ADD-ONS

ADD-ONS

COUNTY COUNCIL OF BEAUFORT COUNTY

ADMINISTRATION BUILDING
BEAUFORT COUNTY GOVERNMENT ROBERT SMALLS COMPLEX
100 RIBAUT ROAD
POST OFFICE DRAWER 1228
BEAUFORT, SOUTH CAROLINA 29901-1228
TELEPHONE: (843) 255-2180
www.bcgov.net

AGENDA
NATURAL RESOURCES COMMITTEE
Monday, February 19, 2018
1:30 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, Mapping & Applications Director

1. CALL TO ORDER –**1:30 P.M.**

2. UPDATE / PREVIOUS PLANNING COMMISSION MEETING

3. UPDATE / PREVIOUS SOUTHERN LOWCOUNTRY REGIONAL PLANNING COMMISSION (SOLOCO) MEETING

4. CONSIDERATION OF CONTRACT AWARD / LANDSCAPING AT TANGER OUTLET MEDIANS ON U.S. HIGHWAY 278 (backup)

5. UPDATE / STATUS OF FORT FREMONT HISTORICAL PARK INTERPRETIVE CENTER (backup)

6. FUNDING REQUEST / MITCHELVILLE PRESERVATION PROJECT / PHASE 1 (backup)

7. TEXT AMENDMENT TO THE BEAUFORT COUNTY COMMUNITY DEVELOPMENT CODE (CDC), ARTICLE 3, SECTION 3.3.50 REGIONAL CENTER MIXED USE (C5) ZONE STANDARDS (TO ALLOW HOTEL TO APARTMENT CONVERSION ON UNIT TO UNIT BASIS); APPLICANT: MICHAEL KRONIMUS (backup)

8. SOUTHERN BEAUFORT COUNTY MAP AMENDMENT / OSPREY POINT (MALIND BLUFF) PUD MASTER PLAN AMENDMENT REQUEST FOR R600 013 000 0006 0000 (119.90 ACRES EAST OF HIGHWAY 170, OKATIE); OWNER / APPLICANT: LCP III, LLC / MR. J. NATHAN DUGGINS, AGENT: JOSH TILLER (backup)

9. SOUTHERN BEAUFORT COUNTY MAP AMENDMENT / RIVER OAKS (MALIND POINTE) PUD MASTER PLAN AMENDMENT REQUEST FOR R600 013 000 008C 0000 (+/- 63.54ACRES EAST OF HIGHWAY 170, OKATIE); OWNER / APPLICANT: BBI HOLDING / MR. ROGER L. SAUNDERS; AGENT: JOSH TILLER (backup)

10. CONSIDERATION OF REAPPOINTMENTS AND APPOINTMENTS
    - A. Design Review Board
        1. One Vacancy (architect, landscape architect, building design, civil engineer)
    - B. Historic Preservation Review Board
        1. One Vacancy (Port Royal Island)
    - C. Planning Commission
        1. One Reappointment (Robert W. Semmler)
    - D. Rural and Critical Lands Preservation Review Board
        1. One Vacancy (District 5)
    - E. Southern Beaufort County Corridor Beautification Board
        1. Two Vacancies (Council District 5 and Council District 11)

11. ADJOURNMENT

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 121417, Landscaping at Tanger Outlet Medians on Highway 278 Project for Beaufort County

DATE: 01/18/2018

BACKGROUND:

On December 14, 2017, Beaufort County received three proposals for landscaping services for the Highway 278 traffic medians between Tanger 1 and Tanger 2 in Bluffton, South Carolina. This service includes project oversight by a Registered South Carolina Landscape Architect, site preparation/grading, twelve (12) month hand-watering, warranty and maintenance program to facilitate plant establishment, cost of plants and installation of plants, and the cost of pine straw mulch with installation. In addition to the twelve month maintenance program which is estimated to begin on May 6, 2018, the service also includes an additional four (4) years of landscape maintenance for a total of five (5) years of landscape maintenance which is estimated to end on May 6, 2023. The evaluation committee consisting of Amanda Flake, Beaufort County Natural Resources Planner, Robert Merchant, Interim Planning Director and Nancy Moss, Community Development Planner interviewed/evaluated the following three firms: Hilton Head Landscapes, LLC; The Greenery and BrightView Landscape Services, Inc., on January 12, 2018, and selected Hilton Head Landscapes, LLC, as their number one ranked firm. Please see below the three firms that submitted proposals for this project, and their final ranking.

VENDOR INFORMATION:	COST:
1. Hilton Head Landscapes, LLC, Hilton Head Island, SC 29926	$268,198.69
2. The Greenery, Inc., Hilton Head Island, SC 29938	$332,983.51
3. BrightView Landscape Services, Inc., Bluffton, SC 29910	$412,938.00
* All firms are self-performing.	

FUNDING:

Funding is through a development agreement passed by a resolution by Beaufort County Council and COROC on 10/12/15 to accept a bond in the amount of $323,865 which was received by Beaufort County on March 11, 2016. The receipt was credited to the Tree Reforestation Fund and assigned for this project.

Funding approved: Yes By: aholland Date: 01/31/2018

FOR ACTION: Natural Resources Committee meeting on Monday, February 19, 2018, at 2:00 p.m.

RECOMMENDATION:

The Purchasing Department recommends that the Natural Resources Committee approve and recommend to County Council the contract award to Hilton Head Landscapes, LLC, in the amount of $268,198.69 for the aforementioned Landscaping Services from the funding source listed above.

Attachment: RFP 121417 Attachments.pdf 3.5 MB

cc: Joshua Gruber, Interim County Administrator Approved: Yes Date: 02/01/2018

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

Alicia Holland, Assistant County Administrator, Finance Approved: Yes Date: 01/31/2018

Eric Larson, Director, Environmental Engineering & Land Mar Approved: Yes Date: 02/01/2018

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

Robert Merchant Assistant Director, Community Developme Approved: Yes Date: 02/01/2018

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

After Initial Submission, Use the Save and Close Buttons

A/E Landscaping, PM and Installation Services for Landscaping at Tanger Outlet Medians HWY 278

RFP 121417

Summary Score Sheet

Evaluators	Name of Company	Name of Company	Name of Company
	Brightview	Hilton Head Landscape	The Greenery
A. Flake	90	100	95
N. Moss	75	100	90
R. Merchant	96	100	98
TOTALS:	261	300	283

1. Hilton Head Landscape	300
2. The Greenery	283
3. Brightview	261

PRELIMINARY PLANS, FOR REVIEW AND APPROVAL ONLY

SC HIGHWAY 278

MEDIAN LANDSCAPE DESIGN

FROM TANGER 2 ENTRANCE TO TANGER 1 ENTRANCE

PREPARED FOR:
BEAUFORT COUNTY, SOUTH CAROLINA

September 28, 2017
Rev. October 20, 2017 - SCDOT Comments
Rev. November 6, 2017 - correct plant counts

LANDSCAPE PLANS

SHEET INDEX

Sheet	Description
CS	Coversheet
L1	Landscape Plan
L2	Landscape Plan
PS	Plant Schedule

CAUTION

UTILITY PROTECTION CENTER

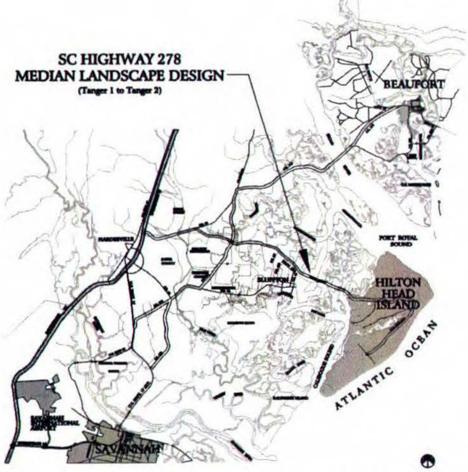
3 DAYS BEFORE DIGGING CALL
TOLL FREE 1-888-721-7877

A ONE-CALL SYSTEM FOR COMMUNITY AND JOB SAFETY

GENERAL NOTES:

1. ALL NOTES APPLY TO ALL DRAWINGS AND ALL TRADES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS AND TRADES TO COORDINATE THE INSTALLATION OF THEIR WORK WITH THE INSTALLATION OF WORK BY ALL OTHER CONTRACTORS AND TRADES. THE REQUIREMENTS OF THE SPECIFICATIONS, DRAWINGS, GENERAL REQUIREMENTS, AND ALL ITEMS OF THE CONTRACT DOCUMENTS ARE EQUALLY BINDING FOR ALL CONTRACTORS AND TRADES. EACH CONTRACTOR IS REQUIRED TO MAINTAIN FULL SETS OF THE CONTRACT DOCUMENTS FOR HIS EMPLOYEES USE ON THE PROJECT TO ASSURE THAT ALL WORK IS PROPERLY COORDINATED AND INSTALLED WITH WORK OF OTHER CONTRACTORS AND TRADES.
2. THE CONTRACTOR SHALL CONTACT THE UTILITY PROTECTION CENTER PRIOR TO BEGINNING WORK FOR ALL UNDERGROUND UTILITY, TELEPHONE, CABLE (TV, SURVEILLANCE, TRAFFIC CONTROL AND THE LIKE) AND OTHER UNDERGROUND OBSTRUCTIONS IN THE AREA.
3. IF DIGGING, EXCAVATING, TRENCHING, BORING, ETC. WITHIN 500 FEED OF SIGNALIZED INTERSECTION, THE PERMITTEE IS RESPONSIBLE FOR CONTACTING THE SCDOT TRAFFIC SIGNAL SHOP AT 843-740-1668 BEFORE WORK BEGINS.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL REQUIRED PERMITS ARE IN HAND PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
5. ALL WORKMANSHIP AND INSTALLATION FOR ALL TRADES SHALL MEET OR EXCEED THE PRODUCT MANUFACTURER'S RECOMMENDATIONS AND/OR ALL NATIONAL, STATE, AND LOCAL CODES.
6. ALL KNOWN UTILITIES ARE SHOWN SCHEMATICALLY ON THE PLANS AND ARE NOT NECESSARILY ACCURATE AS TO PLAN LOCATION OR ELEVATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES OR OBSTRUCTIONS.
7. ALL ITEMS REMOVED FROM THE PROJECT WHICH ARE NOT TO BE REUSED SHALL BE MOVED TO A LOCATION APPROVED BY THE BEAUFORT COUNTY ENGINEER TO ASSURE NO UNSIGHTLY DEBRIS IS STORED ALONG THE PROJECT DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A CLEAN SITE FREE OF ALL DEBRIS AND LITTER EACH DAY THROUGHOUT THE CONSTRUCTION PERIOD.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR APPLYING TRAFFIC CONTROL IN ACCORDANCE WITH THE CURRENT SCDOT CONSTRUCTION MANUAL - DIVISION 600: TRAFFIC CONTROL. THE CONTRACTOR SHALL CREATE A TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL BY THE LOCAL SCDOT ENGINEER PRIOR TO PERFORMING CONSTRUCTION.
9. AT THE END OF THE WORKING DAY AND EACH DAY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PICK UP OF ALL DEBRIS AND LITTER WITHIN AND AROUND THE CONSTRUCTION SITE. ANY SOIL, STONE, OR OTHER MATERIALS SHALL BE SWEPT CLEAN FROM ALL PAVEMENT AREAS EACH DAY.
10. FIELD CHANGES, IF NECESSARY, MUST BE APPROVED IN WRITING BY SCDOT MAINTENANCE BEFORE ACTUAL CONSTRUCTION OF PROPOSED CHANGES.
11. THE CONTRACTOR SHALL REFER TO THESE GENERAL NOTES, NOTES FOR EACH PHASE, AND OTHER ASSOCIATED NOTES.

JKT JOB NUMBER: 201709-01



NOTE:
BASE DATA INFORMATION FOR THESE DRAWINGS WERE COMPILED FROM VARIOUS SOURCES AS FOLLOWS:

FILE NAME	REC'D	SOURCE
r433pp-Default.dgn	1/13/2009	Coleman-Snow Consultants, LLC
ROW-Default.dgn	1/13/2009	Coleman-Snow Consultants, LLC
drain-Default.dgn	1/13/2009	Coleman-Snow Consultants, LLC
TOPO-Model.dgn	1/13/2009	Coleman-Snow Consultants, LLC
278dev.dwg	1/13/2009	Coleman-Snow Consultants, LLC
Hwy 278.zip	4/1/2009	Hussey, Gay, Bell, & Deyoung, Inc.
7.036-068A-7.036-066A(60 SheetsX26MB)-Part 1.pdf	3/23/2009	SCDOT
7.036-068A-7.036-066A(38 SheetsX16MB)-Part 4.pdf	3/23/2009	SCDOT
7.036-068A-7.036-066A(27 SheetsX48MB)-Part 5.pdf	3/23/2009	SCDOT
7.036-068A-7.036-066A(26 SheetsX46MB)-Part 2.pdf	3/23/2009	SCDOT
7.036-068A-7.036-066A(26 SheetsX46MB)-Part 3.pdf	3/23/2009	SCDOT
278Fx.pdf	4/9/2009	SCDOT
pinckneyfx.pdf	4/9/2009	SCDOT
belfairfx.pdf	4/9/2009	SCDOT
r718rpf.dgn	4/9/2009	SCDOT
r3178pf.dgn	4/9/2009	SCDOT
r3178pp.DGN	4/9/2009	SCDOT
email JKT BESTBUY INTERSECTION 11.7.09.dwg	11/11/2009	Andrews and Burgess, Inc.

