286   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | SB 1  |   |
| Volume Total                      | 176   | 1443  | 1023  | 88  | 140   |   |
| Volume Left                       | 176   | 0   | 0   | 0   | 47  |   |
| Volume Right                      | 0   | 0   | 0   | 88  | 93  |   |
| cSH                               | 629   | 1700  | 1700  | 1700  | 13  |   |
| Volume to Capacity                | 0.28  | 0.85  | 0.60  | 0.05  | 11.06   |   |
| Queue Length 95th (ft)            | 29  | 0   | 0   | 0   | Err   |   |
| Control Delay (s)                 | 12.9  | 0.0   | 0.0   | 0.0   | Err   |   |
| Lane LOS                          | B   |   |   |   | F   |   |
| Approach Delay (s)                | 1.4   |   | 0.0   |   | Err   |   |
| Approach LOS                      |   |   |   |   | F   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 488.5   |   |   |   |
| Intersection Capacity Utilization |   |   | 79.9%   | ICU Level of Service  |   | D   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 23: US 21 Sea Island Pkwy & Walmart Driveway #4

2038 No Build  
PM Peak Hour

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL   | EBT   | WBT   | WBR   | SBL   | SBR   |
| Lane Configurations               |   |  |  |  |   |  |
| Traffic Volume (veh/h)            | 0   | 1371  | 979   | 41  | 0   | 43  |
| Future Volume (Veh/h)             | 0   | 1371  | 979   | 41  | 0   | 43  |
| Sign Control                      |   | Free  | Free  |   | Stop  |   |
| Grade                             |   | 0%  | 0%  |   | 0%  |   |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 0   | 1490  | 1064  | 45  | 0   | 47  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   | TWLTL   | TWLTL   |   |   |   |
| Median storage veh                |   | 2   | 2   |   |   |   |
| Upstream signal (ft)              |   | 897   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.21  |   |
| vC, conflicting volume            | 1109  |   |   |   | 2554  | 1064  |
| vC1, stage 1 conf vol             |   |   |   |   | 1064  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1490  |   |
| vCu, unblocked vol                | 1109  |   |   |   | 6493  | 1064  |
| tC, single (s)                    | 4.1   |   |   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            | 2.2   |   |   |   | 3.5   | 3.3   |
| p0 queue free %                   | 100   |   |   |   | 100   | 83  |
| cM capacity (veh/h)               | 630   |   |   |   | 44  | 271   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | SB 1  |   |   |
| Volume Total                      | 1490  | 1064  | 45  | 47  |   |   |
| Volume Left                       | 0   | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 0   | 45  | 47  |   |   |
| cSH                               | 1700  | 1700  | 1700  | 271   |   |   |
| Volume to Capacity                | 0.88  | 0.63  | 0.03  | 0.17  |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 15  |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 21.1  |   |   |
| Lane LOS                          |   |   |   | C   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   |   | 21.1  |   |   |
| Approach LOS                      |   |   |   | C   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.4   |   |   |   |
| Intersection Capacity Utilization |   |   | 75.5%   | ICU Level of Service  |   | D   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



Intersection Sign configuration not allowed in HCM analysis.


















# **APPENDIX E**

## **2038 BUILD SYNCHRO RESULTS**

# HCM Unsignalized Intersection Capacity Analysis

## 1: Meridian Rd/Driveway & US 21 Sea Island Pkwy


















2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 1   | 854   | 42  | 64  | 1416  | 2   | 59  | 0   | 43  | 0   | 0   | 1   |
| Future Volume (Veh/h)             | 1   | 854   | 42  | 64  | 1416  | 2   | 59  | 0   | 43  | 0   | 0   | 1   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 949   | 47  | 71  | 1573  | 2   | 66  | 0   | 48  | 0   | 0   | 1   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   | TWLT  |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh)               |   | 2   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1575  |   |   | 996   |   |   | 2690  | 2692  | 972   | 2738  | 2714  | 1574  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 974   | 974   |   | 1716  | 1716  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1716  | 1717  |   | 1022  | 998   |   |
| vCu, unblocked vol                | 1575  |   |   | 996   |   |   | 2690  | 2692  | 972   | 2738  | 2714  | 1574  |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 90  |   |   | 29  | 100   | 84  | 100   | 100   | 99  |
| cM capacity (veh/h)               | 418   |   |   | 695   |   |   | 93  | 117   | 306   | 84  | 112   | 135   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NB 1  | SB 1  |   |   |   |   |   |   |   |
| Volume Total                      | 997   | 71  | 1575  | 114   | 1   |   |   |   |   |   |   |   |
| Volume Left                       | 1   | 71  | 0   | 66  | 0   |   |   |   |   |   |   |   |
| Volume Right                      | 47  | 0   | 2   | 48  | 1   |   |   |   |   |   |   |   |
| cSH                               | 418   | 695   | 1700  | 131   | 135   |   |   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.10  | 0.93  | 0.87  | 0.01  |   |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 9   | 0   | 139   | 1   |   |   |   |   |   |   |   |
| Control Delay (s)                 | 0.1   | 10.8  | 0.0   | 110.7   | 31.8  |   |   |   |   |   |   |   |
| Lane LOS                          | A   | B   |   | F   | D   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 0.1   | 0.5   |   | 110.7   | 31.8  |   |   |   |   |   |   |   |
| Approach LOS                      |   |   |   | F   | D   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 4.9   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 93.9%   |   | ICU Level of Service  |   |   |   | F   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

















## 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |      |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|------|------|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |      |      |
| Lane Configurations               |   |  |  |   |  |   |   |  |   |   |  |   |      |      |
| Traffic Volume (veh/h)            | 0   | 820   | 61  | 0   | 1499  | 0   | 0   | 0   | 0   | 0   | 0   | 1   |      |      |
| Future Volume (Veh/h)             | 0   | 820   | 61  | 0   | 1499  | 0   | 0   | 0   | 0   | 0   | 0   | 1   |      |      |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |      |      |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |      |      |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |      |      |
| Hourly flow rate (vph)            | 0   | 911   | 68  | 0   | 1666  | 0   | 0   | 0   | 0   | 0   | 0   | 1   |      |      |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| Median type                       | TWLTL   |   |   |   | None  |   |   |   |   |   |   |   |      |      |
| Median storage veh                | 2   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| Upstream signal (ft)              | 497   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| pX, platoon unblocked             | 0.44  |   |   |   |   |   |   | 0.44  | 0.44  |   |   |   | 0.44 |      |
| vC, conflicting volume            | 1666  |   |   |   | 979   |   |   |   | 2578  | 2577  | 911   | 2577  | 2645 | 1666 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 911   | 911   |   |   |   | 1666  | 1666 |      |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1667  | 1666  |   |   |   | 911   | 979  |      |
| vCu, unblocked vol                | 1874  |   |   |   | 979   |   |   |   | 3931  | 3929  | 911   | 3929  | 4082 | 1874 |
| tC, single (s)                    | 4.1   |   |   |   | 4.1   |   |   |   | 7.1   | 6.5   | 6.3   | 7.1   | 6.5  | 6.2  |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   |   |   | 6.1   | 5.5  |      |
| tF (s)                            | 2.2   |   |   |   | 2.2   |   |   |   | 3.5   | 4.0   | 3.4   | 3.5   | 4.0  | 3.3  |
| p0 queue free %                   | 100   |   |   |   | 100   |   |   |   | 100   | 100   | 100   | 100   | 100  | 97   |
| cM capacity (veh/h)               | 142   |   |   |   | 705   |   |   |   | 38  | 51  | 327   | 39  | 51   | 40   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | SB 1  |   |   |   |   |   |   |   |      |      |
| Volume Total                      | 911   | 68  | 1666  | 0   | 1   |   |   |   |   |   |   |   |      |      |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   |   |   |   |   |   |   |   |      |      |
| Volume Right                      | 0   | 68  | 0   | 0   | 1   |   |   |   |   |   |   |   |      |      |
| cSH                               | 142   | 1700  | 1700  | 1700  | 40  |   |   |   |   |   |   |   |      |      |
| Volume to Capacity                | 0.00  | 0.04  | 0.98  | 0.00  | 0.03  |   |   |   |   |   |   |   |      |      |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 2   |   |   |   |   |   |   |   |      |      |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 98.1  |   |   |   |   |   |   |   |      |      |
| Lane LOS                          |   |   |   | A   | F   |   |   |   |   |   |   |   |      |      |
| Approach Delay (s)                | 0.0   |   |   | 0.0   | 98.1  |   |   |   |   |   |   |   |      |      |
| Approach LOS                      |   |   |   | A   | F   |   |   |   |   |   |   |   |      |      |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |      |      |
| Average Delay                     |   |   |   | 0.0   |   |   |   |   |   |   |   |   |      |      |
| Intersection Capacity Utilization |   |   |   | 88.9%   | ICU Level of Service  |   |   |   | E   |   |   |   |      |      |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |      |      |

# Timings 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                      |  |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | SWL  | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |   |  |  |  |  |
| Traffic Volume (vph) | 213   | 578   | 165   | 976   | 46  | 4   | 19   | 7   | 616   |
| Future Volume (vph)  | 213   | 578   | 165   | 976   | 46  | 4   | 19   | 7   | 616   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | NA  | Perm   | NA  | pm+ov   |
| Protected Phases     | 5   | 2   | 1   | 6   |   | 4   |  | 8   | 5   |
| Permitted Phases     | 2   |   | 6   |   | 4   |   | 8  |   | 8   |
| Detector Phase       | 5   | 2   | 1   | 6   | 4   | 4   | 8  | 8   | 5   |
| Switch Phase         |   |   |   |   |   |   |  |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  | 9.5   |
| Total Split (s)      | 33.0  | 93.5  | 14.0  | 74.5  | 22.5  | 22.5  | 22.5   | 22.5  | 33.0  |
| Total Split (%)      | 25.4%   | 71.9%   | 10.8%   | 57.3%   | 17.3%   | 17.3%   | 17.3%  | 17.3%   | 25.4%   |
| Yellow Time (s)      | 3.5   | 3.5   | 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  | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   |   |   |  |   | Lead  |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   |   |   |  |   | Yes   |
| Recall Mode          | None  | Min   | None  | Min   | None  | None  | None   | None  | None  |
| Act Effct Green (s)  | 103.1   | 90.7  | 78.1  | 70.1  |   | 12.6  |  | 12.6  | 45.6  |
| Actuated g/C Ratio   | 0.83  | 0.73  | 0.63  | 0.56  |   | 0.10  |  | 0.10  | 0.37  |
| v/c Ratio            | 0.51  | 0.50  | 0.34  | 1.06  |   | 0.71  |  | 0.24  | 1.09  |
| Control Delay        | 30.0  | 9.5   | 7.4   | 72.6  |   | 56.3  |  | 55.8  | 98.2  |
| Queue Delay          | 0.0   | 2.4   | 0.0   | 0.0   |   | 0.0   |  | 0.0   | 0.0   |
| Total Delay          | 30.0  | 11.9  | 7.4   | 72.6  |   | 56.3  |  | 55.8  | 98.2  |
| LOS                  | C   | B   | A   | E   |   | E   |  | E   | F   |
| Approach Delay       |   | 16.6  |   | 63.4  |   | 56.3  |  | 96.4  |   |
| Approach LOS         |   | B   |   | E   |   | E   |  | F   |   |

## Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 124.7

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 56.9







Intersection LOS: E

Intersection Capacity Utilization 108.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy








|  |  |  |
|--|--|--|
|  Ø1 |  Ø2 |  Ø4 |
| 14 s   | 93.5 s   | 22.5 s   |
|  Ø5 |  Ø6 |  Ø8 |
| 33 s   | 74.5 s   | 22.5 s   |

## Queues

2038 Build

## 3: Driveway/Sunset Blvd &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NET   | SWT   | SWR  |
| Lane Group Flow (vph)   | 237   | 670   | 183   | 1105  | 131   | 29  | 684  |
| v/c Ratio               | 0.51  | 0.50  | 0.34  | 1.06  | 0.71  | 0.24  | 1.09   |
| Control Delay           | 30.0  | 9.5   | 7.4   | 72.6  | 56.3  | 55.8  | 98.2   |
| Queue Delay             | 0.0   | 2.4   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay             | 30.0  | 11.9  | 7.4   | 72.6  | 56.3  | 55.8  | 98.2   |
| Queue Length 50th (ft)  | 112   | 207   | 27  | ~985  | 68  | 22  | ~582   |
| Queue Length 95th (ft)  | 208   | 344   | 46  | #1326   | 138   | 53  | #814   |
| Internal Link Dist (ft) |   | 417   |   | 641   | 61  | 384   |  |
| Turn Bay Length (ft)    | 215   |   | 150   |   |   |   | 150  |
| Base Capacity (vph)     | 465   | 1347  | 564   | 1044  | 246   | 172   | 625  |
| Starvation Cap Reductn  | 0   | 524   | 0   | 0   | 0   | 0   | 0  |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Reduced v/c Ratio       | 0.51  | 0.81  | 0.32  | 1.06  | 0.53  | 0.17  | 1.09   |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.




















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour


















|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |  |
| Traffic Volume (vph)              | 213   | 578   | 25  | 165   | 976   | 19  | 46   | 4   | 68  | 19  | 7   | 616   |
| Future Volume (vph)               | 213   | 578   | 25  | 165   | 976   | 19  | 46   | 4   | 68  | 19  | 7   | 616   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width                        | 12  | 12  | 12  | 12  | 12  | 12  | 12   | 12  | 12  | 16  | 12  | 12  |
| Total Lost time (s)               | 4.5   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   | 4.5   |
| Lane Util. Factor                 | 1.00  | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  | 1.00  |
| Frt                               | 1.00  | 0.99  |   | 1.00  | 1.00  |   |  | 0.92  |   |   | 1.00  | 0.85  |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  |   |  | 0.98  |   |   | 0.97  | 1.00  |
| Satd. Flow (prot)                 | 1770  | 1851  |   | 1770  | 1857  |   |  | 1647  |   |   | 1798  | 1583  |
| Flt Permitted                     | 0.05  | 1.00  |   | 0.41  | 1.00  |   |  | 0.86  |   |   | 0.64  | 1.00  |
| Satd. Flow (perm)                 | 100   | 1851  |   | 764   | 1857  |   |  | 1443  |   |   | 1197  | 1583  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 237   | 642   | 28  | 183   | 1084  | 21  | 51   | 4   | 76  | 21  | 8   | 684   |
| RTOR Reduction (vph)              | 0   | 1   | 0   | 0   | 0   | 0   | 0  | 40  | 0   | 0   | 0   | 50  |
| Lane Group Flow (vph)             | 237   | 669   | 0   | 183   | 1105  | 0   | 0  | 91  | 0   | 0   | 29  | 634   |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%   | 2%  | 6%  | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | Perm   | NA  |   | Perm  | NA  | pm+ov   |
| Protected Phases                  | 5   | 2   |   | 1   | 6   |   |  | 4   |   |   | 8   | 5   |
| Permitted Phases                  | 2   |   |   | 6   |   |   | 4  |   |   | 8   |   | 8   |
| Actuated Green, G (s)             | 103.1   | 90.6  |   | 78.1  | 70.1  |   |  | 12.6  |   |   | 12.6  | 41.1  |
| Effective Green, g (s)            | 103.1   | 90.6  |   | 78.1  | 70.1  |   |  | 12.6  |   |   | 12.6  | 41.1  |
| Actuated g/C Ratio                | 0.83  | 0.73  |   | 0.63  | 0.56  |   |  | 0.10  |   |   | 0.10  | 0.33  |
| Clearance Time (s)                | 4.5   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   | 4.5   |
| Vehicle Extension (s)             | 3.0   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   | 3.0   |
| Lane Grp Cap (vph)                | 464   | 1344  |   | 543   | 1043  |   |  | 145   |   |   | 120   | 578   |
| v/s Ratio Prot                    | 0.12  | 0.36  |   | 0.02  | c0.59   |   |  |   |   |   |   | c0.25   |
| v/s Ratio Perm                    | 0.31  |   |   | 0.19  |   |   |  | 0.06  |   |   | 0.02  | 0.15  |
| v/c Ratio                         | 0.51  | 0.50  |   | 0.34  | 1.06  |   |  | 0.63  |   |   | 0.24  | 1.10  |
| Uniform Delay, d1                 | 33.8  | 7.3   |   | 11.4  | 27.3  |   |  | 53.8  |   |   | 51.6  | 41.8  |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  | 1.00  |
| Incremental Delay, d2             | 1.0   | 0.3   |   | 0.4   | 44.9  |   |  | 8.6   |   |   | 1.0   | 66.9  |
| Delay (s)                         | 34.7  | 7.6   |   | 11.8  | 72.2  |   |  | 62.4  |   |   | 52.7  | 108.7   |
| Level of Service                  | C   | A   |   | B   | E   |   |  | E   |   |   | D   | F   |
| Approach Delay (s)                |   | 14.7  |   |   | 63.6  |   |  | 62.4  |   |   | 106.4   |   |
| Approach LOS                      |   | B   |   |   | E   |   |  | E   |   |   | F   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 59.0  |   |   | HCM 2000 Level of Service   |  |   |   | E   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.12  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 124.7   |   |   | Sum of lost time (s)  |  |   | 13.5  |   |   |   |
| Intersection Capacity Utilization |   |   | 108.8%  |   |   | ICU Level of Service  |  |   | G   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 4: Youmans Dr/Driveway & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 5   | 645   | 7   | 164   | 1049  | 10  | 10   | 1   | 91  | 0   | 1   | 4   |
| Future Volume (Veh/h)             | 5   | 645   | 7   | 164   | 1049  | 10  | 10   | 1   | 91  | 0   | 1   | 4   |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 6   | 717   | 8   | 182   | 1166  | 11  | 11   | 1   | 101   | 0   | 1   | 4   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   | TWLT  |   |   | None  |   |  |   |   |   |   |   |
| Median storage (veh)              |   | 2   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   | 721   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   | 0.84  |   |   | 0.84   | 0.84  | 0.84  | 0.84  | 0.84  |   |
| vC, conflicting volume            | 1177  |   |   | 725   |   |   | 2268   | 2274  | 721   | 2370  | 2272  | 1172  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 733  | 733   |   | 1536  | 1536  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1534   | 1541  |   | 834   | 737   |   |
| vCu, unblocked vol                | 1177  |   |   | 574   |   |   | 2417   | 2425  | 570   | 2539  | 2423  | 1172  |
| tC, single (s)                    | 4.1   |   |   | 4.2   |   |   | 7.2  | 6.5   | 6.3   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.2  | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.3   |   |   | 3.6  | 4.0   | 3.4   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 99  |   |   | 78  |   |   | 88   | 99  | 76  | 100   | 99  | 98  |
| cM capacity (veh/h)               | 593   |   |   | 812   |   |   | 92   | 122   | 424   | 66  | 115   | 234   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NE 1  | SW 1  |   |  |   |   |   |   |   |
| Volume Total                      | 731   | 182   | 1177  | 113   | 5   |   |  |   |   |   |   |   |
| Volume Left                       | 6   | 182   | 0   | 11  | 0   |   |  |   |   |   |   |   |
| Volume Right                      | 8   | 0   | 11  | 101   | 4   |   |  |   |   |   |   |   |
| cSH                               | 593   | 812   | 1700  | 309   | 194   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.22  | 0.69  | 0.37  | 0.03  |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 1   | 21  | 0   | 41  | 2   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 0.3   | 10.7  | 0.0   | 23.2  | 24.0  |   |  |   |   |   |   |   |
| Lane LOS                          | A   | B   |   | C   | C   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 0.3   | 1.4   |   | 23.2  | 24.0  |   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   | C   | C   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 2.2   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 113.4%  |   | ICU Level of Service  |   |  |   | H   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

## 5: US 21 Sea Island Pkwy & Professional Village Cir

2038 Build  
AM Peak Hour

























| Movement                          | EBL  | EBT  | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations               |      | ↔↔   | ↔↔    |      | ↔                    | ↔    |
| Traffic Volume (veh/h)            | 42   | 696  | 1188  | 55   | 12                   | 30   |
| Future Volume (Veh/h)             | 42   | 696  | 1188  | 55   | 12                   | 30   |
| Sign Control                      |      | Free | Free  |      | Stop                 |      |
| Grade                             |      | 0%   | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 47   | 773  | 1320  | 61   | 13                   | 33   |
| Pedestrians                       |      |      |       |      |                      |      |
| Lane Width (ft)                   |      |      |       |      |                      |      |
| Walking Speed (ft/s)              |      |      |       |      |                      |      |
| Percent Blockage                  |      |      |       |      |                      |      |
| Right turn flare (veh)            |      |      |       |      |                      |      |
| Median type                       |      | None | None  |      |                      |      |
| Median storage (veh)              |      |      |       |      |                      |      |
| Upstream signal (ft)              |      |      | 681   |      |                      |      |
| pX, platoon unblocked             | 0.80 |      |       |      | 0.80                 | 0.80 |
| vC, conflicting volume            | 1381 |      |       |      | 1831                 | 690  |
| vC1, stage 1 conf vol             |      |      |       |      |                      |      |
| vC2, stage 2 conf vol             |      |      |       |      |                      |      |
| vCu, unblocked vol                | 968  |      |       |      | 1533                 | 102  |
| tC, single (s)                    | 4.1  |      |       |      | 7.0                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |      |                      |      |
| tF (s)                            | 2.2  |      |       |      | 3.6                  | 3.3  |
| p0 queue free %                   | 92   |      |       |      | 82                   | 96   |
| cM capacity (veh/h)               | 564  |      |       |      | 72                   | 744  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | SB 1                 | SB 2 |
| Volume Total                      | 305  | 515  | 880   | 501  | 13                   | 33   |
| Volume Left                       | 47   | 0    | 0     | 0    | 13                   | 0    |
| Volume Right                      | 0    | 0    | 0     | 61   | 0                    | 33   |
| cSH                               | 564  | 1700 | 1700  | 1700 | 72                   | 744  |
| Volume to Capacity                | 0.08 | 0.30 | 0.52  | 0.29 | 0.18                 | 0.04 |
| Queue Length 95th (ft)            | 7    | 0    | 0     | 0    | 15                   | 3    |
| Control Delay (s)                 | 2.8  | 0.0  | 0.0   | 0.0  | 65.2                 | 10.1 |
| Lane LOS                          | A    |      |       |      | F                    | B    |
| Approach Delay (s)                | 1.1  |      | 0.0   |      | 25.7                 |      |
| Approach LOS                      |      |      |       |      | D                    |      |
| Intersection Summary              |      |      |       |      |                      |      |
| Average Delay                     |      |      | 0.9   |      |                      |      |
| Intersection Capacity Utilization |      |      | 60.7% |      | ICU Level of Service | B    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |

# Timings

2038 Build

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

AM Peak Hour

|                      |  |  |  |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET  | NER   | SWL   | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 145   | 429   | 236   | 735   | 225   | 143   | 445  | 170   | 330   | 882   | 443   |
| Future Volume (vph)  | 145   | 429   | 236   | 735   | 225   | 143   | 445  | 170   | 330   | 882   | 443   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | pm+pt   | NA   | pm+ov   | pm+pt   | NA  | pt+ov   |
| Protected Phases     | 5   | 2   | 1   | 6   |   | 3   | 8  | 1   | 7   | 4   | 4 5   |
| Permitted Phases     | 2   |   | 6   |   | 6   | 8   |  | 8   | 4   |   |   |
| Detector Phase       | 5   | 2   | 1   | 6   | 6   | 3   | 8  | 1   | 7   | 4   | 4 5   |
| Switch Phase         |   |   |   |   |   |   |  |   |   |   |   |
| Minimum Initial (s)  | 6.0   | 25.0  | 6.0   | 25.0  | 25.0  | 6.0   | 15.0   | 6.0   | 6.0   | 15.0  |   |
| Minimum Split (s)    | 13.3  | 43.0  | 13.3  | 39.0  | 39.0  | 12.3  | 42.3   | 13.3  | 13.3  | 43.3  |   |
| Total Split (s)      | 15.8  | 43.4  | 13.6  | 41.2  | 41.2  | 13.4  | 42.3   | 13.6  | 15.7  | 44.6  |   |
| Total Split (%)      | 13.7%   | 37.7%   | 11.8%   | 35.8%   | 35.8%   | 11.7%   | 36.8%  | 11.8%   | 13.7%   | 38.8%   |   |
| Yellow Time (s)      | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3  | 4.0   | 4.0   | 4.3   |   |
| All-Red Time (s)     | 3.3   | 2.0   | 3.3   | 2.0   | 2.0   | 2.3   | 2.0  | 3.3   | 2.3   | 2.0   |   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |   |
| Total Lost Time (s)  | 7.3   | 6.0   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3  | 7.3   | 6.3   | 6.3   |   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lag   | Lead  | Lag  | Lead  | Lead  | Lag   |   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   |   |
| Recall Mode          | None  | Min   | None  | Max   | Max   | None  | None   | None  | None  | Max   |   |
| Act Effct Green (s)  | 44.6  | 37.4  | 40.2  | 35.2  | 35.2  | 43.1  | 36.0   | 48.6  | 47.7  | 38.3  | 54.1  |
| Actuated g/C Ratio   | 0.39  | 0.33  | 0.35  | 0.31  | 0.31  | 0.37  | 0.31   | 0.42  | 0.41  | 0.33  | 0.47  |
| v/c Ratio            | 0.75  | 0.53  | 0.95  | 0.75  | 0.42  | 0.91  | 0.45   | 0.25  | 1.03  | 0.83  | 0.62  |
| Control Delay        | 44.1  | 32.0  | 74.5  | 41.3  | 7.0   | 74.3  | 33.2   | 6.5   | 83.2  | 42.8  | 22.5  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 44.1  | 32.0  | 74.5  | 41.3  | 7.0   | 74.3  | 33.2   | 6.5   | 83.2  | 42.8  | 22.5  |
| LOS                  | D   | C   | E   | D   | A   | E   | C  | A   | F   | D   | C   |
| Approach Delay       |   | 34.6  |   | 41.4  |   |   | 35.0   |   |   | 45.4  |   |
| Approach LOS         |   | C   |   | D   |   |   | C  |   |   | D   |   |

### Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 40.7









Intersection LOS: D

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy












|  |  |  |   |
|--|--|--|---|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 13.6 s   | 43.4 s   | 13.4 s   | 44.6 s  |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 15.8 s   | 41.2 s   | 15.7 s   | 42.3 s  |

## Queues

2038 Build

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET  | NER   | SWL   | SWT   | SWR   |
| Lane Group Flow (vph)   | 161   | 601   | 262   | 817   | 250   | 159   | 494  | 189   | 367   | 980   | 492   |
| v/c Ratio               | 0.75  | 0.53  | 0.95  | 0.75  | 0.42  | 0.91  | 0.45   | 0.25  | 1.03  | 0.83  | 0.62  |
| Control Delay           | 44.1  | 32.0  | 74.5  | 41.3  | 7.0   | 74.3  | 33.2   | 6.5   | 83.2  | 42.8  | 22.5  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 44.1  | 32.0  | 74.5  | 41.3  | 7.0   | 74.3  | 33.2   | 6.5   | 83.2  | 42.8  | 22.5  |
| Queue Length 50th (ft)  | 73  | 180   | 127   | 286   | 7   | 70  | 153  | 17  | ~193  | 350   | 218   |
| Queue Length 95th (ft)  | #151  | 237   | #280  | 361   | 69  | #198  | 204  | 62  | #403  | 435   | 333   |
| Internal Link Dist (ft) |   | 376   |   | 679   |   |   | 587  |   |   | 657   |   |
| Turn Bay Length (ft)    | 200   |   | 350   |   | 200   | 350   |  | 550   | 460   |   | 350   |
| Base Capacity (vph)     | 215   | 1133  | 275   | 1083  | 601   | 174   | 1097   | 755   | 358   | 1178  | 791   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.75  | 0.53  | 0.95  | 0.75  | 0.42  | 0.91  | 0.45   | 0.25  | 1.03  | 0.83  | 0.62  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.
























# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy





















2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL   | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)              | 145   | 429   | 112   | 236   | 735   | 225   | 143   | 445   | 170   | 330   | 882   | 443   |
| Future Volume (vph)               | 145   | 429   | 112   | 236   | 735   | 225   | 143   | 445   | 170   | 330   | 882   | 443   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  |
| Frt                               | 1.00  | 0.97  |   | 1.00  | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  |
| Satd. Flow (prot)                 | 1752  | 3423  |   | 1770  | 3539  | 1429  | 1770  | 3505  | 1583  | 1736  | 3539  | 1583  |
| Flt Permitted                     | 0.15  | 1.00  |   | 0.32  | 1.00  | 1.00  | 0.11  | 1.00  | 1.00  | 0.36  | 1.00  | 1.00  |
| Satd. Flow (perm)                 | 274   | 3423  |   | 604   | 3539  | 1429  | 209   | 3505  | 1583  | 651   | 3539  | 1583  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 161   | 477   | 124   | 262   | 817   | 250   | 159   | 494   | 189   | 367   | 980   | 492   |
| RTOR Reduction (vph)              | 0   | 20  | 0   | 0   | 0   | 164   | 0   | 0   | 94  | 0   | 0   | 47  |
| Lane Group Flow (vph)             | 161   | 581   | 0   | 262   | 817   | 86  | 159   | 494   | 95  | 367   | 980   | 445   |
| Heavy Vehicles (%)                | 3%  | 2%  | 3%  | 2%  | 2%  | 13%   | 2%  | 3%  | 2%  | 4%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  | Perm  | pm+pt   | NA  | pm+ov   | pm+pt   | NA  | pt+ov   |
| Protected Phases                  | 5   | 2   |   | 1   | 6   |   | 3   | 8   | 1   | 7   | 4   | 4 5   |
| Permitted Phases                  | 2   |   |   | 6   |   | 6   | 8   |   | 8   | 4   |   |   |
| Actuated Green, G (s)             | 45.9  | 37.4  |   | 41.5  | 35.2  | 35.2  | 43.1  | 36.0  | 42.3  | 47.7  | 38.3  | 53.1  |
| Effective Green, g (s)            | 45.9  | 37.4  |   | 41.5  | 35.2  | 35.2  | 43.1  | 36.0  | 42.3  | 47.7  | 38.3  | 53.1  |
| Actuated g/C Ratio                | 0.40  | 0.33  |   | 0.36  | 0.31  | 0.31  | 0.37  | 0.31  | 0.37  | 0.41  | 0.33  | 0.46  |
| Clearance Time (s)                | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   |   |
| Vehicle Extension (s)             | 3.0   | 3.5   |   | 3.0   | 3.5   | 3.5   | 3.0   | 3.5   | 3.0   | 3.0   | 3.5   |   |
| Lane Grp Cap (vph)                | 218   | 1113  |   | 281   | 1083  | 437   | 174   | 1097  | 582   | 358   | 1178  | 730   |
| v/s Ratio Prot                    | 0.05  | 0.17  |   | 0.05  | 0.23  |   | 0.06  | 0.14  | 0.01  | c0.08   | 0.28  | c0.28   |
| v/s Ratio Perm                    | 0.24  |   |   | c0.28   |   | 0.06  | 0.29  |   | 0.05  | c0.34   |   |   |
| v/c Ratio                         | 0.74  | 0.52  |   | 0.93  | 0.75  | 0.20  | 0.91  | 0.45  | 0.16  | 1.03  | 0.83  | 0.61  |
| Uniform Delay, d1                 | 25.5  | 31.5  |   | 34.0  | 36.0  | 29.5  | 27.7  | 31.6  | 24.4  | 31.7  | 35.4  | 23.2  |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Incremental Delay, d2             | 12.3  | 0.5   |   | 36.0  | 4.9   | 1.0   | 44.0  | 0.3   | 0.1   | 54.1  | 6.9   | 1.4   |
| Delay (s)                         | 37.8  | 32.0  |   | 70.0  | 40.9  | 30.5  | 71.7  | 31.9  | 24.6  | 85.8  | 42.3  | 24.6  |
| Level of Service                  | D   | C   |   | E   | D   | C   | E   | C   | C   | F   | D   | C   |
| Approach Delay (s)                |   | 33.3  |   |   | 44.7  |   |   | 37.8  |   |   | 46.3  |   |
| Approach LOS                      |   | C   |   |   | D   |   |   | D   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 42.2  |   |   |   | HCM 2000 Level of Service   |   |   | D   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.99  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 115.0   |   |   |   | Sum of lost time (s)  |   |   | 25.9  |   |   |
| Intersection Capacity Utilization |   |   | 87.8%   |   |   |   | ICU Level of Service  |   |   | E   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 7: Driveway/Sams Point Way & US 21 Sea Island Pkwy





















2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |  |   |  |  |
| Traffic Volume (veh/h)            | 121   | 738   | 15  | 78  | 1043  | 69  | 0  | 5   | 12  | 50  | 1   | 161   |
| Future Volume (Veh/h)             | 121   | 738   | 15  | 78  | 1043  | 69  | 0  | 5   | 12  | 50  | 1   | 161   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 134   | 820   | 17  | 87  | 1159  | 77  | 0  | 6   | 13  | 56  | 1   | 179   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| 10                                |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       | None  |   |   | TWLTL   |   |   |  |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              | 759   |   |   | 853   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             | 0.75  |   |   | 0.92  |   |   | 0.79   | 0.79  | 0.92  | 0.79  | 0.79  | 0.75  |
| vC, conflicting volume            | 1236  |   |   | 837   |   |   | 1850   | 2506  | 418   | 2066  | 2476  | 618   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1096   | 1096  |   | 1372  | 1372  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 754  | 1410  |   | 694   | 1105  |   |
| vCu, unblocked vol                | 648   |   |   | 662   |   |   | 1112   | 1945  | 209   | 1385  | 1906  | 0   |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5  | 6.5   | 6.9   | 7.5   | 6.5   | 7.0   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5  | 5.5   |   | 6.5   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 81  |   |   | 90  |   |   | 100  | 94  | 98  | 69  | 99  | 78  |
| cM capacity (veh/h)               | 700   |   |   | 854   |   |   | 192  | 102   | 737   | 180   | 139   | 811   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | NB 2  | SB 1  |   |   |   |
| Volume Total                      | 134   | 547   | 290   | 87  | 773   | 463   | 6  | 13  | 236   |   |   |   |
| Volume Left                       | 134   | 0   | 0   | 87  | 0   | 0   | 0  | 0   | 56  |   |   |   |
| Volume Right                      | 0   | 0   | 17  | 0   | 0   | 77  | 0  | 13  | 179   |   |   |   |
| cSH                               | 700   | 1700  | 1700  | 854   | 1700  | 1700  | 102  | 737   | 744   |   |   |   |
| Volume to Capacity                | 0.19  | 0.32  | 0.17  | 0.10  | 0.45  | 0.27  | 0.06   | 0.02  | 0.32  |   |   |   |
| Queue Length 95th (ft)            | 18  | 0   | 0   | 8   | 0   | 0   | 5  | 1   | 34  |   |   |   |
| Control Delay (s)                 | 11.4  | 0.0   | 0.0   | 9.7   | 0.0   | 0.0   | 42.4   | 10.0  | 16.3  |   |   |   |
| Lane LOS                          | B   |   |   | A   |   |   | E  | A   | C   |   |   |   |
| Approach Delay (s)                | 1.6   |   |   | 0.6   |   |   | 20.2   |   | 16.3  |   |   |   |
| Approach LOS                      |   |   |   |   |   |   | C  |   | C   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 2.6   |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 57.2%   |   |   | ICU Level of Service  |   |   |  |   | B   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

















## 8: Ferry Drive/Driveway & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |   |  |  |   |  |  |
| Traffic Volume (veh/h)            | 29  | 790   | 5   | 0   | 1201  | 46  | 2   | 0   | 16  | 70  | 0   | 26  |
| Future Volume (Veh/h)             | 29  | 790   | 5   | 0   | 1201  | 46  | 2   | 0   | 16  | 70  | 0   | 26  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 32  | 878   | 6   | 0   | 1334  | 51  | 2   | 0   | 18  | 78  | 0   | 29  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            | 14  |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   | TWLTL   |   |   |   |   |   |   |   |   |
| Median storage veh                | 2   |   |   | 2   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              | 1208  |   |   | 404   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             | 0.71  |   |   |   |   |   | 0.71  | 0.71  |   |   |   |   |
| vC, conflicting volume            | 1385  | 884   |   |   |   |   | 1641  | 2330  | 442   | 1862  | 2308  | 692   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 945   | 945   | 1360  |   | 1360  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 696   | 1385  | 503   |   | 948   |   |
| vCu, unblocked vol                | 717   | 884   |   |   |   |   | 1079  | 2053  | 442   | 1392  | 2021  | 0   |
| tC, single (s)                    | 4.2   | 4.1   |   |   |   |   | 8.5   | 6.5   | 6.9   | 7.5   | 6.5   | 7.0   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 7.5   | 5.5   | 6.5   |   | 5.5   |   |
| tF (s)                            | 2.2   | 2.2   |   |   |   |   | 4.0   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 95  | 100   |   |   |   |   | 99  | 100   | 97  | 68  | 100   | 96  |
| cM capacity (veh/h)               | 613   | 761   |   |   |   |   | 183   | 203   | 563   | 246   | 220   | 760   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  | SB 2  |   |   |   |
| Volume Total                      | 32  | 585   | 299   | 0   | 889   | 496   | 20  | 78  | 29  |   |   |   |
| Volume Left                       | 32  | 0   | 0   | 0   | 0   | 0   | 2   | 78  | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 6   | 0   | 0   | 51  | 18  | 0   | 29  |   |   |   |
| cSH                               | 613   | 1700  | 1700  | 1700  | 1700  | 1700  | 626   | 246   | 760   |   |   |   |
| Volume to Capacity                | 0.05  | 0.34  | 0.18  | 0.00  | 0.52  | 0.29  | 0.03  | 0.32  | 0.04  |   |   |   |
| Queue Length 95th (ft)            | 4   | 0   | 0   | 0   | 0   | 0   | 2   | 33  | 3   |   |   |   |
| Control Delay (s)                 | 11.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 12.9  | 26.2  | 9.9   |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   | B   | D   | A   |   |   |   |
| Approach Delay (s)                | 0.4   | 0.0   |   |   |   |   | 12.9  | 21.8  |   |   |   |   |
| Approach LOS                      |   |   |   |   |   |   | B   | C   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 1.2   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 51.9%   |   |   | ICU Level of Service  |   |   |   |   | A   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |

# Timings 9: Gay Dr & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                      |  |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | NBR  | SBL   | SBT   |
| Lane Configurations  |  |  |  |  |   |  |  |   |  |
| Traffic Volume (vph) | 147   | 773   | 418   | 1133  | 7   | 0   | 259  | 16  | 0   |
| Future Volume (vph)  | 147   | 773   | 418   | 1133  | 7   | 0   | 259  | 16  | 0   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | NA  | Perm   | Perm  | NA  |
| Protected Phases     | 7   | 4   | 3   | 8   |   | 2   |  |   | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 2  | 6   |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 2   | 2   | 2  | 6   | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  | 22.5  |
| Total Split (s)      | 12.4  | 26.0  | 29.0  | 42.6  | 25.0  | 25.0  | 25.0   | 25.0  | 25.0  |
| Total Split (%)      | 15.5%   | 32.5%   | 36.3%   | 53.3%   | 31.3%   | 31.3%   | 31.3%  | 31.3%   | 31.3%   |
| Yellow Time (s)      | 3.5   | 3.5   | 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  | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   |   | 0.0   | 0.0  |   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   |   | 4.5   | 4.5  |   | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   |   |   |  |   |   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   |   |   |  |   |   |
| Recall Mode          | None  | None  | None  | None  | Min   | Min   | Min  | Min   | Min   |
| Act Effct Green (s)  | 27.9  | 20.5  | 43.9  | 32.0  |   | 7.6   | 7.6  |   | 7.6   |
| Actuated g/C Ratio   | 0.46  | 0.34  | 0.72  | 0.53  |   | 0.12  | 0.12   |   | 0.12  |
| v/c Ratio            | 0.49  | 0.74  | 0.79  | 0.73  |   | 0.07  | 0.64   |   | 0.53  |
| Control Delay        | 16.5  | 24.3  | 22.8  | 14.0  |   | 26.6  | 11.1   |   | 12.9  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   |   | 0.0   | 0.0  |   | 0.0   |
| Total Delay          | 16.5  | 24.3  | 22.8  | 14.0  |   | 26.6  | 11.1   |   | 12.9  |
| LOS                  | B   | C   | C   | B   |   | C   | B  |   | B   |
| Approach Delay       |   | 23.1  |   | 16.3  |   | 11.6  |  |   | 12.9  |
| Approach LOS         |   | C   |   | B   |   | B   |  |   | B   |

## Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 60.8

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 17.8







Intersection LOS: B

Intersection Capacity Utilization 72.8%

ICU Level of Service C








Analysis Period (min) 15

Splits and Phases: 9: Gay Dr & US 21 Sea Island Pkwy

|  |  |  |
|--|--|--|
|  Ø2 |  Ø3 |  Ø4 |
| 25 s   | 29 s   | 26 s   |
|  Ø6 |  Ø7 |  Ø8   |
| 25 s   | 12.4 s   | 42.6 s   |

Queues  
9: Gay Dr & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NBT   | NBR   | SBT  |
| Lane Group Flow (vph)   | 163   | 869   | 464   | 1342  | 8   | 288   | 182  |
| v/c Ratio               | 0.49  | 0.74  | 0.79  | 0.73  | 0.07  | 0.64  | 0.53   |
| Control Delay           | 16.5  | 24.3  | 22.8  | 14.0  | 26.6  | 11.1  | 12.9   |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay             | 16.5  | 24.3  | 22.8  | 14.0  | 26.6  | 11.1  | 12.9   |
| Queue Length 50th (ft)  | 14  | 142   | 95  | 167   | 3   | 0   | 6  |
| Queue Length 95th (ft)  | 62  | #290  | #275  | 304   | 14  | 61  | 57   |
| Internal Link Dist (ft) |   | 324   |   | 647   | 804   |   | 269  |
| Turn Bay Length (ft)    | 150   |   | 250   |   |   | 350   |  |
| Base Capacity (vph)     | 358   | 1263  | 718   | 2238  | 338   | 735   | 653  |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Reduced v/c Ratio       | 0.46  | 0.69  | 0.65  | 0.60  | 0.02  | 0.39  | 0.28   |

Intersection Summary




















# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



# HCM Signalized Intersection Capacity Analysis

## 9: Gay Dr & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |   |  |  |   |  |   |
| Traffic Volume (vph)              | 147   | 773   | 9   | 418   | 1133  | 75  | 7   | 0   | 259   | 16  | 0   | 148   |
| Future Volume (vph)               | 147   | 773   | 9   | 418   | 1133  | 75  | 7   | 0   | 259   | 16  | 0   | 148   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 4.5   | 4.5   |   | 4.5   | 4.5   |   |   | 4.5   | 4.5   |   | 4.5   |   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  |   |   | 1.00  | 1.00  |   | 1.00  |   |
| Frt                               | 1.00  | 1.00  |   | 1.00  | 0.99  |   |   | 1.00  | 0.85  |   | 0.88  |   |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  |   |   | 0.95  | 1.00  |   | 1.00  |   |
| Satd. Flow (prot)                 | 1770  | 3481  |   | 1543  | 3474  |   |   | 1770  | 1583  |   | 1628  |   |
| Flt Permitted                     | 0.20  | 1.00  |   | 0.16  | 1.00  |   |   | 0.53  | 1.00  |   | 0.97  |   |
| Satd. Flow (perm)                 | 363   | 3481  |   | 260   | 3474  |   |   | 980   | 1583  |   | 1580  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 163   | 859   | 10  | 464   | 1259  | 83  | 8   | 0   | 288   | 18  | 0   | 164   |
| RTOR Reduction (vph)              | 0   | 1   | 0   | 0   | 5   | 0   | 0   | 0   | 252   | 0   | 143   | 0   |
| Lane Group Flow (vph)             | 163   | 868   | 0   | 464   | 1337  | 0   | 0   | 8   | 36  | 0   | 39  | 0   |
| Heavy Vehicles (%)                | 2%  | 3%  | 50%   | 17%   | 3%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | Perm  | NA  | Perm  | Perm  | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   |   | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2   |   | 2   | 6   |   |   |
| Actuated Green, G (s)             | 27.8  | 20.5  |   | 43.8  | 32.0  |   |   | 7.6   | 7.6   |   | 7.6   |   |
| Effective Green, g (s)            | 27.8  | 20.5  |   | 43.8  | 32.0  |   |   | 7.6   | 7.6   |   | 7.6   |   |
| Actuated g/C Ratio                | 0.46  | 0.34  |   | 0.73  | 0.53  |   |   | 0.13  | 0.13  |   | 0.13  |   |
| Clearance Time (s)                | 4.5   | 4.5   |   | 4.5   | 4.5   |   |   | 4.5   | 4.5   |   | 4.5   |   |
| Vehicle Extension (s)             | 3.0   | 3.0   |   | 3.0   | 3.0   |   |   | 3.0   | 3.0   |   | 3.0   |   |
| Lane Grp Cap (vph)                | 337   | 1181  |   | 587   | 1840  |   |   | 123   | 199   |   | 198   |   |
| v/s Ratio Prot                    | 0.06  | 0.25  |   | c0.25   | 0.38  |   |   |   |   |   |   |   |
| v/s Ratio Perm                    | 0.16  |   |   | c0.33   |   |   |   | 0.01  | 0.02  |   | c0.02   |   |
| v/c Ratio                         | 0.48  | 0.74  |   | 0.79  | 0.73  |   |   | 0.07  | 0.18  |   | 0.20  |   |
| Uniform Delay, d1                 | 9.8   | 17.6  |   | 11.9  | 10.9  |   |   | 23.3  | 23.6  |   | 23.7  |   |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  |   |   | 1.00  | 1.00  |   | 1.00  |   |
| Incremental Delay, d2             | 1.1   | 2.4   |   | 7.2   | 1.5   |   |   | 0.2   | 0.4   |   | 0.5   |   |
| Delay (s)                         | 10.9  | 20.0  |   | 19.0  | 12.3  |   |   | 23.5  | 24.1  |   | 24.1  |   |
| Level of Service                  | B   | B   |   | B   | B   |   |   | C   | C   |   | C   |   |
| Approach Delay (s)                |   | 18.5  |   |   | 14.0  |   |   | 24.0  |   |   | 24.1  |   |
| Approach LOS                      |   | B   |   |   | B   |   |   | C   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 16.9  |   |   | HCM 2000 Level of Service   |   |   |   | B   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.74  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 60.4  |   |   | Sum of lost time (s)  |   |   | 13.5  |   |   |   |
| Intersection Capacity Utilization |   |   | 72.8%   |   |   | ICU Level of Service  |   |   | C   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 10: Cougar Dr & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                                   | →    | ↘    | ↙     | ←    | ↖                    | ↗    |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Movement                          | EBT  | EBR  | WBL   | WBT  | NBL                  | NBR  |
| Lane Configurations               | ↑↑   |      | ↓     | ↑↑   | ↓                    |      |
| Traffic Volume (veh/h)            | 998  | 0    | 0     | 1492 | 0                    | 0    |
| Future Volume (Veh/h)             | 998  | 0    | 0     | 1492 | 0                    | 0    |
| Sign Control                      | Free |      |       | Free | Stop                 |      |
| Grade                             | 0%   |      |       | 0%   | 0%                   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 1109 | 0    | 0     | 1658 | 0                    | 0    |
| Pedestrians                       |      |      |       |      |                      |      |
| Lane Width (ft)                   |      |      |       |      |                      |      |
| Walking Speed (ft/s)              |      |      |       |      |                      |      |
| Percent Blockage                  |      |      |       |      |                      |      |
| Right turn flare (veh)            |      |      |       |      |                      |      |
| Median type                       | None |      |       | None |                      |      |
| Median storage (veh)              |      |      |       |      |                      |      |
| Upstream signal (ft)              | 727  |      |       |      |                      |      |
| pX, platoon unblocked             |      |      | 0.79  |      | 0.79                 | 0.79 |
| vC, conflicting volume            |      |      | 1109  |      | 1938                 | 554  |
| vC1, stage 1 conf vol             |      |      |       |      |                      |      |
| vC2, stage 2 conf vol             |      |      |       |      |                      |      |
| vCu, unblocked vol                |      |      | 616   |      | 1661                 | 0    |
| tC, single (s)                    |      |      | 5.1   |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |      |                      |      |
| tF (s)                            |      |      | 2.7   |      | 3.5                  | 3.3  |
| p0 queue free %                   |      |      | 100   |      | 100                  | 100  |
| cM capacity (veh/h)               |      |      | 552   |      | 70                   | 860  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | WB 3                 | NB 1 |
| Volume Total                      | 739  | 370  | 0     | 829  | 829                  | 0    |
| Volume Left                       | 0    | 0    | 0     | 0    | 0                    | 0    |
| Volume Right                      | 0    | 0    | 0     | 0    | 0                    | 0    |
| cSH                               | 1700 | 1700 | 1700  | 1700 | 1700                 | 1700 |
| Volume to Capacity                | 0.43 | 0.22 | 0.00  | 0.49 | 0.49                 | 0.00 |
| Queue Length 95th (ft)            | 0    | 0    | 0     | 0    | 0                    | 0    |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0   | 0.0  | 0.0                  | 0.0  |
| Lane LOS                          |      |      |       |      |                      | A    |
| Approach Delay (s)                | 0.0  |      | 0.0   |      |                      | 0.0  |
| Approach LOS                      |      |      |       |      |                      | A    |
| <b>Intersection Summary</b>       |      |      |       |      |                      |      |
| Average Delay                     |      |      | 0.0   |      |                      |      |
| Intersection Capacity Utilization |      |      | 44.6% |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 11: Lost Island Rd & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour
















|                                   |       |      |       |      |                      |      |
|-----------------------------------|-------|------|-------|------|----------------------|------|
|                                   | →     | ↘    | ↙     | ←    | ↖                    | ↗    |
| Movement                          | EBT   | EBR  | WBL   | WBT  | NBL                  | NBR  |
| Lane Configurations               | ↕↕    | ↗    |       | ↖↕   |                      | ↗    |
| Traffic Volume (veh/h)            | 973   | 13   | 0     | 1597 | 0                    | 1    |
| Future Volume (Veh/h)             | 973   | 13   | 0     | 1597 | 0                    | 1    |
| Sign Control                      | Free  |      |       | Free | Stop                 |      |
| Grade                             | 0%    |      |       | 0%   | 0%                   |      |
| Peak Hour Factor                  | 0.90  | 0.90 | 0.90  | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 1081  | 14   | 0     | 1774 | 0                    | 1    |
| Pedestrians                       |       |      |       |      |                      |      |
| Lane Width (ft)                   |       |      |       |      |                      |      |
| Walking Speed (ft/s)              |       |      |       |      |                      |      |
| Percent Blockage                  |       |      |       |      |                      |      |
| Right turn flare (veh)            |       |      |       |      |                      |      |
| Median type                       | TWLTL |      | TWLTL |      |                      |      |
| Median storage veh)               | 2     |      | 2     |      |                      |      |
| Upstream signal (ft)              |       |      | 612   |      |                      |      |
| pX, platoon unblocked             |       |      |       |      | 0.63                 |      |
| vC, conflicting volume            |       |      | 1095  |      | 1968                 | 540  |
| vC1, stage 1 conf vol             |       |      |       |      | 1081                 |      |
| vC2, stage 2 conf vol             |       |      |       |      | 887                  |      |
| vCu, unblocked vol                |       |      | 1095  |      | 1361                 | 540  |
| tC, single (s)                    |       |      | 4.1   |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |       |      |       |      | 5.8                  |      |
| tF (s)                            |       |      | 2.2   |      | 3.5                  | 3.3  |
| p0 queue free %                   |       |      | 100   |      | 100                  | 100  |
| cM capacity (veh/h)               |       |      | 633   |      | 263                  | 486  |
| Direction, Lane #                 | EB 1  | EB 2 | EB 3  | WB 1 | WB 2                 | NB 1 |
| Volume Total                      | 540   | 540  | 14    | 591  | 1183                 | 1    |
| Volume Left                       | 0     | 0    | 0     | 0    | 0                    | 0    |
| Volume Right                      | 0     | 0    | 14    | 0    | 0                    | 1    |
| cSH                               | 1700  | 1700 | 1700  | 633  | 1700                 | 486  |
| Volume to Capacity                | 0.32  | 0.32 | 0.01  | 0.00 | 0.70                 | 0.00 |
| Queue Length 95th (ft)            | 0     | 0    | 0     | 0    | 0                    | 0    |
| Control Delay (s)                 | 0.0   | 0.0  | 0.0   | 0.0  | 0.0                  | 12.4 |
| Lane LOS                          |       |      |       |      |                      | B    |
| Approach Delay (s)                | 0.0   |      |       |      | 0.0                  | 12.4 |
| Approach LOS                      |       |      |       |      |                      | B    |
| Intersection Summary              |       |      |       |      |                      |      |
| Average Delay                     |       |      | 0.0   |      |                      |      |
| Intersection Capacity Utilization |       |      | 54.1% |      | ICU Level of Service |      |
| Analysis Period (min)             |       |      | 15    |      | A                    |      |

# Timings

## 12: New Frontage Road/Airport Cir & US 21 Sea Island Pkwy

2038 Build

AM Peak Hour

|                      |  |  |  |  |  |  |   |  |
|----------------------|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | SBL   | SBT   | Ø2  |
| Lane Configurations  |  |  |  |  |  |  |  |   |
| Traffic Volume (vph) | 119   | 854   | 14  | 1423  | 50  | 60  | 0   |   |
| Future Volume (vph)  | 119   | 854   | 14  | 1423  | 50  | 60  | 0   |   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | pm+pt   | NA  |   |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 1   | 6   | 2   |
| Permitted Phases     | 4   |   | 8   |   | 2   | 6   |   |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 1   | 6   |   |
| Switch Phase         |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 10.2  | 54.7  | 9.5   | 54.0  | 9.6   | 22.5  | 36.2  | 23.3  |
| Total Split (%)      | 9.3%  | 49.7%   | 8.6%  | 49.1%   | 8.7%  | 20.5%   | 32.9%   | 21%   |
| Yellow Time (s)      | 3.5   | 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   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | Min   |
| Act Effct Green (s)  | 59.0  | 57.9  | 54.5  | 49.5  | 10.6  | 17.3  | 10.5  |   |
| Actuated g/C Ratio   | 0.68  | 0.67  | 0.63  | 0.57  | 0.12  | 0.20  | 0.12  |   |
| v/c Ratio            | 0.74  | 0.41  | 0.04  | 0.80  | 0.30  | 0.26  | 0.42  |   |
| Control Delay        | 40.6  | 8.1   | 5.1   | 19.0  | 32.7  | 30.8  | 8.8   |   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Delay          | 40.6  | 8.1   | 5.1   | 19.0  | 32.7  | 30.8  | 8.8   |   |
| LOS                  | D   | A   | A   | B   | C   | C   | A   |   |
| Approach Delay       |   | 12.1  |   | 18.9  |   |   | 16.0  |   |
| Approach LOS         |   | B   |   | B   |   |   | B   |   |

### Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 86.9

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 16.4









Intersection LOS: B

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: New Frontage Road/Airport Cir & US 21 Sea Island Pkwy








|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 22.5 s   | 23.3 s   | 9.5 s  | 54.7 s   |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.6 s  | 36.2 s   | 10.2 s   | 54 s   |

## Queues

2038 Build

## 12: New Frontage Road/Airport Cir &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NBL   | SBL   | SBT   |
| Lane Group Flow (vph)   | 132   | 949   | 15  | 1581  | 54  | 67  | 140   |
| v/c Ratio               | 0.74  | 0.41  | 0.04  | 0.80  | 0.30  | 0.26  | 0.42  |
| Control Delay           | 40.6  | 8.1   | 5.1   | 19.0  | 32.7  | 30.8  | 8.8   |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 40.6  | 8.1   | 5.1   | 19.0  | 32.7  | 30.8  | 8.8   |
| Queue Length 50th (ft)  | 27  | 101   | 2   | 333   | 24  | 30  | 0   |
| Queue Length 95th (ft)  | #129  | 207   | 9   | 463   | 55  | 65  | 41  |
| Internal Link Dist (ft) |   | 532   |   | 392   |   |   | 381   |
| Turn Bay Length (ft)    | 375   |   | 75  |   |   | 250   |   |
| Base Capacity (vph)     | 178   | 2311  | 399   | 1977  | 182   | 374   | 679   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.74  | 0.41  | 0.04  | 0.80  | 0.30  | 0.18  | 0.21  |

## Intersection Summary























# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 12: New Frontage Road/Airport Cir & US 21 Sea Island Pkwy










2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |  |  |  |   |  |  |   |  |  |  |
| Traffic Volume (vph)              | 119   | 854   | 0   | 14  | 1423  | 0   | 50   | 0   | 0   | 60  | 0   | 126   |
| Future Volume (vph)               | 119   | 854   | 0   | 14  | 1423  | 0   | 50   | 0   | 0   | 60  | 0   | 126   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 4.5   | 4.5   |   | 4.5   | 4.5   |   | 4.5  |   |   | 4.5   | 4.5   |   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  |   | 1.00   |   |   | 1.00  | 1.00  |   |
| Frt                               | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00   |   |   | 1.00  | 0.85  |   |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  |   | 0.95   |   |   | 0.95  | 1.00  |   |
| Satd. Flow (prot)                 | 1626  | 3471  |   | 1770  | 3471  |   | 1770   |   |   | 1770  | 1583  |   |
| Flt Permitted                     | 0.07  | 1.00  |   | 0.28  | 1.00  |   | 0.67   |   |   | 0.46  | 1.00  |   |
| Satd. Flow (perm)                 | 119   | 3471  |   | 522   | 3471  |   | 1244   |   |   | 860   | 1583  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.92  | 0.92  | 0.90  | 0.90  | 0.92   | 0.92  | 0.92  | 0.90  | 0.92  | 0.90  |
| Adj. Flow (vph)                   | 132   | 949   | 0   | 15  | 1581  | 0   | 54   | 0   | 0   | 67  | 0   | 140   |
| RTOR Reduction (vph)              | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 124   | 0   |
| Lane Group Flow (vph)             | 132   | 949   | 0   | 15  | 1581  | 0   | 54   | 0   | 0   | 67  | 16  | 0   |
| Heavy Vehicles (%)                | 11%   | 4%  | 2%  | 2%  | 4%  | 2%  | 2%   | 2%  | 2%  | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  | Perm  | pm+pt   | NA  |   | pm+pt  |   |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   | 4   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             | 63.4  | 57.9  |   | 54.2  | 53.2  |   | 10.5   |   |   | 18.7  | 10.5  |   |
| Effective Green, g (s)            | 63.4  | 57.9  |   | 54.2  | 53.2  |   | 10.5   |   |   | 18.7  | 10.5  |   |
| Actuated g/C Ratio                | 0.69  | 0.63  |   | 0.59  | 0.58  |   | 0.11   |   |   | 0.20  | 0.11  |   |
| Clearance Time (s)                | 4.5   | 4.5   |   | 4.5   | 4.5   |   | 4.5  |   |   | 4.5   | 4.5   |   |
| Vehicle Extension (s)             | 3.0   | 3.0   |   | 3.0   | 3.0   |   | 3.0  |   |   | 3.0   | 3.0   |   |
| Lane Grp Cap (vph)                | 176   | 2196  |   | 322   | 2018  |   | 166  |   |   | 257   | 181   |   |
| v/s Ratio Prot                    | c0.05   | 0.27  |   | 0.00  | 0.46  |   | 0.01   |   |   | c0.02   | 0.01  |   |
| v/s Ratio Perm                    | c0.47   |   |   | 0.03  |   |   | 0.02   |   |   | c0.03   |   |   |
| v/c Ratio                         | 0.75  | 0.43  |   | 0.05  | 0.78  |   | 0.33   |   |   | 0.26  | 0.09  |   |
| Uniform Delay, d1                 | 17.8  | 8.5   |   | 7.7   | 14.7  |   | 37.0   |   |   | 30.2  | 36.2  |   |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00   |   |   | 1.00  | 1.00  |   |
| Incremental Delay, d2             | 16.3  | 0.1   |   | 0.1   | 2.1   |   | 1.1  |   |   | 0.5   | 0.2   |   |
| Delay (s)                         | 34.2  | 8.6   |   | 7.8   | 16.8  |   | 38.1   |   |   | 30.7  | 36.4  |   |
| Level of Service                  | C   | A   |   | A   | B   |   | D  |   |   | C   | D   |   |
| Approach Delay (s)                |   | 11.7  |   |   | 16.7  |   |  | 38.1  |   |   | 34.6  |   |
| Approach LOS                      |   | B   |   |   | B   |   |  | D   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 16.5  |   |   | HCM 2000 Level of Service   |  |   |   | B   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.69  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 91.5  |   |   | Sum of lost time (s)  |  |   | 18.0  |   |   |   |
| Intersection Capacity Utilization |   |   | 72.9%   |   |   | ICU Level of Service  |  |   | C   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 13: Old Distant Island Rd & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour














|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |   |
| Traffic Volume (veh/h)            | 774   | 7   | 6   | 1399  | 15  | 2   |
| Future Volume (Veh/h)             | 774   | 7   | 6   | 1399  | 15  | 2   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 860   | 8   | 7   | 1554  | 17  | 2   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLT  |   |   | TWLT  |   |   |
| Median storage veh)               | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   | 1133  |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.22  |   |
| vC, conflicting volume            |   |   | 868   |   | 2432  | 864   |
| vC1, stage 1 conf vol             |   |   |   |   | 864   |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1568  |   |
| vCu, unblocked vol                |   |   | 868   |   | 5798  | 864   |
| tC, single (s)                    |   |   | 4.1   |   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.5   |   |
| tF (s)                            |   |   | 2.2   |   | 3.6   | 3.3   |
| p0 queue free %                   |   |   | 99  |   | 41  | 99  |
| cM capacity (veh/h)               |   |   | 776   |   | 29  | 354   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  |   |   |   |
| Volume Total                      | 868   | 1561  | 19  |   |   |   |
| Volume Left                       | 0   | 7   | 17  |   |   |   |
| Volume Right                      | 8   | 0   | 2   |   |   |   |
| cSH                               | 1700  | 776   | 32  |   |   |   |
| Volume to Capacity                | 0.51  | 0.01  | 0.60  |   |   |   |
| Queue Length 95th (ft)            | 0   | 1   | 50  |   |   |   |
| Control Delay (s)                 | 0.0   | 1.1   | 224.7   |   |   |   |
| Lane LOS                          |   | A   | F   |   |   |   |
| Approach Delay (s)                | 0.0   | 1.1   | 224.7   |   |   |   |
| Approach LOS                      |   |   | F   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   | 2.4   |   |   |   |   |
| Intersection Capacity Utilization |   | 88.4%   | ICU Level of Service  | E   |   |   |
| Analysis Period (min)             |   | 15  |   |   |   |   |