J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD, SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4800 jktiller@jktiller.com Fax 843.815.4802

SC HIGHWAY 278
MEDIAN LANDSCAPE DESIGN
TANGER 2 ENTRANCE TO TANGER 1 ENTRANCE
Prepared for Beaufort County, South Carolina

Sheet Title: LANDSCAPE PLAN

Job Number: 201709-01

Date: September 28, 2017

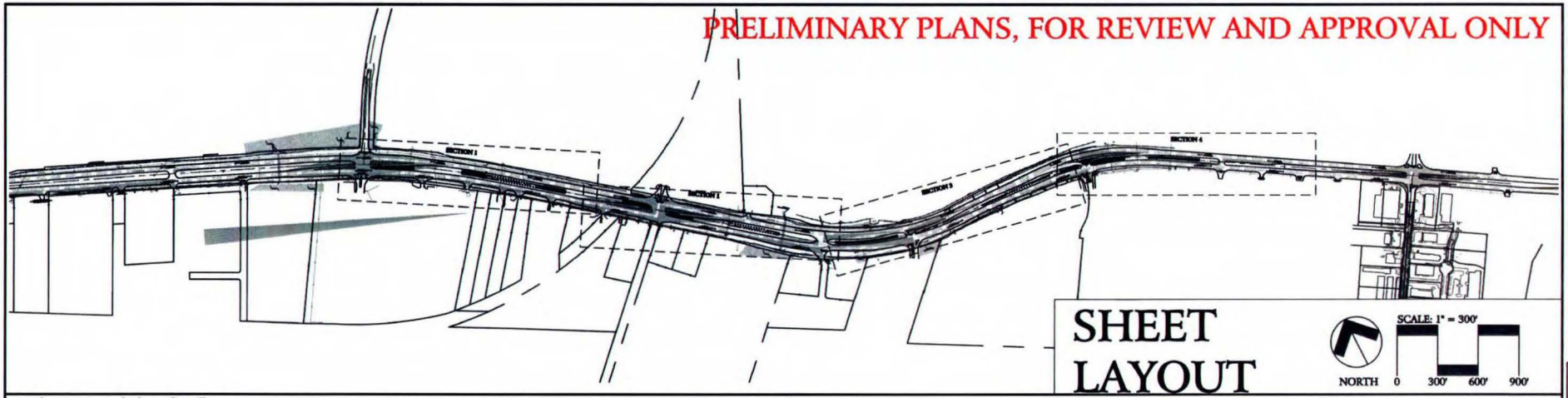
Drawn: KD

Approved: JT

Revisions: REVISION1 10/20/2017 REVISION2 11/06/2017

Sheet CS

PRELIMINARY PLANS, FOR REVIEW AND APPROVAL ONLY

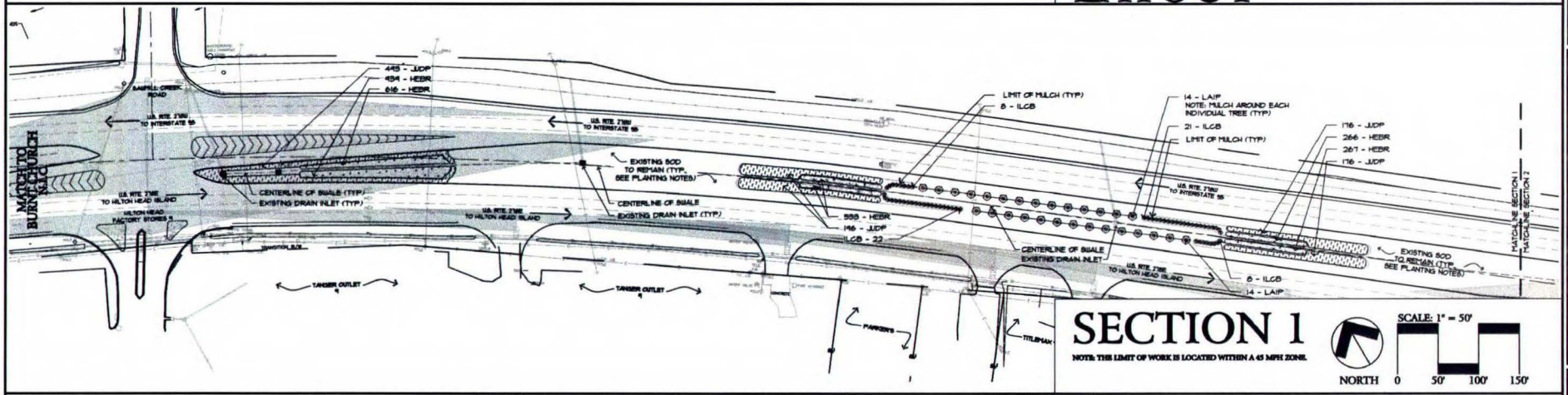


SHEET LAYOUT

NORTH

SCALE: 1" = 300'

0 300' 600' 900'



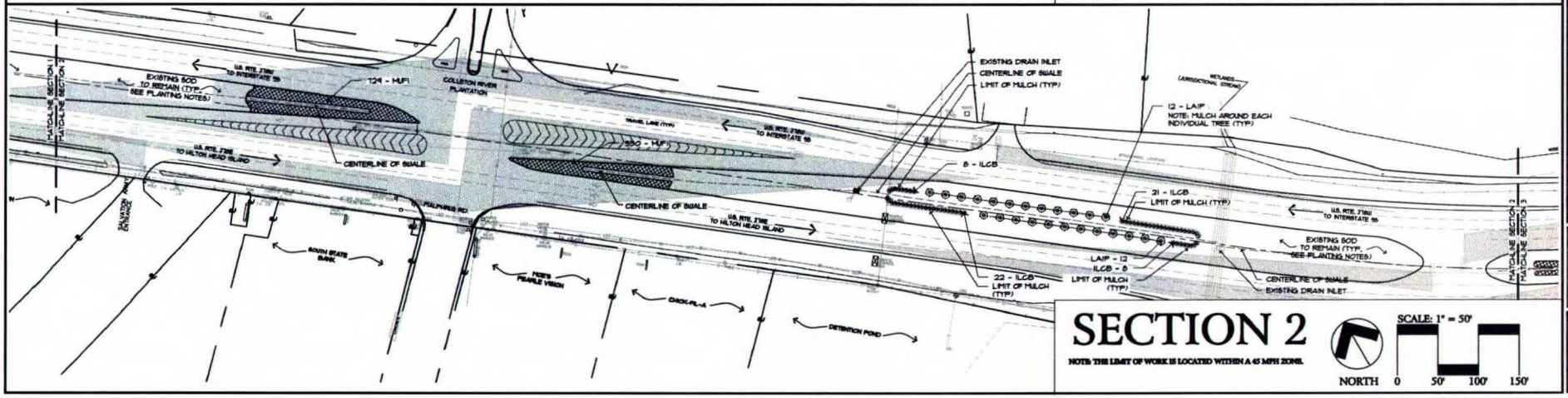
SECTION 1

NOTE: THE LIMIT OF WORK IS LOCATED WITHIN A 45 MPH ZONE.

NORTH

SCALE: 1" = 50'

0 50' 100' 150'



SECTION 2

NOTE: THE LIMIT OF WORK IS LOCATED WITHIN A 45 MPH ZONE.

NORTH

SCALE: 1" = 50'

0 50' 100' 150'

J. K. TILLER ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE
LAND PLANNING
181 BLUFFTON ROAD, SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4660 Fax 843.815.4662
jktiller@hiltonhead.com

SC HIGHWAY 278
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TANGER 2 ENTRANCE TO TANGER 1 ENTRANCE
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Approved: JKT

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Sheet L1

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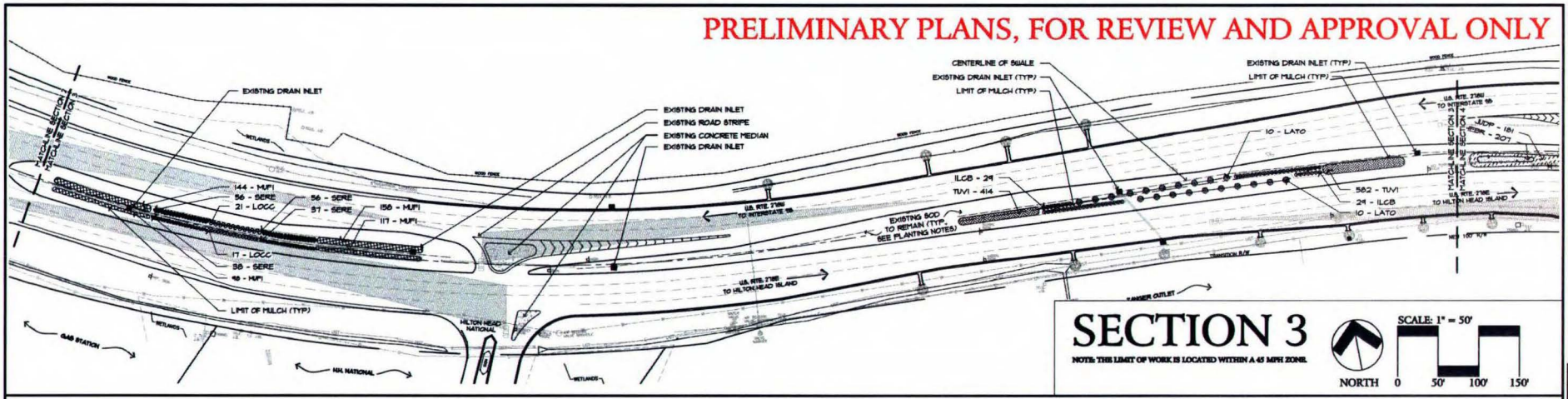

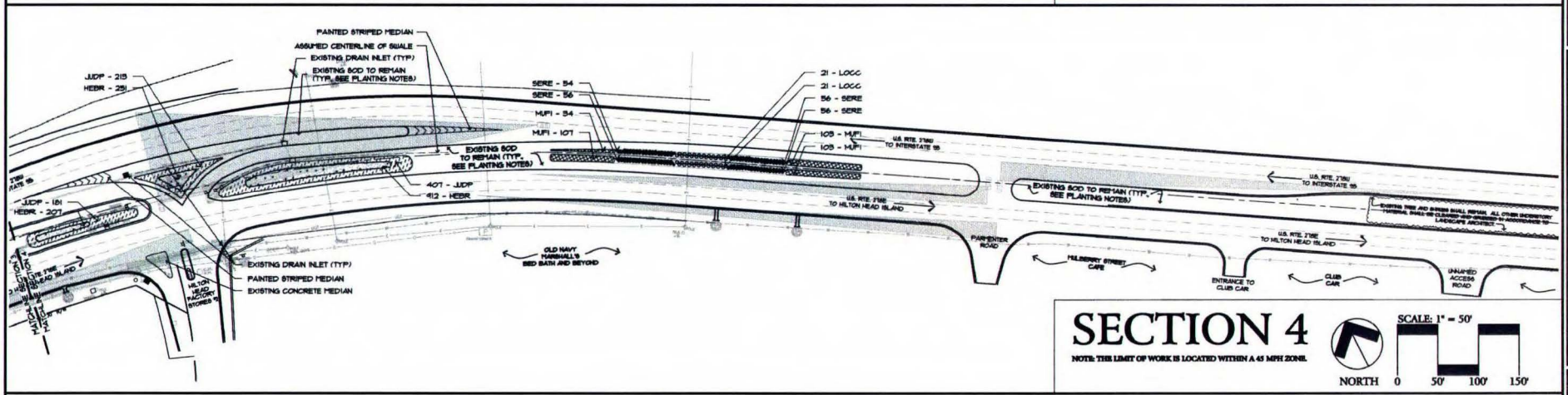

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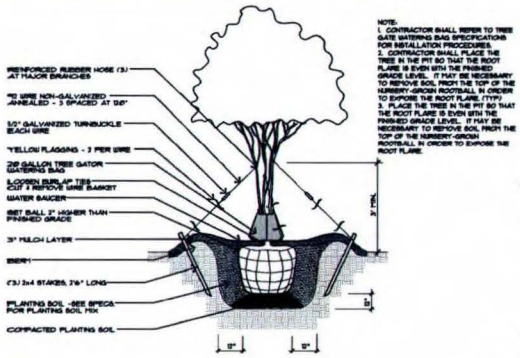
Approved: MT

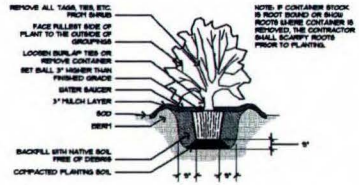
Revisions:
REVISION1
10/20/2017
REVISION2
11/06/2017

Sheet L2

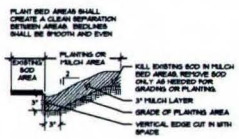
PRELIMINARY PLANS, FOR REVIEW AND APPROVAL ONLY



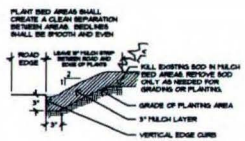
1 **Multi-Trunk Tree Planting Detail**
Not to Scale