# Timings

2038 Build

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

AM Peak Hour

|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 24  | 625   | 56  | 1241  | 152   | 4   | 16   | 2   |
| Future Volume (vph)  | 24  | 625   | 56  | 1241  | 152   | 4   | 16   | 2   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | NA  | pm+pt  | NA  |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 9.5  | 22.5  |
| Total Split (s)      | 9.5   | 108.0   | 9.5   | 108.0   | 9.5   | 23.0  | 9.5  | 23.0  |
| Total Split (%)      | 6.3%  | 72.0%   | 6.3%  | 72.0%   | 6.3%  | 15.3%   | 6.3%   | 15.3%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Max   | None   | Max   |
| Act Effct Green (s)  |   | 103.6   | 111.1   | 111.1   |   | 18.5  |  | 18.5  |
| Actuated g/C Ratio   |   | 0.75  | 0.80  | 0.80  |   | 0.13  |  | 0.13  |
| v/c Ratio            |   | 1.09  | 0.13  | 0.94  |   | 1.24  |  | 0.27  |
| Control Delay        |   | 80.5  | 3.4   | 25.6  |   | 191.3   |  | 26.7  |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 80.5  | 3.4   | 25.6  |   | 191.3   |  | 26.7  |
| LOS                  |   | F   | A   | C   |   | F   |  | C   |
| Approach Delay       |   | 80.5  |   | 24.7  |   | 191.3   |  | 26.7  |
| Approach LOS         |   | F   |   | C   |   | F   |  | C   |

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 138.6

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 57.7









Intersection LOS: E

Intersection Capacity Utilization 90.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |



## Queues

2038 Build

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

AM Peak Hour

|                         | →     | ↙    | ←     | ↑     | ↓    |
|-------------------------|-------|------|-------|-------|------|
| Lane Group              | EBT   | WBL  | WBT   | NBT   | SBT  |
| Lane Group Flow (vph)   | 868   | 62   | 1379  | 223   | 61   |
| v/c Ratio               | 1.09  | 0.13 | 0.94  | 1.24  | 0.27 |
| Control Delay           | 80.5  | 3.4  | 25.6  | 191.3 | 26.7 |
| Queue Delay             | 0.0   | 0.0  | 0.0   | 0.0   | 0.0  |
| Total Delay             | 80.5  | 3.4  | 25.6  | 191.3 | 26.7 |
| Queue Length 50th (ft)  | ~902  | 10   | 841   | ~248  | 16   |
| Queue Length 95th (ft)  | #1160 | 18   | #1487 | #420  | 61   |
| Internal Link Dist (ft) | 1053  |      | 490   | 351   | 331  |
| Turn Bay Length (ft)    |       | 290  |       |       |      |
| Base Capacity (vph)     | 793   | 493  | 1464  | 180   | 229  |
| Starvation Cap Reductn  | 0     | 0    | 0     | 0     | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0     | 0     | 0    |
| Storage Cap Reductn     | 0     | 0    | 0     | 0     | 0    |
| Reduced v/c Ratio       | 1.09  | 0.13 | 0.94  | 1.24  | 0.27 |


















## Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy





















2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 24  | 625   | 132   | 56  | 1241  | 0   | 152  | 4   | 45  | 16  | 2   | 37  |
| Future Volume (vph)               | 24  | 625   | 132   | 56  | 1241  | 0   | 152  | 4   | 45  | 16  | 2   | 37  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 0.98  |   | 1.00  | 1.00  |   |  | 0.97  |   |   | 0.91  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.96  |   |   | 0.99  |   |
| Satd. Flow (prot)                 |   | 1776  |   | 1736  | 1827  |   |  | 1724  |   |   | 1532  |   |
| Flt Permitted                     |   | 0.59  |   | 0.31  | 1.00  |   |  | 0.73  |   |   | 0.93  |   |
| Satd. Flow (perm)                 |   | 1056  |   | 563   | 1827  |   |  | 1301  |   |   | 1447  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 27  | 694   | 147   | 62  | 1379  | 0   | 169  | 4   | 50  | 18  | 2   | 41  |
| RTOR Reduction (vph)              | 0   | 5   | 0   | 0   | 0   | 0   | 0  | 7   | 0   | 0   | 36  | 0   |
| Lane Group Flow (vph)             | 0   | 863   | 0   | 62  | 1379  | 0   | 0  | 216   | 0   | 0   | 25  | 0   |
| Heavy Vehicles (%)                | 2%  | 5%  | 2%  | 4%  | 4%  | 2%  | 3%   | 2%  | 3%  | 8%  | 2%  | 13%   |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt  | NA  |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 103.6   |   | 112.0   | 112.0   |   |  | 18.5  |   |   | 18.5  |   |
| Effective Green, g (s)            |   | 103.6   |   | 112.0   | 112.0   |   |  | 18.5  |   |   | 18.5  |   |
| Actuated g/C Ratio                |   | 0.74  |   | 0.80  | 0.80  |   |  | 0.13  |   |   | 0.13  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 784   |   | 484   | 1466  |   |  | 172   |   |   | 191   |   |
| v/s Ratio Prot                    |   |   |   | 0.00  | c0.75   |   |  |   |   |   |   |   |
| v/s Ratio Perm                    |   | c0.82   |   | 0.10  |   |   |  | c0.17   |   |   | 0.02  |   |
| v/c Ratio                         |   | 1.10  |   | 0.13  | 0.94  |   |  | 1.26  |   |   | 0.13  |   |
| Uniform Delay, d1                 |   | 18.0  |   | 4.0   | 11.1  |   |  | 60.5  |   |   | 53.4  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 63.5  |   | 0.1   | 12.1  |   |  | 153.8   |   |   | 0.3   |   |
| Delay (s)                         |   | 81.4  |   | 4.1   | 23.2  |   |  | 214.3   |   |   | 53.7  |   |
| Level of Service                  |   | F   |   | A   | C   |   |  | F   |   |   | D   |   |
| Approach Delay (s)                |   | 81.4  |   |   | 22.4  |   |  | 214.3   |   |   | 53.7  |   |
| Approach LOS                      |   | F   |   |   | C   |   |  | F   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 59.4  |   |   | HCM 2000 Level of Service   |  |   | E   |   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.18  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 139.5   |   |   | Sum of lost time (s)  |  |   | 18.0  |   |   |   |
| Intersection Capacity Utilization |   |   | 90.9%   |   |   | ICU Level of Service  |  |   | E   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis











## 15: US 21 Lady's Island Rd & Rue Du Bois/Driveway

2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |  |  |   |  |  |  |
| Traffic Volume (veh/h)            | 22  | 1   | 54  | 4   | 0   | 7   | 80  | 1065  | 22  | 34  | 1842  | 47  |
| Future Volume (Veh/h)             | 22  | 1   | 54  | 4   | 0   | 7   | 80  | 1065  | 22  | 34  | 1842  | 47  |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 24  | 1   | 60  | 4   | 0   | 8   | 89  | 1183  | 24  | 38  | 2047  | 52  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | None  |   |   | TWLTL   |   |   |
| Median storage veh                |   |   |   |   |   |   |   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   | 1063  |   |   |
| pX, platoon unblocked             | 0.52  | 0.52  | 0.52  | 0.52  | 0.52  |   | 0.52  |   |   |   |   |   |
| vC, conflicting volume            | 2900  | 3508  | 1024  | 2533  | 3548  | 604   | 2099  |   |   |   | 1207  |   |
| vC1, stage 1 conf vol             | 2123  | 2123  |   | 1373  | 1373  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 778   | 1385  |   | 1160  | 2175  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 2809  | 3973  | 0   | 2105  | 4050  | 604   | 1274  |   |   |   | 1207  |   |
| tC, single (s)                    | 7.6   | 8.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.2   |   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 6.6   | 7.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.6   | 5.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   |   | 2.2   |   |
| p0 queue free %                   | 65  | 95  | 89  | 96  | 100   | 98  | 68  |   |   |   | 93  |   |
| cM capacity (veh/h)               | 69  | 20  | 566   | 96  | 9   | 442   | 274   |   |   |   | 574   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  | SB 4  |   |   |
| Volume Total                      | 25  | 60  | 12  | 89  | 789   | 418   | 38  | 1024  | 1024  | 52  |   |   |
| Volume Left                       | 24  | 0   | 4   | 89  | 0   | 0   | 38  | 0   | 0   | 0   |   |   |
| Volume Right                      | 0   | 60  | 8   | 0   | 0   | 24  | 0   | 0   | 0   | 52  |   |   |
| cSH                               | 62  | 566   | 201   | 274   | 1700  | 1700  | 574   | 1700  | 1700  | 1700  |   |   |
| Volume to Capacity                | 0.40  | 0.11  | 0.06  | 0.32  | 0.46  | 0.25  | 0.07  | 0.60  | 0.60  | 0.03  |   |   |
| Queue Length 95th (ft)            | 38  | 9   | 5   | 34  | 0   | 0   | 5   | 0   | 0   | 0   |   |   |
| Control Delay (s)                 | 96.9  | 12.1  | 24.1  | 24.3  | 0.0   | 0.0   | 11.7  | 0.0   | 0.0   | 0.0   |   |   |
| Lane LOS                          | F   | B   | C   | C   | B   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 37.0  |   | 24.1  | 1.7   | 0.2   |   |   |   |   |   |   |   |
| Approach LOS                      | E   |   | C   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   |   | 1.7   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 69.7%   | ICU Level of Service  |   |   |   |   | C   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |   |   |   |   |   |   |

Timings  
16: US 21 Lady's Island Rd & Hazel Farm Rd

2038 Build  
AM Peak Hour




|                      |  |  |  |  |  |
|----------------------|---|---|---|---|---|
| Lane Group           | NWL   | NWR   | NET   | NER   | SWT   |
| Lane Configurations  |  |  |  |  |  |
| Traffic Volume (vph) | 371   | 1   | 842   | 260   | 1556  |
| Future Volume (vph)  | 371   | 1   | 842   | 260   | 1556  |
| Turn Type            | Prot  | Perm  | NA  | Perm  | NA  |
| Protected Phases     | 8   |   | 2   |   | 6   |
| Permitted Phases     |   | 8   |   | 2   |   |
| Detector Phase       | 8   | 8   | 2   | 2   | 6   |
| Switch Phase         |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 22.5  | 22.5  | 37.5  | 37.5  | 37.5  |
| Total Split (%)      | 37.5%   | 37.5%   | 62.5%   | 62.5%   | 62.5%   |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             |   |   |   |   |   |
| Lead-Lag Optimize?   |   |   |   |   |   |
| Recall Mode          | None  | None  | None  | None  | Min   |
| Act Effct Green (s)  | 16.4  | 16.4  | 32.1  | 32.1  | 32.1  |
| Actuated g/C Ratio   | 0.28  | 0.28  | 0.56  | 0.56  | 0.56  |
| v/c Ratio            | 0.82  | 0.00  | 0.47  | 0.34  | 0.88  |
| Control Delay        | 34.8  | 12.0  | 8.9   | 2.3   | 18.3  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 34.8  | 12.0  | 8.9   | 2.3   | 18.3  |
| LOS                  | C   | B   | A   | A   | B   |
| Approach Delay       | 34.8  |   | 7.3   |   | 18.3  |
| Approach LOS         | C   |   | A   |   | B   |

Intersection Summary

Cycle Length: 60  
 Actuated Cycle Length: 57.6  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 16.4  
 Intersection Capacity Utilization 71.1%  
 Analysis Period (min) 15

Intersection LOS: B  
ICU Level of Service C

Splits and Phases: 16: US 21 Lady's Island Rd & Hazel Farm Rd






|  |   |
|--|---|
|  Ø2 |   |
| 37.5 s   |   |
|  Ø6 |   |
| 37.5 s   |  Ø8<br>22.5 s |

## Queues

2038 Build

## 16: US 21 Lady's Island Rd &amp; Hazel Farm Rd

AM Peak Hour

|                         |  |  |  |  |  |
|-------------------------|---|---|---|---|---|
| Lane Group              | NWL   | NWR   | NET   | NER   | SWT   |
| Lane Group Flow (vph)   | 412   | 1   | 936   | 289   | 1729  |
| v/c Ratio               | 0.82  | 0.00  | 0.47  | 0.34  | 0.88  |
| Control Delay           | 34.8  | 12.0  | 8.9   | 2.3   | 18.3  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 34.8  | 12.0  | 8.9   | 2.3   | 18.3  |
| Queue Length 50th (ft)  | 134   | 0   | 97  | 0   | 260   |
| Queue Length 95th (ft)  | #264  | 3   | 138   | 28  | #434  |
| Internal Link Dist (ft) | 1323  |   | 983   |   | 904   |
| Turn Bay Length (ft)    |   | 100   |   | 350   |   |
| Base Capacity (vph)     | 556   | 497   | 2037  | 866   | 2037  |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.74  | 0.00  | 0.46  | 0.33  | 0.85  |













## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
16: US 21 Lady's Island Rd & Hazel Farm Rd





















2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | NWL   | NWR   | NET   | NER   | SWL   | SWT   |
| Lane Configurations               |  |  |  |  |  |  |
| Traffic Volume (vph)              | 371   | 1   | 842   | 260   | 0   | 1556  |
| Future Volume (vph)               | 371   | 1   | 842   | 260   | 0   | 1556  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 4.5   | 4.5   | 4.5   | 4.5   |   | 4.5   |
| Lane Util. Factor                 | 1.00  | 1.00  | 0.95  | 1.00  |   | 0.95  |
| Frt                               | 1.00  | 0.85  | 1.00  | 0.85  |   | 1.00  |
| Flt Protected                     | 0.95  | 1.00  | 1.00  | 1.00  |   | 1.00  |
| Satd. Flow (prot)                 | 1770  | 1583  | 3539  | 1292  |   | 3539  |
| Flt Permitted                     | 0.95  | 1.00  | 1.00  | 1.00  |   | 1.00  |
| Satd. Flow (perm)                 | 1770  | 1583  | 3539  | 1292  |   | 3539  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 412   | 1   | 936   | 289   | 0   | 1729  |
| RTOR Reduction (vph)              | 0   | 1   | 0   | 127   | 0   | 0   |
| Lane Group Flow (vph)             | 412   | 0   | 936   | 162   | 0   | 1729  |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 25%   | 2%  | 2%  |
| Turn Type                         | Prot  | Perm  | NA  | Perm  | Perm  | NA  |
| Protected Phases                  | 8   |   | 2   |   |   | 6   |
| Permitted Phases                  |   | 8   |   | 2   | 6   |   |
| Actuated Green, G (s)             | 16.4  | 16.4  | 32.2  | 32.2  |   | 32.2  |
| Effective Green, g (s)            | 16.4  | 16.4  | 32.2  | 32.2  |   | 32.2  |
| Actuated g/C Ratio                | 0.28  | 0.28  | 0.56  | 0.56  |   | 0.56  |
| Clearance Time (s)                | 4.5   | 4.5   | 4.5   | 4.5   |   | 4.5   |
| Vehicle Extension (s)             | 3.0   | 3.0   | 3.0   | 3.0   |   | 3.0   |
| Lane Grp Cap (vph)                | 503   | 450   | 1978  | 722   |   | 1978  |
| v/s Ratio Prot                    | c0.23   |   | 0.26  |   |   | c0.49   |
| v/s Ratio Perm                    |   | 0.00  |   | 0.13  |   |   |
| v/c Ratio                         | 0.82  | 0.00  | 0.47  | 0.22  |   | 0.87  |
| Uniform Delay, d1                 | 19.2  | 14.7  | 7.6   | 6.4   |   | 11.0  |
| Progression Factor                | 1.00  | 1.00  | 1.00  | 1.00  |   | 1.00  |
| Incremental Delay, d2             | 10.0  | 0.0   | 0.2   | 0.2   |   | 4.6   |
| Delay (s)                         | 29.3  | 14.7  | 7.8   | 6.6   |   | 15.6  |
| Level of Service                  | C   | B   | A   | A   |   | B   |
| Approach Delay (s)                | 29.2  |   | 7.5   |   |   | 15.6  |
| Approach LOS                      | C   |   | A   |   |   | B   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 14.3  |   | HCM 2000 Level of Service   | B   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.85  |   |   |   |
| Actuated Cycle Length (s)         |   |   | 57.6  |   | Sum of lost time (s)  | 9.0   |
| Intersection Capacity Utilization |   |   | 71.1%   |   | ICU Level of Service  | C   |
| Analysis Period (min)             |   |   | 15  |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 17: US 21 Lady's Island Rd & Ferry Rd











2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |  |   |  |  |  |  |  |  |  |   |
| Traffic Volume (veh/h)            | 4   | 0   | 21  | 134   | 1   | 22  | 39   | 770   | 26  | 26  | 1409  | 63  |
| Future Volume (Veh/h)             | 4   | 0   | 21  | 134   | 1   | 22  | 39   | 770   | 26  | 26  | 1409  | 63  |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free   |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 0   | 23  | 149   | 1   | 24  | 43   | 856   | 29  | 29  | 1566  | 70  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            | 5   |   |   | 5   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | TWLTL  |   |   | TWLTL   |   |   |
| Median storage veh)               |   |   |   |   |   |   | 2  |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   | 984  |   |   | 1003  |   |   |
| pX, platoon unblocked             | 0.82  | 0.82  | 0.74  | 0.82  | 0.82  | 0.85  | 0.74   |   |   |   | 0.85  |   |
| vC, conflicting volume            | 2186  | 2630  | 818   | 1798  | 2650  | 442   | 1636   |   |   |   | 885   |   |
| vC1, stage 1 conf vol             | 1659  | 1659  |   | 956   | 956   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 526   | 971   |   | 841   | 1694  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 1192  | 1736  | 65  | 718   | 1762  | 1   | 1165   |   |   |   | 520   |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.0   | 7.5   | 6.5   | 7.0   | 4.1  |   |   |   | 4.2   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.4   | 2.2  |   |   |   | 2.2   |   |
| p0 queue free %                   | 97  | 100   | 97  | 55  | 99  | 97  | 90   |   |   |   | 97  |   |
| cM capacity (veh/h)               | 138   | 166   | 723   | 330   | 127   | 912   | 443  |   |   |   | 871   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  | SW 3   |   |   |   |   |   |
| Volume Total                      | 27  | 174   | 471   | 457   | 29  | 1044  | 592  |   |   |   |   |   |
| Volume Left                       | 4   | 149   | 43  | 0   | 29  | 0   | 0  |   |   |   |   |   |
| Volume Right                      | 23  | 24  | 0   | 29  | 0   | 0   | 70   |   |   |   |   |   |
| cSH                               | 849   | 382   | 443   | 1700  | 871   | 1700  | 1700   |   |   |   |   |   |
| Volume to Capacity                | 0.03  | 0.46  | 0.10  | 0.27  | 0.03  | 0.61  | 0.35   |   |   |   |   |   |
| Queue Length 95th (ft)            | 2   | 58  | 8   | 0   | 3   | 0   | 0  |   |   |   |   |   |
| Control Delay (s)                 | 13.4  | 22.6  | 2.9   | 0.0   | 9.3   | 0.0   | 0.0  |   |   |   |   |   |
| Lane LOS                          | B   | C   | A   |   | A   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 13.4  | 22.6  | 1.5   |   | 0.2   |   |  |   |   |   |   |   |
| Approach LOS                      | B   | C   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 2.1   |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 71.9%   |   |   | ICU Level of Service  |   |   |  |   | C   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 18: SC 802 Sams Point Rd & Sams Point Way

2038 Build  
AM Peak Hour

















|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |  |  |
| Traffic Volume (veh/h)            | 11  | 112   | 777   | 22  | 189   | 1715  |
| Future Volume (Veh/h)             | 11  | 112   | 777   | 22  | 189   | 1715  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 12  | 124   | 863   | 24  | 210   | 1906  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage (veh)              |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 2248  | 444   |   |   | 887   |   |
| vC1, stage 1 conf vol             | 875   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1373  |   |   |   |   |   |
| vCu, unblocked vol                | 2248  | 444   |   |   | 887   |   |
| tC, single (s)                    | 7.2   | 6.9   |   |   | 4.2   |   |
| tC, 2 stage (s)                   | 6.2   |   |   |   |   |   |
| tF (s)                            | 3.7   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 89  | 78  |   |   | 72  |   |
| cM capacity (veh/h)               | 110   | 562   |   |   | 747   |   |
| Direction, Lane #                 | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  | SB 3  |
| Volume Total                      | 136   | 575   | 312   | 210   | 953   | 953   |
| Volume Left                       | 12  | 0   | 0   | 210   | 0   | 0   |
| Volume Right                      | 124   | 0   | 24  | 0   | 0   | 0   |
| cSH                               | 412   | 1700  | 1700  | 747   | 1700  | 1700  |
| Volume to Capacity                | 0.33  | 0.34  | 0.18  | 0.28  | 0.56  | 0.56  |
| Queue Length 95th (ft)            | 35  | 0   | 0   | 29  | 0   | 0   |
| Control Delay (s)                 | 18.0  | 0.0   | 0.0   | 11.7  | 0.0   | 0.0   |
| Lane LOS                          | C   |   |   | B   |   |   |
| Approach Delay (s)                | 18.0  | 0.0   |   | 1.2   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 1.6   |   |   |   |
| Intersection Capacity Utilization |   |   | 61.6%   |   | ICU Level of Service  | B   |
| Analysis Period (min)             |   |   | 15  |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

















## 19: SC 802 Sams Point Rd & Ashland Park Rd/Driveway

2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 1   | 0   | 11  | 0   | 0   | 0   | 14  | 859   | 0   | 1   | 1930  | 7   |
| Future Volume (Veh/h)             | 1   | 0   | 11  | 0   | 0   | 0   | 14  | 859   | 0   | 1   | 1930  | 7   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 12  | 0   | 0   | 0   | 16  | 954   | 0   | 1   | 2144  | 8   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |   | TWLTL   |   |   | TWLTL   |   |
| Median storage (veh)              |   |   |   |   |   |   |   | 2   |   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   | 530   |   |
| pX, platoon unblocked             | 0.26  | 0.26  | 0.26  | 0.26  | 0.26  |   | 0.26  |   |   |   |   |   |
| vC, conflicting volume            | 2659  | 3136  | 1076  | 2072  | 3140  | 477   | 2152  |   |   | 954   |   |   |
| vC1, stage 1 conf vol             | 2150  | 2150  |   | 986   | 986   |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 509   | 986   |   | 1086  | 2154  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 1680  | 3526  | 0   | 0   | 3542  | 477   | 0   |   |   | 954   |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.1   |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   |   |   | 2.2   |   |   |
| p0 queue free %                   | 100   | 100   | 96  | 100   | 100   | 100   | 96  |   |   | 100   |   |   |
| cM capacity (veh/h)               | 221   | 172   | 280   | 245   | 164   | 534   | 419   |   |   | 716   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  |   |   |   |   |   |   |
| Volume Total                      | 13  | 0   | 493   | 477   | 1073  | 1080  |   |   |   |   |   |   |
| Volume Left                       | 1   | 0   | 16  | 0   | 1   | 0   |   |   |   |   |   |   |
| Volume Right                      | 12  | 0   | 0   | 0   | 0   | 8   |   |   |   |   |   |   |
| cSH                               | 275   | 1700  | 419   | 1700  | 716   | 1700  |   |   |   |   |   |   |
| Volume to Capacity                | 0.05  | 0.00  | 0.04  | 0.28  | 0.00  | 0.64  |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 4   | 0   | 3   | 0   | 0   | 0   |   |   |   |   |   |   |
| Control Delay (s)                 | 18.8  | 0.0   | 1.2   | 0.0   | 0.0   | 0.0   |   |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   | A   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 18.8  | 0.0   | 0.6   |   | 0.0   |   |   |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.3   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 64.3%   |   | ICU Level of Service  |   |   |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

Timings  
20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E

2038 Build  
AM Peak Hour







|                      |  |  |  |  |  |  |   |  |  |
|----------------------|---|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL   | SBT   |
| Lane Configurations  |   |  |  |   |  |  |  |  |  |
| Traffic Volume (vph) | 153   | 0   | 41  | 19  | 1   | 16  | 814   | 4   | 1835  |
| Future Volume (vph)  | 153   | 0   | 41  | 19  | 1   | 16  | 814   | 4   | 1835  |
| Turn Type            | pm+pt   | NA  | Perm  | pm+pt   | NA  | pm+pt   | NA  | Perm  | NA  |
| Protected Phases     | 7   | 4   |   | 3   | 8   | 5   | 2   |   | 6   |
| Permitted Phases     | 4   |   | 4   | 8   |   | 2   |   | 6   |   |
| Detector Phase       | 7   | 4   | 4   | 3   | 8   | 5   | 2   | 6   | 6   |
| Switch Phase         |   |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 9.5   | 22.5  | 22.5  | 9.5   | 22.5  | 9.5   | 118.0   | 108.5   | 108.5   |
| Total Split (%)      | 6.3%  | 15.0%   | 15.0%   | 6.3%  | 15.0%   | 6.3%  | 78.7%   | 72.3%   | 72.3%   |
| Yellow Time (s)      | 3.5   | 3.5   | 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   | 1.0   | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   |   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lag   | Lead  | Lag   | Lead  |   | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | None  | Min   | Min   | Min   |
| Act Effct Green (s)  |   | 17.2  | 17.2  |   | 17.2  | 107.8   | 107.8   | 104.2   | 104.2   |
| Actuated g/C Ratio   |   | 0.13  | 0.13  |   | 0.13  | 0.80  | 0.80  | 0.78  | 0.78  |
| v/c Ratio            |   | 0.97  | 0.18  |   | 0.20  | 0.16  | 0.33  | 0.01  | 1.01  |
| Control Delay        |   | 116.9   | 4.8   |   | 48.8  | 5.8   | 3.9   | 4.5   | 34.4  |
| Queue Delay          |   | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          |   | 116.9   | 4.8   |   | 48.8  | 5.8   | 3.9   | 4.5   | 34.4  |
| LOS                  |   | F   | A   |   | D   | A   | A   | A   | C   |
| Approach Delay       |   | 93.0  |   |   | 48.8  |   | 3.9   |   | 34.3  |
| Approach LOS         |   | F   |   |   | D   |   | A   |   | C   |

Intersection Summary

Cycle Length: 150  
 Actuated Cycle Length: 134  
 Natural Cycle: 150  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 30.2  
 Intersection Capacity Utilization 88.8%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service E

Splits and Phases: 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E








|  |  |  |
|--|--|--|
|  Ø2 |  Ø3 |  Ø4 |
| 118 s  | 9.5 s  | 22.5 s   |
|  Ø5 |  Ø7 |  Ø8 |
| 9.5 s  | 108.5 s  | 9.5 s  |
|  |  | 22.5 s   |

## Queues

2038 Build

20: SC 802 Sams Point Rd &amp; Miller Dr W/Miller Dr E

AM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|
| Lane Group              | EBT   | EBR   | WBT   | NBL   | NBT   | SBL   | SBT  |
| Lane Group Flow (vph)   | 170   | 46  | 28  | 18  | 931   | 4   | 2681   |
| v/c Ratio               | 0.97  | 0.18  | 0.20  | 0.16  | 0.33  | 0.01  | 1.01   |
| Control Delay           | 116.9   | 4.8   | 48.8  | 5.8   | 3.9   | 4.5   | 34.4   |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay             | 116.9   | 4.8   | 48.8  | 5.8   | 3.9   | 4.5   | 34.4   |
| Queue Length 50th (ft)  | 144   | 0   | 17  | 3   | 96  | 1   | 933  |
| Queue Length 95th (ft)  | #309  | 13  | 51  | 7   | 117   | 4   | #1522  |
| Internal Link Dist (ft) | 466   |   | 412   |   | 450   |   | 410  |
| Turn Bay Length (ft)    |   | 100   |   | 230   |   | 265   |  |
| Base Capacity (vph)     | 185   | 270   | 144   | 112   | 2955  | 444   | 2666   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Reduced v/c Ratio       | 0.92  | 0.17  | 0.19  | 0.16  | 0.32  | 0.01  | 1.01   |