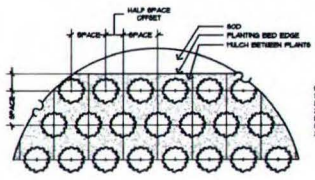
2 **Shrub Planting**
Not to Scale

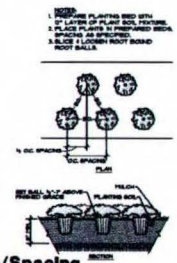


3 **Plant Bed Edge Detail Against Sod**
Not to Scale

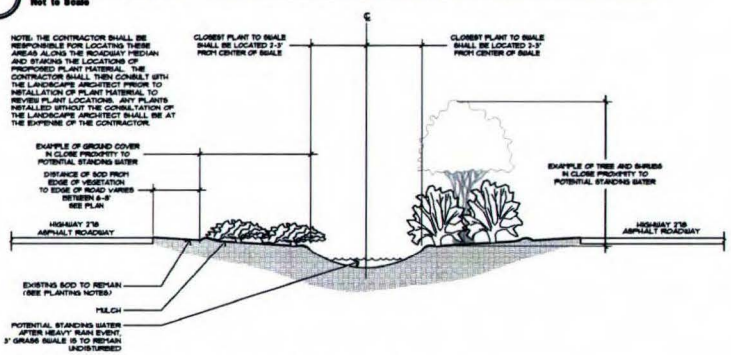


4 **Plant Bed Edge Detail Against Road**
Not to Scale





5 **Ground Covers and Ornamental Grass Planting/Spacing**
Not to Scale



6 **Planting in Areas of Potential Standing Water**
Not to Scale

PLANT SCHEDULE

	QTY	BOTANICAL NAME / COMMON NAME	CONT	HEIGHT	SPREAD
SHRUBS					
ILCB	116	Ilex cornuta 'Dwarf Burford' / Dwarf Burford Holly	3 Gal.	18"-24"	18"-24"
LAIP	52	Lagerstroemia indica 'PILAG-IV' PPAF / Moonlight Magic Crape Myrtle multi-stem, 1" combined caliper	15 Gal.	6' min.	4' min.
LATO	20	Lagerstroemia x 'Tonto' / Japanese Crape Myrtle Multi-Trunk	15 Gal.	6' min.	5' min.
LOCG	80	Loropetalum chinense 'Chang Nian Hong' / Ever Red Fringe Flower	7 Gal.	3' min.	3' min.
SERE	408	Serenoa repens / Saw Palmetto	3 Gal.	12" min.	12" min.
GROUND COVERS	QTY	BOTANICAL NAME / COMMON NAME	CONT.	HEIGHT	SPREAD	SPACING
HEDR	9,998	Hemerocallis x 'Butterscotch Ruffles' / Butterscotch Ruffles Daylily	1 Gal.	6"-12"	6"-12"	18" o.c.
JUDP	1,842	Juniperus davurica 'Parsonii' / Parson's Juniper	1 Gal.	6"-12"	12"-18"	36" o.c.
MUPI	2,128	Muhlenbergia filipes / Muhly	3 Gal.	18"-24"	12"-18"	30" o.c.
TUVI	996	Tulbaghia violacea / Society Garlic	1 Gal.	6"-12"	6"-12"	18" o.c.
OTHER MATERIALS						
MULCH	94,500 SF	3" Deep Longleaf Pine Straw Mulch				
SOD		Existing sod to remain. Contractor to replace disturbed with equal				

PLANTING NOTES:

1. MATERIALS LIST WAS PREPARED FOR ESTIMATING PURPOSES. CONTRACTOR SHALL MAKE OWN QUANTITY TAKE-OFF USING DRAWINGS AND SPECIFICATIONS TO DETERMINE QUANTITIES TO HIS SATISFACTION, REPORTING PROMPTLY ANY DISCREPANCIES WHICH MAY EFFECT BIDDING PRIOR TO BID. SEE SPECIFICATIONS FOR DATES.
2. ROOT TYPES MAY BE FREELY SUBSTITUTED IN CASE OF BALLED AND BURLAPPED OR CONTAINER GROWN, ALL OTHER SPECIFICATIONS TO REMAIN UNCHANGED.
3. CONTRACTOR TO VERIFY THAT ALL PLANT MATERIAL IS AVAILABLE AS SPECIFIED WHEN PROPOSAL IS SUBMITTED.
4. SEE TREE, SHRUB, AND GROUND COVER PLANTING DETAILS AND SPECIAL PROVISIONS FOR PLANTING SPECIFICATIONS.
5. CONTRACTOR SHALL STAKE OUT ALL SHRUB BED LINES, TREE LOCATIONS, AND SHRUB GROUPINGS FOR APPROVAL BY LANDSCAPE ARCHITECT BEFORE BEGINNING PLANTING OPERATIONS. IF PLANTING OCCURS WITHOUT APPROVAL, RELOCATION OF PLANTINGS REQUESTED BY THE LANDSCAPE ARCHITECT SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.
6. ALL SHRUB AND GROUND COVER BEDS TO RECEIVE 3" DEEP LONGLEAF PINESTRAW MULCH. (SEE PLANS FOR LIMIT OF MULCH AROUND SHRUB BEDS.)
7. CONTRACTOR TO MAINTAIN THE PLANTINGS AND CONTROL WEEDS IN ALL AREAS THROUGH THE DURATION OF CONSTRUCTION UNTIL FINAL ACCEPTANCE. REFER TO SPECIFICATIONS FOR MAINTENANCE DURATION AND REQUIREMENTS.
8. ALL NEW PLANT BEDS AND EXISTING SOD AREAS TO RECEIVE 100% IRRIGATION COVERAGE.
9. HERBICIDE MAY BE APPLIED TO PLANTING AREAS PRIOR TO LANDSCAPE INSTALLATION ACCORDING TO SCDOT HERBICIDE OPERATIONS MANUAL / JULY 2008 EDITION/ IN ROW.
10. PLANT BED SHALL BE TESTED FOR PH AND SOILS IN PLANT ROOT REGION SHALL BE AMENDED PRIOR TO INSTALLATION FOR ASSURANCE OF PROPER PLANT GROWTH WITHIN EACH PLANT PH RANGE.
11. PLANT SIZES AND SPECIES MAY VARY DUE TO AVAILABILITY. CHANGES TO PLANT SIZES AND SPECIES MUST BE APPROVED BY THE LANDSCAPE ARCHITECT. SUBSTITUTED PLANT SPECIES SHALL HAVE SIMILAR CHARACTER AS ORIGINAL PLANT. PRICE ADJUSTMENT SHALL BE FACILITATED VIA A CHANGE ORDER AS OUTLINED IN THE SPECIFICATIONS.
12. ALL EXISTING SOD SHALL REMAIN IN PLACE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR ANY SOD AREAS DAMAGED.
13. CONTRACTOR TO PROVIDE ROOT BARRIER WHERE NECESSARY TO PREVENT IMPACT TO ADJACENT ROADWAYS OR UTILITIES.
14. CONTRACTOR RESPONSIBLE FOR PLANT IRRIGATION, MAINTENANCE, AND NECESSARY REPLACEMENT DURING PLANT ESTABLISHMENT.
15. SCDOT ENCROACHMENT PERMIT MUST BE OBTAINED PRIOR TO ANY INSTALLATION WITHIN THE RIGHT-OF-WAY, INCLUDING A WRITTEN PERMISSION FROM J.B. 278 FILE LANDSCAPE CONTRACT TO PERFORM THIS WORK IN THE CONSTRUCTION WORK-ZONE. IN ADDITION, A MAINTENANCE PARTNERSHIP AGREEMENT MUST BE EXECUTED FOR THE MAINTENANCE OF THE ROADSIDE CONTIGUOUS WITH THIS LANDSCAPING. ANY DAMAGE TO STRUCTURES WITHIN THE RIGHT-OF-WAY (ROADWAY, CURB AND GUTTER, SIDEWALK, DRAINAGE STRUCTURES, ETC.) CAUSED BY GROWTH OF PERMITTED VEGETATION OR ANY ASSOCIATED ACTIVITIES MUST BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
16. ALL PROVISIONS OF CHAPTER 5, SECTION 5 (ROADSIDE ENCROACHMENTS: LANDSCAPING GUIDELINES) FROM THE ACCESS AND ROADSIDE MANAGEMENT STANDARDS 2008 ED. SHALL BE FOLLOWED, INCLUDING SECTION 4.3 FROM THE VEGETATION MANAGEMENT GUIDELINES (ATTACHED) AS REQUIRED UNDER THIS POLICY.
17. ALL VEGETATION MUST BE PERPETUALLY TRAINED TO ALLOW 16' OF VERTICAL CLEARANCE MEASURED FROM THE ROADWAY SURFACE AT THE EDGE OF THE TRAVEL-WAY. THIS CLEARANCE MUST BE MAINTAINED AS THE VEGETATION MATURES. VEGETATION, IF LOCATED IN CLEAR SITE AREAS, SHALL BE MAINTAINED AT A HEIGHT NOT TO EXCEED 36" FROM THE ADJACENT ROADWAY SURFACE.

SUBSURFACE DRAINAGE INVESTIGATION:

1. REQUIRED TESTS. SUBSURFACE DRAINS HAVE NOT BEEN INCLUDED AS PART OF THE PROJECT. THEREFORE, THE CONTRACTOR SHALL MAKE SUCH REASONABLE PERCOLATION TESTS, APPROVED BY LANDSCAPE ARCHITECT, AS MAY BE NECESSARY TO DETERMINE IF SUBSURFACE DRAINAGE CONDITIONS IN LANDSCAPE AREAS ARE SO POOR AS TO SUPPORT MOISTURE CONDITIONS POTENTIALLY FATAL TO PLANTINGS. THE FOLLOWING PROCEDURE IS RECOMMENDED:
   A. SAAT AT LEAST 24 HOURS AFTER RAIN AND DIG TEST PIT 12 INCHES SQUARE OR 12 INCHES IN DIAMETER TO DEPTH OF BOTTOM OF PLANT BED, TRENCH OR PIT. REMOVE ALL LOOSE SOIL (IF STANDING WATER IS VISIBLE, NOTIFY LANDSCAPE ARCHITECT.)
   B. QUICKLY FILL PIT BOTTOM WITH 6 INCHES (APPROXIMATELY 3 ½ GALLONS OF WATER).
   C. RECORD LENGTH OF TIME FOR FILLING UNTIL DISAPPEARANCE OF WATER AND DIVIDE THE NUMBER OF MINUTES BY 6 TO GIVE AVERAGE TIME OF ONE INCH FALL.
   D. COMPARE ONE INCH FALL TIME WITH THE FOLLOWING TABLE:
      1. 1 INCH IN 0-2 MINUTES INDICATES RAPID ABSORPTION.
      2. 1 INCH IN 3-5 MINUTES INDICATES MEDIUM ABSORPTION.
      3. 1 INCH IN 5-30 MINUTES INDICATES SLOW ABSORPTION.
      4. 1 INCH IN 30-60 MINUTES INDICATES SEMI-IMPERVIOUS SOIL.
      5. 1 INCH IN 60 MINUTES INDICATES IMPERVIOUS SOIL.
   E. IF SOIL IS INDICATED TO BE SEMI-IMPERVIOUS OR IMPERVIOUS, OR IF WATER IS INITIALLY FOUND IN TEST PIT, NOTIFY LANDSCAPE ARCHITECT BEFORE PROCEEDING FURTHER.
   F. IF CONTRACTOR DOES NOT MAKE TEST AT REPRESENTATIVE LOCATIONS AND FILE RECORDS OF RESULTS WITH OWNER AND LANDSCAPE ARCHITECT, OR IF HE PLANTS IN AREAS SHOWN TO HAVE POOR DRAINAGE WITHOUT WRITTEN RELEASE FROM OWNER, HE SHALL BE LIABLE FOR ANY FUTURE GUARANTEED REPLACEMENTS DUE TO SUBSURFACE WATER DAMAGE.
   G. IF CONTRACTOR MAKES PROPER TESTS AND FILES COMPLETE RECORDS INDICATING NO SEMI-IMPERVIOUS OR WORSE CONDITIONS, HE WILL NOT BE HELD RESPONSIBLE FOR FUTURE SUBSURFACE WATER DAMAGE TO WORK OF CONTRACT WITHIN GUARANTY PERIOD. OWNER OR LANDSCAPE ARCHITECT MAY SUPERVISE TESTING AT ANY TIME.
2. RELOCATION OR OMISSION OF PLANTS.
   A. WHERE SUBSURFACE CONDITIONS PROVIDE INADEQUATE DRAINAGE AND SUBSURFACE DRAINAGE SYSTEM IS NOT TO BE USED AS REMEDY, MAKE REASONABLE RELOCATION OF PLANTS AS DIRECTED BY LANDSCAPE ARCHITECT.
3. AUTHORIZATION OF DRAIN AS EXTRA WORK. OWNER MAY AUTHORIZE INSTALLATION OF SUBSURFACE DRAINS TO ALLEVIATE MOISTURE PROBLEMS AT LOCATIONS DETERMINED BY LANDSCAPE ARCHITECT. PERFORM WORK AT NEGOTIATED EXTRA COST. BEGIN WORK ONLY UPON RECEIPT OF CHANGE ORDER. LOCATIONS, APPROPRIATE MATERIALS, AND CONSTRUCTION TECHNIQUES SHALL BE AS DIRECTED BY LANDSCAPE ARCHITECT.

J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD, SUITE P203 BLUFFTON, SC 29910
Voice 843.815.4800 Fax 843.815.4802
jktiller@jktiller.com

SC HIGHWAY 278
MEDIAN LANDSCAPE DESIGN
TANGER 2 ENTRANCE TO TANGER 1 ENTRANCE
Prepared for Beaufort County, South Carolina

Sheet Title: PLANT SCHEDULE

Job Number: 201709-01

Date: September 28, 2017

Drawn: KD

Approved: JT

Revisions:
REVISION1 10/20/2017
REVISION2 11/06/2017

Sheet
PS

Prepared by and after recording return to:

McNAIR LAW FIRM, P.A. (WJN)
P.O. Drawer 3
Hilton Head Island, SC 29938
(843) 785-2171

STATE OF SOUTH CAROLINA	)	**LANDSCAPE INSTALLATION AND**
	)	**MAINTENANCE AGREEMENT**
COUNTY OF BEAUFORT	)	**(U.S. HIGHWAY 278 MEDIAN)**

THIS LANDSCAPE INSTALLATION AND MAINTENANCE AGREEMENT (the "**Agreement**") is made and entered into as of the 6 day of ~~February~~ March, 2016, by and between BEAUFORT COUNTY, SOUTH CAROLINA, a body politic and corporate and political subdivision of the State of South Carolina (the "**County**") and COROC / HILTON HEAD I, LLC, a Delaware limited liability company authorized to conduct business in South Carolina ("**COROC**"), concerning the planting, care, and maintenance of certain landscape improvements contemplated in that certain County Application to the South Carolina Department of Transportation.

RECITALS

WHEREAS, COROC, as owner of certain real property located in Beaufort County, South Carolina, and the County entered into that certain Development Agreement for Tanger Hilton Head Outlet Center I dated March 30, 2009 and recorded in the Office of the Register of Deeds for Beaufort County, South Carolina (the "**ROD**") in Book **2893** at Page **1**, as amended by that First Amendment to Development Agreement for the Tanger Hilton Head Outlet Center I dated May 11, 2011 and recorded in the ROD in Book **3060** at Page **2136** (collectively, the "**Development Agreement**"); and

WHEREAS, among other matters, the Development Agreement provides in Article XI, Section C for the installation by COROC of landscaping materials and irrigation in the U.S. Highway 278 median from the intersection of Saw Mill Forest Road to the median cut located in front of Tanger Hilton Head Outlet Center II, and the future maintenance of such landscaping, pursuant to the terms of that Article XI, Section C (the "**Median Landscaping**"); and

WHEREAS, in conjunction with the development of Outparcel "A", as depicted in the Master Plan for Tanger Hilton Head Outlet Center I, the County required issuance of a performance bond for the Median Landscaping (the "**Performance Bond**") in the amount of $323,865.00; and

WHEREAS, the amount of the Performance Bond reflects the County's estimate for the material cost, the cost of installation of the plants and materials contemplated for the Median Landscaping, plus the cost of providing five (5) years of maintenance (collectively, the "**5-Year Cost**"); and

WHEREAS, on April 14, 2014, the Beaufort County Council, upon the recommendation from the Southern Beaufort County Corridor Beautification Board, adopted a resolution approving the "TANGER LANDSCAPE PLAN, HIGHWAY 278 MEDIAN, FROM TANGER 2 ENTRANCE (STA. 1193+00) TO TANGER 1 ENTRANCE (STA. 1131+00)" as presented by J.K Tiller & Associates (the "**Landscape Plan**"); and

WHEREAS, irrigation is neither required nor included in the Landscape Plan, is not contemplated and not desired in the Median Landscaping, is not included in the 5-Year Cost, and therefore the County agrees that irrigation shall not be a requirement and COROC shall not be required to install nor to pay the cost to install irrigation; and

WHEREAS, on October 12, 2015, the Beaufort County Council passed a resolution authorizing the County to accept a cash payment from COROC in the amount of $323,865.00 in lieu of its obligations for the installation of the Median Landscaping and the maintenance thereof for five (5) years thereafter; and

WHEREAS, the parties hereto have agreed to the payment by COROC of $323,865.00 in satisfaction of the Performance Bond, which payment shall be made within thirty (30) days of the complete execution of this Agreement, and in satisfaction of its obligations under the Development Agreement for the installation of the Median Landscaping and the maintenance thereof for five (5) years thereafter; and

WHEREAS, the County and Tanger desire to enter into this Agreement regarding the matters set forth herein.

NOW, THEREFORE, in consideration of the mutual benefits, promises and obligations set forth herein the sufficiency of which are hereby acknowledged and accepted by each, the County and COROC hereby agree as follows:

1. **County Obligations**. The County acknowledges and agrees that it shall perform the Median Landscaping obligations, as required under the Development Agreement, with the exception of irrigation, for a period of five(5) years. Further, the County shall secure any permits required for the Median Landscaping through the South Carolina Department of Transportation and any other state agency as may be required. Furthermore, the County shall notify COROC of the date of issuance by the County, or other state agency, of a certificate of completion or other documentation evidencing the County's completion of the installation portion of the Median Landscaping in accordance with the Landscape Plan. This same date shall also serve as the commencement date of the five (5) year period of the County's obligation for the maintenance portion of the Median Landscaping. Upon receipt of the $323,865.00, the County shall cancel the Performance Bond.

2. **COROC Obligations**. COROC acknowledges and agrees that, at no cost to the County, it shall pay the County in cash, or its equivalent, the amount of $323,865.00 within thirty(30) days of the complete execution of this Agreement. COROC acknowledges and agrees that this agreement does not extinguish COROC's maintenance obligations under the Development Agreement after the initial five (5) year term as delineated herein. Except as modified herein, all other terms of the Development Agreement shall control.

3. **Mutual Cooperation & Notice**. Notwithstanding anything contained herein, the County and COROC each agree to cooperatively pursue their obligations set forth herein to the best of their ability. All notices to be provided hereunder shall be provided in writing and delivered by U.S. Mail or by email to the following:

If to County, To:
Beaufort County Administrator
Attn: Gary Kubic
P.O. Drawer 1228
Beaufort, SC 29901
Phone: (843)255-2027
Email: gkubic@bcgov.net

With Copy to:
Beaufort County Attorney Office
Attn: Allison C. Coppage
P.O. Drawer 1228
Beaufort, SC 29901
Phone: (843)255-2056
Email: acoppage@bcgov.net

If to Tanger, To:
COROC / Hilton Head I, LLC
Attn: Tom McDonough
3200 Northline Avenue, Suite 360
Greensboro, NC 27408
Phone: (336) 834-6869
Email: temcdonough@tangeroutlet.com

With Copy to:
McNair Law Firm, P.A.
Attn: Walter J. Nester, III
P.O. Drawer 3
Hilton Head Island, SC 29938-0003
Phone: 843-785-2171
Email: wnester@mcnair.net

4. **Modifications**. This Agreement cannot be changed orally, and no executory agreement shall be effective to waive, change modify or discharge it in whole or in part unless such executory agreement is in writing and is signed by the parties against whom enforcement or any waiver , change, modification or discharge is sought.

5. **Entire Agreement**. This Agreement contains the entire agreement between the parties pertaining to the subject matter hereof and fully supersedes all prior written or oral agreements and understanding between the parties pertaining to such subject matter.

6. **Counterparts**. This Agreement may be executed in counterparts, and all such executed counterparts shall constitute the same agreement. It shall be necessary to account for only one (1) such counterpart in proving this Agreement.

7. **Severability**. If any provision of this Agreement is determined by a court of competent jurisdiction to be invalid or unenforceable, the remainder of this Agreement shall nonetheless remain in full force and effect.

8. **Applicable Law**. This Agreement is enforceable in the State of South Carolina and shall in all respects be governed by, and constructed in accordance with, the substantive federal laws of the United States and the laws of the state of South Carolina.

9. **Captions**. The section headings appearing in this Agreement are for convenience of reference only and are not intended to any extent for the purpose, to limit or define the test of any section or any subsection hereof.

10. **Construction**. The parties acknowledge that the parties and their counsel have reviewed and revised this Agreement and that the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement or any exhibits or amendments hereto.

11. **Recitals**. The aforesaid recitals are incorporated into and shall be considered a part of this Agreement.

[Signatures on following pages]

IN WITNESS WHEREOF, this Agreement has been executed by the parties on the day and year first above written.

COROC / HILTON HEAD, LLC

By: Thomas E. McDonough
Its: Vice President

BEAUFORT COUNTY, SOUTH CAROLINA

By: ~~Gary Kubic~~ Joshua A. Gruber
Its: ~~Administrator~~ Deputy County Administrator

Attest: ~~Sue~~ Rainey Suzanne M. Rainey
Its: Clerk of Council

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

IFB 092217, Fort Fremont Historical Park Interpretive Center

DATE: 02/15/2018

BACKGROUND:

Fort Fremont Historical Park is a 17 acre passive park purchased by Beaufort County through the Rural and Critical Lands Preservation Program in 2004. The park is home to Fort Fremont, a Spanish-American War era battery. Built in 1898, the fort is significant as an intact example of late 19th and early 20th century military architecture. Fort Fremont was also the major armament at one of two surviving coastal fortifications in the U.S. intact from the Spanish-American War era.

When the Dowling family sold the property to Beaufort County it was their intent that the public have access to a historical interpretation of the fort. They also envisioned that the property capitalize on its prime location on the Beaufort River to offer the public views and access to the beach at Lands End. To this end, the Dowling and Stewart families provided the County gift money to develop a concept plan for the park, which was prepared by J. K. Tiller and Associates in 2004. To implement the plan, Beaufort County then procured Carolina Engineering Consultants, Inc. and the architect, Michael Griffith to design an interpretive center and picnic pavilion. Because of the historic nature of the site, the interpretive center was carefully scrutinized by the County's Historic Preservation Review Board, which required several significant revisions to the design.

The County received two bid responses on October 19, 2017, and determined that Savannah Construction & Preservation was the lowest responsive/responsible bidder. The other bidder, C. Merrill Construction, failed to complete all "good faith outreach efforts" as outlined in the bid documents and is thereby unresponsive.

VENDOR INFORMATION:		**COST:**
1. C. Merrill Construction, LLC, Statesboro, Ga	Total Bid:	$1,000,980
Base bid for Interpretive Center and Pavilion	$941,550	
Alternate 1 – Landscaping (North Circular Walkway Area)	$ 5,635	0
Alternate 2 – Landscaping (Central Walkway Area)	$ 12,650	

Alternate 3 – Landscaping (Interpretive Center Area)	$ 27,000	0
Alternate 4 – Landscaping (South Pedestrian Entry Gate)	$14,145	
2. Savannah Construction & Preservation, Savannah, GA	Total Bid:	$1,029,755
Base bid for Interpretive Center and Pavilion	$969,215	
Alternate 1 – Landscaping (North Circular Walkway Area)	$ 5,687	0
Alternate 2 – Landscaping (Central Walkway Area)	$ 12,852	
Alternate 3 – Landscaping (Interpretive Center Area)	$ 27,607	0
Alternate 4 – Landscaping (South Pedestrian Entry Gate)	$ 14,394	

FUNDING:

Account #45000011-54405, Fort Fremont - Beaufort County Community Development Department (Rural and Critical Lands Preservation Program)

Funding approved: Yes By: aholland Date: 02/15/2018

FOR ACTION:

Natural Resources Committee meeting occurring February 19, 2018.

RECOMMENDATION:

The Natural Resources Committee approve and recommend to County Council the contract award to Savannah Construction & Preservation in the amount of $1,029,755.

Attachment: IFB 092217 Attachments.pdf 1.19 MB

cc: Joshua Gruber, Interim County Administrator

Approved: Yes Date: 02/16/2018

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

Alicia Holland, Assistant County Administrator, Finance

Approved: Yes Date: 02/15/2018

Monica Spells, Assistant County Administrator, Civic Engagement and Outreach

Approved: Yes Date: 02/15/2018

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

Tony Criscitiello, Director, Community Development Department

Approved: Select... Date:

Check to override approval: ☑ Overridden by: lmaietta Override Date: 02/16/2018 ready for admin: ☑

Robert Merchant Assistant Director, Community Development Department

Approved: Yes Date: 02/15/2018

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

Approved: Date:

Mark Roseneau, Director, Facility Management Department | Select... |

Check to override approval: ☑ Overridden by: lmaietta Override Date: 02/16/2018 ready for admin: ☑

After Initial Submission, Use the Save and Close Buttons

IFB 092217 Ft Fremont Construction & Landscaping Bid Tab

BID FORM

Project Number	Location	Name of Company	Number of Days to Complete Project	Base $	Alternate 1 $	Alternate 2 $	Alternate 3 $
1	**Ft Fremont Construction & Landscaping** **IFB 092217**	C. Merrill Construction, LLC	**216**	$941,550.00	$5,635.00	$12,650.00	$27,000.00
		Savannah Construction & Preservation	**360**	$969,215.42	$5,687.25	$12,852.57	$27,607.03

Alternate 4 $	
$14,145.00	$1,000,980
$14,394.04	$1,029,756

C. Merrill Construction, LLC	Savannah Construction & Preservation
$1,000,980	$1,029,756

Small and Minority Business Participation Bid Compliance Review of Good Faith Efforts

Fort Fremont Building Construction and Landscaping for Beaufort County

	Prime Bidder/Proposer	C. Merrill Constr.	Savannah Constr.				
1	Included Completed Good Faith Efforts Checklist Form	1	1				
2	Requested Beaufort County SMBE Vendor List	0	1				
3	Included Copy of Written Notice to SMBE	0	1				
4	Provided Proof of Sending Written Notice to SMBE	0	1				
5	Sent Bid Notice to SMBE 10 Days in Advance	0	1				
6	Included Copy of Written Notice to Good Faith Agencies	0	1				
7	Provided Proof of Sending Written Notice to Good Faith Agencies	0	1				
8	Signed Non-Discrimination Statement Form (Exhibit 1)	1	1				
9	Included Completed Outreach Documentation Log (Exhibit 2)	0	1				
10	Included Completed Proposed Utilization Plan (Exhibit 3)	0	1				
	Total	**2**	**10**				

Total of 10 Possible Points

Scoring:
0 = No
1 = Yes

PAGES 1 THROUGH 10, and pages 28 AND ALL SBE REQUIREMENTS MUST BE RETURNED BY ELECTRONIC BID PROCESS THROUGH VENDOR REGISTRY ON OUR COUNTY WEBSITE AT WWW.BCGOV.NET OTHER PAGES SHALL REMAIN PART OF THE BID BY REFERENCE

AND IT **IS NOT** NECESSARY TO RETURN THESE.

Program Provisions and Good Faith Outreach Effort Requirements for

Small and Minority Business Participation

Security Kiosk IFB

FAILURE TO COMPLETE ALL GOOD FAITH OUTREACH EFFORT REQUIREMENTS MAY RESULT IN BID REJECTION. SPECIFIED DOCUMENTS WITHIN THESE PROGRAM PROVISIONS MUST BE RETURNED WITH THE BID PACKAGE. FALSIFICATION OF ANY REQUESTED DOCUMENTS WILL BE CONSIDERED A BREACH OF PUBLIC TRUST.

Direct questions regarding these provisions in writing via email to **compliance@bcgov.net** or fax to 843.255.9802.