## Intersection Summary





















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E







2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 153   | 0   | 41  | 19  | 1   | 5   | 16   | 814   | 24  | 4   | 1835  | 578   |
| Future Volume (vph)               | 153   | 0   | 41  | 19  | 1   | 5   | 16   | 814   | 24  | 4   | 1835  | 578   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   | 4.5   |   | 4.5   |   | 4.5  | 4.5   |   | 4.5   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  | 1.00  |   | 1.00  |   | 1.00   | 0.95  |   | 1.00  | 0.95  |   |
| Frt                               |   | 1.00  | 0.85  |   | 0.97  |   | 1.00   | 1.00  |   | 1.00  | 0.96  |   |
| Flt Protected                     |   | 0.95  | 1.00  |   | 0.96  |   | 0.95   | 1.00  |   | 0.95  | 1.00  |   |
| Satd. Flow (prot)                 |   | 1770  | 1524  |   | 1743  |   | 1671   | 3482  |   | 1770  | 3412  |   |
| Flt Permitted                     |   | 0.74  | 1.00  |   | 0.57  |   | 0.04   | 1.00  |   | 0.31  | 1.00  |   |
| Satd. Flow (perm)                 |   | 1377  | 1524  |   | 1038  |   | 65   | 3482  |   | 572   | 3412  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 170   | 0   | 46  | 21  | 1   | 6   | 18   | 904   | 27  | 4   | 2039  | 642   |
| RTOR Reduction (vph)              | 0   | 0   | 40  | 0   | 5   | 0   | 0  | 1   | 0   | 0   | 15  | 0   |
| Lane Group Flow (vph)             | 0   | 170   | 6   | 0   | 23  | 0   | 18   | 930   | 0   | 4   | 2666  | 0   |
| Heavy Vehicles (%)                | 2%  | 2%  | 6%  | 2%  | 2%  | 2%  | 8%   | 3%  | 11%   | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  | Perm  | pm+pt   | NA  |   | pm+pt  | NA  |   | Perm  | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5  | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   | 4   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 17.2  | 17.2  |   | 17.2  |   | 110.6  | 110.6   |   | 104.2   | 104.2   |   |
| Effective Green, g (s)            |   | 17.2  | 17.2  |   | 17.2  |   | 110.6  | 110.6   |   | 104.2   | 104.2   |   |
| Actuated g/C Ratio                |   | 0.13  | 0.13  |   | 0.13  |   | 0.81   | 0.81  |   | 0.76  | 0.76  |   |
| Clearance Time (s)                |   | 4.5   | 4.5   |   | 4.5   |   | 4.5  | 4.5   |   | 4.5   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   | 3.0   |   | 3.0   |   | 3.0  | 3.0   |   | 3.0   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 173   | 191   |   | 130   |   | 74   | 2815  |   | 435   | 2598  |   |
| v/s Ratio Prot                    |   |   |   |   |   |   | 0.00   | c0.27   |   |   | c0.78   |   |
| v/s Ratio Perm                    |   | c0.12   | 0.00  |   | 0.02  |   | 0.19   |   |   | 0.01  |   |   |
| v/c Ratio                         |   | 0.98  | 0.03  |   | 0.18  |   | 0.24   | 0.33  |   | 0.01  | 1.03  |   |
| Uniform Delay, d1                 |   | 59.7  | 52.5  |   | 53.5  |   | 43.0   | 3.4   |   | 3.9   | 16.3  |   |
| Progression Factor                |   | 1.00  | 1.00  |   | 1.00  |   | 1.00   | 1.00  |   | 1.00  | 1.00  |   |
| Incremental Delay, d2             |   | 62.9  | 0.1   |   | 0.6   |   | 1.7  | 0.1   |   | 0.0   | 24.7  |   |
| Delay (s)                         |   | 122.6   | 52.5  |   | 54.1  |   | 44.7   | 3.5   |   | 3.9   | 41.0  |   |
| Level of Service                  |   | F   | D   |   | D   |   | D  | A   |   | A   | D   |   |
| Approach Delay (s)                |   | 107.7   |   |   | 54.1  |   |  | 4.3   |   |   | 40.9  |   |
| Approach LOS                      |   | F   |   |   | D   |   |  | A   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 35.8  |   |   |   | HCM 2000 Level of Service  |   |   | D   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.05  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 136.8   |   |   |   | Sum of lost time (s)   |   |   | 18.0  |   |   |
| Intersection Capacity Utilization |   |   | 88.8%   |   |   |   | ICU Level of Service   |   |   | E   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 21: Taco Bell Driveway & US 21 Sea Island Pkwy

2038 Build  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               | ↑↑  | ↑   |   | ↑↑  |   | ↑   |
| Traffic Volume (veh/h)            | 981   | 17  | 0   | 1569  | 0   | 10  |
| Future Volume (Veh/h)             | 981   | 17  | 0   | 1569  | 0   | 10  |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 1066  | 18  | 0   | 1705  | 0   | 11  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | None  |   | TWLTL   |   |   |   |
| Median storage veh)               |   |   | 2   |   |   |   |
| Upstream signal (ft)              |   |   | 897   |   |   |   |
| pX, platoon unblocked             |   |   | 0.63  |   |   |   |
| vC, conflicting volume            |   |   | 1084  |   | 1918  | 533   |
| vC1, stage 1 conf vol             |   |   |   |   | 1066  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 852   |   |
| vCu, unblocked vol                |   |   | 1084  |   | 1288  | 533   |
| tC, single (s)                    |   |   | 4.1   |   | 6.8   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   | 5.8   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 100   | 98  |
| cM capacity (veh/h)               |   |   | 639   |   | 269   | 491   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | NB 1  |
| Volume Total                      | 533   | 533   | 18  | 852   | 852   | 11  |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   | 0   |
| Volume Right                      | 0   | 0   | 18  | 0   | 0   | 11  |
| cSH                               | 1700  | 1700  | 1700  | 1700  | 1700  | 491   |
| Volume to Capacity                | 0.31  | 0.31  | 0.01  | 0.50  | 0.50  | 0.02  |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 0   | 2   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 12.5  |
| Lane LOS                          |   |   |   |   |   | B   |
| Approach Delay (s)                | 0.0   |   |   |   | 0.0   | 12.5  |
| Approach LOS                      |   |   |   |   |   | B   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 46.7%   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis 22: US 21 Sea Island Pkwy & Walmart Driveway #3

2038 Build  
AM Peak Hour



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|-------|-------|------|----------------------|------|
| Lane Configurations               |      |       |       |      |                      |      |
| Traffic Volume (veh/h)            | 145  | 769   | 1363  | 72   | 30                   | 60   |
| Future Volume (Veh/h)             | 145  | 769   | 1363  | 72   | 30                   | 60   |
| Sign Control                      |      | Free  | Free  |      | Stop                 |      |
| Grade                             |      | 0%    | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92                 | 0.92 |
| Hourly flow rate (vph)            | 158  | 836   | 1482  | 78   | 33                   | 65   |
| Pedestrians                       |      |       |       |      |                      |      |
| Lane Width (ft)                   |      |       |       |      |                      |      |
| Walking Speed (ft/s)              |      |       |       |      |                      |      |
| Percent Blockage                  |      |       |       |      |                      |      |
| Right turn flare (veh)            |      |       |       |      |                      | 7    |
| Median type                       |      | TWLTL | TWLTL |      |                      |      |
| Median storage (veh)              |      | 2     | 2     |      |                      |      |
| Upstream signal (ft)              |      | 472   |       |      |                      |      |
| pX, platoon unblocked             |      |       |       |      | 0.88                 |      |
| vC, conflicting volume            | 1560 |       |       |      | 2255                 | 780  |
| vC1, stage 1 conf vol             |      |       |       |      | 1521                 |      |
| vC2, stage 2 conf vol             |      |       |       |      | 734                  |      |
| vCu, unblocked vol                | 1560 |       |       |      | 2153                 | 780  |
| tC, single (s)                    | 4.1  |       |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |       |       |      | 5.8                  |      |
| tF (s)                            | 2.2  |       |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 62   |       |       |      | 77                   | 81   |
| cM capacity (veh/h)               | 420  |       |       |      | 146                  | 338  |
| Direction, Lane #                 | EB 1 | EB 2  | EB 3  | WB 1 | WB 2                 | SB 1 |
| Volume Total                      | 158  | 418   | 418   | 988  | 572                  | 98   |
| Volume Left                       | 158  | 0     | 0     | 0    | 0                    | 33   |
| Volume Right                      | 0    | 0     | 0     | 0    | 78                   | 65   |
| cSH                               | 420  | 1700  | 1700  | 1700 | 1700                 | 432  |
| Volume to Capacity                | 0.38 | 0.25  | 0.25  | 0.58 | 0.34                 | 0.23 |
| Queue Length 95th (ft)            | 43   | 0     | 0     | 0    | 0                    | 22   |
| Control Delay (s)                 | 18.7 | 0.0   | 0.0   | 0.0  | 0.0                  | 24.4 |
| Lane LOS                          | C    |       |       |      |                      | C    |
| Approach Delay (s)                | 3.0  |       |       | 0.0  |                      | 24.4 |
| Approach LOS                      |      |       |       |      |                      | C    |
| Intersection Summary              |      |       |       |      |                      |      |
| Average Delay                     |      |       | 2.0   |      |                      |      |
| Intersection Capacity Utilization |      |       | 61.3% |      | ICU Level of Service | B    |
| Analysis Period (min)             |      |       | 15    |      |                      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 23: US 21 Sea Island Pkwy & Walmart Driveway #4

2038 Build  
AM Peak Hour




















| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|-------|-------|------|----------------------|------|
| Lane Configurations               |      | ↑↑    | ↑↑    |      |                      | ↑    |
| Traffic Volume (veh/h)            | 0    | 799   | 1405  | 36   | 0                    | 30   |
| Future Volume (Veh/h)             | 0    | 799   | 1405  | 36   | 0                    | 30   |
| Sign Control                      |      | Free  | Free  |      | Stop                 |      |
| Grade                             |      | 0%    | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92                 | 0.92 |
| Hourly flow rate (vph)            | 0    | 868   | 1527  | 39   | 0                    | 33   |
| Pedestrians                       |      |       |       |      |                      |      |
| Lane Width (ft)                   |      |       |       |      |                      |      |
| Walking Speed (ft/s)              |      |       |       |      |                      |      |
| Percent Blockage                  |      |       |       |      |                      |      |
| Right turn flare (veh)            |      |       |       |      |                      |      |
| Median type                       |      | TWLTL | TWLTL |      |                      |      |
| Median storage (veh)              |      | 2     | 2     |      |                      |      |
| Upstream signal (ft)              |      | 911   |       |      |                      |      |
| pX, platoon unblocked             |      |       |       |      | 0.89                 |      |
| vC, conflicting volume            | 1566 |       |       |      | 1980                 | 783  |
| vC1, stage 1 conf vol             |      |       |       |      | 1546                 |      |
| vC2, stage 2 conf vol             |      |       |       |      | 434                  |      |
| vCu, unblocked vol                | 1566 |       |       |      | 1861                 | 783  |
| tC, single (s)                    | 4.1  |       |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |       |       |      | 5.8                  |      |
| tF (s)                            | 2.2  |       |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |       |       |      | 100                  | 90   |
| cM capacity (veh/h)               | 418  |       |       |      | 156                  | 337  |
| Direction, Lane #                 | EB 1 | EB 2  | WB 1  | WB 2 | SB 1                 |      |
| Volume Total                      | 434  | 434   | 1018  | 548  | 33                   |      |
| Volume Left                       | 0    | 0     | 0     | 0    | 0                    |      |
| Volume Right                      | 0    | 0     | 0     | 39   | 33                   |      |
| cSH                               | 1700 | 1700  | 1700  | 1700 | 337                  |      |
| Volume to Capacity                | 0.26 | 0.26  | 0.60  | 0.32 | 0.10                 |      |
| Queue Length 95th (ft)            | 0    | 0     | 0     | 0    | 8                    |      |
| Control Delay (s)                 | 0.0  | 0.0   | 0.0   | 0.0  | 16.9                 |      |
| Lane LOS                          |      |       |       |      | C                    |      |
| Approach Delay (s)                | 0.0  |       | 0.0   |      | 16.9                 |      |
| Approach LOS                      |      |       |       |      | C                    |      |
| Intersection Summary              |      |       |       |      |                      |      |
| Average Delay                     |      |       | 0.2   |      |                      |      |
| Intersection Capacity Utilization |      |       | 50.0% |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |       | 15    |      |                      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 1: Meridian Rd/Driveway & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour


















|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 0   | 1418  | 71  | 61  | 1061  | 2   | 63  | 1   | 69  | 1   | 0   | 1   |
| Future Volume (Veh/h)             | 0   | 1418  | 71  | 61  | 1061  | 2   | 63  | 1   | 69  | 1   | 0   | 1   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 0   | 1576  | 79  | 68  | 1179  | 2   | 70  | 1   | 77  | 1   | 0   | 1   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |   |   |   |   |   |   |
| vC, conflicting volume            | 1181  |   |   | 1655  |   |   | 2932  | 2932  | 1616  | 3009  | 2971  | 1180  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1616  | 1616  |   | 1316  | 1316  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1316  | 1317  |   | 1693  | 1655  |   |
| vCu, unblocked vol                | 1181  |   |   | 1655  |   |   | 2932  | 2932  | 1616  | 3009  | 2971  | 1180  |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 83  |   |   | 27  | 99  | 40  | 65  | 100   | 100   |
| cM capacity (veh/h)               | 591   |   |   | 390   |   |   | 96  | 117   | 128   | 3   | 77  | 232   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NB 1  | SB 1  |   |   |   |   |   |   |   |
| Volume Total                      | 1655  | 68  | 1181  | 148   | 2   |   |   |   |   |   |   |   |
| Volume Left                       | 0   | 68  | 0   | 70  | 1   |   |   |   |   |   |   |   |
| Volume Right                      | 79  | 0   | 2   | 77  | 1   |   |   |   |   |   |   |   |
| cSH                               | 591   | 390   | 1700  | 110   | 6   |   |   |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.17  | 0.69  | 1.34  | 0.36  |   |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 16  | 0   | 254   | 17  |   |   |   |   |   |   |   |
| Control Delay (s)                 | 0.0   | 16.2  | 0.0   | 274.4   | 855.8   |   |   |   |   |   |   |   |
| Lane LOS                          |   | C   |   | F   | F   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.9   |   | 274.4   | 855.8   |   |   |   |   |   |   |   |
| Approach LOS                      |   |   |   | F   | F   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 14.2  |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 95.1%   |   | ICU Level of Service  |   |   |   | F   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |



# HCM Unsignalized Intersection Capacity Analysis

















## 2: Geechie Rd/Driveway & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 2   | 1481  | 19  | 0   | 1149  | 8   | 0   | 0   | 0   | 5   | 0   | 2   |
| Future Volume (Veh/h)             | 2   | 1481  | 19  | 0   | 1149  | 8   | 0   | 0   | 0   | 5   | 0   | 2   |
| Sign Control                      |   | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 2   | 1646  | 21  | 0   | 1277  | 9   | 0   | 0   | 0   | 6   | 0   | 2   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   |   | None  |   |   |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   | 497   |   |   |   |   |   |   |   |
| pX, platoon unblocked             | 0.53  |   |   |   |   |   |   | 0.53  | 0.53  |   |   | 0.53  |
| vC, conflicting volume            | 1286  |   |   |   |   | 1667  |   | 2934  | 2936  | 1646  | 2932  | 2952  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1650  | 1650  |   |   | 1282  | 1282  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1284  | 1286  |   |   | 1650  | 1671  |
| vCu, unblocked vol                | 1097  |   |   |   |   | 1667  |   | 4198  | 4203  | 1646  | 4195  | 4234  |
| tC, single (s)                    | 4.1   |   |   |   |   | 4.1   |   | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1   | 5.5   |   |   | 6.1   | 5.5   |
| tF (s)                            | 2.2   |   |   |   |   | 2.2   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   |
| p0 queue free %                   | 99  |   |   |   |   | 100   |   | 100   | 100   | 100   | 93  | 100   |
| cM capacity (veh/h)               | 338   |   |   |   |   | 385   |   | 84  | 100   | 123   | 85  | 100   |
|                                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | SB 1  |   |   |   |   |   |   |   |
| Volume Total                      | 1648  | 21  | 1286  | 0   | 8   |   |   |   |   |   |   |   |
| Volume Left                       | 2   | 0   | 0   | 0   | 6   |   |   |   |   |   |   |   |
| Volume Right                      | 0   | 21  | 9   | 0   | 2   |   |   |   |   |   |   |   |
| cSH                               | 338   | 1700  | 1700  | 1700  | 94  |   |   |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.01  | 0.76  | 0.00  | 0.08  |   |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 7   |   |   |   |   |   |   |   |
| Control Delay (s)                 | 2.9   | 0.0   | 0.0   | 0.0   | 46.6  |   |   |   |   |   |   |   |
| Lane LOS                          | A   |   |   | A   | E   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 2.9   |   | 0.0   | 0.0   | 46.6  |   |   |   |   |   |   |   |
| Approach LOS                      |   |   |   | A   | E   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   |   |   | 1.8   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   |   | 89.5%   | ICU Level of Service  |   |   |   | E   |   |   |
| Analysis Period (min)             |   |   |   |   | 15  |   |   |   |   |   |   |   |

# Timings 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour







|                      |  |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NEL   | NET   | SWL  | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |   |  |  |  |  |
| Traffic Volume (vph) | 460   | 940   | 71  | 762   | 99  | 19  | 29   | 17  | 328   |
| Future Volume (vph)  | 460   | 940   | 71  | 762   | 99  | 19  | 29   | 17  | 328   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | NA  | Perm   | NA  | pm+ov   |
| Protected Phases     | 5   | 2   | 1   | 6   |   | 4   |  | 8   | 5   |
| Permitted Phases     | 2   |   | 6   |   | 4   |   | 8  |   | 8   |
| Detector Phase       | 5   | 2   | 1   | 6   | 4   | 4   | 8  | 8   | 5   |
| Switch Phase         |   |   |   |   |   |   |  |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  | 9.5   |
| Total Split (s)      | 31.0  | 77.8  | 9.6   | 56.4  | 22.6  | 22.6  | 22.6   | 22.6  | 31.0  |
| Total Split (%)      | 28.2%   | 70.7%   | 8.7%  | 51.3%   | 20.5%   | 20.5%   | 20.5%  | 20.5%   | 28.2%   |
| Yellow Time (s)      | 3.5   | 3.5   | 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  | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   |   |   |  |   | Lead  |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   |   |   |  |   | Yes   |
| Recall Mode          | None  | Min   | None  | Min   | None  | None  | None   | None  | None  |
| Act Effct Green (s)  | 82.9  | 75.2  | 57.0  | 51.9  |   | 18.1  |  | 18.1  | 49.1  |
| Actuated g/C Ratio   | 0.75  | 0.68  | 0.52  | 0.47  |   | 0.16  |  | 0.16  | 0.45  |
| v/c Ratio            | 1.04  | 0.89  | 0.48  | 1.04  |   | 0.99  |  | 0.26  | 0.48  |
| Control Delay        | 83.3  | 25.7  | 22.0  | 71.3  |   | 90.8  |  | 44.3  | 17.5  |
| Queue Delay          | 0.0   | 47.0  | 0.0   | 0.0   |   | 0.0   |  | 0.0   | 0.0   |
| Total Delay          | 83.3  | 72.6  | 22.0  | 71.3  |   | 90.8  |  | 44.3  | 17.5  |
| LOS                  | F   | E   | C   | E   |   | F   |  | D   | B   |
| Approach Delay       |   | 76.0  |   | 67.4  |   | 90.8  |  | 20.8  |   |
| Approach LOS         |   | E   |   | E   |   | F   |  | C   |   |

## Intersection Summary

Cycle Length: 110  
Actuated Cycle Length: 110  
Natural Cycle: 110  
Control Type: Actuated-Uncoordinated  
Maximum v/c Ratio: 1.04  
Intersection Signal Delay: 67.7  
Intersection Capacity Utilization 100.9%  
Analysis Period (min) 15

Intersection LOS: E  
ICU Level of Service G

Splits and Phases: 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy








|  |  |  |
|--|--|--|
|  Ø1 |  Ø2 |  Ø4 |
| 9.6 s  | 77.8 s   | 22.6 s   |
|  Ø5 |  Ø6 |  Ø8 |
| 31 s   | 56.4 s   | 22.6 s   |

## Queues

2038 Build

## 3: Driveway/Sunset Blvd &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NET   | SWT   | SWR  |
| Lane Group Flow (vph)   | 511   | 1123  | 79  | 908   | 269   | 51  | 364  |
| v/c Ratio               | 1.04  | 0.89  | 0.48  | 1.04  | 0.99  | 0.26  | 0.48   |
| Control Delay           | 83.3  | 25.7  | 22.0  | 71.3  | 90.8  | 44.3  | 17.5   |
| Queue Delay             | 0.0   | 47.0  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay             | 83.3  | 72.6  | 22.0  | 71.3  | 90.8  | 44.3  | 17.5   |
| Queue Length 50th (ft)  | ~339  | 609   | 12  | ~695  | 165   | 32  | 125  |
| Queue Length 95th (ft)  | #551  | #1000   | 34  | #942  | #336  | 69  | 209  |
| Internal Link Dist (ft) |   | 417   |   | 641   | 61  | 384   |  |
| Turn Bay Length (ft)    | 215   |   | 150   |   |   |   | 150  |
| Base Capacity (vph)     | 493   | 1261  | 166   | 872   | 273   | 194   | 762  |
| Starvation Cap Reductn  | 0   | 242   | 0   | 0   | 0   | 0   | 0  |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Reduced v/c Ratio       | 1.04  | 1.10  | 0.48  | 1.04  | 0.99  | 0.26  | 0.48   |




















## Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 3: Driveway/Sunset Blvd & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement               | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations    |  |  |   |  |  |   |  |  |   |   |  |  |
| Traffic Volume (vph)   | 460   | 940   | 71  | 71  | 762   | 55  | 99   | 19  | 124   | 29  | 17  | 328   |
| Future Volume (vph)    | 460   | 940   | 71  | 71  | 762   | 55  | 99   | 19  | 124   | 29  | 17  | 328   |
| Ideal Flow (vphpl)     | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Width             | 12  | 12  | 12  | 12  | 12  | 12  | 12   | 12  | 12  | 16  | 12  | 12  |
| Total Lost time (s)    | 4.5   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   | 4.5   |
| Lane Util. Factor      | 1.00  | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  | 1.00  |
| Frt                    | 1.00  | 0.99  |   | 1.00  | 0.99  |   |  | 0.93  |   |   | 1.00  | 0.85  |
| Flt Protected          | 0.95  | 1.00  |   | 0.95  | 1.00  |   |  | 0.98  |   |   | 0.97  | 1.00  |
| Satd. Flow (prot)      | 1770  | 1843  |   | 1703  | 1844  |   |  | 1690  |   |   | 1806  | 1583  |
| Flt Permitted          | 0.07  | 1.00  |   | 0.10  | 1.00  |   |  | 0.84  |   |   | 0.64  | 1.00  |
| Satd. Flow (perm)      | 130   | 1843  |   | 186   | 1844  |   |  | 1456  |   |   | 1183  | 1583  |
| Peak-hour factor, PHF  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)        | 511   | 1044  | 79  | 79  | 847   | 61  | 110  | 21  | 138   | 32  | 19  | 364   |
| RTOR Reduction (vph)   | 0   | 2   | 0   | 0   | 2   | 0   | 0  | 34  | 0   | 0   | 0   | 60  |
| Lane Group Flow (vph)  | 511   | 1121  | 0   | 79  | 906   | 0   | 0  | 235   | 0   | 0   | 51  | 304   |
| Heavy Vehicles (%)     | 2%  | 2%  | 2%  | 6%  | 2%  | 2%  | 2%   | 2%  | 3%  | 2%  | 2%  | 2%  |
| Turn Type              | pm+pt   | NA  |   | pm+pt   | NA  |   | Perm   | NA  |   | Perm  | NA  | pm+ov   |
| Protected Phases       | 5   | 2   |   | 1   | 6   |   |  | 4   |   |   | 8   | 5   |
| Permitted Phases       | 2   |   |   | 6   |   |   | 4  |   |   | 8   |   | 8   |
| Actuated Green, G (s)  | 83.8  | 75.2  |   | 56.9  | 52.8  |   |  | 18.1  |   |   | 18.1  | 44.6  |
| Effective Green, g (s) | 83.8  | 75.2  |   | 56.9  | 52.8  |   |  | 18.1  |   |   | 18.1  | 44.6  |
| Actuated g/C Ratio     | 0.76  | 0.68  |   | 0.51  | 0.48  |   |  | 0.16  |   |   | 0.16  | 0.40  |
| Clearance Time (s)     | 4.5   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   | 4.5   |
| Vehicle Extension (s)  | 3.0   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   | 3.0   |
| Lane Grp Cap (vph)     | 490   | 1249  |   | 151   | 877   |   |  | 237   |   |   | 193   | 700   |
| v/s Ratio Prot         | c0.25   | 0.61  |   | 0.02  | 0.49  |   |  |   |   |   |   | 0.10  |
| v/s Ratio Perm         | c0.54   |   |   | 0.25  |   |   |  | c0.16   |   |   | 0.04  | 0.09  |
| v/c Ratio              | 1.04  | 0.90  |   | 0.52  | 1.03  |   |  | 0.99  |   |   | 0.26  | 0.43  |
| Uniform Delay, d1      | 36.4  | 14.7  |   | 19.4  | 29.1  |   |  | 46.3  |   |   | 40.6  | 24.0  |
| Progression Factor     | 1.00  | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  | 1.00  |
| Incremental Delay, d2  | 52.3  | 8.7   |   | 3.2   | 39.2  |   |  | 55.6  |   |   | 0.7   | 0.4   |
| Delay (s)              | 88.7  | 23.4  |   | 22.7  | 68.2  |   |  | 101.9   |   |   | 41.3  | 24.4  |
| Level of Service       | F   | C   |   | C   | E   |   |  | F   |   |   | D   | C   |
| Approach Delay (s)     |   | 43.8  |   |   | 64.6  |   |  | 101.9   |   |   | 26.5  |   |
| Approach LOS           |   | D   |   |   | E   |   |  | F   |   |   | C   |   |

### Intersection Summary


















|                                   |        |                           |      |
|-----------------------------------|--------|---------------------------|------|
| HCM 2000 Control Delay            | 52.6   | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 1.06   |                           |      |
| Actuated Cycle Length (s)         | 110.9  | Sum of lost time (s)      | 13.5 |
| Intersection Capacity Utilization | 100.9% | ICU Level of Service      | G    |
| Analysis Period (min)             | 15     |                           |      |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 4: Youmans Dr/Driveway & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 4   | 1118  | 20  | 75  | 896   | 6   | 16   | 1   | 117   | 5   | 1   | 9   |
| Future Volume (Veh/h)             | 4   | 1118  | 20  | 75  | 896   | 6   | 16   | 1   | 117   | 5   | 1   | 9   |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |  | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 4   | 1242  | 22  | 83  | 996   | 7   | 18   | 1   | 130   | 6   | 1   | 10  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   | TWLT  |   |   | None  |   |  |   |   |   |   |   |
| Median storage (veh)              |   | 2   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   | 721   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   | 0.35  |   |   | 0.35   | 0.35  | 0.35  | 0.35  | 0.35  |   |
| vC, conflicting volume            | 1003  |   |   | 1264  |   |   | 2434   | 2430  | 1253  | 2557  | 2438  | 1000  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1261   | 1261  |   | 1166  | 1166  |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 1172   | 1169  |   | 1392  | 1272  |   |
| vCu, unblocked vol                | 1003  |   |   | 823   |   |   | 4176   | 4166  | 792   | 4530  | 4188  | 1000  |
| tC, single (s)                    | 4.1   |   |   | 4.2   |   |   | 7.1  | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.1  | 5.5   |   | 6.1   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.3   |   |   | 3.5  | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 99  |   |   | 69  |   |   | 80   | 99  | 4   | 0   | 98  | 97  |
| cM capacity (veh/h)               | 690   |   |   | 270   |   |   | 91   | 100   | 136   | 0   | 45  | 295   |
| Direction, Lane #                 | EB 1  | WB 1  | WB 2  | NE 1  | SW 1  |   |  |   |   |   |   |   |
| Volume Total                      | 1268  | 83  | 1003  | 149   | 17  |   |  |   |   |   |   |   |
| Volume Left                       | 4   | 83  | 0   | 18  | 6   |   |  |   |   |   |   |   |
| Volume Right                      | 22  | 0   | 7   | 130   | 10  |   |  |   |   |   |   |   |
| cSH                               | 690   | 270   | 1700  | 128   | 0   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.31  | 0.59  | 1.17  | 917.05  |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 32  | 0   | 223   | Err   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 0.3   | 24.2  | 0.0   | 197.9   | Err   |   |  |   |   |   |   |   |
| Lane LOS                          | A   | C   |   | F   | F   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 0.3   | 1.8   |   | 197.9   | Err   |   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   | F   | F   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 80.1  |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 78.6%   |   | ICU Level of Service  |   |  |   |   | D   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 5: US 21 Sea Island Pkwy & Professional Village Cir