Important Actions and Notes for Bidders

- **These program provisions affect bid responsiveness.**
- These program provisions are required for all prime bidders, regardless of whether the prime bidder is a small or minority business (SMB).
- If not self-performing one hundred percent (100%) of the project with your company's workforce, bid packages should include the following items to be in compliance with these program provisions:

1. Good Faith Efforts Checklist form.

2. Non-Discrimination Statement form (Exhibit 1).

3. Proof of requesting Beaufort County's listing of local SMBs at least 10 business days in advance of the bid due date, by sending a request to **bcvendors@bcgov.net**.

4. Outreach Documentation Log (Exhibit 2) and Proposed Utilization Plan (Exhibit 3). ***Note***: Both of these forms will be provided electronically when requesting Beaufort County's current listing of local SMBs per item #3 above.

5. Proof of sending written notice to SMBs notifying them of any bid opportunities. Notices only need to be sent to those subcontractors and suppliers offering the services which the bidder intends to subcontract and purchase. Notices can be e-mailed or faxed.

6. Proof of sending written notice to Good Faith Agencies listed herein, at least 5 business days in advance of the bid due date, requesting their assistance notifying their business contacts of bidding opportunities with your company for this project. Notices can be e-mailed or faxed. If emailed, the notice can be sent to all agencies with one email.

Good Faith Agencies Distribution List

Beaufort County Black Chamber of Commerce
Attention: Mr. Larry Holman
Post Office Box 754, Beaufort, SC 29901
Email: president@bcbcc.org
Fax: 843.379.8027

Regional Chamber of Commerce
Attention: Ms. Jaime Dailey-Vergara
Post Office Box 910, Beaufort, SC 29901
Email: jaime@beaufortsc.org
Fax: 843.986.5405

Hilton Head Island-Bluffton Chamber of Commerce
Attention: Ms. Cristina Kirby
Post Office Box 5647
Email: ckirby@hiltonheadisland.org
Fax: 843.785.7110

Other Resources*

SC Office of Small and Minority Business Assistance (OSMBA)
1205 Pendleton Street, Suite 453C
Columbia, SC 29201
Telephone: 803.734.5010
www.osmba.sc.gov

SC Department Of Transportation
Business Development and Special Programs
Post Office Box 191
Columbia, SC 29202
Telephone: 803.737.2314
www.scdot.org

**You do not need to send a notification to these agencies; however, they can assist you in identifying certified minority and disadvantaged businesses.*

Program Overview

Beaufort County recognizes that the South Carolina General Assembly, in South Carolina Code of Laws Section 11-35-5210*, has declared that businesses owned and operated by minority persons have been historically restricted from full participation in our free enterprise system to a degree disproportionate to other businesses; and that it is in the state's best interest to assist minority-owned businesses to develop fully as part of the state's policies and programs which are designed to promote balanced economic and community growth throughout the state. Therefore, Beaufort County wishes to ensure that those businesses owned and operated by minorities are afforded the opportunity to fully participate in its overall procurement process for goods and services. Further, Beaufort County seeks to ensure that small businesses are likewise afforded the same participation opportunity as minority businesses. Consequently, attention of all bidders is called to contract provisions contained herein pertaining to Beaufort County's "Small and Minority Business Participation Program", as described in the Beaufort County Code of Ordinances, Section 2-537.2**.

Pre-Award and Post-Award Requirements

Beaufort County requires all bidders for this project to fulfill specific good faith outreach efforts. The successful bidder (contractor) is required to fulfill any commitments made to the best of their ability in conjunction with pre-award good faith outreach efforts, unless good cause is demonstrated for any failure to fulfill such commitment. Beaufort County shall have the right to inspect the contractor's records related to the activity and expenditures to SMBs utilized on County projects, to include related contracts and purchase orders and payment records, such as cancelled check copies. Further, Beaufort County personnel are permitted access to County project sites with the purpose of confirming workers on the project. Beaufort County may require the contractor to provide monthly reports regarding its utilization and expenditures to small and minority businesses on Beaufort County projects.

Definitions

Minority Business means a concern at least fifty-one percent (51%) owned by a person determined to be socially and economically disadvantaged. *Socially disadvantaged* means those persons who have been subject to racial or ethnic prejudice or cultural bias because of their identification as members of a certain group without regard to their individual qualities. Such groups include, but are not limited to, Black Americans, Hispanic Americans, Native Americans (including American Indians, Eskimos, Aleuts and Native Hawaiians), Asian Pacific Americans, women, and other minorities to be designated by the state or Beaufort County. *Economically disadvantaged* means those socially disadvantaged persons whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area that are not socially disadvantaged.

Small Business means a for-profit concern that is independently owned and operated, not dominant in the field of operation in which it is bidding on government contracts, and qualified as a small business under the criteria and size standards in the Code of Federal Regulations, Title 13, Part 121***, as amended.

* South Carolina Code of Laws, Chapter 35 "South Carolina Consolidated Procurement Code", Article 21 "Assistance to Minority Businesses".
** Beaufort County Code of Ordinances, Article 7 "Finance, Division 4 "Purchasing", Section 2-537.2 "Small and Minority-owned Business Program".
*** Code of Federal Regulations, Title 13 "Business Credit and Assistance", Chapter 1 "Small Business Administration", Part 121 "Small Business Size Standards".

Self-Performance Affidavit

If self-performing the entire project with your own workforce/staff on your payroll, complete and return this form with your bid package. If self-performing all work, you do not need to solicit SMBs.

I hereby certify my company's intent to self-perform 100% of the work required for the referenced project:

Project Name: _____

Project Number: _____

By signing this affidavit, I further certify that my company has the capability to perform and will perform all elements of the work on the project referenced above with my company's employees.

I further agree to provide additional information or documentation requested by Beaufort County in support of the above statement.

If a need to subcontract all or some of my company's work on this project arises, I will notify Beaufort County in writing within three (3) business days via email at **compliance@bcgov.net** or fax at 843.255.9802.

_____
Name of Company

_____
Owner or Authorized Representative Name

_____
Signature

_____
Title

_____
Date

State of _____ County of _____

Subscribed and sworn to before me this _____ day of _____, 20_____

Notary Public _____ My Commission Expires _____

Good Faith Efforts Checklist

This form and supporting documents are due with the bid package, if not self-performing 100% of the work.

Divide and/or combine scope of work packages into economically feasible units, **if possible**.

Request a list of potential SMBs from Beaufort County at least 10 business days prior to the bid due date, by emailing a request to **bcvendors@bcgov.net**.

Send written notice to Good Faith Agencies and SMBs of your intent to bid the project and express an interest in receiving quotes from SMBs. Notices should be sent at least 5 business days prior to the bid due date and can be e-mailed or faxed. The notice should contain the following:

- Bidder's name and contact information
- Project name and number
- Scope of work/bid packages available for subcontracting
- Information on availability of plans and specifications
- Bidder's insurance, bonding, and financial requirements

Include copies of the written notice to SMBs notifying them of bid opportunities. Notices only need to be sent to those subcontractors and suppliers offering the services which the bidder intends to subcontract and purchase. Notices can be e-mailed or faxed. If emailed, the notice may be sent to all applicable subcontractors with one email. If faxed, include a copy of the fax transmittal confirmation slip. If the notice is mailed, include a copy of the stamped or metered envelope.

Include copies of the written notice to Good Faith Agencies requesting their assistance notifying their local business contacts of bidding opportunities with your company for this project. The request should be sent at least 10 business days prior to the bid due date and can be e-mailed or faxed. If emailed, the notice may be sent to all agencies with one email. If faxed, include a copy of the fax transmittal confirmation slip. If the notice is mailed, include a copy of the stamped or metered envelope.

Include Exhibits 1, 2 and 3, with all requested supporting documentation, where applicable. Exhibits 2 and 3 must be requested by sending an email to **bcvendors@bcgov.net** (see page 2, item #4 of these provsions).

The undersigned acknowledges making a good faith effort to comply with the above areas checked.

_____
Name of Company

_____
Owner or Authorized Representative Name

_____
Signature

_____
Title

_____

Date

Exhibit 1
Non-Discrimination Statement

This form is due with the bid package.

The bidder certifies the following:

- No person shall be excluded from participation in, denied the benefit of, or otherwise discriminated against on the basis of race, color, national origin, or gender in connection with any bid submitted to Beaufort County or the performance of any contract resulting thereof;

- That it is and shall be the policy of the bidder to provide equal opportunity to all businesses or persons seeking to contract or otherwise interested in contracting with the bidder for Beaufort County contracts, including those businesses owned and controlled by socio-economic and racial minorities;

- In connection herewith, we acknowledge and warrant that this bidder has been made aware of, understands, and agrees to take affirmative action to provide such companies with the maximum practicable opportunities to do business with this bidder;

- That this promise of non-discrimination as made and set forth herein shall be continuing in nature and shall remain in full force and effect without interruption throughout the life of the referenced contract with Beaufort County;

- That the promises of non-discrimination as made and set forth herein shall be and are hereby deemed to be made a part of and included by reference into any contract or portion thereof which this bidder may hereafter obtain and;

- That the failure of this bidder to satisfactorily discharge any of the promises of non-discrimination as made and set forth herein shall constitute a material breach of contract entitling Beaufort County to declare the contract in default and to exercise any and all applicable right and remedies including, but not limited to cancellation of the contract, termination of the contract, suspension and debarment from future contracting opportunities, and withholding and/or forfeiture of compensation due and owning on a contract.

_____

Name of Company

_____

Owner or Authorized Representative Name

_____

Signature

_____

Title

_____

Proposal to Beaufort County
For the Master Planning and Phase 1 Development of
Historic Mitchelville Freedom Park

Summary:

The Mitchelville Preservation Project (MPP) is seeking a total of $ 1,400,000 to develop a comprehensive master plan and implement the first stages of construction at Historic Mitchelville Freedom Park. The Master Plan will include an interpretive plan, development plan, archaeological mitigation plan, business and financial plans, along with other components. Approximately $250,000 is reserved for the master planning component of the project. The remaining $1,150,000 is for implementing Phase 1 improvements.

Preliminary Budget Proposed:

The MPP request to the County of Beaufort for master planning involves the components detailed below. Mitchelville and the Coastal Discovery Museum (CDM) are willing to manage the process to the extent determined feasible by Beaufort County and the Town of Hilton Head Island. The first request is for the master planning phase of $250,000 which will determine the scope of subsequent Phase 1 construction. The goal is to enhance and improve Historic Mitchelville Freedom Park so that it supports the MPP mission, maintains the open use of the park by the public under the management of MPP, and is economically viable. Some components such as the land surveying, environmental and archaeology services may be procured separately from the overall master planning phase.

The remainder of the total funding request will be for Phase 1 design, permitting and construction, which is anticipated to include: Clearing and developing appropriate spaces to interpret the experience of Mitchelville; recreating the Church School on/near its historical placement to serve as an educational building used by school children and other groups for programming and as a potential exhibition space; the reconstruction of some of the homes that will serve as interpretive centers illustrating themes related to various aspects of Mitchelville life; partial restoration of the historic Mitchelville street grid; placing high-quality interpretive signage on the property to aid in self-guided tours and creating a virtual tour of the property.

Master Planning Phase:

The Master Planning phase will include the following components, which generally follow the guidelines produced by the Georgia DNR Historic Preservation Division, and widely recognized as standard components in a Historic Site Master Plan.

1. Vision Statement: this will be a short and concise statement of the purpose and goals of the organization regarding the preservation and use of the historic site (which is not necessarily the overall mission of the organization). An important part of the vision statement will be to recognize and incorporate within it aspects of why the property is historically important—its historic context—and avoid objectives that conflict with preservation principles.

2. Historical Overview: this will be a highly detailed history of the site, its historical development, its historic features, archaeological resources, and will be a chronicle of important people or events associated with the property. Copious amounts of information about the history of the site are available, and a summary history will be included, with reference to a separate historic overview document. An existing historic overview was completed as a Historic Property Information Form (HPIF) as part of nominating the property for listing in the National Register of Historic Places.

3. Organization Overview and Goals & Objectives for Use of the Historic Site: this section will include a detailed history of the administering organization and will explain thoroughly how goals and objectives for the use, care, and management of the historic site are determined and how decisions were made. These goals and objectives will be the result of a vetting process that collected and considered such relevant information as: preliminary ideas regarding potential site usage, identification of historic resources on the site and their preservation needs, the historic context of the site, including association with important events or people, identification of issues beyond the immediate control of the organization and options for addressing these issues, costs of implementing a goal or objective, and priorities. Again, while this section of the Historic Site Master Plan is toward the beginning of the document, its final form may be dependent on information that follows.

4. Interpretation Plan: this section will be the primary guidance tool for determining and managing how the historic aspects of the site will be presented to the public. The interpretation plan will include: information about how historic collections are displayed and curated; how physical and visual historic resources are explained; the themes that will guide the messages conveyed in the Park; the method and materials used for training docents / guides that will aid in interpretation; In addition, there will be information about display designs, signage, markers, plaques, and monuments, etc.

5. Development Plan: this section will be the primary guidance tool for implementing the goals and objectives for the physical development of the historic site. Initially, the development plan will provide a general and broad perspective of what will be occurring to the property over time. As related individual projects are planned and implemented, they will be incorporated or referenced in the development plan section of the master plan. The development plan will include a site plan identifying historic resources, an overall layout of the proposed improvements and planned new construction, and other site alterations.

6. Preservation Plan: this section will be the primary tool for determining the appropriate treatment of the historic resources on the property. The preservation plan will characterize and evaluate historic resources and objects, provide the necessary information to responsibly deal with existing issues and concerns about the resources /objects and plan for their future, guide implementation of recommendations resulting from the plan, and act as a reference source. Incorporated within the preservation plan will be acknowledgement of the Secretary of the Interior's Standards for the Treatment of Historic Properties, and a Maintenance Plan. Associated documents include inventories of historic collections, photo documentation of the site, Conditions Assessment Reports, Archival status report of objects/artwork in the collection, other applicable reports, and archaeological studies. These may be included within the preservation plan or developed separately and incorporated. For related information see: Preservation Plan Guidelines for Historic Properties.

7. Operations Plan: this section will be the primary guidance tool for managing the various types of uses that are planned for the historic site. Within the use plan will be information on hours of operation, staffing needs, a general maintenance plan, and other day-to-day operational requirements. It should also outline work plans and task lists for operating the site, assign management responsibilities, and set schedules.

8. Disaster Plan: this section will be the primary guidance tool for reacting to an emergency situation involving the historic site, such as fire or natural disaster. Within the disaster plan will be information about emergency response measures, including notification responsibilities, emergency decision-making policies, recovery activity team assignments, and safety procedures. Notification responsibilities, team leader assignments, and other duties should include back-ups and be designated by position within the organization rather than to an individual to ensure continuity as terms and personal involvement fluctuate.

9. Business Plan: this section will establish how the administering organization professionally manages the site. Within the business plan will be information about the management team, staff and board of directors and their duties and responsibilities in operating the site, including marketing, developing and managing the budget, hiring practices, purchasing procedures, personnel policies and contracting for services.

10. Financial Plan: this section will establish how funding the historic site's operational and developmental needs will be achieved. Within the financial plan will be information about budgets, income, expenses, taxes, accounting and auditing practices, user fees, fund-raising activities, projects costs, etc. The financial plan should be updated on an annual basis.

11. Other Information: this will include, as applicable, appendices and reference documents. Appendices should include the Secretary of the Interior's Standards for the Treatment of Historic Properties, copies of Preservation Briefs and other helpful technical information, maintenance plans, project estimates, inventories, and other reference materials, which may be mentioned in other sections of the master plan. Other information could also include items that don't sensibly belong in the major sections of the plan. These might include membership lists, contact lists, organization officers and board of directors' lists, and such things as information on strategic partnership development.

12. Master Plan Report and Executive Summary: this will summarize the property's history and importance, why the Historic Site Master plan is being created, goals for the use of the property, information about the administering organization, and other important information as applicable. While the executive summary is at the beginning of the master plan document, it will be one of the last things written so that all aspects of the plan contents can be considered before deciding what should be included. The Executive Summary will be engaging, informative, easy to read by the general public, and relatively short—no more than two pages. Excerpts from the Executive Summary and the Vision Statement might also provide text for public relations or educational tools as pamphlets or flyers about the property.

Consultant Fee Estimates for Master Planning

Task Description	Estimated Fee By Task
Project Initiation, Community Outreach and Case Study Tours	$40,000
Historical Research, Surveys, Archaeology and Site Inventory/Analysis	$40,000
Conceptual Master Plan Development	$110,000
Final Master Plan Implementation	$60,000
All Services Total	**$250,000**

The Phase 1 Development Program:

This will be based on the Master Plan, but will likely include several components including the following:

1. As a public park, Mitchelville must pay careful attention to both the landscape and its history. The landscape, or the physical environment in general, would play an active, meaningful role in historical site interpretation for the public, and serve as an active tool for communicating important understandings about the past. Thus, the Development Plan will be the product of combining the work of a landscape architect with that of a historian and interpretive consultant.

2. The conceptual design will include various structures that will highlight selected themes, serve as education and exhibition portals and an interpretive scope (acreage to be determined) of the park that presents an interpretation of Mitchelville in its historic context, as the first self-governed town operated by African Americans in the South. It is important to note that this proposed landscape is not intended to replicate the landscape that existed on this site. Instead, it is a newly created landscape intentionally designed to support the interpretive / thematic strategies and goals of the complex.

Proposed components include:

- Points of entry, arrival and visitor drop off
- Site layout, vehicular circulation, parking (cars and buses)
- Pathways and interpretive trails and circulation
- Church School education /exhibit center, historic renderings of homes, and other structures including artifact storage
- Interpretive panels for self-guided daytime walks on the interpretive grounds

Phase 1 Planning Elements:

Phase one physical improvements will be determined, modified, and/or detailed out during the master planning process, but current thought includes some of the options outlined below. Ideally we would like to obtain approval for funding for both the Master Planning Phase and Phase 1 improvements at the outset. Phase 1 funds will include archaeology, land surveying, environmental, design, construction and permitting that are estimated to be in the range of $1,150,000. Our request is to have these funds approved and set aside during the master planning phase, and then released as needed and generally following completion of the Master Plan.

1. Archaeology: Archaeological work on the property would include clearing underbrush for remote sensing surveys, establishing a permanent grid system at the property and determining the location of the Mitchelville era road system and the location of building foundations. These efforts include ground penetrating radar, magnetometry, and resistivity surveys, and conducting selected test excavations to determine the depth of buried features and to ground-truth the results of the remote sensing survey. This is required to prevent archaeological resources from being damaged by construction. This process has started in small fashion due to surface sonar and Magnetometry on a selected area of the park that was conducted by the Masters in Public Archaeology from Binghamton University in July 2017. This plan would move forward inspired by the findings from this process.

2. Land Surveying and Environmental Services: Proposed land surveying and environmental services would include an updated tree and topography survey, identification and boundary certification of the OCRM critical line and wetlands on the property.

3. Roads, Parking and Pathway System: Phase 1 roads, parking, and a trail way that mirrors the Mitchelville era road system and creates an interpretive path that explores the property. Surface the main road and trail way system so that it is ADA accessible and enables full exploration of the site, including access to the Port Royal Sound. This project will likely mean a relocation of the current parking lot and access road.

4. Signage and Site Improvements: Interpretive systems to tell the story of Mitchelville through a series of interpretive elements, gathering areas, structures and signs on the property. The interpretive story will also be told through technology including a virtual tour of the property so that it can be seen by prospective visitors to Hilton Head Island from around the world.

Phase 1 components	**Estimated Costs**
Archaeology	$150,000
Land Surveying and Environmental Services	$50,000
Roads, Parking and Pathway System	$350,000
Signage and Site Improvements	$150,000
Phase 1 Buildings, Structures/ Site improvements	$450,000
Component Total	**$1,150,000**

5. Phase 1 buildings, structure(s) and other site improvements on the property: The exact form and location of this building(s) and site improvements will be determined in the master planning process in the detailed design and permitting phases.

Phase 1 estimates – These may shift according to Master Plan recommendations

2018 /

TEXT AMENDMENT TO THE COMMUNITY DEVELOPMENT CODE (CDC): ARTICLE 3, SECTION 3.3.50 REGIONAL CENTER MIXED-USE (TO PERMIT UNIT-PER-UNIT CONVERSION OF LODGING TO MULTI-FAMILY RESIDENTIAL)

WHEREAS, added text is highlighted in yellow and deleted text is struck through.

Adopted this _____ day of _____, 2018.

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:

3.3.50 Regional Center Mixed Use (C5) Zone Standards

A. Purpose

The Regional Center Mixed Use (C5) Zone permits a full range of retail, service, and office uses. The Zone's intensity accommodates regional and community commercial and business activities. Uses include large, commercial activities that serve the entire County and highway-oriented businesses that need to be located on major highways. While this use intends high-quality, commercial character, the setback or build-to-line, landscaping and other design requirements provide a uniform streetscape that makes provision for pedestrian and transit access. The Zone is intended to be more attractive than commercial areas in other counties to maintain the attractive tourist and business environment and have minimal impact on surrounding residential areas. The Zone is not intended to be a strip along all arterials and collectors. In developing areas, the minimum depth of a parcel along an arterial or collector shall be 600'. The minimum zone size shall be 20 acres. In the older, built-up areas, new uses shall have depths and areas equal to or greater than similar uses in the area. This Zone shall be located in areas designated "regional commercial" in the Comprehensive Plan.

B. Building Placement

Setback (Distance from ROW/Property Line)	
Front	25' min.
Side:	
Side, Main Building	15' min.
Side, Ancillary Building	15' min.
Rear	10' min.

Lot Size	
Lot Size	21,780 SF min.
Width	150' min.

Note:

For development within a Traditional Community Plan meeting the requirements of Division 2.3, setback, minimum lot size and minimum site area requirements of the transect zone established and delineated on the regulating plan shall apply.

C. Building Form

Building Height	
All Buildings	3 stories max.
Ground Floor Finish Level	No minimum

D. Gross Density[1] and Floor Area Ratio

Density	15.0 d.u./acre max.[2]
Floor Area Ratio[23]	0.37 max.

[1]Gross Density is the total number of dwelling units on a site divided by the Base Site Area (Division 6.1.40.F)

[2]Lodging that is converted unit per unit to multi-family residential may exceed maximum density with the following conditions:

1. The hotel shall have been in continuous operation for a minimum of five years.
2. To the greatest extent practicable, the site shall be revised to comply with the existing standards for multi-family residential.
3. The site shall meet the parking requirements for multi-family residential in Article 5, Division 5.5.

[23]Requirement applies to non-residential buildings.

E. Parking

Required Spaces: Residential Uses	
Single-family detached	3 per unit
Single-family attached/duplex	2 per unit
Multi-family units	1.25 per unit
Accessory dwelling unit	1 per unit
Community residence	1 per bedroom
Live/work	2 per unit plus 1 per 300 GSF of work area

Required Spaces: Services or Retail Uses	
Retail, offices, services	1 per 300 GSF
Restaurant, café, coffee shop	1 per 150 GSF
Drive-through facility	Add 5 stacking spaces per drive-through
Gas station/fuel sales	1 per pump plus requirement for retail
Lodging: Bed and breakfast	2 spaces plus 1 per guest room
Lodging: Inn/hotel	1 per room

Required Spaces: Industrial Uses	
Light manufacturing, processing and packaging	1 per 500 GSF
Warehousing/distribution	1 per 2,000 GSF

For parking requirements for all other allowed uses see Table 5.5.40.B (Parking Space Requirements).

MEMORANDUM

To: Beaufort County Natural Resources Committee

From: Anthony J. Criscitiello, Community Development Director

Subject: Text Amendment to the Beaufort County Community Development Code (CDC): Article 3, Section 3.3.50 Regional Center Mixed-Use to permit unit-per-unit conversion of Lodging to Multi-Family

Date: February 09, 2018

PLANNING COMMISSION RECOMMENDATION from the excerpt of its February 5, 2017, draft minutes:

Mr. Robert Merchant briefed the Commissioners on the text amendment. The new owners of the Bluffton Suburban Lodge, located east of Lowe's along Highway 278, behind MacDonald's, are interested in turning the extended-stay hotel, unit for unit, into efficiency apartments. The building was built in 2000. The project is located in the C5 regional center mixed-use district where hotels and multi-family uses are permitted; however 150 units on 3.13 acres is problematic since the multi-family use density is 15 units per acre. Staff recommended a text amendment; however, Staff made several provisions including the hotel having existed for five years rather than using the amendment to bypass the density issue, building code issues being separate from the CDC, and parking issues with hotels requiring 1 space per room versus 1.25 spaces per apartment. The existing site has parking issues. Traffic impacts for apartments are considered nominally greater than a hotel. Staff recommends approval since smaller units could possibly provide a niche in the lower-end housing supply. He noted that the county is going through a housing needs assessment and the results may expand or move this amendment to another zoning district.

Commission discussion included whether the owner did a market research on the demand of studio apartments.

Applicant's Comment: Mr. Michael Kronimus, the applicant, noted there was a huge demand for that type of housing in that location. Service staff levels are not being met on Hilton Head Island; work force housing is needed. These units are 500 to 700 square feet. We can combine the rooms to form 1-bedrooms, since most are studio apartments. A parking issue exists. Workforce housing is the aim; however, some tenants won't have vehicles, so parking may not be the problem since there is access to a major thoroughfare for tenants to take a bus or Uber.

Additional Commission discussion included querying whether the intent is to market as workforce housing, concern with the lack of firewalls for apartments, fearful of unintended consequences since the text amendment could be used in other zones where hotels transfer ownership but property deterioration is not addressed, querying whether regional significance was addressed regarding notifying municipalities of the proposed text amendment *(Mr. Merchant said this amendment did not trigger the regional significance aspect so he had not notified the municipalities.)*, noting the logical evolution from hotel to multi-family, noting the cramped and confined space of the specific inn that led to this proposed text amendment, concern that a density capacity has not been set, noting the lack of amenities for children on the site, concern that there are no schools within walking distance of the property and school buses access would be problematic, concern that the amendment would allow more hotel to apartment conversions throughout the County, desiring input from the School District and the municipalities, querying the average occupancy rate of area hotels, affirming that the municipalities have a desperate need for affordable housing, querying when the workforce housing assessment would be completed *(Mr. Merchant*

noted that the target draft was set for March 2018.), querying how soon the Commission could receive input from the municipalities on the proposed text amendment, and noting that the Town of Bluffton had an Affordable Housing Committee.

Mr. Kronimus noted, in regards to firewalls, that that building codes requirement would be addressed in another process. In regards to other zones using the text amendment, only a small amount of zones would allow the hotel to multi-family conversion. Mr. Kronimus stated that parking at the proposed site would not be met with the existing regulations.

Mr. Merchant reiterated that the parking requirements can be increased or decreased by 20%, but the applicant must submit a parking study that will be reviewed by the County Traffic Engineer. He noted that the site has no access to the Bluffton Parkway or to the trail. He stated that the Staff doesn't want to create a parking problem because there is nowhere to park offsite.

Mr. Kronimus noted that the bottom line is if the text amendment is approved, it doesn't mean that project will be approved. This is truly a workforce housing opportunity. This is a C5 zone that is the most dense zoning allowed in Beaufort County. He stated that the owner could raze building and build another unit with higher density on the 3.2 acre property. This location could be downzoned to a T-zone to allow a higher density. There are various items that must be met by Building Codes so there's a long way to go. The property is next door at a T4 zone with an unlimited density, but the parking calculation must be met.

Public Comment: None was received.