2038 Build  
PM Peak Hour

























| Movement                          | EBL  | EBT  | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations               |      | ↔↗   | ↔↗    |      | ↔↗                   | ↔↗   |
| Traffic Volume (veh/h)            | 17   | 1263 | 945   | 39   | 44                   | 54   |
| Future Volume (Veh/h)             | 17   | 1263 | 945   | 39   | 44                   | 54   |
| Sign Control                      |      | Free | Free  |      | Stop                 |      |
| Grade                             |      | 0%   | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.90 | 0.90 | 0.90  | 0.90 | 0.90                 | 0.90 |
| Hourly flow rate (vph)            | 19   | 1403 | 1050  | 43   | 49                   | 60   |
| Pedestrians                       |      |      |       |      |                      |      |
| Lane Width (ft)                   |      |      |       |      |                      |      |
| Walking Speed (ft/s)              |      |      |       |      |                      |      |
| Percent Blockage                  |      |      |       |      |                      |      |
| Right turn flare (veh)            |      |      |       |      |                      |      |
| Median type                       |      | None | None  |      |                      |      |
| Median storage (veh)              |      |      |       |      |                      |      |
| Upstream signal (ft)              |      |      | 681   |      |                      |      |
| pX, platoon unblocked             | 0.86 |      |       |      | 0.86                 | 0.86 |
| vC, conflicting volume            | 1093 |      |       |      | 1811                 | 546  |
| vC1, stage 1 conf vol             |      |      |       |      |                      |      |
| vC2, stage 2 conf vol             |      |      |       |      |                      |      |
| vCu, unblocked vol                | 770  |      |       |      | 1609                 | 130  |
| tC, single (s)                    | 4.1  |      |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |      |       |      |                      |      |
| tF (s)                            | 2.2  |      |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 97   |      |       |      | 38                   | 92   |
| cM capacity (veh/h)               | 719  |      |       |      | 79                   | 765  |
| Direction, Lane #                 | EB 1 | EB 2 | WB 1  | WB 2 | SB 1                 | SB 2 |
| Volume Total                      | 487  | 935  | 700   | 393  | 49                   | 60   |
| Volume Left                       | 19   | 0    | 0     | 0    | 49                   | 0    |
| Volume Right                      | 0    | 0    | 0     | 43   | 0                    | 60   |
| cSH                               | 719  | 1700 | 1700  | 1700 | 79                   | 765  |
| Volume to Capacity                | 0.03 | 0.55 | 0.41  | 0.23 | 0.62                 | 0.08 |
| Queue Length 95th (ft)            | 2    | 0    | 0     | 0    | 70                   | 6    |
| Control Delay (s)                 | 0.8  | 0.0  | 0.0   | 0.0  | 105.6                | 10.1 |
| Lane LOS                          | A    |      |       |      | F                    | B    |
| Approach Delay (s)                | 0.3  |      | 0.0   |      | 53.0                 |      |
| Approach LOS                      |      |      |       |      | F                    |      |
| Intersection Summary              |      |      |       |      |                      |      |
| Average Delay                     |      |      | 2.3   |      |                      |      |
| Intersection Capacity Utilization |      |      | 56.9% |      | ICU Level of Service | B    |
| Analysis Period (min)             |      |      | 15    |      |                      |      |

# Timings

2038 Build

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy

PM Peak Hour

|                      |  |  |  |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET  | NER   | SWL   | SWT   | SWR   |
| Lane Configurations  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 325   | 774   | 160   | 546   | 253   | 198   | 922  | 241   | 325   | 575   | 254   |
| Future Volume (vph)  | 325   | 774   | 160   | 546   | 253   | 198   | 922  | 241   | 325   | 575   | 254   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | pm+pt   | NA   | pm+ov   | pm+pt   | NA  | pt+ov   |
| Protected Phases     | 5   | 2   | 1   | 6   |   | 3   | 8  | 1   | 7   | 4   | 4 5   |
| Permitted Phases     | 2   |   | 6   |   | 6   | 8   |  | 8   | 4   |   |   |
| Detector Phase       | 5   | 2   | 1   | 6   | 6   | 3   | 8  | 1   | 7   | 4   | 4 5   |
| Switch Phase         |   |   |   |   |   |   |  |   |   |   |   |
| Minimum Initial (s)  | 6.0   | 25.0  | 6.0   | 25.0  | 25.0  | 6.0   | 15.0   | 6.0   | 6.0   | 15.0  |   |
| Minimum Split (s)    | 13.3  | 43.0  | 13.3  | 39.0  | 39.0  | 12.3  | 42.3   | 13.3  | 13.3  | 43.3  |   |
| Total Split (s)      | 19.0  | 44.7  | 15.0  | 40.7  | 40.7  | 20.0  | 42.3   | 15.0  | 23.0  | 45.3  |   |
| Total Split (%)      | 15.2%   | 35.8%   | 12.0%   | 32.6%   | 32.6%   | 16.0%   | 33.8%  | 12.0%   | 18.4%   | 36.2%   |   |
| Yellow Time (s)      | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.3  | 4.0   | 4.0   | 4.3   |   |
| All-Red Time (s)     | 3.3   | 2.0   | 3.3   | 2.0   | 2.0   | 2.3   | 2.0  | 3.3   | 2.3   | 2.0   |   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   |   |
| Total Lost Time (s)  | 7.3   | 6.0   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3  | 7.3   | 6.3   | 6.3   |   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lag   | Lead  | Lag  | Lead  | Lead  | Lag   |   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   | Yes   | Yes   |   |
| Recall Mode          | None  | Min   | None  | Max   | Max   | None  | None   | None  | None  | Max   |   |
| Act Effct Green (s)  | 49.1  | 38.7  | 41.1  | 34.7  | 34.7  | 48.8  | 36.0   | 50.0  | 56.5  | 39.9  | 58.9  |
| Actuated g/C Ratio   | 0.39  | 0.31  | 0.33  | 0.28  | 0.28  | 0.39  | 0.29   | 0.40  | 0.45  | 0.32  | 0.47  |
| v/c Ratio            | 1.23  | 0.99  | 1.09  | 0.62  | 0.44  | 0.64  | 1.00   | 0.39  | 1.24  | 0.57  | 0.35  |
| Control Delay        | 157.0   | 67.6  | 124.6   | 42.6  | 6.9   | 30.0  | 73.8   | 20.1  | 164.2   | 37.9  | 13.4  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 157.0   | 67.6  | 124.6   | 42.6  | 6.9   | 30.0  | 73.8   | 20.1  | 164.2   | 37.9  | 13.4  |
| LOS                  | F   | E   | F   | D   | A   | C   | E  | C   | F   | D   | B   |
| Approach Delay       |   | 90.1  |   | 46.9  |   |   | 57.9   |   |   | 68.1  |   |
| Approach LOS         |   | F   |   | D   |   |   | E  |   |   | E   |   |

### Intersection Summary

Cycle Length: 125

Actuated Cycle Length: 125

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 66.9









Intersection LOS: E

Intersection Capacity Utilization 103.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy












|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 15 s   | 44.7 s   | 20 s   | 45.3 s   |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 19 s   | 40.7 s   | 23 s   | 42.3 s   |

## Queues

2038 Build

## 6: Ladys Island Dr/Sams Point Rd &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | WBR   | NEL   | NET  | NER   | SWL   | SWT   | SWR   |
| Lane Group Flow (vph)   | 361   | 1071  | 178   | 607   | 281   | 220   | 1024   | 268   | 361   | 639   | 282   |
| v/c Ratio               | 1.23  | 0.99  | 1.09  | 0.62  | 0.44  | 0.64  | 1.00   | 0.39  | 1.24  | 0.57  | 0.35  |
| Control Delay           | 157.0   | 67.6  | 124.6   | 42.6  | 6.9   | 30.0  | 73.8   | 20.1  | 164.2   | 37.9  | 13.4  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 157.0   | 67.6  | 124.6   | 42.6  | 6.9   | 30.0  | 73.8   | 20.1  | 164.2   | 37.9  | 13.4  |
| Queue Length 50th (ft)  | ~247  | 445   | ~111  | 225   | 5   | 105   | ~440   | 104   | ~314  | 227   | 80  |
| Queue Length 95th (ft)  | #446  | #599  | #262  | 289   | 73  | 161   | #588   | 178   | #510  | 290   | 146   |
| Internal Link Dist (ft) |   | 376   |   | 679   |   |   | 587  |   |   | 517   |   |
| Turn Bay Length (ft)    | 200   |   | 350   |   | 200   | 350   |  | 550   | 460   |   | 350   |
| Base Capacity (vph)     | 294   | 1080  | 164   | 982   | 636   | 356   | 1019   | 681   | 292   | 1129  | 806   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 1.23  | 0.99  | 1.09  | 0.62  | 0.44  | 0.62  | 1.00   | 0.39  | 1.24  | 0.57  | 0.35  |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.
























Queue shown is maximum after two cycles.



# HCM Signalized Intersection Capacity Analysis

## 6: Ladys Island Dr/Sams Point Rd & US 21 Sea Island Pkwy





















2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL   | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |  |  |   |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph)              | 325   | 774   | 190   | 160   | 546   | 253   | 198   | 922   | 241   | 325   | 575   | 254   |
| Future Volume (vph)               | 325   | 774   | 190   | 160   | 546   | 253   | 198   | 922   | 241   | 325   | 575   | 254   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   | 6.3   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  |
| Frt                               | 1.00  | 0.97  |   | 1.00  | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  | 1.00  | 1.00  | 0.85  |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  |
| Satd. Flow (prot)                 | 1770  | 3435  |   | 1752  | 3539  | 1583  | 1770  | 3539  | 1583  | 1752  | 3539  | 1583  |
| Flt Permitted                     | 0.23  | 1.00  |   | 0.12  | 1.00  | 1.00  | 0.30  | 1.00  | 1.00  | 0.10  | 1.00  | 1.00  |
| Satd. Flow (perm)                 | 431   | 3435  |   | 213   | 3539  | 1583  | 564   | 3539  | 1583  | 185   | 3539  | 1583  |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 361   | 860   | 211   | 178   | 607   | 281   | 220   | 1024  | 268   | 361   | 639   | 282   |
| RTOR Reduction (vph)              | 0   | 17  | 0   | 0   | 0   | 197   | 0   | 0   | 53  | 0   | 0   | 62  |
| Lane Group Flow (vph)             | 361   | 1054  | 0   | 178   | 607   | 84  | 220   | 1024  | 215   | 361   | 639   | 220   |
| Heavy Vehicles (%)                | 2%  | 2%  | 2%  | 3%  | 2%  | 2%  | 2%  | 2%  | 2%  | 3%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  | Perm  | pm+pt   | NA  | pm+ov   | pm+pt   | NA  | pt+ov   |
| Protected Phases                  | 5   | 2   |   | 1   | 6   |   | 3   | 8   | 1   | 7   | 4   | 4 5   |
| Permitted Phases                  | 2   |   |   | 6   |   | 6   | 8   |   | 8   | 4   |   |   |
| Actuated Green, G (s)             | 50.4  | 38.7  |   | 42.4  | 34.7  | 34.7  | 48.8  | 36.0  | 43.7  | 56.6  | 39.9  | 57.9  |
| Effective Green, g (s)            | 50.4  | 38.7  |   | 42.4  | 34.7  | 34.7  | 48.8  | 36.0  | 43.7  | 56.6  | 39.9  | 57.9  |
| Actuated g/C Ratio                | 0.40  | 0.31  |   | 0.34  | 0.28  | 0.28  | 0.39  | 0.29  | 0.35  | 0.45  | 0.32  | 0.46  |
| Clearance Time (s)                | 7.3   | 6.0   |   | 7.3   | 6.0   | 6.0   | 6.3   | 6.3   | 7.3   | 6.3   | 6.3   |   |
| Vehicle Extension (s)             | 3.0   | 3.5   |   | 3.0   | 3.5   | 3.5   | 3.0   | 3.5   | 3.0   | 3.0   | 3.5   |   |
| Lane Grp Cap (vph)                | 299   | 1063  |   | 167   | 982   | 439   | 343   | 1019  | 553   | 293   | 1129  | 733   |
| v/s Ratio Prot                    | c0.11   | 0.31  |   | 0.07  | 0.17  |   | 0.07  | 0.29  | 0.02  | c0.16   | c0.18   | 0.14  |
| v/s Ratio Perm                    | c0.37   |   |   | 0.30  |   | 0.05  | 0.18  |   | 0.11  | c0.39   |   |   |
| v/c Ratio                         | 1.21  | 0.99  |   | 1.07  | 0.62  | 0.19  | 0.64  | 1.00  | 0.39  | 1.23  | 0.57  | 0.30  |
| Uniform Delay, d1                 | 33.1  | 43.0  |   | 36.6  | 39.4  | 34.4  | 27.0  | 44.5  | 30.6  | 38.3  | 35.4  | 20.9  |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Incremental Delay, d2             | 120.5   | 25.4  |   | 88.2  | 2.9   | 1.0   | 4.1   | 29.4  | 0.5   | 130.5   | 2.1   | 0.2   |
| Delay (s)                         | 153.5   | 68.4  |   | 124.9   | 42.3  | 35.4  | 31.1  | 73.9  | 31.1  | 168.8   | 37.4  | 21.1  |
| Level of Service                  | F   | E   |   | F   | D   | D   | C   | E   | C   | F   | D   | C   |
| Approach Delay (s)                |   | 89.9  |   |   | 54.3  |   |   | 60.1  |   |   | 70.8  |   |
| Approach LOS                      |   | F   |   |   | D   |   |   | E   |   |   | E   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 69.6  |   |   |   | HCM 2000 Level of Service   |   | E   |   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.31  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 125.0   |   |   |   | Sum of lost time (s)  |   | 25.9  |   |   |   |
| Intersection Capacity Utilization |   |   | 103.9%  |   |   |   | ICU Level of Service  |   | G   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |   |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 7: Driveway/Sams Point Way & US 21 Sea Island Pkwy





















2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |  |   |  |  |
| Traffic Volume (veh/h)            | 221   | 1017  | 39  | 39  | 778   | 56  | 12   | 14  | 72  | 55  | 2   | 133   |
| Future Volume (Veh/h)             | 221   | 1017  | 39  | 39  | 778   | 56  | 12   | 14  | 72  | 55  | 2   | 133   |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 246   | 1130  | 43  | 43  | 864   | 62  | 13   | 16  | 80  | 61  | 2   | 148   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| 10                                |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       | None  |   |   | TWLTL   |   |   |  |   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              | 759   |   |   | 853   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             | 0.91  |   |   | 0.76  |   |   | 0.80   | 0.80  | 0.76  | 0.80  | 0.80  | 0.91  |
| vC, conflicting volume            | 926   |   |   | 1173  |   |   | 2162   | 2656  | 586   | 2126  | 2646  | 463   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1644   | 1644  |   | 981   | 981   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 519  | 1012  |   | 1145  | 1665  |   |
| vCu, unblocked vol                | 724   |   |   | 583   |   |   | 1453   | 2070  | 0   | 1408  | 2058  | 215   |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5  | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5  | 5.5   |   | 6.5   | 5.5   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 69  |   |   | 94  |   |   | 86   | 79  | 90  | 57  | 98  | 79  |
| cM capacity (veh/h)               | 797   |   |   | 747   |   |   | 95   | 75  | 819   | 143   | 83  | 719   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1   | NB 2  | SB 1  |   |   |   |
| Volume Total                      | 246   | 753   | 420   | 43  | 576   | 350   | 29   | 80  | 211   |   |   |   |
| Volume Left                       | 246   | 0   | 0   | 43  | 0   | 0   | 13   | 0   | 61  |   |   |   |
| Volume Right                      | 0   | 0   | 43  | 0   | 0   | 62  | 0  | 80  | 148   |   |   |   |
| cSH                               | 797   | 1700  | 1700  | 747   | 1700  | 1700  | 83   | 819   | 471   |   |   |   |
| Volume to Capacity                | 0.31  | 0.44  | 0.25  | 0.06  | 0.34  | 0.21  | 0.35   | 0.10  | 0.45  |   |   |   |
| Queue Length 95th (ft)            | 33  | 0   | 0   | 5   | 0   | 0   | 34   | 8   | 57  |   |   |   |
| Control Delay (s)                 | 11.5  | 0.0   | 0.0   | 10.1  | 0.0   | 0.0   | 69.9   | 9.9   | 22.8  |   |   |   |
| Lane LOS                          | B   |   |   | B   |   |   | F  | A   | C   |   |   |   |
| Approach Delay (s)                | 2.0   |   |   | 0.4   |   |   | 25.8   |   | 22.8  |   |   |   |
| Approach LOS                      |   |   |   |   |   |   | D  |   | C   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 4.0   |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 55.4%   |   |   | ICU Level of Service  |   |   |  |   | B   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis















## 8: Ferry Drive/Driveway & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |   |  |  |   |  |  |
| Traffic Volume (veh/h)            | 86  | 1061  | 11  | 0   | 806   | 70  | 4   | 4   | 25  | 127   | 1   | 57  |
| Future Volume (Veh/h)             | 86  | 1061  | 11  | 0   | 806   | 70  | 4   | 4   | 25  | 127   | 1   | 57  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop  |   |   | Stop  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 96  | 1179  | 12  | 0   | 896   | 78  | 4   | 4   | 28  | 141   | 1   | 63  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            | 14  |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       | TWLTL   |   |   | TWLTL   |   |   |   |   |   |   |   |   |
| Median storage veh                | 2   |   |   | 2   |   |   |   |   |   |   |   |   |
| Upstream signal (ft)              | 1208  |   |   | 404   |   |   |   |   |   |   |   |   |
| pX, platoon unblocked             | 0.88  |   |   |   |   |   | 0.88  | 0.88  |   |   |   |   |
| vC, conflicting volume            | 974   | 1191  |   |   |   |   | 1888  | 2351  | 596   | 1718  | 2318  | 487   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   | 1377  | 1377  |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   | 512   | 974   |   |   |   |   |
| vCu, unblocked vol                | 707   | 1191  |   |   |   |   | 1742  | 2266  | 596   | 1550  | 2228  | 156   |
| tC, single (s)                    | 4.1   | 4.1   |   |   |   |   | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   | 6.5   | 5.5   |   |   |   |   |
| tF (s)                            | 2.2   | 2.2   |   |   |   |   | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 88  | 100   |   |   |   |   | 97  | 97  | 94  | 37  | 99  | 92  |
| cM capacity (veh/h)               | 784   | 582   |   |   |   |   | 128   | 153   | 447   | 225   | 164   | 761   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  | SB 2  |   |   |   |
| Volume Total                      | 96  | 786   | 405   | 0   | 597   | 377   | 36  | 142   | 63  |   |   |   |
| Volume Left                       | 96  | 0   | 0   | 0   | 0   | 0   | 4   | 141   | 0   |   |   |   |
| Volume Right                      | 0   | 0   | 12  | 0   | 0   | 78  | 28  | 0   | 63  |   |   |   |
| cSH                               | 784   | 1700  | 1700  | 1700  | 1700  | 1700  | 575   | 224   | 761   |   |   |   |
| Volume to Capacity                | 0.12  | 0.46  | 0.24  | 0.00  | 0.35  | 0.22  | 0.06  | 0.63  | 0.08  |   |   |   |
| Queue Length 95th (ft)            | 10  | 0   | 0   | 0   | 0   | 0   | 5   | 95  | 7   |   |   |   |
| Control Delay (s)                 | 10.2  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 17.7  | 45.2  | 10.2  |   |   |   |
| Lane LOS                          | B   |   |   |   |   |   | C   | E   | B   |   |   |   |
| Approach Delay (s)                | 0.8   | 0.0   |   |   |   |   | 17.7  | 34.4  |   |   |   |   |
| Approach LOS                      |   |   |   |   |   |   | C   | D   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     | 3.5   |   |   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization | 56.8%   |   |   | ICU Level of Service  |   |   |   |   | B   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |

# Timings 9: Gay Dr & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |  |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 9   | 1214  | 393   | 868   | 18  | 0   | 6  | 0   |
| Future Volume (vph)  | 9   | 1214  | 393   | 868   | 18  | 0   | 6  | 0   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | Perm  | NA  | Perm   | NA  |
| Protected Phases     | 7   | 4   | 3   | 8   |   | 2   |  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 2   | 2   | 6  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  | 22.5   | 22.5  |
| Total Split (s)      | 9.6   | 40.0  | 25.0  | 55.4  | 25.0  | 25.0  | 25.0   | 25.0  |
| Total Split (%)      | 10.7%   | 44.4%   | 27.8%   | 61.6%   | 27.8%   | 27.8%   | 27.8%  | 27.8%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   |   |   |  |   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   |   |   |  |   |
| Recall Mode          | None  | None  | None  | None  | Min   | Min   | Min  | Min   |
| Act Effct Green (s)  | 39.8  | 34.6  | 57.7  | 56.0  |   | 11.3  |  | 11.3  |
| Actuated g/C Ratio   | 0.51  | 0.44  | 0.74  | 0.72  |   | 0.14  |  | 0.14  |
| v/c Ratio            | 0.03  | 0.87  | 0.87  | 0.38  |   | 0.81  |  | 0.12  |
| Control Delay        | 6.7   | 28.8  | 39.3  | 6.3   |   | 20.6  |  | 0.8   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          | 6.7   | 28.8  | 39.3  | 6.3   |   | 20.6  |  | 0.8   |
| LOS                  | A   | C   | D   | A   |   | C   |  | A   |
| Approach Delay       |   | 28.6  |   | 16.6  |   | 20.6  |  | 0.8   |
| Approach LOS         |   | C   |   | B   |   | C   |  | A   |

## Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 78.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 22.0

Intersection LOS: C

Intersection Capacity Utilization 92.1%

ICU Level of Service F







Analysis Period (min) 15

Splits and Phases: 9: Gay Dr & US 21 Sea Island Pkwy

|  |  |  |
|--|--|--|
|  Ø2 |  Ø3 |  Ø4 |
| 25 s   | 25 s   | 40 s   |
|  Ø6 |  Ø7 |  Ø8 |
| 25 s   | 9.6 s  | 55.4 s   |

Queues  
9: Gay Dr & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                         |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NBT   | SBT   |
| Lane Group Flow (vph)   | 10  | 1357  | 437   | 966   | 428   | 37  |
| v/c Ratio               | 0.03  | 0.87  | 0.87  | 0.38  | 0.81  | 0.12  |
| Control Delay           | 6.7   | 28.8  | 39.3  | 6.3   | 20.6  | 0.8   |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 6.7   | 28.8  | 39.3  | 6.3   | 20.6  | 0.8   |
| Queue Length 50th (ft)  | 1   | 309   | 152   | 65  | 38  | 0   |
| Queue Length 95th (ft)  | 7   | #548  | #372  | 208   | 139   | 0   |
| Internal Link Dist (ft) |   | 324   |   | 647   | 1158  | 269   |
| Turn Bay Length (ft)    | 150   |   | 250   |   |   |   |
| Base Capacity (vph)     | 361   | 1635  | 554   | 2579  | 679   | 449   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.03  | 0.83  | 0.79  | 0.37  | 0.63  | 0.08  |



















Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 9: Gay Dr & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour







|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 9   | 1214  | 7   | 393   | 868   | 2   | 18   | 0   | 367   | 6   | 0   | 27  |
| Future Volume (vph)               | 9   | 1214  | 7   | 393   | 868   | 2   | 18   | 0   | 367   | 6   | 0   | 27  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 4.5   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               | 1.00  | 1.00  |   | 1.00  | 1.00  |   |  | 0.87  |   |   | 0.89  |   |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  |   |  | 1.00  |   |   | 0.99  |   |
| Satd. Flow (prot)                 | 1770  | 3536  |   | 1770  | 3538  |   |  | 1619  |   |   | 1643  |   |
| Flt Permitted                     | 0.30  | 1.00  |   | 0.09  | 1.00  |   |  | 0.98  |   |   | 0.80  |   |
| Satd. Flow (perm)                 | 552   | 3536  |   | 174   | 3538  |   |  | 1597  |   |   | 1332  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 10  | 1349  | 8   | 437   | 964   | 2   | 20   | 0   | 408   | 7   | 0   | 30  |
| RTOR Reduction (vph)              | 0   | 1   | 0   | 0   | 0   | 0   | 0  | 298   | 0   | 0   | 32  | 0   |
| Lane Group Flow (vph)             | 10  | 1356  | 0   | 437   | 966   | 0   | 0  | 130   | 0   | 0   | 5   | 0   |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | Perm   | NA  |   | Perm  | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   |  | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             | 39.3  | 38.4  |   | 61.4  | 56.0  |   |  | 11.3  |   |   | 11.3  |   |
| Effective Green, g (s)            | 39.3  | 38.4  |   | 61.4  | 56.0  |   |  | 11.3  |   |   | 11.3  |   |
| Actuated g/C Ratio                | 0.48  | 0.47  |   | 0.75  | 0.69  |   |  | 0.14  |   |   | 0.14  |   |
| Clearance Time (s)                | 4.5   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             | 3.0   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                | 278   | 1661  |   | 492   | 2425  |   |  | 220   |   |   | 184   |   |
| v/s Ratio Prot                    | 0.00  | 0.38  |   | c0.20   | 0.27  |   |  |   |   |   |   |   |
| v/s Ratio Perm                    | 0.02  |   |   | c0.47   |   |   |  | c0.08   |   |   | 0.00  |   |
| v/c Ratio                         | 0.04  | 0.82  |   | 0.89  | 0.40  |   |  | 0.59  |   |   | 0.03  |   |
| Uniform Delay, d1                 | 11.2  | 18.6  |   | 23.0  | 5.6   |   |  | 33.0  |   |   | 30.4  |   |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             | 0.1   | 3.2   |   | 17.4  | 0.1   |   |  | 4.2   |   |   | 0.1   |   |
| Delay (s)                         | 11.3  | 21.9  |   | 40.4  | 5.7   |   |  | 37.2  |   |   | 30.5  |   |
| Level of Service                  | B   | C   |   | D   | A   |   |  | D   |   |   | C   |   |
| Approach Delay (s)                |   | 21.8  |   |   | 16.5  |   |  | 37.2  |   |   | 30.5  |   |
| Approach LOS                      |   | C   |   |   | B   |   |  | D   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 21.6  |   |   | HCM 2000 Level of Service   |  |   |   | C   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.87  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 81.7  |   |   | Sum of lost time (s)  |  |   | 13.5  |   |   |   |
| Intersection Capacity Utilization |   |   | 92.1%   |   |   | ICU Level of Service  |  |   | F   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 10: Cougar Dr & US 21 Sea Island Pkwy







2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               | ↑↑  |   | ↓   | ↑↑  | ↓   |   |
| Traffic Volume (veh/h)            | 1558  | 0   | 0   | 1222  | 0   | 0   |
| Future Volume (Veh/h)             | 1558  | 0   | 0   | 1222  | 0   | 0   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1731  | 0   | 0   | 1358  | 0   | 0   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | None  |   |   | None  |   |   |
| Median storage (veh)              |   |   |   |   |   |   |
| Upstream signal (ft)              | 727   |   |   |   |   |   |
| pX, platoon unblocked             |   |   | 0.66  |   | 0.66  | 0.66  |
| vC, conflicting volume            |   |   | 1731  |   | 2410  | 866   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                |   |   | 1073  |   | 2104  | 0   |
| tC, single (s)                    |   |   | 4.1   |   | 6.8   | 7.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.8   |
| p0 queue free %                   |   |   | 100   |   | 100   | 100   |
| cM capacity (veh/h)               |   |   | 425   |   | 29  | 624   |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | WB 2  | WB 3  | NB 1  |
| Volume Total                      | 1154  | 577   | 0   | 679   | 679   | 0   |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   | 0   |
| Volume Right                      | 0   | 0   | 0   | 0   | 0   | 0   |
| cSH                               | 1700  | 1700  | 1700  | 1700  | 1700  | 1700  |
| Volume to Capacity                | 0.68  | 0.34  | 0.00  | 0.40  | 0.40  | 0.00  |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 0   | 0   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Lane LOS                          |   |   |   |   |   | A   |
| Approach Delay (s)                | 0.0   |   | 0.0   |   |   | 0.0   |
| Approach LOS                      |   |   |   |   |   | A   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 46.4%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 11: Lost Island Rd & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               | ↑↑  | ↑   |   | ↑↑  |   | ↑   |
| Traffic Volume (veh/h)            | 1546  | 24  | 0   | 1222  | 0   | 6   |
| Future Volume (Veh/h)             | 1546  | 24  | 0   | 1222  | 0   | 6   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1718  | 27  | 0   | 1358  | 0   | 7   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLT  |   |   | TWLT  |   |   |
| Median storage (veh)              | 2   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   | 612   |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.71  |   |
| vC, conflicting volume            |   |   | 1745  |   | 2397  | 859   |
| vC1, stage 1 conf vol             |   |   |   |   | 1718  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 679   |   |
| vCu, unblocked vol                |   |   | 1745  |   | 2154  | 859   |
| tC, single (s)                    |   |   | 4.1   |   | 7.0   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   | 6.0   |   |
| tF (s)                            |   |   | 2.2   |   | 3.6   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 100   | 98  |
| cM capacity (veh/h)               |   |   | 356   |   | 115   | 300   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | NB 1  |
| Volume Total                      | 859   | 859   | 27  | 679   | 679   | 7   |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   | 0   |
| Volume Right                      | 0   | 0   | 27  | 0   | 0   | 7   |
| cSH                               | 1700  | 1700  | 1700  | 1700  | 1700  | 300   |
| Volume to Capacity                | 0.51  | 0.51  | 0.02  | 0.40  | 0.40  | 0.02  |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 0   | 2   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 17.3  |
| Lane LOS                          |   |   |   |   |   | C   |
| Approach Delay (s)                | 0.0   |   |   | 0.0   |   | 17.3  |
| Approach LOS                      |   |   |   |   |   | C   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 52.7%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |


