Motion: Mr. Ed Pappas made a motion, and Ms. Diane Chmelik seconded the motion, **to recommend to County Council a denial of the Text Amendment to the Beaufort County Community Development Code (CDC), Article 3, Section 3.3.50 Regional Center Mixed Use (C5) Zone Standards (to allow hotel to apartment conversion on unit to unit basis) because the Housing Needs Assessment had not been completed.** Discussion included a clarification of the motion. The motion **failed (FOR: Chmelik and Pappas; AGAINST: Hennelly, Hincher, and Semmler; ABSENT: Fermin, Stewart, and Vacancy/St. Helena Island Representative).**

Motion: Mr. Jason Hincher made a motion, and Mr. Kevin Hennelly seconded the motion, to **recommend to County Council approval of the Text Amendment to the Beaufort County Community Development Code (CDC), Article 3, Section 3.3.50 Regional Center Mixed Use (C5) Zone Standards (to allow hotel to apartment conversion on unit to unit basis) with the condition that input should be received from the municipalities that are affected and their respective affordable housing committees.** The motion **passed (FOR: Hennelly, Hincher, and Semmler; AGAINST: Chmelik and Pappas; ABSENT: Fermin, Stewart, and Vacancy/St. Helena Island Representative).**

STAFF REPORT:

A. BACKGROUND:

Case No.	ZTA 2018-01
Applicant:	Michael Kronimus, KRA Architects
Proposed Text Change:	Text Amendment to the Beaufort County Community Development Code (CDC): Article 3, Section 3.3.50 Regional Center Mixed-Use to permit unit-per-unit conversion of Lodging to Multi-Family

B. SUMMARY OF REQUEST:

The Community Development Department was approached by the new owner of Suburban Lodge in Bluffton about the possibility of converting the extended stay hotel into an apartment building. The Suburban Lodge has 150 extended stay units on 3.13 acres. The new owner wanted to convert the hotel unit per unit to efficiency apartments with long-term leases. The property is located in C5 Regional Mixed-Use where both hotels and multi-family are permitted uses. Multi-family, however, has a maximum density of 15 dwelling units per acre. The project was not able to move forward because the unit-per-unit conversion would result in a multi-family development with triple the density than what is permitted in the district.

Proposed Amendment: Staff directed the applicant to consider a text amendment that would allow for hotels that convert to multi-family developments to exceed the maximum permitted density with appropriate conditions attached. The applicant responded with a formal zoning amendment request that allows for a unit-to-unit conversion with the following conditions:

- The hotel shall have been in continuous operation for a minimum of five years.
- To the greatest extent practicable, the site shall be revised to comply with the existing standards for multi-family residential.
- The site shall meet the parking requirements for multi-family residential as established in Article 5, Division 5.5.

The proposed amendment is attached to this report.

Impact on Parking and Transportation: In analyzing the potential impacts of this proposed amendment, staff identified parking as the greatest concern. The Community Development Code only requires hotels to have one parking space per unit, while it requires efficiency apartments 1.25 spaces per unit. Converting from extended stay to permanent residency, there is a greater likelihood of households having more than one vehicle, and for residents to have visitors. Therefore, any conversion would need to provide adequate parking. Traffic impacts were not a major concern. The change of use would only result in a modest increase in trip generation (6 to 12%). For example, the conversion of an extended stay hotel of 150 units would increase the daily trips from 936 to 998; am Peak hour trips from 72 to 77; and pm peak hour trips from 83 to 93.

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 has the potential to introduce multi-family uses in areas dominated by retail and services. The Comprehensive Plan calls for promoting mixed-use development at higher density nodes along major travel corridors. This recommendation is in the Land Use, Affordable Housing (Recommendation 8-7), Economic Development (Recommendation 7-7), Energy (Recommendation 9-2), and Transportation (Recommendation 10-7) Chapters. The objective is to promote quality development that encourages internal trip capture, multiple modes of transportation, a mix of housing (including affordable housing), and energy efficiency.
2. **Is not in conflict with any provision of this Development Code or the Code of Ordinances:** The Community Development Code only requires hotels to have one parking space per unit, while it requires efficiency apartments 1.25 spaces per unit. This conflict has the potential of creating multi-family sites with inadequate parking.
3. **Is required by changed conditions:** The proposed amendment provides greater flexibility for a hotel to respond to market conditions.

4. **Addresses a demonstrated community need:** The proposed amendment has the potential to promote affordable and workforce housing by increasing the supply of efficiency and studio apartments.
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:** The Regional Center Mixed-Use (C5) Zone currently permits multi-family uses.
6. **Would result in a logical and orderly development pattern:** See item #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:** It is staff's opinion that the natural resource protection, stormwater and performance standards in the CDC will minimize impacts to the environment.

D. RECOMMENDATION: Staff recommends approval.

E. ATTACHMENTS:

- Proposed changes to the CDC
- Application

3.3.50 Regional Center Mixed Use (C5) Zone Standards

A. Purpose

The Regional Center Mixed Use (C5) Zone permits a full range of retail, service, and office uses. The Zone's intensity accommodates regional and community commercial and business activities. Uses include large, commercial activities that serve the entire County and highway-oriented businesses that need to be located on major highways. While this use intends high-quality, commercial character, the setback or build-to-line, landscaping and other design requirements provide a uniform streetscape that makes provision for pedestrian and transit access. The Zone is intended to be more attractive than commercial areas in other counties to maintain the attractive tourist and business environment and have minimal impact on surrounding residential areas. The Zone is not intended to be a strip along all arterials and collectors. In developing areas, the minimum depth of a parcel along an arterial or collector shall be 600'. The minimum zone size shall be 20 acres. In the older, built-up areas, new uses shall have depths and areas equal to or greater than similar uses in the area. This Zone shall be located in areas designated "regional commercial" in the Comprehensive Plan.

B. Building Placement

Setback (Distance from ROW/Property Line)	
Front	25' min.
Side:	
Side, Main Building	15' min.
Side, Ancillary Building	15' min.
Rear	10' min.

Lot Size	
Lot Size	21,780 SF min.
Width	150' min.

Note:

For development within a Traditional Community Plan meeting the requirements of Division 2.3, setback, minimum lot size and minimum site area requirements of the transect zone established and delineated on the regulating plan shall apply.

C. Building Form

Building Height	
All Buildings	3 stories max.
Ground Floor Finish Level	No minimum

D. Gross Density[1] and Floor Area Ratio

Density	15.0 d.u./acre max.[2]
Floor Area Ratio[2][3]	0.37 max.

[1]Gross Density is the total number of dwelling units on a site divided by the Base Site Area (Division 6.1.40.F)

[2]Lodging that is converted unit per unit to multi-family residential may exceed maximum density with the following conditions:

1. The hotel shall have been in continuous operation for a minimum of five years.
2. To the greatest extent practicable, the site shall be revised to comply with the existing standards for multi-family residential.
3. The site shall meet the parking requirements for multi-family residential in Article 5, Division 5.5.

[2][3]Requirement applies to non-residential buildings.

E. Parking

Required Spaces: Residential Uses	
Single-family detached	3 per unit
Single-family attached/duplex	2 per unit
Multi-family units	1.25 per unit
Accessory dwelling unit	1 per unit
Community residence	1 per bedroom
Live/work	2 per unit plus 1 per 300 GSF of work area

Required Spaces: Services or Retail Uses	
Retail, offices, services	1 per 300 GSF
Restaurant, café, coffee shop	1 per 150 GSF
Drive-through facility	Add 5 stacking spaces per drive-through
Gas station/fuel sales	1 per pump plus requirement for retail
Lodging: Bed and breakfast	2 spaces plus 1 per guest room
Lodging: Inn/hotel	1 per room

Required Spaces: Industrial Uses	
Light manufacturing, processing and packaging	1 per 500 GSF
Warehousing/distribution	1 per 2,000 GSF

For parking requirements for all other allowed uses see Table 5.5.40.B (Parking Space Requirements).

COUNTY COUNCIL OF BEAUFORT COUNTY
Community Development Department
Beaufort County Government Robert Smalls Complex
Administration Building, 100 Ribaut Road
Post Office Drawer 1228, Beaufort, South Carolina 29901-1228

TO: Natural Resources Committee of Beaufort County Council

FROM: Robert Merchant, Interim Beaufort County Community Development Director

DATE: December 28, 2017

SUBJECT: **Osprey Point Planned Unit Development (PUD) Master Plan Amendment**

PLANNING COMMISSION RECOMMENDATION from the excerpt of its December 4, 2017, draft minutes:

Mr. Merchant briefed the Planning Commission on the history of the Osprey Point PUD property, including a 2008 rezoning that included three properties—Okatie Marsh, Osprey Point and River Oaks, as a unified plan. 284 acres were involved, with 900+ dwelling units, 270,000 square feet of commercial development, 300+ assisted/independent living units, and a nursing home on the River Oaks site. The intent was a master plan of a traditional neighborhood with a walkable community, a mix of housing units with a commercial center, with internal trips captured, and capitalizing on the walkability to the neighboring school. County Council adopted the PUDs in 2008 where the properties were formerly zoned rural. Recession occurred and the properties have changed hands—Okatie Marsh was bought by County's Rural & Critical Land Preservation Program, and Osprey Point came in for major amendments with a reduction of density and commercial square footage and making it an age-restricted community. The proposed amendment is removing the age restriction concept from the Osprey Point PUD. The River Oaks PUD is being changed from assisted/senior living and a nursing home to all single-family homes which will affect the neighboring school. The Osprey Point applicant has made soil borings and changed the positioning of the homes with a connectivity to River Oaks. Other minor changes include an improvement of a more direct connection with two connections versus one circuitous route. Staff has not received the Traffic Impact Analysis (TIA) that was requested at the September 2017 Commission meeting. Staff believes a conditional approval recommendation could be considered until the County Traffic Engineer reviews and approves the TIA. Other staff concerns include eliminating the right-in/right-out turn based on the County's adopted Access Management Plan, requiring current stormwater best management practices, and adding the verbiage of Mailand Bluff maintaining the abutting 13-acre County park which was part of the last submittal but not the current submittal. Mr. Merchant noted comments by the Beaufort County School District and the Coastal Conservation League that were added to the meeting packet.

Mr. Semmler queried having both projects (Osprey Point and River Oaks PUDs) to be addressed by all parties, and there were no objections from the Commissioners.

Mr. Merchant briefed the Planning Commission on the River Oaks PUD and its history. The existing PUD calls for independent/assisted living, age-restricted, with 118 cottages, 146 apartment units, and a 66-bed nursing facility. The Applicant is converting all into a single-family subdivision of 315 lots, including converting the 66-bed nursing home into single-family homes (not age-restricted). The proposed subdivision will have 30' X 110' and 40' X 110' lots. Staff concerns from the September 2017 proposal include parking, vehicular traffic, and pedestrian safety with the narrower proposed lots. The new proposed layout is more formal, with the perimeter lots being front loaded. Staff current concerns are the missing TIA, the impact of the proposed community to the surrounding properties and Okatie Elementary School, and the stormwater handling that was not addressed.

Commission discussion included the staff's rationale to eliminate the right-in/right-out along Highway 170 and for traffic to use one of the existing roads instead, and the traffic light concerns for Osprey Point.

Applicants Comments:

1. Mr. Lewis Hammet, the attorney representing both applicants, regarding the Osprey Point PUD stated that improvements and long-term maintenance of the abutting County owed park has not been withdrawn and the verbiage will be part of the current proposal. The original Osprey Point was for families and walkability to the school; the applicant is simply returning to the original concept but cutting the density. The applicant will provide for meeting stormwater standards. On River Oaks, it was expected to be age-restricted. He noted that the development agreement states that 330 units were allowed, including single-family units at the developer's discretion. While the footprint looks considerably different, the development agreement language allows for single-family units, it gave flexibility to the developer. Age-restricted was not imposed on the developer. He noted that schools and growth have always been an issue. Having family oriented development next to the school was a good idea to avoid bussing students to the school. The development agreement terms will be discussed with County Council.
2. Mr. Josh Tiller, the applicants' representative and of J.K. Tiller Associates, handed out a couple of pages to the Commission for their convenience. He noted that Mr. Hammet has mentioned a reduction in density from the original 3 PUDs of 1670 units—395 units for Okatie Marsh, 527 units for Osprey Point, 330 units for River Oaks. The proposal is 396 units from 527 for Osprey Point, and 315 units from 330 for River Oaks. Mr. Tiller noted the loss of 395 units from the Okatie Marsh purchase by the County. Mr. Tiller noted that Pulte Developers will be developing Osprey Point. The TIA is being held until Mr. Kinton reviews it. Ms. Bihl, the applicants' transportation consultant, will speak on her TIA. Mr. Tiller noted that family housing, not age-restricted, is being proposed. The active amenities were moved to the central of the property and the river site became a passive park area. The commercial area has the right-in/right-out feature that was in the original PUD and the applicant wants to keep it. The applicant is willing to add the maintenance responsibility verbiage of the abutting County's 13-acre park. *(Commission queries included details of the right-in/right-out whether there would be separate roads, and ad for clarification on the staff's recommendation to eliminate the right-in/right-out feature.)* Mr. Tiller showed the trails and open space plan as part of a power point presentation.

   Regarding River Oaks, Mr. Tiller noted that the lot setbacks would be 5 feet on the sides, 10 feet on the rear, and 20 feet on the front. Alleyways were provided for the smaller lots, while the larger lots were front loaded. He noted that the alleyway lots have zero lot lines.

Further Commission discussion included concern with the small rear yard setback, an explanation of the deeper front yard setback for parked cars, and a clarification on the width of the garages.