# Timings

## 12: New Frontage Rd/Airport Cir & US 21 Sea Island Pkwy

2038 Build

PM Peak Hour

|                      |  |  |  |  |  |  |   |  |
|----------------------|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | SBL   | SBT   | Ø2  |
| Lane Configurations  |  |  |  |  |  |  |  |   |
| Traffic Volume (vph) | 249   | 1283  | 9   | 1027  | 26  | 207   | 0   |   |
| Future Volume (vph)  | 249   | 1283  | 9   | 1027  | 26  | 207   | 0   |   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | pm+pt   | NA  |   |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 1   | 6   | 2   |
| Permitted Phases     | 4   |   | 8   |   | 2   | 6   |   |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 1   | 6   |   |
| Switch Phase         |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 16.2  | 45.0  | 9.5   | 38.3  | 9.5   | 22.5  | 36.0  | 23.0  |
| Total Split (%)      | 16.2%   | 45.0%   | 9.5%  | 38.3%   | 9.5%  | 22.5%   | 36.0%   | 23%   |
| Yellow Time (s)      | 3.5   | 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   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lead  | Lag   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | Min   |
| Act Effct Green (s)  | 48.6  | 46.8  | 37.3  | 32.3  | 10.5  | 24.0  | 20.4  |   |
| Actuated g/C Ratio   | 0.60  | 0.57  | 0.46  | 0.40  | 0.13  | 0.29  | 0.25  |   |
| v/c Ratio            | 0.82  | 0.70  | 0.05  | 0.82  | 0.15  | 0.55  | 0.34  |   |
| Control Delay        | 40.1  | 16.3  | 9.0   | 28.2  | 24.2  | 29.2  | 2.9   |   |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |   |
| Total Delay          | 40.1  | 16.3  | 9.0   | 28.2  | 24.2  | 29.2  | 2.9   |   |
| LOS                  | D   | B   | A   | C   | C   | C   | A   |   |
| Approach Delay       |   | 20.2  |   | 28.0  |   |   | 16.8  |   |
| Approach LOS         |   | C   |   | C   |   |   | B   |   |

### Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 81.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 22.5









Intersection LOS: C

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: New Frontage Rd/Airport Cir & US 21 Sea Island Pkwy








|  |  |  |   |
|--|--|--|---|
|  Ø1 |  Ø2 |  Ø3 |  Ø4  |
| 22.5 s   | 23 s   | 9.5 s  | 45 s  |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.5 s  | 36 s   | 16.2 s   | 38.3 s  |

## Queues

2038 Build

## 12: New Frontage Rd/Airport Cir &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|
| Lane Group              | EBL   | EBT   | WBL   | WBT   | NBL   | SBL   | SBT  |
| Lane Group Flow (vph)   | 277   | 1426  | 10  | 1142  | 28  | 230   | 206  |
| v/c Ratio               | 0.82  | 0.70  | 0.05  | 0.82  | 0.15  | 0.55  | 0.34   |
| Control Delay           | 40.1  | 16.3  | 9.0   | 28.2  | 24.2  | 29.2  | 2.9  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay             | 40.1  | 16.3  | 9.0   | 28.2  | 24.2  | 29.2  | 2.9  |
| Queue Length 50th (ft)  | 92  | 238   | 2   | 268   | 11  | 97  | 0  |
| Queue Length 95th (ft)  | #240  | 454   | 9   | 376   | 29  | 161   | 21   |
| Internal Link Dist (ft) |   | 532   |   | 413   |   |   | 381  |
| Turn Bay Length (ft)    | 375   |   | 75  |   |   | 250   |  |
| Base Capacity (vph)     | 338   | 2029  | 193   | 1472  | 188   | 458   | 782  |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Reduced v/c Ratio       | 0.82  | 0.70  | 0.05  | 0.78  | 0.15  | 0.50  | 0.26   |

## Intersection Summary






















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 12: New Frontage Rd/Airport Cir & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour










|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |  |  |  |  |  |   |  |  |   |  |  |   |
| Traffic Volume (vph)              | 249   | 1283  | 0   | 9   | 1027  | 1   | 26  | 0   | 0   | 207   | 0   | 185   |
| Future Volume (vph)               | 249   | 1283  | 0   | 9   | 1027  | 1   | 26  | 0   | 0   | 207   | 0   | 185   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               | 4.5   | 4.5   |   | 4.5   | 4.5   |   | 4.5   |   |   | 4.5   | 4.5   |   |
| Lane Util. Factor                 | 1.00  | 0.95  |   | 1.00  | 0.95  |   | 1.00  |   |   | 1.00  | 1.00  |   |
| Frt                               | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |   |   | 1.00  | 0.85  |   |
| Flt Protected                     | 0.95  | 1.00  |   | 0.95  | 1.00  |   | 0.95  |   |   | 0.95  | 1.00  |   |
| Satd. Flow (prot)                 | 1770  | 3539  |   | 1770  | 3539  |   | 1770  |   |   | 1770  | 1583  |   |
| Flt Permitted                     | 0.10  | 1.00  |   | 0.11  | 1.00  |   | 0.63  |   |   | 0.49  | 1.00  |   |
| Satd. Flow (perm)                 | 184   | 3539  |   | 212   | 3539  |   | 1171  |   |   | 918   | 1583  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.92  | 0.92  | 0.90  | 0.90  | 0.92  | 0.92  | 0.92  | 0.90  | 0.92  | 0.90  |
| Adj. Flow (vph)                   | 277   | 1426  | 0   | 10  | 1141  | 1   | 28  | 0   | 0   | 230   | 0   | 206   |
| RTOR Reduction (vph)              | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 158   | 0   |
| Lane Group Flow (vph)             | 277   | 1426  | 0   | 10  | 1142  | 0   | 28  | 0   | 0   | 230   | 48  | 0   |
| Turn Type                         | pm+pt   | NA  | Perm  | pm+pt   | NA  |   | pm+pt   |   |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5   | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   | 4   | 8   |   |   | 2   |   |   | 6   |   |   |
| Actuated Green, G (s)             | 52.2  | 46.8  |   | 36.8  | 35.9  |   | 10.3  |   |   | 26.8  | 20.4  |   |
| Effective Green, g (s)            | 52.2  | 46.8  |   | 36.8  | 35.9  |   | 10.3  |   |   | 26.8  | 20.4  |   |
| Actuated g/C Ratio                | 0.59  | 0.53  |   | 0.42  | 0.41  |   | 0.12  |   |   | 0.30  | 0.23  |   |
| Clearance Time (s)                | 4.5   | 4.5   |   | 4.5   | 4.5   |   | 4.5   |   |   | 4.5   | 4.5   |   |
| Vehicle Extension (s)             | 3.0   | 3.0   |   | 3.0   | 3.0   |   | 3.0   |   |   | 3.0   | 3.0   |   |
| Lane Grp Cap (vph)                | 321   | 1882  |   | 104   | 1443  |   | 149   |   |   | 414   | 366   |   |
| v/s Ratio Prot                    | c0.12   | 0.40  |   | 0.00  | 0.32  |   | 0.00  |   |   | c0.09   | 0.03  |   |
| v/s Ratio Perm                    | c0.39   |   |   | 0.04  |   |   | 0.02  |   |   | c0.08   |   |   |
| v/c Ratio                         | 0.86  | 0.76  |   | 0.10  | 0.79  |   | 0.19  |   |   | 0.56  | 0.13  |   |
| Uniform Delay, d1                 | 22.4  | 16.2  |   | 16.1  | 22.8  |   | 34.9  |   |   | 24.6  | 26.8  |   |
| Progression Factor                | 1.00  | 1.00  |   | 1.00  | 1.00  |   | 1.00  |   |   | 1.00  | 1.00  |   |
| Incremental Delay, d2             | 20.5  | 1.8   |   | 0.4   | 3.1   |   | 0.6   |   |   | 1.6   | 0.2   |   |
| Delay (s)                         | 43.0  | 17.9  |   | 16.5  | 25.8  |   | 35.5  |   |   | 26.2  | 26.9  |   |
| Level of Service                  | D   | B   |   | B   | C   |   | D   |   |   | C   | C   |   |
| Approach Delay (s)                |   | 22.0  |   |   | 25.7  |   |   | 35.5  |   |   | 26.6  |   |
| Approach LOS                      |   | C   |   |   | C   |   |   | D   |   |   | C   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |   |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 24.0  |   |   | HCM 2000 Level of Service   |   |   |   | C   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 0.82  |   |   |   |   |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 88.0  |   |   | Sum of lost time (s)  |   |   | 18.0  |   |   |   |
| Intersection Capacity Utilization |   |   | 72.9%   |   |   | ICU Level of Service  |   |   | C   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

c Critical Lane Group

# HCM Unsignalized Intersection Capacity Analysis

## 13: Old Distant Island Rd & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour














|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               |  |   |   |  |  |   |
| Traffic Volume (veh/h)            | 1329  | 12  | 4   | 980   | 9   | 6   |
| Future Volume (Veh/h)             | 1329  | 12  | 4   | 980   | 9   | 6   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1477  | 13  | 4   | 1089  | 10  | 7   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | TWLTL   |   | TWLTL   |   |   |   |
| Median storage veh)               | 2   |   | 2   |   |   |   |
| Upstream signal (ft)              |   |   | 1133  |   |   |   |
| pX, platoon unblocked             |   |   | 0.23  |   |   |   |
| vC, conflicting volume            |   |   | 1490  |   | 2580  | 1484  |
| vC1, stage 1 conf vol             |   |   |   |   | 1484  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 1097  |   |
| vCu, unblocked vol                |   |   | 1490  |   | 6139  | 1484  |
| tC, single (s)                    |   |   | 4.1   |   | 6.4   | 6.2   |
| tC, 2 stage (s)                   |   |   |   |   | 5.4   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 99  |   | 93  | 95  |
| cM capacity (veh/h)               |   |   | 451   |   | 144   | 153   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  |   |   |   |
| Volume Total                      | 1490  | 1093  | 17  |   |   |   |
| Volume Left                       | 0   | 4   | 10  |   |   |   |
| Volume Right                      | 13  | 0   | 7   |   |   |   |
| cSH                               | 1700  | 451   | 148   |   |   |   |
| Volume to Capacity                | 0.88  | 0.01  | 0.12  |   |   |   |
| Queue Length 95th (ft)            | 0   | 1   | 10  |   |   |   |
| Control Delay (s)                 | 0.0   | 0.4   | 32.6  |   |   |   |
| Lane LOS                          |   | A   | D   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.4   | 32.6  |   |   |   |
| Approach LOS                      |   |   | D   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.4   |   |   |   |
| Intersection Capacity Utilization |   |   | 80.7%   | ICU Level of Service  |   | D   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# Timings

2038 Build

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

PM Peak Hour

|                      |  |  |  |  |  |  |  |  |
|----------------------|---|---|---|---|---|---|--|---|
| Lane Group           | EBL   | EBT   | WBL   | WBT   | NBL   | NBT   | SBL  | SBT   |
| Lane Configurations  |   |  |  |  |   |  |  |  |
| Traffic Volume (vph) | 50  | 1248  | 6   | 920   | 59  | 0   | 16   | 2   |
| Future Volume (vph)  | 50  | 1248  | 6   | 920   | 59  | 0   | 16   | 2   |
| Turn Type            | pm+pt   | NA  | pm+pt   | NA  | pm+pt   | NA  | pm+pt  | NA  |
| Protected Phases     | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Permitted Phases     | 4   |   | 8   |   | 2   |   | 6  |   |
| Detector Phase       | 7   | 4   | 3   | 8   | 5   | 2   | 1  | 6   |
| Switch Phase         |   |   |   |   |   |   |  |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0  | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 9.5   | 22.5  | 9.5   | 22.5  | 9.5  | 22.5  |
| Total Split (s)      | 9.5   | 108.0   | 9.5   | 108.0   | 9.5   | 23.0  | 9.5  | 23.0  |
| Total Split (%)      | 6.3%  | 72.0%   | 6.3%  | 72.0%   | 6.3%  | 15.3%   | 6.3%   | 15.3%   |
| Yellow Time (s)      | 3.5   | 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  | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   | 4.5   |   | 4.5   |  | 4.5   |
| Lead/Lag             | Lead  | Lag   | Lead  | Lag   | Lead  | Lag   | Lead   | Lag   |
| Lead-Lag Optimize?   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes  | Yes   |
| Recall Mode          | None  | None  | None  | None  | None  | Max   | None   | Max   |
| Act Effct Green (s)  |   | 103.6   | 105.4   | 105.4   |   | 18.5  |  | 18.5  |
| Actuated g/C Ratio   |   | 0.78  | 0.79  | 0.79  |   | 0.14  |  | 0.14  |
| v/c Ratio            |   | 1.19  | 0.02  | 0.69  |   | 0.34  |  | 0.20  |
| Control Delay        |   | 111.6   | 3.0   | 9.3   |   | 30.5  |  | 29.5  |
| Queue Delay          |   | 0.0   | 0.0   | 0.0   |   | 0.0   |  | 0.0   |
| Total Delay          |   | 111.6   | 3.0   | 9.3   |   | 30.5  |  | 29.5  |
| LOS                  |   | F   | A   | A   |   | C   |  | C   |
| Approach Delay       |   | 111.6   |   | 9.3   |   | 30.5  |  | 29.5  |
| Approach LOS         |   | F   |   | A   |   | C   |  | C   |

### Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 132.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 68.2









Intersection LOS: E

Intersection Capacity Utilization 125.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy

|  |  |  |  |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |
|  Ø5 |  Ø6 |  Ø7 |  Ø8 |
| 9.5 s  | 23 s   | 9.5 s  | 108 s  |

## Queues

2038 Build

## 14: Chowan Creek Bluff/Eustis Landing Rd &amp; US 21 Sea Island Pkwy

PM Peak Hour

|                         | →     | ↘    | ←    | ↑    | ↓    |
|-------------------------|-------|------|------|------|------|
| Lane Group              | EBT   | WBL  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 1510  | 7    | 1024 | 78   | 48   |
| v/c Ratio               | 1.19  | 0.02 | 0.69 | 0.34 | 0.20 |
| Control Delay           | 111.6 | 3.0  | 9.3  | 30.5 | 29.5 |
| Queue Delay             | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 111.6 | 3.0  | 9.3  | 30.5 | 29.5 |
| Queue Length 50th (ft)  | ~1534 | 1    | 340  | 26   | 15   |
| Queue Length 95th (ft)  | #2004 | 4    | 460  | 81   | 56   |
| Internal Link Dist (ft) | 1053  |      | 490  | 351  | 331  |
| Turn Bay Length (ft)    |       | 290  |      |      |      |
| Base Capacity (vph)     | 1270  | 301  | 1476 | 228  | 237  |
| Starvation Cap Reductn  | 0     | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0     | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0     | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 1.19  | 0.02 | 0.69 | 0.34 | 0.20 |


















## Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 14: Chowan Creek Bluff/Eustis Landing Rd & US 21 Sea Island Pkwy





















2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |  |  |   |  |  |   |   |  |   |
| Traffic Volume (vph)              | 50  | 1248  | 60  | 6   | 920   | 2   | 59   | 0   | 11  | 16  | 2   | 25  |
| Future Volume (vph)               | 50  | 1248  | 60  | 6   | 920   | 2   | 59   | 0   | 11  | 16  | 2   | 25  |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Frt                               |   | 0.99  |   | 1.00  | 1.00  |   |  | 0.98  |   |   | 0.92  |   |
| Flt Protected                     |   | 1.00  |   | 0.95  | 1.00  |   |  | 0.96  |   |   | 0.98  |   |
| Satd. Flow (prot)                 |   | 1840  |   | 1770  | 1862  |   |  | 1750  |   |   | 1684  |   |
| Flt Permitted                     |   | 0.88  |   | 0.17  | 1.00  |   |  | 0.75  |   |   | 0.89  |   |
| Satd. Flow (perm)                 |   | 1627  |   | 311   | 1862  |   |  | 1370  |   |   | 1532  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 56  | 1387  | 67  | 7   | 1022  | 2   | 66   | 0   | 12  | 18  | 2   | 28  |
| RTOR Reduction (vph)              | 0   | 1   | 0   | 0   | 0   | 0   | 0  | 38  | 0   | 0   | 24  | 0   |
| Lane Group Flow (vph)             | 0   | 1509  | 0   | 7   | 1024  | 0   | 0  | 40  | 0   | 0   | 24  | 0   |
| Heavy Vehicles (%)                | 13%   | 2%  | 3%  | 2%  | 2%  | 2%  | 2%   | 7%  | 2%  | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  |   | pm+pt   | NA  |   | pm+pt  | NA  |   | pm+pt   | NA  |   |
| Protected Phases                  | 7   | 4   |   | 3   | 8   |   | 5  | 2   |   | 1   | 6   |   |
| Permitted Phases                  | 4   |   |   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 103.6   |   | 109.0   | 109.0   |   |  | 18.5  |   |   | 18.5  |   |
| Effective Green, g (s)            |   | 103.6   |   | 109.0   | 109.0   |   |  | 18.5  |   |   | 18.5  |   |
| Actuated g/C Ratio                |   | 0.76  |   | 0.80  | 0.80  |   |  | 0.14  |   |   | 0.14  |   |
| Clearance Time (s)                |   | 4.5   |   | 4.5   | 4.5   |   |  | 4.5   |   |   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   |   | 3.0   | 3.0   |   |  | 3.0   |   |   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 1234  |   | 257   | 1486  |   |  | 185   |   |   | 207   |   |
| v/s Ratio Prot                    |   |   |   | 0.00  | c0.55   |   |  |   |   |   |   |   |
| v/s Ratio Perm                    |   | c0.93   |   | 0.02  |   |   |  | c0.03   |   |   | 0.02  |   |
| v/c Ratio                         |   | 1.22  |   | 0.03  | 0.69  |   |  | 0.22  |   |   | 0.11  |   |
| Uniform Delay, d1                 |   | 16.5  |   | 4.9   | 6.2   |   |  | 52.5  |   |   | 51.8  |   |
| Progression Factor                |   | 1.00  |   | 1.00  | 1.00  |   |  | 1.00  |   |   | 1.00  |   |
| Incremental Delay, d2             |   | 107.7   |   | 0.0   | 1.4   |   |  | 0.6   |   |   | 0.2   |   |
| Delay (s)                         |   | 124.2   |   | 4.9   | 7.5   |   |  | 53.1  |   |   | 52.1  |   |
| Level of Service                  |   | F   |   | A   | A   |   |  | D   |   |   | D   |   |
| Approach Delay (s)                |   | 124.2   |   |   | 7.5   |   |  | 53.1  |   |   | 52.1  |   |
| Approach LOS                      |   | F   |   |   | A   |   |  | D   |   |   | D   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 75.7  |   |   | HCM 2000 Level of Service   |  |   |   | E   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.12  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 136.5   |   |   | Sum of lost time (s)  |  |   | 18.0  |   |   |   |
| Intersection Capacity Utilization |   |   | 125.5%  |   |   | ICU Level of Service  |  |   | H   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 15: US 21 Lady's Island Rd & Rue Du Bois/Driveway











2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |  |  |  |  |  |  |  |
| Lane Configurations               |   |  |  |   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (veh/h)            | 37  | 1   | 70  | 16  | 1   | 42  | 49  | 1786  | 15  | 17  | 1478  | 29  |  |  |  |  |  |  |  |
| Future Volume (Veh/h)             | 37  | 1   | 70  | 16  | 1   | 42  | 49  | 1786  | 15  | 17  | 1478  | 29  |  |  |  |  |  |  |  |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |   |  |  |  |  |  |  |  |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |   |  |  |  |  |  |  |  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |  |  |  |  |  |  |  |
| Hourly flow rate (vph)            | 41  | 1   | 78  | 18  | 1   | 47  | 54  | 1984  | 17  | 19  | 1642  | 32  |  |  |  |  |  |  |  |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Median type                       |   |   |   |   |   |   | None  |   |   | TWLTL   |   |   |  |  |  |  |  |  |  |
| Median storage veh)               |   |   |   |   |   |   | 2   |   |   |   |   |   |  |  |  |  |  |  |  |
| Upstream signal (ft)              |   |   |   |   |   |   | 1063  |   |   |   |   |   |  |  |  |  |  |  |  |
| pX, platoon unblocked             | 0.74  | 0.74  | 0.74  | 0.74  | 0.74  |   | 0.74  |   |   |   |   |   |  |  |  |  |  |  |  |
| vC, conflicting volume            | 2828  | 3789  | 821   | 3038  | 3812  | 1000  | 1674  | 2001  |   |   |   |   |  |  |  |  |  |  |  |
| vC1, stage 1 conf vol             | 1680  | 1680  |   | 2100  | 2100  |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| vC2, stage 2 conf vol             | 1148  | 2109  |   | 938   | 1712  |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| vCu, unblocked vol                | 2766  | 4071  | 42  | 3052  | 4103  | 1000  | 1200  | 2001  |   |   |   |   |  |  |  |  |  |  |  |
| tC, single (s)                    | 7.6   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.2   | 4.1   |   |   |   |   |  |  |  |  |  |  |  |
| tC, 2 stage (s)                   | 6.6   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2   | 2.2   |   |   |   |   |  |  |  |  |  |  |  |
| p0 queue free %                   | 52  | 98  | 90  | 60  | 98  | 81  | 87  | 93  |   |   |   |   |  |  |  |  |  |  |  |
| cM capacity (veh/h)               | 85  | 54  | 751   | 45  | 61  | 241   | 413   | 283   |   |   |   |   |  |  |  |  |  |  |  |
| Direction, Lane #                 | EB 1  | EB 2  | WB 1  | NB 1  | NB 2  | NB 3  | SB 1  | SB 2  | SB 3  | SB 4  |   |   |  |  |  |  |  |  |  |
| Volume Total                      | 42  | 78  | 66  | 54  | 1323  | 678   | 19  | 821   | 821   | 32  |   |   |  |  |  |  |  |  |  |
| Volume Left                       | 41  | 0   | 18  | 54  | 0   | 0   | 19  | 0   | 0   | 0   |   |   |  |  |  |  |  |  |  |
| Volume Right                      | 0   | 78  | 47  | 0   | 0   | 17  | 0   | 0   | 0   | 32  |   |   |  |  |  |  |  |  |  |
| cSH                               | 84  | 751   | 107   | 413   | 1700  | 1700  | 283   | 1700  | 1700  | 1700  |   |   |  |  |  |  |  |  |  |
| Volume to Capacity                | 0.50  | 0.10  | 0.61  | 0.13  | 0.78  | 0.40  | 0.07  | 0.48  | 0.48  | 0.02  |   |   |  |  |  |  |  |  |  |
| Queue Length 95th (ft)            | 53  | 9   | 76  | 11  | 0   | 0   | 5   | 0   | 0   | 0   |   |   |  |  |  |  |  |  |  |
| Control Delay (s)                 | 84.2  | 10.3  | 81.4  | 15.0  | 0.0   | 0.0   | 18.7  | 0.0   | 0.0   | 0.0   |   |   |  |  |  |  |  |  |  |
| Lane LOS                          | F   | B   | F   | C   |   |   |   | C   |   |   |   |   |  |  |  |  |  |  |  |
| Approach Delay (s)                | 36.2  |   | 81.4  | 0.4   |   |   |   | 0.2   |   |   |   |   |  |  |  |  |  |  |  |
| Approach LOS                      | E   |   | F   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Average Delay                     | 2.8   |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |
| Intersection Capacity Utilization | 66.7%   |   |   | ICU Level of Service  |   |   |   |   | C   |   |   |   |  |  |  |  |  |  |  |
| Analysis Period (min)             | 15  |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |



Timings  
16: US 21 Lady's Island Rd & Hazel Farm Rd

2038 Build  
PM Peak Hour




|                      |  |  |  |  |  |
|----------------------|---|---|---|---|---|
| Lane Group           | WBL   | NET   | NER   | SWL   | SWT   |
| Lane Configurations  |  |  |  |  |  |
| Traffic Volume (vph) | 384   | 1503  | 361   | 1   | 1153  |
| Future Volume (vph)  | 384   | 1503  | 361   | 1   | 1153  |
| Turn Type            | Prot  | NA  | Perm  | Perm  | NA  |
| Protected Phases     | 8   | 2   |   |   | 6   |
| Permitted Phases     |   |   | 2   | 6   |   |
| Detector Phase       | 8   | 2   | 2   | 6   | 6   |
| Switch Phase         |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 23.2  | 36.8  | 36.8  | 36.8  | 36.8  |
| Total Split (%)      | 38.7%   | 61.3%   | 61.3%   | 61.3%   | 61.3%   |
| Yellow Time (s)      | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)     | 1.0   | 1.0   | 1.0   | 1.0   | 1.0   |
| Lost Time Adjust (s) | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             |   |   |   |   |   |
| Lead-Lag Optimize?   |   |   |   |   |   |
| Recall Mode          | None  | None  | None  | Min   | Min   |
| Act Effct Green (s)  | 17.0  | 31.5  | 31.5  | 31.5  | 31.5  |
| Actuated g/C Ratio   | 0.30  | 0.55  | 0.55  | 0.55  | 0.55  |
| v/c Ratio            | 0.82  | 0.86  | 0.38  | 0.01  | 0.66  |
| Control Delay        | 34.1  | 18.0  | 2.1   | 7.0   | 11.6  |
| Queue Delay          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          | 34.1  | 18.0  | 2.1   | 7.0   | 11.6  |
| LOS                  | C   | B   | A   | A   | B   |
| Approach Delay       | 34.1  | 14.9  |   |   | 11.6  |
| Approach LOS         | C   | B   |   |   | B   |

Intersection Summary

Cycle Length: 60  
 Actuated Cycle Length: 57.5  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 15.9  
 Intersection Capacity Utilization 70.3%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service C

Splits and Phases: 16: US 21 Lady's Island Rd & Hazel Farm Rd






|  |  |
|--|--|
|  Ø2 |  |
| 36.8 s   |  |
|  Ø6 |  Ø8 |
| 36.8 s   | 23.2 s   |

## Queues

2038 Build

## 16: US 21 Lady's Island Rd &amp; Hazel Farm Rd

PM Peak Hour

|                         |  |  |  |  |  |
|-------------------------|---|---|---|---|---|
| Lane Group              | WBL   | NET   | NER   | SWL   | SWT   |
| Lane Group Flow (vph)   | 427   | 1670  | 401   | 1   | 1281  |
| v/c Ratio               | 0.82  | 0.86  | 0.38  | 0.01  | 0.66  |
| Control Delay           | 34.1  | 18.0  | 2.1   | 7.0   | 11.6  |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay             | 34.1  | 18.0  | 2.1   | 7.0   | 11.6  |
| Queue Length 50th (ft)  | 138   | 251   | 0   | 0   | 160   |
| Queue Length 95th (ft)  | #269  | #382  | 32  | 2   | 222   |
| Internal Link Dist (ft) | 1308  | 983   |   |   | 904   |
| Turn Bay Length (ft)    |   |   | 350   | 150   |   |
| Base Capacity (vph)     | 578   | 1999  | 1068  | 133   | 1999  |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   |
| Reduced v/c Ratio       | 0.74  | 0.84  | 0.38  | 0.01  | 0.64  |

## Intersection Summary















# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

# HCM Signalized Intersection Capacity Analysis

## 16: US 21 Lady's Island Rd & Hazel Farm Rd




















2038 Build  
PM Peak Hour

|                                   |  |  |   |  |  |   |
|-----------------------------------|---|---|--|---|---|--|
| Movement                          | WBL   | WBR   | NET  | NER   | SWL   | SWT  |
| Lane Configurations               |  |  | <br> |  |  | <br> |
| Traffic Volume (vph)              | 384   | 0   | 1503   | 361   | 1   | 1153   |
| Future Volume (vph)               | 384   | 0   | 1503   | 361   | 1   | 1153   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900   | 1900  | 1900  | 1900   |
| Total Lost time (s)               | 4.5   |   | 4.5  | 4.5   | 4.5   | 4.5  |
| Lane Util. Factor                 | 1.00  |   | 0.95   | 1.00  | 1.00  | 0.95   |
| Frt                               | 1.00  |   | 1.00   | 0.85  | 1.00  | 1.00   |
| Flt Protected                     | 0.95  |   | 1.00   | 1.00  | 0.95  | 1.00   |
| Satd. Flow (prot)                 | 1770  |   | 3539   | 1583  | 1770  | 3539   |
| Flt Permitted                     | 0.95  |   | 1.00   | 1.00  | 0.13  | 1.00   |
| Satd. Flow (perm)                 | 1770  |   | 3539   | 1583  | 237   | 3539   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90   |
| Adj. Flow (vph)                   | 427   | 0   | 1670   | 401   | 1   | 1281   |
| RTOR Reduction (vph)              | 0   | 0   | 0  | 181   | 0   | 0  |
| Lane Group Flow (vph)             | 427   | 0   | 1670   | 220   | 1   | 1281   |
| Turn Type                         | Prot  | Perm  | NA   | Perm  | Perm  | NA   |
| Protected Phases                  | 8   |   | 2  |   |   | 6  |
| Permitted Phases                  |   | 8   |  | 2   | 6   |  |
| Actuated Green, G (s)             | 17.0  |   | 31.5   | 31.5  | 31.5  | 31.5   |
| Effective Green, g (s)            | 17.0  |   | 31.5   | 31.5  | 31.5  | 31.5   |
| Actuated g/C Ratio                | 0.30  |   | 0.55   | 0.55  | 0.55  | 0.55   |
| Clearance Time (s)                | 4.5   |   | 4.5  | 4.5   | 4.5   | 4.5  |
| Vehicle Extension (s)             | 3.0   |   | 3.0  | 3.0   | 3.0   | 3.0  |
| Lane Grp Cap (vph)                | 523   |   | 1938   | 867   | 129   | 1938   |
| v/s Ratio Prot                    | c0.24   |   | c0.47  |   |   | 0.36   |
| v/s Ratio Perm                    |   |   |  | 0.14  | 0.00  |  |
| v/c Ratio                         | 0.82  |   | 0.86   | 0.25  | 0.01  | 0.66   |
| Uniform Delay, d1                 | 18.8  |   | 11.1   | 6.8   | 5.9   | 9.2  |
| Progression Factor                | 1.00  |   | 1.00   | 1.00  | 1.00  | 1.00   |
| Incremental Delay, d2             | 9.6   |   | 4.2  | 0.2   | 0.0   | 0.9  |
| Delay (s)                         | 28.4  |   | 15.3   | 7.0   | 5.9   | 10.1   |
| Level of Service                  | C   |   | B  | A   | A   | B  |
| Approach Delay (s)                | 28.4  |   | 13.7   |   |   | 10.1   |
| Approach LOS                      | C   |   | B  |   |   | B  |
| <b>Intersection Summary</b>       |   |   |  |   |   |  |
| HCM 2000 Control Delay            |   |   | 14.1   |   | HCM 2000 Level of Service   | B  |
| HCM 2000 Volume to Capacity ratio |   |   | 0.85   |   |   |  |
| Actuated Cycle Length (s)         |   |   | 57.5   |   | Sum of lost time (s)  | 9.0  |
| Intersection Capacity Utilization |   |   | 70.3%  |   | ICU Level of Service  | C  |
| Analysis Period (min)             |   |   | 15   |   |   |  |
| c Critical Lane Group             |   |   |  |   |   |  |

# HCM Unsignalized Intersection Capacity Analysis

## 17: US 21 Lady's Island Rd & Ferry Rd











2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NEL  | NET   | NER   | SWL   | SWT   | SWR   |
| Lane Configurations               |   |  |  |   |  |  |  |  |   |  |  |   |
| Traffic Volume (veh/h)            | 1   | 0   | 9   | 98  | 0   | 63  | 6  | 1374  | 91  | 122   | 1047  | 4   |
| Future Volume (Veh/h)             | 1   | 0   | 9   | 98  | 0   | 63  | 6  | 1374  | 91  | 122   | 1047  | 4   |
| Sign Control                      | Stop  |   |   | Stop  |   |   | Free   |   |   | Free  |   |   |
| Grade                             | 0%  |   |   | 0%  |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 1   | 0   | 10  | 109   | 0   | 70  | 7  | 1527  | 101   | 136   | 1163  | 4   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            | 5   |   |   |   |   | 5   |  |   |   |   |   |   |
| Median type                       | TWLTL   |   |   |   |   |   |  | TWLTL   |   |   |   |   |
| Median storage veh                | 2   |   |   |   |   |   |  | 2   |   |   |   |   |
| Upstream signal (ft)              | 984   |   |   |   |   |   |  | 1003  |   |   |   |   |
| pX, platoon unblocked             | 0.60  | 0.60  | 0.87  | 0.60  | 0.60  | 0.54  | 0.87   | 0.54  |   |   |   |   |
| vC, conflicting volume            | 2250  | 3079  | 584   | 2445  | 3030  | 814   | 1167   | 1628  |   |   |   |   |
| vC1, stage 1 conf vol             | 1437  | 1437  |   | 1592  | 1592  |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 812   | 1642  |   | 854   | 1439  |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 795   | 2167  | 224   | 1118  | 2087  | 0   | 894  | 459   |   |   |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 6.9   | 7.5   | 6.5   | 6.9   | 4.1  | 4.1   |   |   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2  | 2.2   |   |   |   |   |
| p0 queue free %                   | 99  | 100   | 99  | 54  | 100   | 88  | 99   | 77  |   |   |   |   |
| cM capacity (veh/h)               | 128   | 114   | 678   | 235   | 142   | 585   | 657  | 593   |   |   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NE 1  | NE 2  | SW 1  | SW 2  | SW 3   |   |   |   |   |   |
| Volume Total                      | 11  | 179   | 770   | 864   | 136   | 775   | 392  |   |   |   |   |   |
| Volume Left                       | 1   | 109   | 7   | 0   | 136   | 0   | 0  |   |   |   |   |   |
| Volume Right                      | 10  | 70  | 0   | 101   | 0   | 0   | 4  |   |   |   |   |   |
| cSH                               | 746   | 387   | 657   | 1700  | 593   | 1700  | 1700   |   |   |   |   |   |
| Volume to Capacity                | 0.01  | 0.46  | 0.01  | 0.51  | 0.23  | 0.46  | 0.23   |   |   |   |   |   |
| Queue Length 95th (ft)            | 1   | 59  | 1   | 0   | 22  | 0   | 0  |   |   |   |   |   |
| Control Delay (s)                 | 12.5  | 24.7  | 0.3   | 0.0   | 12.9  | 0.0   | 0.0  |   |   |   |   |   |
| Lane LOS                          | B   | C   | A   |   | B   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 12.5  | 24.7  | 0.1   |   | 1.3   |   |  |   |   |   |   |   |
| Approach LOS                      | B   | C   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     | 2.1   |   |   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization | 92.2%   |   |   | ICU Level of Service  |   |   |  |   | F   |   |   |   |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 18: SC 802 Sams Point Rd & Sams Point Way

















2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |  |  |
| Traffic Volume (veh/h)            | 16  | 253   | 1521  | 29  | 105   | 1157  |
| Future Volume (Veh/h)             | 16  | 253   | 1521  | 29  | 105   | 1157  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 18  | 281   | 1690  | 32  | 117   | 1286  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | TWLT  |   | TWLT  |   |
| Median storage (veh)              |   |   | 2   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 2583  | 861   |   |   | 1722  |   |
| vC1, stage 1 conf vol             | 1706  |   |   |   |   |   |
| vC2, stage 2 conf vol             | 877   |   |   |   |   |   |
| vCu, unblocked vol                | 2583  | 861   |   |   | 1722  |   |
| tC, single (s)                    | 6.8   | 6.9   |   |   | 4.1   |   |
| tC, 2 stage (s)                   | 5.8   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 84  | 6   |   |   | 68  |   |
| cM capacity (veh/h)               | 112   | 299   |   |   | 363   |   |
| Direction, Lane #                 | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  | SB 3  |
| Volume Total                      | 299   | 1127  | 595   | 117   | 643   | 643   |
| Volume Left                       | 18  | 0   | 0   | 117   | 0   | 0   |
| Volume Right                      | 281   | 0   | 32  | 0   | 0   | 0   |
| cSH                               | 272   | 1700  | 1700  | 363   | 1700  | 1700  |
| Volume to Capacity                | 1.10  | 0.66  | 0.35  | 0.32  | 0.38  | 0.38  |
| Queue Length 95th (ft)            | 311   | 0   | 0   | 34  | 0   | 0   |
| Control Delay (s)                 | 125.0   | 0.0   | 0.0   | 19.5  | 0.0   | 0.0   |
| Lane LOS                          | F   |   |   | C   |   |   |
| Approach Delay (s)                | 125.0   | 0.0   |   | 1.6   |   |   |
| Approach LOS                      | F   |   |   |   |   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 11.6  |   |   |   |
| Intersection Capacity Utilization |   |   | 75.3%   |   | ICU Level of Service  | D   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

















## 19: SC 802 Sams Point Rd & Ashland Park Rd/Driveway

2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |   |  |   |   |  |   |
| Traffic Volume (veh/h)            | 7   | 0   | 11  | 0   | 0   | 0   | 19  | 1761  | 0   | 0   | 1299  | 5   |
| Future Volume (Veh/h)             | 7   | 0   | 11  | 0   | 0   | 0   | 19  | 1761  | 0   | 0   | 1299  | 5   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |   | Free  |   |   | Free  |   |
| Grade                             |   | 0%  |   |   | 0%  |   |   | 0%  |   |   | 0%  |   |
| Peak Hour Factor                  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Hourly flow rate (vph)            | 8   | 0   | 12  | 0   | 0   | 0   | 21  | 1957  | 0   | 0   | 1443  | 6   |
| Pedestrians                       |   |   |   |   |   |   |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |   |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |   | TWLTL   |   |   | TWLTL   |   |
| Median storage veh                |   |   |   |   |   |   |   | 2   |   |   | 2   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |   |   |   |   | 530   |   |
| pX, platoon unblocked             | 0.63  | 0.63  | 0.63  | 0.63  | 0.63  |   | 0.63  |   |   |   |   |   |
| vC, conflicting volume            | 2466  | 3445  | 724   | 2732  | 3448  | 978   | 1449  |   |   | 1957  |   |   |
| vC1, stage 1 conf vol             | 1446  | 1446  |   | 1999  | 1999  |   |   |   |   |   |   |   |
| vC2, stage 2 conf vol             | 1020  | 1999  |   | 734   | 1449  |   |   |   |   |   |   |   |
| vCu, unblocked vol                | 2155  | 3705  | 0   | 2576  | 3710  | 978   | 544   |   |   | 1957  |   |   |
| tC, single (s)                    | 7.5   | 6.5   | 7.1   | 7.5   | 6.5   | 6.9   | 4.1   |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   | 6.5   | 5.5   |   | 6.5   | 5.5   |   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.4   | 3.5   | 4.0   | 3.3   | 2.2   |   |   | 2.2   |   |   |
| p0 queue free %                   | 96  | 100   | 98  | 100   | 100   | 100   | 97  |   |   | 100   |   |   |
| cM capacity (veh/h)               | 183   | 91  | 667   | 58  | 91  | 250   | 645   |   |   | 294   |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | NB 2  | SB 1  | SB 2  |   |   |   |   |   |   |
| Volume Total                      | 20  | 0   | 1000  | 978   | 722   | 728   |   |   |   |   |   |   |
| Volume Left                       | 8   | 0   | 21  | 0   | 0   | 0   |   |   |   |   |   |   |
| Volume Right                      | 12  | 0   | 0   | 0   | 0   | 6   |   |   |   |   |   |   |
| cSH                               | 324   | 1700  | 645   | 1700  | 294   | 1700  |   |   |   |   |   |   |
| Volume to Capacity                | 0.06  | 0.00  | 0.03  | 0.58  | 0.00  | 0.43  |   |   |   |   |   |   |
| Queue Length 95th (ft)            | 5   | 0   | 3   | 0   | 0   | 0   |   |   |   |   |   |   |
| Control Delay (s)                 | 16.8  | 0.0   | 1.0   | 0.0   | 0.0   | 0.0   |   |   |   |   |   |   |
| Lane LOS                          | C   | A   | A   |   |   |   |   |   |   |   |   |   |
| Approach Delay (s)                | 16.8  | 0.0   | 0.5   |   | 0.0   |   |   |   |   |   |   |   |
| Approach LOS                      | C   | A   |   |   |   |   |   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.4   |   |   |   |   |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 72.0%   |   | ICU Level of Service  |   |   |   |   | C   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |   |   |   |   |   |   |

Timings  
20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E

2038 Build  
PM Peak Hour






|                      |  |  |  |  |  |  |   |  |  |
|----------------------|---|---|---|---|---|---|---|---|---|
| Lane Group           | EBL   | EBT   | EBR   | WBL   | WBT   | NBL   | NBT   | SBL   | SBT   |
| Lane Configurations  |   |  |  |   |  |  |  |  |  |
| Traffic Volume (vph) | 361   | 7   | 45  | 16  | 1   | 24  | 1677  | 2   | 1200  |
| Future Volume (vph)  | 361   | 7   | 45  | 16  | 1   | 24  | 1677  | 2   | 1200  |
| Turn Type            | pm+pt   | NA  | Perm  | Perm  | NA  | Perm  | NA  | Perm  | NA  |
| Protected Phases     | 7   | 4   |   |   | 8   |   | 2   |   | 6   |
| Permitted Phases     | 4   |   | 4   | 8   |   | 2   |   | 6   |   |
| Detector Phase       | 7   | 4   | 4   | 8   | 8   | 2   | 2   | 6   | 6   |
| Switch Phase         |   |   |   |   |   |   |   |   |   |
| Minimum Initial (s)  | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Minimum Split (s)    | 9.5   | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  | 22.5  |
| Total Split (s)      | 9.6   | 32.2  | 32.2  | 22.6  | 22.6  | 57.8  | 57.8  | 57.8  | 57.8  |
| Total Split (%)      | 10.7%   | 35.8%   | 35.8%   | 25.1%   | 25.1%   | 64.2%   | 64.2%   | 64.2%   | 64.2%   |
| Yellow Time (s)      | 3.5   | 3.5   | 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   | 1.0   | 1.0   |
| Lost Time Adjust (s) |   | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)  |   | 4.5   | 4.5   |   | 4.5   | 4.5   | 4.5   | 4.5   | 4.5   |
| Lead/Lag             | Lead  |   |   | Lag   | Lag   |   |   |   |   |
| Lead-Lag Optimize?   | Yes   |   |   | Yes   | Yes   |   |   |   |   |
| Recall Mode          | None  | None  | None  | None  | None  | Min   | Min   | Min   | Min   |
| Act Effct Green (s)  |   | 26.5  | 26.5  |   | 26.5  | 51.6  | 51.6  | 51.6  | 51.6  |
| Actuated g/C Ratio   |   | 0.30  | 0.30  |   | 0.30  | 0.59  | 0.59  | 0.59  | 0.59  |
| v/c Ratio            |   | 1.01  | 0.10  |   | 0.05  | 0.32  | 0.92  | 0.02  | 0.81  |
| Control Delay        |   | 79.7  | 11.3  |   | 21.8  | 21.5  | 25.2  | 8.5   | 17.6  |
| Queue Delay          |   | 0.0   | 0.0   |   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Delay          |   | 79.7  | 11.3  |   | 21.8  | 21.5  | 25.2  | 8.5   | 17.6  |
| LOS                  |   | E   | B   |   | C   | C   | C   | A   | B   |
| Approach Delay       |   | 72.3  |   |   | 21.8  |   | 25.1  |   | 17.6  |
| Approach LOS         |   | E   |   |   | C   |   | C   |   | B   |

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 87.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 27.3  
 Intersection Capacity Utilization 76.8%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E








|  |  |
|--|--|
|  Ø2 |  Ø4 |
| 57.8 s   | 32.2 s   |
|  Ø6 |  Ø7 |
| 57.8 s   | 9.6 s  |
|  |  Ø8 |
|  | 22.6 s   |

## Queues

2038 Build

20: SC 802 Sams Point Rd &amp; Miller Dr W/Miller Dr E

PM Peak Hour

|                         |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|
| Lane Group              | EBT   | EBR   | WBT   | NBL   | NBT   | SBL   | SBT  |
| Lane Group Flow (vph)   | 409   | 50  | 20  | 27  | 1924  | 2   | 1667   |
| v/c Ratio               | 1.01  | 0.10  | 0.05  | 0.32  | 0.92  | 0.02  | 0.81   |
| Control Delay           | 79.7  | 11.3  | 21.8  | 21.5  | 25.2  | 8.5   | 17.6   |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  |
| Total Delay             | 79.7  | 11.3  | 21.8  | 21.5  | 25.2  | 8.5   | 17.6   |
| Queue Length 50th (ft)  | 231   | 6   | 8   | 7   | 474   | 0   | 347  |
| Queue Length 95th (ft)  | #420  | 32  | 24  | 31  | #690  | 4   | 450  |
| Internal Link Dist (ft) | 466   |   | 412   |   | 450   |   | 410  |
| Turn Bay Length (ft)    |   | 100   |   | 230   |   | 265   |  |
| Base Capacity (vph)     | 426   | 524   | 384   | 88  | 2167  | 88  | 2132   |
| Starvation Cap Reductn  | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Spillback Cap Reductn   | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Storage Cap Reductn     | 0   | 0   | 0   | 0   | 0   | 0   | 0  |
| Reduced v/c Ratio       | 0.96  | 0.10  | 0.05  | 0.31  | 0.89  | 0.02  | 0.78   |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.





















Queue shown is maximum after two cycles.



# HCM Signalized Intersection Capacity Analysis

## 20: SC 802 Sams Point Rd & Miller Dr W/Miller Dr E







2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |  |   |  |   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 361   | 7   | 45  | 16  | 1   | 1   | 24   | 1677  | 55  | 2   | 1200  | 301   |
| Future Volume (vph)               | 361   | 7   | 45  | 16  | 1   | 1   | 24   | 1677  | 55  | 2   | 1200  | 301   |
| Ideal Flow (vphpl)                | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  | 1900  |
| Total Lost time (s)               |   | 4.5   | 4.5   |   | 4.5   |   | 4.5  | 4.5   |   | 4.5   | 4.5   |   |
| Lane Util. Factor                 |   | 1.00  | 1.00  |   | 1.00  |   | 1.00   | 0.95  |   | 1.00  | 0.95  |   |
| Frt                               |   | 1.00  | 0.85  |   | 0.99  |   | 1.00   | 1.00  |   | 1.00  | 0.97  |   |
| Flt Protected                     |   | 0.95  | 1.00  |   | 0.96  |   | 0.95   | 1.00  |   | 0.95  | 1.00  |   |
| Satd. Flow (prot)                 |   | 1776  | 1568  |   | 1770  |   | 1770   | 3522  |   | 1770  | 3433  |   |
| Flt Permitted                     |   | 0.72  | 1.00  |   | 0.68  |   | 0.08   | 1.00  |   | 0.08  | 1.00  |   |
| Satd. Flow (perm)                 |   | 1333  | 1568  |   | 1259  |   | 144  | 3522  |   | 144   | 3433  |   |
| Peak-hour factor, PHF             | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  | 0.90   | 0.90  | 0.90  | 0.90  | 0.90  | 0.90  |
| Adj. Flow (vph)                   | 401   | 8   | 50  | 18  | 1   | 1   | 27   | 1863  | 61  | 2   | 1333  | 334   |
| RTOR Reduction (vph)              | 0   | 0   | 24  | 0   | 1   | 0   | 0  | 2   | 0   | 0   | 24  | 0   |
| Lane Group Flow (vph)             | 0   | 409   | 26  | 0   | 19  | 0   | 27   | 1922  | 0   | 2   | 1643  | 0   |
| Heavy Vehicles (%)                | 2%  | 2%  | 3%  | 2%  | 2%  | 2%  | 2%   | 2%  | 2%  | 2%  | 2%  | 2%  |
| Turn Type                         | pm+pt   | NA  | Perm  | Perm  | NA  |   | Perm   | NA  |   | Perm  | NA  |   |
| Protected Phases                  | 7   | 4   |   |   | 8   |   |  | 2   |   |   | 6   |   |
| Permitted Phases                  | 4   |   | 4   | 8   |   |   | 2  |   |   | 6   |   |   |
| Actuated Green, G (s)             |   | 26.5  | 26.5  |   | 26.5  |   | 51.6   | 51.6  |   | 51.6  | 51.6  |   |
| Effective Green, g (s)            |   | 26.5  | 26.5  |   | 26.5  |   | 51.6   | 51.6  |   | 51.6  | 51.6  |   |
| Actuated g/C Ratio                |   | 0.30  | 0.30  |   | 0.30  |   | 0.59   | 0.59  |   | 0.59  | 0.59  |   |
| Clearance Time (s)                |   | 4.5   | 4.5   |   | 4.5   |   | 4.5  | 4.5   |   | 4.5   | 4.5   |   |
| Vehicle Extension (s)             |   | 3.0   | 3.0   |   | 3.0   |   | 3.0  | 3.0   |   | 3.0   | 3.0   |   |
| Lane Grp Cap (vph)                |   | 405   | 477   |   | 383   |   | 85   | 2086  |   | 85  | 2033  |   |
| v/s Ratio Prot                    |   |   |   |   |   |   |  | c0.55   |   |   | 0.48  |   |
| v/s Ratio Perm                    |   | c0.31   | 0.02  |   | 0.02  |   | 0.19   |   |   | 0.01  |   |   |
| v/c Ratio                         |   | 1.01  | 0.05  |   | 0.05  |   | 0.32   | 0.92  |   | 0.02  | 0.81  |   |
| Uniform Delay, d1                 |   | 30.3  | 21.4  |   | 21.4  |   | 8.9  | 15.9  |   | 7.3   | 13.9  |   |
| Progression Factor                |   | 1.00  | 1.00  |   | 1.00  |   | 1.00   | 1.00  |   | 1.00  | 1.00  |   |
| Incremental Delay, d2             |   | 47.2  | 0.0   |   | 0.1   |   | 2.2  | 7.3   |   | 0.1   | 2.5   |   |
| Delay (s)                         |   | 77.5  | 21.5  |   | 21.5  |   | 11.1   | 23.2  |   | 7.4   | 16.3  |   |
| Level of Service                  |   | E   | C   |   | C   |   | B  | C   |   | A   | B   |   |
| Approach Delay (s)                |   | 71.4  |   |   | 21.5  |   |  | 23.1  |   |   | 16.3  |   |
| Approach LOS                      |   | E   |   |   | C   |   |  | C   |   |   | B   |   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |  |   |   |   |   |   |
| HCM 2000 Control Delay            |   |   | 25.7  |   |   |   |  |   |   |   |   |   |
| HCM 2000 Volume to Capacity ratio |   |   | 1.01  |   |   |   |  |   |   |   |   |   |
| Actuated Cycle Length (s)         |   |   | 87.1  |   |   |   |  |   |   | 13.5  |   |   |
| Intersection Capacity Utilization |   |   | 76.8%   |   |   |   |  |   |   |   | D   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |
| c Critical Lane Group             |   |   |   |   |   |   |  |   |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 21: Taco Bell Driveway & US 21 Sea Island Pkwy

2038 Build  
PM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   |
| Lane Configurations               | ↑↑  | ↑   |   | ↑↑  |   | ↑   |
| Traffic Volume (veh/h)            | 1551  | 12  | 0   | 1228  | 0   | 7   |
| Future Volume (Veh/h)             | 1551  | 12  | 0   | 1228  | 0   | 7   |
| Sign Control                      | Free  |   |   | Free  | Stop  |   |
| Grade                             | 0%  |   |   | 0%  | 0%  |   |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 1686  | 13  | 0   | 1335  | 0   | 8   |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       | None  |   |   | TWLT  |   |   |
| Median storage veh                |   |   |   | 2   |   |   |
| Upstream signal (ft)              |   |   |   | 905   |   |   |
| pX, platoon unblocked             |   |   |   |   | 0.71  |   |
| vC, conflicting volume            |   |   | 1699  |   | 2354  | 843   |
| vC1, stage 1 conf vol             |   |   |   |   | 1686  |   |
| vC2, stage 2 conf vol             |   |   |   |   | 668   |   |
| vCu, unblocked vol                |   |   | 1699  |   | 2094  | 843   |
| tC, single (s)                    |   |   | 4.1   |   | 6.8   | 6.9   |
| tC, 2 stage (s)                   |   |   |   |   | 5.8   |   |
| tF (s)                            |   |   | 2.2   |   | 3.5   | 3.3   |
| p0 queue free %                   |   |   | 100   |   | 100   | 97  |
| cM capacity (veh/h)               |   |   | 371   |   | 130   | 307   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | NB 1  |
| Volume Total                      | 843   | 843   | 13  | 668   | 668   | 8   |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   | 0   |
| Volume Right                      | 0   | 0   | 13  | 0   | 0   | 8   |
| cSH                               | 1700  | 1700  | 1700  | 1700  | 1700  | 307   |
| Volume to Capacity                | 0.50  | 0.50  | 0.01  | 0.39  | 0.39  | 0.03  |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 0   | 2   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 17.0  |
| Lane LOS                          |   |   |   |   |   | C   |
| Approach Delay (s)                | 0.0   |   |   | 0.0   |   | 17.0  |
| Approach LOS                      |   |   |   |   |   | C   |
| <b>Intersection Summary</b>       |   |   |   |   |   |   |
| Average Delay                     |   |   | 0.0   |   |   |   |
| Intersection Capacity Utilization |   |   | 52.9%   |   | ICU Level of Service  | A   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

## 22: US 21 Sea Island Pkwy & Walmart Driveway #3

2038 Build  
PM Peak Hour



| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|-------|-------|------|----------------------|------|
| Lane Configurations               |      |       |       |      |                      |      |
| Traffic Volume (veh/h)            | 162  | 1328  | 941   | 81   | 43                   | 86   |
| Future Volume (Veh/h)             | 162  | 1328  | 941   | 81   | 43                   | 86   |
| Sign Control                      |      | Free  | Free  |      | Stop                 |      |
| Grade                             |      | 0%    | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92                 | 0.92 |
| Hourly flow rate (vph)            | 176  | 1443  | 1023  | 88   | 47                   | 93   |
| Pedestrians                       |      |       |       |      |                      |      |
| Lane Width (ft)                   |      |       |       |      |                      |      |
| Walking Speed (ft/s)              |      |       |       |      |                      |      |
| Percent Blockage                  |      |       |       |      |                      |      |
| Right turn flare (veh)            |      |       |       |      |                      | 7    |
| Median type                       |      | TWLTL | TWLTL |      |                      |      |
| Median storage (veh)              |      | 2     | 2     |      |                      |      |
| Upstream signal (ft)              |      | 493   |       |      |                      |      |
| pX, platoon unblocked             |      |       |       |      | 0.69                 |      |
| vC, conflicting volume            | 1111 |       |       |      | 2140                 | 556  |
| vC1, stage 1 conf vol             |      |       |       |      | 1067                 |      |
| vC2, stage 2 conf vol             |      |       |       |      | 1074                 |      |
| vCu, unblocked vol                | 1111 |       |       |      | 1755                 | 556  |
| tC, single (s)                    | 4.1  |       |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |       |       |      | 5.8                  |      |
| tF (s)                            | 2.2  |       |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 72   |       |       |      | 79                   | 80   |
| cM capacity (veh/h)               | 624  |       |       |      | 229                  | 475  |
| Direction, Lane #                 | EB 1 | EB 2  | EB 3  | WB 1 | WB 2                 | SB 1 |
| Volume Total                      | 176  | 722   | 722   | 682  | 429                  | 140  |
| Volume Left                       | 176  | 0     | 0     | 0    | 0                    | 47   |
| Volume Right                      | 0    | 0     | 0     | 0    | 88                   | 93   |
| cSH                               | 624  | 1700  | 1700  | 1700 | 1700                 | 683  |
| Volume to Capacity                | 0.28 | 0.42  | 0.42  | 0.40 | 0.25                 | 0.21 |
| Queue Length 95th (ft)            | 29   | 0     | 0     | 0    | 0                    | 19   |
| Control Delay (s)                 | 13.0 | 0.0   | 0.0   | 0.0  | 0.0                  | 17.9 |
| Lane LOS                          | B    |       |       |      |                      | C    |
| Approach Delay (s)                | 1.4  |       |       | 0.0  |                      | 17.9 |
| Approach LOS                      |      |       |       |      |                      | C    |
| Intersection Summary              |      |       |       |      |                      |      |
| Average Delay                     |      |       | 1.7   |      |                      |      |
| Intersection Capacity Utilization |      |       | 50.9% |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |       | 15    |      |                      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 23: US 21 Sea Island Pkwy & Walmart Driveway #4

2038 Build  
PM Peak Hour












| Movement                          | EBL  | EBT   | WBT   | WBR  | SBL                  | SBR  |
|-----------------------------------|------|-------|-------|------|----------------------|------|
| Lane Configurations               |      | ↑↑    | ↑↑    |      |                      | ↑    |
| Traffic Volume (veh/h)            | 0    | 1371  | 979   | 41   | 0                    | 43   |
| Future Volume (Veh/h)             | 0    | 1371  | 979   | 41   | 0                    | 43   |
| Sign Control                      |      | Free  | Free  |      | Stop                 |      |
| Grade                             |      | 0%    | 0%    |      | 0%                   |      |
| Peak Hour Factor                  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92                 | 0.92 |
| Hourly flow rate (vph)            | 0    | 1490  | 1064  | 45   | 0                    | 47   |
| Pedestrians                       |      |       |       |      |                      |      |
| Lane Width (ft)                   |      |       |       |      |                      |      |
| Walking Speed (ft/s)              |      |       |       |      |                      |      |
| Percent Blockage                  |      |       |       |      |                      |      |
| Right turn flare (veh)            |      |       |       |      |                      |      |
| Median type                       |      | TWLTL | TWLTL |      |                      |      |
| Median storage (veh)              |      | 2     | 2     |      |                      |      |
| Upstream signal (ft)              |      | 897   |       |      |                      |      |
| pX, platoon unblocked             |      |       |       |      | 0.70                 |      |
| vC, conflicting volume            | 1109 |       |       |      | 1832                 | 554  |
| vC1, stage 1 conf vol             |      |       |       |      | 1086                 |      |
| vC2, stage 2 conf vol             |      |       |       |      | 745                  |      |
| vCu, unblocked vol                | 1109 |       |       |      | 1319                 | 554  |
| tC, single (s)                    | 4.1  |       |       |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |       |       |      | 5.8                  |      |
| tF (s)                            | 2.2  |       |       |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |       |       |      | 100                  | 90   |
| cM capacity (veh/h)               | 625  |       |       |      | 267                  | 476  |
| Direction, Lane #                 | EB 1 | EB 2  | WB 1  | WB 2 | SB 1                 |      |
| Volume Total                      | 745  | 745   | 709   | 400  | 47                   |      |
| Volume Left                       | 0    | 0     | 0     | 0    | 0                    |      |
| Volume Right                      | 0    | 0     | 0     | 45   | 47                   |      |
| cSH                               | 1700 | 1700  | 1700  | 1700 | 476                  |      |
| Volume to Capacity                | 0.44 | 0.44  | 0.42  | 0.24 | 0.10                 |      |
| Queue Length 95th (ft)            | 0    | 0     | 0     | 0    | 8                    |      |
| Control Delay (s)                 | 0.0  | 0.0   | 0.0   | 0.0  | 13.4                 |      |
| Lane LOS                          |      |       |       |      | B                    |      |
| Approach Delay (s)                | 0.0  |       | 0.0   |      | 13.4                 |      |
| Approach LOS                      |      |       |       |      | B                    |      |
| Intersection Summary              |      |       |       |      |                      |      |
| Average Delay                     |      |       | 0.2   |      |                      |      |
| Intersection Capacity Utilization |      |       | 41.2% |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |       | 15    |      |                      |      |

Intersection Sign configuration not allowed in HCM analysis.

# HCM Unsignalized Intersection Capacity Analysis

## 76: Geechie Rd

2038 Build  
PM Peak Hour

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Sign Control                      | Stop  |   | Stop  |   |   | Stop  |
| Traffic Volume (vph)              | 0   | 0   | 0   | 0   | 0   | 0   |
| Future Volume (vph)               | 0   | 0   | 0   | 0   | 0   | 0   |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 0   | 0   | 0   | 0   | 0   | 0   |
| Direction, Lane #                 | WB 1  | NB 1  | SB 1  |   |   |   |
| Volume Total (vph)                | 0   | 0   | 0   |   |   |   |
| Volume Left (vph)                 | 0   | 0   | 0   |   |   |   |
| Volume Right (vph)                | 0   | 0   | 0   |   |   |   |
| Hadj (s)                          | 0.00  | 0.00  | 0.00  |   |   |   |
| Departure Headway (s)             | 3.9   | 3.9   | 3.9   |   |   |   |
| Degree Utilization, x             | 0.00  | 0.00  | 0.00  |   |   |   |
| Capacity (veh/h)                  | 917   | 917   | 917   |   |   |   |
| Control Delay (s)                 | 6.9   | 6.9   | 6.9   |   |   |   |
| Approach Delay (s)                | 0.0   | 0.0   | 0.0   |   |   |   |
| Approach LOS                      | A   | A   | A   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Delay                             |   |   | 0.0   |   |   |   |
| Level of Service                  |   |   | A   |   |   |   |
| Intersection Capacity Utilization |   |   | 0.0%  | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

**APPENDIX F**

**2038 BUILD INTERSECTION ALTERNATIVES**










**LOS AND DELAY RESULTS**

# HCM Unsignalized Intersection Capacity Analysis

2038 Build

## 24: Sunset Blvd & Miller Dr W

AM Peak

|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Sign Control                      | Stop  |   | Stop  |   |   | Stop  |
| Traffic Volume (vph)              | 595   | 1   | 43  | 193   | 1   | 47  |
| Future Volume (vph)               | 595   | 1   | 43  | 193   | 1   | 47  |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 647   | 1   | 47  | 210   | 1   | 51  |
| Direction, Lane #                 | WB 1  | NB 1  | SB 1  |   |   |   |
| Volume Total (vph)                | 648   | 257   | 52  |   |   |   |
| Volume Left (vph)                 | 647   | 0   | 1   |   |   |   |
| Volume Right (vph)                | 1   | 210   | 0   |   |   |   |
| Hadj (s)                          | 0.23  | -0.46   | 0.04  |   |   |   |
| Departure Headway (s)             | 5.0   | 5.3   | 6.2   |   |   |   |
| Degree Utilization, x             | 0.90  | 0.38  | 0.09  |   |   |   |
| Capacity (veh/h)                  | 709   | 656   | 555   |   |   |   |
| Control Delay (s)                 | 36.0  | 11.5  | 9.8   |   |   |   |
| Approach Delay (s)                | 36.0  | 11.5  | 9.8   |   |   |   |
| Approach LOS                      | E   | B   | A   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Delay                             |   |   | 28.0  |   |   |   |
| Level of Service                  |   |   | D   |   |   |   |
| Intersection Capacity Utilization |   |   | 53.8%   | ICU Level of Service  | A   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |












# HCM Unsignalized Intersection Capacity Analysis

2038 Build

## 24: Sunset Blvd & Miller Dr W

PM Peak










|                                   |   |   |   |   |   |   |
|-----------------------------------|---|---|---|---|---|---|
|                                   |  |  |  |  |  |  |
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Sign Control                      | Stop  |   | Stop  |   |   | Stop  |
| Traffic Volume (vph)              | 326   | 1   | 121   | 413   | 1   | 48  |
| Future Volume (vph)               | 326   | 1   | 121   | 413   | 1   | 48  |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 354   | 1   | 132   | 449   | 1   | 52  |
| Direction, Lane #                 | WB 1  | NB 1  | SB 1  |   |   |   |
| Volume Total (vph)                | 355   | 581   | 53  |   |   |   |
| Volume Left (vph)                 | 354   | 0   | 1   |   |   |   |
| Volume Right (vph)                | 1   | 449   | 0   |   |   |   |
| Hadj (s)                          | 0.23  | -0.43   | 0.04  |   |   |   |
| Departure Headway (s)             | 5.7   | 4.7   | 5.8   |   |   |   |
| Degree Utilization, x             | 0.56  | 0.75  | 0.09  |   |   |   |
| Capacity (veh/h)                  | 598   | 752   | 556   |   |   |   |
| Control Delay (s)                 | 15.7  | 20.3  | 9.4   |   |   |   |
| Approach Delay (s)                | 15.7  | 20.3  | 9.4   |   |   |   |
| Approach LOS                      | C   | C   | A   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Delay                             |   |   | 18.1  |   |   |   |
| Level of Service                  |   |   | C   |   |   |   |
| Intersection Capacity Utilization |   |   | 56.6%   | ICU Level of Service  | B   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

2038 Build

## 24: Sunset Blvd & Miller Dr W

AM Peak










|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 595   | 1   | 43  | 193   | 1   | 47  |
| Future Volume (Veh/h)             | 595   | 1   | 43  | 193   | 1   | 47  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 647   | 1   | 47  | 210   | 1   | 51  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | None  |   |   | None  |
| Median storage (veh)              |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 205   | 152   |   |   | 257   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 205   | 152   |   |   | 257   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 17  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 783   | 894   |   |   | 1308  |   |
| Direction, Lane #                 | WB 1  | NB 1  | SB 1  |   |   |   |
| Volume Total                      | 648   | 257   | 52  |   |   |   |
| Volume Left                       | 647   | 0   | 1   |   |   |   |
| Volume Right                      | 1   | 210   | 0   |   |   |   |
| cSH                               | 783   | 1700  | 1308  |   |   |   |
| Volume to Capacity                | 0.83  | 0.15  | 0.00  |   |   |   |
| Queue Length 95th (ft)            | 232   | 0   | 0   |   |   |   |
| Control Delay (s)                 | 27.5  | 0.0   | 0.2   |   |   |   |
| Lane LOS                          | D   |   | A   |   |   |   |
| Approach Delay (s)                | 27.5  | 0.0   | 0.2   |   |   |   |
| Approach LOS                      | D   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   | 18.6  |   |   |   |   |
| Intersection Capacity Utilization |   | 53.8%   |   | ICU Level of Service  |   | A   |
| Analysis Period (min)             |   | 15  |   |   |   |   |

# HCM Unsignalized Intersection Capacity Analysis

2038 Build

## 24: Sunset Blvd & Miller Dr W

PM Peak

|                                   |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|
| Movement                          | WBL   | WBR   | NBT   | NBR   | SBL   | SBT   |
| Lane Configurations               |  |   |  |   |   |  |
| Traffic Volume (veh/h)            | 326   | 1   | 121   | 413   | 1   | 48  |
| Future Volume (Veh/h)             | 326   | 1   | 121   | 413   | 1   | 48  |
| Sign Control                      | Stop  |   | Free  |   |   | Free  |
| Grade                             | 0%  |   | 0%  |   |   | 0%  |
| Peak Hour Factor                  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Hourly flow rate (vph)            | 354   | 1   | 132   | 449   | 1   | 52  |
| Pedestrians                       |   |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |
| Median type                       |   |   | None  |   |   | None  |
| Median storage (veh)              |   |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |
| vC, conflicting volume            | 410   | 356   |   |   | 581   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |
| vCu, unblocked vol                | 410   | 356   |   |   | 581   |   |
| tC, single (s)                    | 6.4   | 6.2   |   |   | 4.1   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |
| tF (s)                            | 3.5   | 3.3   |   |   | 2.2   |   |
| p0 queue free %                   | 41  | 100   |   |   | 100   |   |
| cM capacity (veh/h)               | 597   | 688   |   |   | 993   |   |
| Direction, Lane #                 | WB 1  | NB 1  | SB 1  |   |   |   |
| Volume Total                      | 355   | 581   | 53  |   |   |   |
| Volume Left                       | 354   | 0   | 1   |   |   |   |
| Volume Right                      | 1   | 449   | 0   |   |   |   |
| cSH                               | 597   | 1700  | 993   |   |   |   |
| Volume to Capacity                | 0.59  | 0.34  | 0.00  |   |   |   |
| Queue Length 95th (ft)            | 97  | 0   | 0   |   |   |   |
| Control Delay (s)                 | 19.5  | 0.0   | 0.2   |   |   |   |
| Lane LOS                          | C   |   | A   |   |   |   |
| Approach Delay (s)                | 19.5  | 0.0   | 0.2   |   |   |   |
| Approach LOS                      | C   |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |
| Average Delay                     |   | 7.0   |   |   |   |   |
| Intersection Capacity Utilization |   | 56.6%   |   | ICU Level of Service  |   | B   |
| Analysis Period (min)             |   | 15  |   |   |   |   |

# MOVEMENT SUMMARY



Site: Hazel Farm Dr/Gay Dr AM Peak

Hazel Farm Rd/Gay Dr  
Roundabout

| Movement Performance - Vehicles |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
|---------------------------------|--------|--------------------------------|------------------|------------------|----------------------|------------------|--------------------------------------|-------------------------|--------------|--------------------------------|----------------------|
| Mov ID                          | OD Mov | Demand Flows<br>Total<br>veh/h | Flows<br>HV<br>% | Deg. Satn<br>v/c | Average Delay<br>sec | Level of Service | 95% Back of Queue<br>Vehicles<br>veh | Queue<br>Distance<br>ft | Prop. Queued | Effective Stop Rate<br>per veh | Average Speed<br>mph |
| East: Gay Dr                    |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 6                               | T1     | 464                            | 1.0              | 0.527            | 9.7                  | LOS A            | 3.5                                  | 88.4                    | 0.24         | 0.20                           | 23.4                 |
| 16                              | R2     | 101                            | 1.0              | 0.527            | 9.7                  | LOS A            | 3.5                                  | 88.4                    | 0.24         | 0.20                           | 23.4                 |
| Approach                        |        | 565                            | 1.0              | 0.527            | 9.7                  | LOS A            | 3.5                                  | 88.4                    | 0.24         | 0.10                           | 23.4                 |
| North: Hazel Farm Rd            |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 7                               | L2     | 47                             | 3.0              | 0.127            | 6.6                  | LOS A            | 0.4                                  | 11.1                    | 0.48         | 0.88                           | 25.2                 |
| 14                              | R2     | 40                             | 3.0              | 0.127            | 6.6                  | LOS A            | 0.4                                  | 11.1                    | 0.48         | 0.88                           | 25.2                 |
| Approach                        |        | 87                             | 3.0              | 0.127            | 6.6                  | LOS A            | 0.4                                  | 11.1                    | 0.48         | 0.44                           | 25.2                 |
| West: Hazel Farm Rd             |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 5                               | L2     | 40                             | 3.0              | 0.309            | 6.5                  | LOS A            | 1.4                                  | 36.1                    | 0.18         | 0.16                           | 26.6                 |
| 2                               | T1     | 283                            | 3.0              | 0.309            | 6.5                  | LOS A            | 1.4                                  | 36.1                    | 0.18         | 0.16                           | 26.6                 |
| Approach                        |        | 323                            | 3.0              | 0.309            | 6.5                  | LOS A            | 1.4                                  | 36.1                    | 0.18         | 0.08                           | 26.6                 |
| All Vehicles                    |        | 975                            | 1.8              | 0.527            | 8.3                  | LOS A            | 3.5                                  | 88.4                    | 0.24         | 0.12                           | 24.5                 |

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Processed: Thursday, February 02, 2017 11:36:09 AM

SIDRA INTERSECTION 6.0.18.4502

Project: U:\1710\active\171001904\Traffic\Analysis\Sidra\2038\_Build\_Concept\_AM\_Mini.sip6

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**SIDRA**  
**INTERSECTION 6**

# MOVEMENT SUMMARY

 **Site: Miller Dr/Sunset Blvd AM Peak**

Miller Dr/Sunset Blvd  
Roundabout

| Movement Performance - Vehicles |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
|---------------------------------|--------|--------------------------------|------------------|------------------|----------------------|------------------|--------------------------------------|-------------------------|--------------|--------------------------------|----------------------|
| Mov ID                          | OD Mov | Demand Flows<br>Total<br>veh/h | Flows<br>HV<br>% | Deg. Satn<br>v/c | Average Delay<br>sec | Level of Service | 95% Back of Queue<br>Vehicles<br>veh | Queue<br>Distance<br>ft | Prop. Queued | Effective Stop Rate<br>per veh | Average Speed<br>mph |
| East: Miller Dr                 |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 6                               | T1     | 647                            | 1.0              | 0.607            | 11.5                 | LOS B            | 4.7                                  | 119.3                   | 0.30         | 0.27                           | 22.7                 |
| 16                              | R2     | 1                              | 1.0              | 0.607            | 11.5                 | LOS B            | 4.7                                  | 119.3                   | 0.30         | 0.27                           | 22.7                 |
| Approach                        |        | 648                            | 1.0              | 0.607            | 11.5                 | LOS B            | 4.7                                  | 119.3                   | 0.30         | 0.14                           | 22.7                 |
| North: Sunset Blvd              |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 7                               | L2     | 1                              | 3.0              | 0.091            | 7.4                  | LOS A            | 0.3                                  | 7.6                     | 0.54         | 1.06                           | 26.0                 |
| 14                              | R2     | 51                             | 3.0              | 0.091            | 7.4                  | LOS A            | 0.3                                  | 7.6                     | 0.54         | 1.06                           | 26.0                 |
| Approach                        |        | 52                             | 3.0              | 0.091            | 7.4                  | LOS A            | 0.3                                  | 7.6                     | 0.54         | 0.53                           | 26.0                 |
| West: Sunset Blvd               |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 5                               | L2     | 46                             | 3.0              | 0.234            | 5.5                  | LOS A            | 1.0                                  | 25.4                    | 0.02         | 0.00                           | 27.0                 |
| 2                               | T1     | 211                            | 3.0              | 0.234            | 5.5                  | LOS A            | 1.0                                  | 25.4                    | 0.02         | 0.00                           | 27.0                 |
| Approach                        |        | 257                            | 3.0              | 0.234            | 5.5                  | LOS A            | 1.0                                  | 25.4                    | 0.02         | 0.00                           | 27.0                 |
| All Vehicles                    |        | 957                            | 1.6              | 0.607            | 9.6                  | LOS A            | 4.7                                  | 119.3                   | 0.24         | 0.12                           | 23.9                 |

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY



Site: Hazel Farm Dr/Gay Dr PM Peak

Hazel Farm Rd/Gay Dr  
Roundabout

| Movement Performance - Vehicles |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
|---------------------------------|--------|--------------------------------|------------------|------------------|----------------------|------------------|--------------------------------------|-------------------------|--------------|--------------------------------|----------------------|
| Mov ID                          | OD Mov | Demand Flows<br>Total<br>veh/h | Flows<br>HV<br>% | Deg. Satn<br>v/c | Average Delay<br>sec | Level of Service | 95% Back of Queue<br>Vehicles<br>veh | Queue<br>Distance<br>ft | Prop. Queued | Effective Stop Rate<br>per veh | Average Speed<br>mph |
| East: Gay Dr                    |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 6                               | T1     | 435                            | 1.0              | 0.459            | 8.5                  | LOS A            | 2.7                                  | 68.2                    | 0.21         | 0.18                           | 23.9                 |
| 16                              | R2     | 58                             | 1.0              | 0.459            | 8.5                  | LOS A            | 2.7                                  | 68.2                    | 0.21         | 0.18                           | 23.9                 |
| Approach                        |        | 492                            | 1.0              | 0.459            | 8.5                  | LOS A            | 2.7                                  | 68.2                    | 0.21         | 0.09                           | 23.9                 |
| North: Hazel Farm Rd            |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 7                               | L2     | 66                             | 3.0              | 0.151            | 6.7                  | LOS A            | 0.5                                  | 13.5                    | 0.48         | 0.87                           | 25.0                 |
| 14                              | R2     | 40                             | 3.0              | 0.151            | 6.7                  | LOS A            | 0.5                                  | 13.5                    | 0.48         | 0.87                           | 25.0                 |
| Approach                        |        | 107                            | 3.0              | 0.151            | 6.7                  | LOS A            | 0.5                                  | 13.5                    | 0.48         | 0.44                           | 25.0                 |
| West: Hazel Farm Rd             |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 5                               | L2     | 40                             | 3.0              | 0.422            | 8.2                  | LOS A            | 2.2                                  | 57.1                    | 0.26         | 0.26                           | 25.8                 |
| 2                               | T1     | 392                            | 3.0              | 0.422            | 8.2                  | LOS A            | 2.2                                  | 57.1                    | 0.26         | 0.26                           | 25.8                 |
| Approach                        |        | 433                            | 3.0              | 0.422            | 8.2                  | LOS A            | 2.2                                  | 57.1                    | 0.26         | 0.13                           | 25.8                 |
| All Vehicles                    |        | 1032                           | 2.0              | 0.459            | 8.2                  | LOS A            | 2.7                                  | 68.2                    | 0.26         | 0.14                           | 24.7                 |

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY



Site: Miller Dr/Sunset Blvd PM Peak

Miller Dr/Sunset Blvd  
Roundabout

| Movement Performance - Vehicles |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
|---------------------------------|--------|--------------------------------|------------------|------------------|----------------------|------------------|--------------------------------------|-------------------------|--------------|--------------------------------|----------------------|
| Mov ID                          | OD Mov | Demand Flows<br>Total<br>veh/h | Flows<br>HV<br>% | Deg. Satn<br>v/c | Average Delay<br>sec | Level of Service | 95% Back of Queue<br>Vehicles<br>veh | Queue<br>Distance<br>ft | Prop. Queued | Effective Stop Rate<br>per veh | Average Speed<br>mph |
| East: Miller Dr                 |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 6                               | T1     | 354                            | 1.0              | 0.364            | 7.6                  | LOS A            | 1.8                                  | 44.2                    | 0.34         | 0.45                           | 24.3                 |
| 16                              | R2     | 1                              | 1.0              | 0.364            | 7.6                  | LOS A            | 1.8                                  | 44.2                    | 0.34         | 0.45                           | 24.3                 |
| Approach                        |        | 355                            | 1.0              | 0.364            | 7.6                  | LOS A            | 1.8                                  | 44.2                    | 0.34         | 0.22                           | 24.3                 |
| North: Sunset Blvd              |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 7                               | L2     | 1                              | 3.0              | 0.069            | 5.4                  | LOS A            | 0.2                                  | 5.9                     | 0.41         | 0.65                           | 27.1                 |
| 14                              | R2     | 52                             | 3.0              | 0.069            | 5.4                  | LOS A            | 0.2                                  | 5.9                     | 0.41         | 0.65                           | 27.1                 |
| Approach                        |        | 53                             | 3.0              | 0.069            | 5.4                  | LOS A            | 0.2                                  | 5.9                     | 0.41         | 0.32                           | 27.1                 |
| West: Sunset Blvd               |        |                                |                  |                  |                      |                  |                                      |                         |              |                                |                      |
| 5                               | L2     | 132                            | 3.0              | 0.530            | 9.6                  | LOS A            | 3.6                                  | 91.2                    | 0.03         | 0.01                           | 24.7                 |
| 2                               | T1     | 449                            | 3.0              | 0.530            | 9.6                  | LOS A            | 3.6                                  | 91.2                    | 0.03         | 0.01                           | 24.7                 |
| Approach                        |        | 580                            | 3.0              | 0.530            | 9.6                  | LOS A            | 3.6                                  | 91.2                    | 0.03         | 0.00                           | 24.7                 |
| All Vehicles                    |        | 989                            | 2.3              | 0.530            | 8.6                  | LOS A            | 3.6                                  | 91.2                    | 0.16         | 0.10                           | 24.7                 |

Level of Service (LOS) Method: Delay & v/c (HCM 2010).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).

Roundabout Capacity Model: US HCM 2010.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

#### 10.1.200- T Definitions

**Tractor-Trailer** means a combination of a truck-tractor and a semi-trailer wherein the two are attachable and detachable by design.

**Truck-tractor** (cab) means a motor vehicle designed and used primarily for drawing or pulling a semi-trailer.

#### 10.1.200- S Definitions

**Semi-trailer** (trailer without front axle) means a detachable trailer designed to attach to a truck-tractor for hauling freight.

**5.5.30 General Parking Standards.** This section is intended to allow parking of commercial trucks, semi-trailers, truck-tractors (cabs), tractor-trailers and other heavy vehicles (vehicles over 20,000 GVW) in the T2 Rural Neighborhood District and to allow parking truck tractors (cabs) in addition to recreational vehicles, boats, trailers, campers and similar vehicles, in other residential districts on lots one (1) acre or larger, when the following standards are met. This section is intended to provide more flexibility to independent contractors and small business owners while addressing the need to maintain the character of residential areas.

**A. Storage and/or Parking of heavy trucks, trailers, recreational vehicles, boats, campers, and similar vehicles in the T2 Rural District.** Parking or storage of heavy trucks including commercial trucks, semi-trailers, truck-tractors (cabs), tractor-trailers, trailers, recreational vehicles, boats, campers, and other heavy vehicles, is permitted in the T2 Rural Neighborhood District under the following conditions:

1. One (1) heavy truck, commercial truck, semi-trailer, including one truck-tractor (cab), recreational vehicle, boat, camper or other heavy vehicle is permitted; and
2. A vehicle permitted to park in the T2 Rural Neighborhood District under this provision shall be parked to the rear of the principal building, garage, or carport; or in the side setback and behind the principal building, garage, or carport; and
3. There is a principal use of the property, such that parking or storing a commercial truck, semi-trailer, truck tractor (cab), or other heavy vehicle would be an accessory use and not the principal use; and
4. No living quarters shall be maintained or any business conducted from within such a vehicle while parked or stored; and
5. Required parking for the principal use is maintained notwithstanding the area used to park or store such vehicles; and
6. Heavy trucks, trailers, recreational vehicles, boats, campers, and similar vehicles parked or stored under this provision must be properly licensed and registered. Failure to maintain current license and registration on such trailers or



vehicles shall be a violation of Beaufort County Code of Ordinances Sec. 38-61 Junked and Abandoned Vehicles.

**B. Storage and/or Parking of heavy trucks, trailers, recreational vehicles, boats, campers, and similar vehicles in all other residential Zone Districts.** Parking or storage of heavy trucks including commercial trucks, *semi-trailers*, truck-tractors (cabs), *tractor-trailers*, trailers, recreational vehicles, boats, campers, and other heavy vehicles, is permitted on any one (1) acre or larger parcel of land in all other residential Zone Districts under the same conditions provided in Section 5.5.30(A)(1-6) above except:

1. *Semi-trailers* and *tractor-trailers* are not permitted to be parked or stored on any residential parcel outside of the T2 Rural Neighborhood District. The prohibition of semi-trailers and tractor-trailers on residential parcels outside of the T2 Rural Neighborhood District does not apply to truck-tractors (cab) which are permitted to be parked or stored in all other Zone Districts on one (1) acre or larger parcels when the conditions of Section 5.5.30(A)(1-6) and Section 5.5.30(B)(2) are met; and

2. When prohibited by private covenants and restrictions.

**C. Storage and/or Parking of heavy trucks, trailers, recreational vehicles, boats, campers, and similar vehicles on parcels less than one (1) acre and outside of the T2 Rural Neighborhood District is prohibited.** Parking or storage of heavy trucks including commercial trucks, semi-trailers, truck-tractors (cabs), tractor-trailers, trailers, recreational vehicles, boats, campers, and other heavy vehicles, is not allowed on any residential lot less than one (1) acre when located outside of the T2 Rural Neighborhood District.

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C.

| Parent Unit     | Child Unit     |
|-----------------|----------------|
| Parent Unit 1   | Child Unit 1   |
| Parent Unit 2   | Child Unit 2   |
| Parent Unit 3   | Child Unit 3   |
| Parent Unit 4   | Child Unit 4   |
| Parent Unit 5   | Child Unit 5   |
| Parent Unit 6   | Child Unit 6   |
| Parent Unit 7   | Child Unit 7   |
| Parent Unit 8   | Child Unit 8   |
| Parent Unit 9   | Child Unit 9   |
| Parent Unit 10  | Child Unit 10  |
| Parent Unit 11  | Child Unit 11  |
| Parent Unit 12  | Child Unit 12  |
| Parent Unit 13  | Child Unit 13  |
| Parent Unit 14  | Child Unit 14  |
| Parent Unit 15  | Child Unit 15  |
| Parent Unit 16  | Child Unit 16  |
| Parent Unit 17  | Child Unit 17  |
| Parent Unit 18  | Child Unit 18  |
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| Parent Unit 90  | Child Unit 90  |
| Parent Unit 91  | Child Unit 91  |
| Parent Unit 92  | Child Unit 92  |
| Parent Unit 93  | Child Unit 93  |
| Parent Unit 94  | Child Unit 94  |
| Parent Unit 95  | Child Unit 95  |
| Parent Unit 96  | Child Unit 96  |
| Parent Unit 97  | Child Unit 97  |
| Parent Unit 98  | Child Unit 98  |
| Parent Unit 99  | Child Unit 99  |
| Parent Unit 100 | Child Unit 100 |

**5.5.30 General Parking Standards.** This amendment relaxes the restriction that commercial trucks and semi-trailer cabs can only park on residential lots in the T2 district. This provides more flexibility to independent contractors and small business owners.

**A. Storage and/or Parking of Heavy Trucks, Trailers, Recreational Vehicles, Boats, Campers, and similar Vehicles.** Parking or storage of heavy trucks (vehicles over 20,000 GVW), trailers, recreational vehicles, boats, campers, or similar vehicles in any zone for residential or storage purposes shall be prohibited except as follows:

1. Semi-trailer trucks, their cabs or trailers, and other heavy trucks shall not be parked or stored on any residential lot except within the T2 district, except that one commercial truck or one semi-trailer cab may be parked on any residential lot of one acre or larger provided it is not prohibited by private covenants and restrictions.

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**Tractor-Trailer** means a combination of a truck-tractor and a semi-trailer wherein the two are attachable and detachable by design.

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1. One (1) heavy truck, commercial truck, semi-trailer, including one truck-tractor (cab), recreational vehicle, boat, camper or other heavy vehicle is permitted; and
2. A vehicle permitted to park in the T2 Rural Neighborhood District under this provision shall be parked to the rear of the principal building, garage, or carport; or in the side setback and behind the principal building, garage, or carport; and
3. There is a principal use of the property, such that parking or storing a commercial truck, semi-trailer, truck tractor (cab), or other heavy vehicle would be an accessory use and not the principal use; and
4. No living quarters shall be maintained or any business conducted from within such a vehicle while parked or stored; and

5. Required parking for the principal use is maintained notwithstanding the area used to park or store such vehicles; and
6. Heavy trucks, trailers, recreational vehicles, boats, campers, and similar vehicles parked or stored under this provision must be properly licensed and registered. Failure to maintain current license and registration on such trailers or vehicles shall be a violation of Beaufort County Code of Ordinances Sec. 38-61 Junked and Abandoned Vehicles.

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2. When prohibited by private covenants and restrictions.

**C. Storage and/or Parking of heavy trucks, trailers, recreational vehicles, boats, campers, and similar vehicles on parcels less than one (1) acre and outside of the T2 Rural Neighborhood District is prohibited.** Parking or storage of heavy trucks including commercial trucks, semi-trailers, truck-tractors (cabs), tractor-trailers, trailers, recreational vehicles, boats, campers, and other heavy vehicles, is not allowed on any residential lot less than one (1) acre when located outside of the T2 Rural Neighborhood District.



## MEMORANDUM

**TO:** Natural Resources Committee of County Council  
**FROM:** Anthony Criscitiello, Planning Director  
**DATE:** August 16, 2017  
**SUBJECT:** Proposed Text Amendment to Community Development Code Section 5.5.30 General Parking Standards (Allow Parking of Commercial Trucks and Semi-Trailer Tractors/Cabs on Residential Lots of One Acre or Larger)

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### **NATURAL RESOURCES COMMITTEE DISCUSSION excerpt from its June 19, 2017, minutes:**

**Notification:** To view video of full discussion of this meeting please visit [http://beaufort.granicus.com/ViewPublisher.php?view\\_id=2](http://beaufort.granicus.com/ViewPublisher.php?view_id=2)

**Discussion:** Mr. Tony Criscitiello, Planning Director, provided the Committee with an overview of the proposed text amendment to the Community Development Code (CDC) as follows:

- Section 5.5.30 General Parking Standards (allows parking of commercial trucks and semi-trailer tractors/cabs on residential lots of one acre or larger).

Councilman Dawson expressed concern that the amendment would have the effect of restricting truck trailers and cabs from being parked on residential lots in the rural areas of the county. Councilman Vaux said that from his understanding of the amendment, it does not restrict cabs and trailers on lots in rural, but opens up this use in other districts as long as the lot is one acre or greater. After much discussion regarding this proposed amendment, the Committee felt that the amendment was poorly worded and requested that County Staff revise the language and bring back to the Committee.

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### **PLANNING COMMISSION RECOMMENDATION from its June 5, 2017, draft minutes:**

**Section 5.5.30:** Mr. Criscitiello noted that a member of County Council requested allowing tractor cabs only on one acre lots or larger, and staff agreed. Commission discussion included clarification that tractor cabs and not trailers would be allowed on 1-acre lots, clarification of service professionals with trailers attached to their vehicles were allowed especially with home occupations, noting a hardship if only 1 vehicle was allowed in a 1-acre or larger residential lot, and clarification on multi-acre residential lots and the number of vehicles allowed.

**Motion:** Mr. Jason Hinchler made the motion and Mr. Harold Mitchell seconded the motion, to recommend approval to County Council on the **Text Amendment to the Community Development Code (CDC) Section 5.5.30 General Parking Standards that allows parking of commercial trucks and semi-trailer tractors/cabs on residential lots of one acre or larger.** Discussion included concern for potential abuses of other vehicles, querying the genesis for this amendment came from a resident asking his Councilman to alleviate his situation to allow him to park his tractor-trailer cab at his residence, noting that covenants may prevent this amendment, and recommending citizens who may be affected by this amendment to contact the Planning Department. The motion **carried (FOR: Hinchler, Mitchell, Pappas, Semmler, and Walsnovich; ABSENT: Chmelik, Fermin, Fireall, and Stewart).**

**Public Comments:** None were received.

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## STAFF REPORT

**5.5.30 General Parking Standards.** This amendment relaxes the restriction that commercial trucks and semi-trailer cabs can only park on residential lots in the T2 district. This provides more flexibility to independent contractors and small business owners.

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1. Semi-trailer trucks, their cabs or trailers, and other heavy trucks ~~may shall not~~ be parked or stored on any residential lot ~~except~~ within the T2 Rural district.
  2. In all other districts, one commercial truck or one semi-trailer cab may be parked on any residential lot of one acre or larger provided it is not prohibited by private covenants and restrictions.
  3. Where storage and/or parking of heavy trucks and trailers is permitted, the following shall apply:
    - a) The vehicle shall be stored in the rear or interior side setback behind the front of the building, garage, or carport;
    - b) There is a principal use of the property, to which such storage would be an accessory use;
    - c) No living quarters shall be maintained or any business conducted from within while such trailer or vehicle is so parked or stored; and
    - d) The required number of parking spaces on the parcel is maintained in addition to the area used for the stored vehicle(s).