Public Comment:

1. Ms. Carol Crutchfield, Planning Coordinator with Beaufort County School District, noted School Board Superintendent Dr. Jeff Moss' letter. Okatie Elementary is full. They are concerned with school impact fees and would like to see the fees continued. She noted the 711 single-family units proposed. She is uncertain about the full impact of the development on Okatie Elementary. An easement to the school has been discussed with the developer. She is looking forward to seeing the TIA. Commission discussion included the 87% capacity that included Rose Hill, the district having property at a New River site and the abutting property but lacking funding to develop either, concern with traffic from the current enrollment at Okatie Elementary (the issue being the cars and busses coming from the same entrance/exit), and a proposed walking path from River Oaks/Malind Point and Osprey Point/Malind Bluff to Okatie Elementary School.
2. Mr. Colin Kinton, the County Transportation Engineering Director, stated that he was looking for a TIA of the proposed developments. He noted that it would take a couple of weeks from the receipt of

the TIA for him to make his recommendations. Regarding the rationale to eliminate the right-in/right-out feature along Highway 170, Mr. Kinton stated that the County's Access Management Ordinance that was adopted by County Council shows the allowed access points in order to continue the flow of Highway 170 did not include the requested right-in/right-out from Osprey Point. He did note that the TIA on the original PUDs was adopted. However, uses and density issues have caused a need for a new TIA. Mr. Kinton noted that the new regional transportation model includes Jasper County development; the old model did not.

3. Ms. Jennifer Bihl, of Bihl Engineering, the applicant's traffic consultant, noted that Mr. Tiller covered everything. She noted that her calculation uses the 9th Trip Generation edition since the 10th has just come out. A different mix of development is involved with the proposed project.
4. Mr. Joe Dugan, a resident at 254 Cherry Point Road for 25 years, was involved in the original process that took 4 years. There was tremendous resistance because of the bottle neck traffic. Okatie River is compromised. Walking to school is not acceptable. Turning River Oaks from assistant living to single-family housing is a huge change and density will cause traffic from hundreds of homes to dump onto Highway 170. Freshwater is detrimental to the marsh. He noted the earlier comment regarding what about folks wanting to live in a rural area. As a resident in Cherry Point he is trapped by the lighted intersection on Cherry Point Road and further down at the intersection of Highways 278 and 170. The homes will be built in my backyard—they are too close to my home.
5. Mr. Shawn Custer addressed the River Oaks plan. He believes it a step in the right direction toward affordable housing. He is a business and homeowner. There was only 1 affordable housing project he could purchase into. He noted hundreds of commuters coming into Beaufort County due to the lack of affordable housing. Businesses need these homes. If this is affordable housing, this is exactly what is needed. It's impossible to find affordable housing. He supports this plan that is very needed.
6. Ms. Jane Hornburger, a new resident in Bluffton from Hilton Head, moved into housing next to May River School. She noted that existing children would go from renters to homeowners. She noted that this community will help, not tax, the school. She believes the children are already being serviced by the school.
7. Ms. Allison Melton, a realtor in Bluffton, has a child attending a Bluffton school. She noted that she has families that are not ready to purchase the surrounding developments such as Oldfield and River Bend. Families are desperate to purchase in the area. She noted taking her child to school on golf cart. Highway 170 is growing.
8. Ms. Julie Forton, a Cherry Point resident, realizes growth happens. Her children went to Okatie Elementary. There have been numerous accidents on Highway 170. She would not let her children walk to school. There is a growing population of retirement people. Assisted living is desperately needed. She urges catering to the different ages. An age-restricted development will not impact the roads as much. She believes the proposed project will negatively affect waterways.
9. Mr. Terry Lassiter, a resident at 146 Cherry Point Road, noted the history including the impact fees involved. Adding another lane because of the traffic impact is costly. He is touch by the affordable housing issue. He queried if the tax money has been taken from the USC-Beaufort development. He disagrees with the numbers. Cherry Point was a quaint little fishing village; he doesn't want his quality of life messed up. If it can be guaranteed, then he will get on board. He believes Okatie River has been shut down—he blames the Oldfield Subdivision. He noted that the PUD documentation was received with a short turn around by Council. He urges leaving the Cherry Point area out of the development.
10. Ms. Kathy Scott, a 35-year Cherry Point resident, noted the affordable housing home size and cost were missing. She is a real estate broker. She was a business owner on Hilton Head. By paying top dollar, she obtained loyal workers. She gave Kudos on requiring a TIA. She asked about considering the development in the adjoining counties; and suggests all traffic going out of Pritchard Point Road instead of Cherry Point Road. She emphasized the age-restricted population in the original plan. She asks for a compromise with the Cherry Point residents.
11. Ms. Juanita DeGregorio stated she was from the Bronx and there were other options for homeownership such as getting a roommate, Section 8, etc.

Additional Commission discussion included a clarification on affordable housing and work-force housing *(Mr. Merchant noted that affordable housing were those who have 80% of the median income, work-force housing are those who are within 80 to 120% of the median income. He noted that the applicants have labeled 40 units as affordable housing.)*, noting the affordable housing units being reduced from 45 to 40 because of the suggested back alleys, a clarification on the density approved under the old ordinance, proposed ordinance not consistent with CDC, Oyster Bluff fencing versus 10-foot rear buffer, concern with using the 9th Trip Generation edition instead of the latest 10th edition, concern with not having the TIA despite the two-month timeframe from the last meeting in September to this December meeting, a clarification on commission voting options for these projects, desiring a denial recommendation, concern with impairment of the river, concern with overloading the school, concern with PUD handling by Commission, the details of the first Osprey Point amendment, the statistics of original PUDs and the proposed PUD amendments, noting the two separate applicants/owners for each PUD, and the non-receipt of the TIA from the applicants.

Motion: Mr. Robert Semmler made a motion **to recommend approval to County Council on the Southern Beaufort County Map Amendment / Osprey Point (Malind Bluff) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-0006-0000 (119.90 acres east of Highway 170, Okatie) with the following conditions:**

- **incorporate the Beaufort County Stormwater Best Management Practice (BMP) Manual into the plan;**
- **conduct a Traffic Impact Analysis (TIA) using the regional transportation model; and**
- **include the verbiage where the County's abutting 13-acre park will be maintained by Malind Bluff.**

Discussion on the motion included amending the motion to require using the 10th Trip Generation edition instead of the 9th edition that was used and to request an exemption to the Access Management Ordinance to allow the proposed right-in/right-out feature along Highway 170. Mr. Jason Hincher seconded the motion. The motion **failed (FOR: Hincher, Mitchell, and Semmler; AGAINST: Chmelik, Fermin, Pappas, and Stewart; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

Motion: Mr. Robert Semmler made a motion to County Council **to recommend approval to County Council on the Southern Beaufort County Map Amendment / River Oaks (Malind Pointe) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-008C-0000 (+/- 63.54 acres east of Highway 170, Okatie) with the following conditions:**

- **incorporate the Beaufort County Stormwater Best Management Practice (BMP) Manual into the plan; and**
- **conduct a Traffic Impact Analysis (TIA) using the Lowcountry regional transportation model.**

Mr. Ed Pappas seconded the motion. Discussion on the motion included the lack of a TIA. The motion **failed (FOR: Semmler; AGAINST: Chmelik, Fermin, Hincher, Mitchell, Pappas, and Stewart; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

Commission discussion over the above motions resulted in the following motions.

Motion: Mr. Semmler made a motion, and Dr. Caroline Fermin seconded, **to recommend denial to County Council on the Southern Beaufort County Map Amendment / Osprey Point (Malind Bluff) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-0006-0000 (119.90 acres east of Highway 170, Okatie).** The motion **carried (FOR: Chmelik, Fermin, Mitchell, Pappas, and Stewart; AGAINST: Hincher and Semmler; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

Motion: Mr. Semmler made a motion, and Mr. Jason Hincher seconded, **to recommend <u>denial</u> to County Council on the Southern Beaufort County Map Amendment / River Oaks (Malind Pointe) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-008C-0000 (+/- 63.54 acres east of Highway 170, Okatie).** The motion **<u>carried</u> (FOR: Chmelik, Fermin, Hincher, Mitchell, Pappas, and Stewart; AGAINST: Semmler; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

<u>STAFF REPORT</u>:

A. BACKGROUND:

Case No.	ZMA-2017-10
Owner:	LCP III, LLC (J. Nathan Duggins, III)
Applicant:	Joshua Tiller, J.K. Tiller and Associates
Property Location:	On the east side of Okatie Highway (SC 170) at the intersection of Pritcher Point Road.
District/Map/Parcel:	R603-013-000-0006-0000
Property Size:	119.9 acres

B. SUMMARY OF REQUEST: The applicant is requesting revisions to the Osprey Point PUD. This amendment is being sought in conjunction with revisions to the River Oaks PUD located to the south of this site. This is the second time that the Osprey Point PUD is being requested to be revised. The PUD was originally approved in 2008. In 2014, Beaufort County Council approved a significant revision to the original PUD, changing it from a mixed-use, traditional community to a gated, age-restricted residential community (see item C below).

With this current PUD amendment, the most significant change is removing the age restrictions and gates on the residential portion of the development. There are also changes in the road network that improve access from SC 170 into the site and access between this PUD and River Oaks to the south. The 2014 PUD had a mix of lot sizes ranging from 45 to 60 feet wide. This proposal only has 53 foot wide lots. There is also a small increase in total open space from 45.8 acres to 49 acres (39% to 41%).

Changes from September 7 Planning Commission Meeting: The applicant made some moderate revisions to the PUD master plan since the September 7 meeting. These revisions are due in part to changes in the wetland delineations and a change in the proposed homebuilder to the Pulte Group. The following is a summary of the revisions:

- There is a second vehicular access point to the north south connector road that separates the commercial and residential portions of the PUD.
- All of the lots are now 53” x 120” where the September plan had a mixture of 53 and 60 foot wide lots.
- The amenity center was moved from the marsh front to the center of the development.
- With the exception of the amenity center and a small green toward the eastern end of the site, open spaces and lagoons are located behind houses rather than fronting streets.
- There is improved connectivity between this PUD and River Oaks with no proposed gate and more direct means of egress.

- The Master Plan no longer identifies a 13 acre County park north of this site on the marsh that would be managed by Mailind Bluff (Osprey Point).
- The total number of workforce housing units to be supplied in the Osprey Point and River Oaks PUDs has been reduced from 45 to 40.

C. PROJECT HISTORY: It is important to understand that although the Osprey Point PUD has around since 2008, major revisions were made to the master plan in 2014 that set the pattern of development that is being presented with this current request.

Original PUD: The original Osprey Point PUD was approved by County Council in 2008 in conjunction with two adjoining PUDs – Okatie Marsh PUD to the north and River Oaks PUD to the south. This action amended the zoning of a total of 284 acres and increased the allowable density nine-fold. The combined PUDs featured an integrated street network, a mix of land uses and housing types, and a system of pathways, sidewalks and bike lanes. County Council eventually supported the zoning change because they determined that these features made the community economically sustainable and provided enough internal trip capture to reduce the development's impact on SC 170. Since the adoption of the original PUD, in 2012 Okatie Marsh (395 dwelling units, 97.7 acres) was purchased through the Rural and Critical Lands Program.

2014 Amendment: In 2014, County Council approved a revision to the Osprey Point PUD. The following is a summary of the revisions:

- The number of approved dwelling units was reduced from 527 to 396.
- The residential portion of the PUD was age restricted and gated.
- The original master plan called for a mix of housing types – 213 townhouses, 110 multi-family units, and 204 single-family detached units. The amendment eliminated the mix of housing types creating primarily single-family detached units.
- The original master plan had a fully integrated street network and three north-south connector roads. The amended master plan has one north-south connector road and a single road serving the residential portion of the PUD, and one road connecting to the River Oaks PUD.
- There was a minor reduction in allowable commercial square footage from 207,700 square feet to 190,000 square feet.

D. TRANSPORTATION ISSUES:

- **Updated Traffic Impact Analysis (TIA) Ordinance Needed:** At the September 7, 2017 meeting, the Planning Commission requested that the applicant provide a new Traffic Impact Analysis (TIA) that accounted for the combined impacts of the Osprey Point and River Oaks PUDs. The revised TIA needs to look at existing traffic volumes and utilize the Lowcountry Regional Model. The applicant has stated that the revised TIA is underway but not complete due to a backlog of work at CDM Smith, the consultant charged with running the traffic model. Therefore the results of the TIA are not available to the Planning Commission for this review.
- **SC 170 Access:** Additionally, Osprey Point's frontage on SC 170 is only approximately 1,600 feet. Per the Access Management Ordinance for SC 170 in the Community Development Code, access for development of up to 2,000 ft of frontage is limited to 2 locations. The proposed 3 locations across the 1,600 ft would be in violation of the ordinance. The Beaufort County Traffic Engineer recommends that the right-in/right-out access located between the two full access locations be eliminated.

E. POTENTIAL SCHOOL IMPACTS: The combined amendments to the Osprey Point and Cherry Point PUDs may have significant implications on the number of potential students. Both existing PUDs have age restrictions and therefore would have little to no impacts. The proposed amendments would result in the creation of 711 single-family dwelling units with no age restrictions. The School District has been given copies of the two revised PUDs and has expressed concerns about not having excess capacity to address the potential increase in the number of students in southern Beaufort County. Okatie Elementary School is currently at capacity. The School District has also expressed concerns about the need for a second means of vehicular access to the elementary school. The proposed master plan addresses this concern by providing a stub from the traffic circle that would allow a connection to the school district property located south of the PUD. The master plan also provides a potential pedestrian connection to the school.

F. STORMWATER: The County's Stormwater Manager reviewed the revised PUD and drainage plan and stated that the concept that the applicant has submitted is acceptable. However, the revised PUD document needs to clearly incorporate the County's existing Stormwater BMP Manual and any revisions that are made in the future. When the original PUD was approved in 2008, the County did not have volume control standards in place. The project's location on the Okatie River makes it crucial that it follow the latest standards and practices for stormwater management. The Okatie River is an impaired waterway and is currently protected by a set of Total Maximum Daily Load (TMDL) regulations to ensure its continued or improved health in the future.

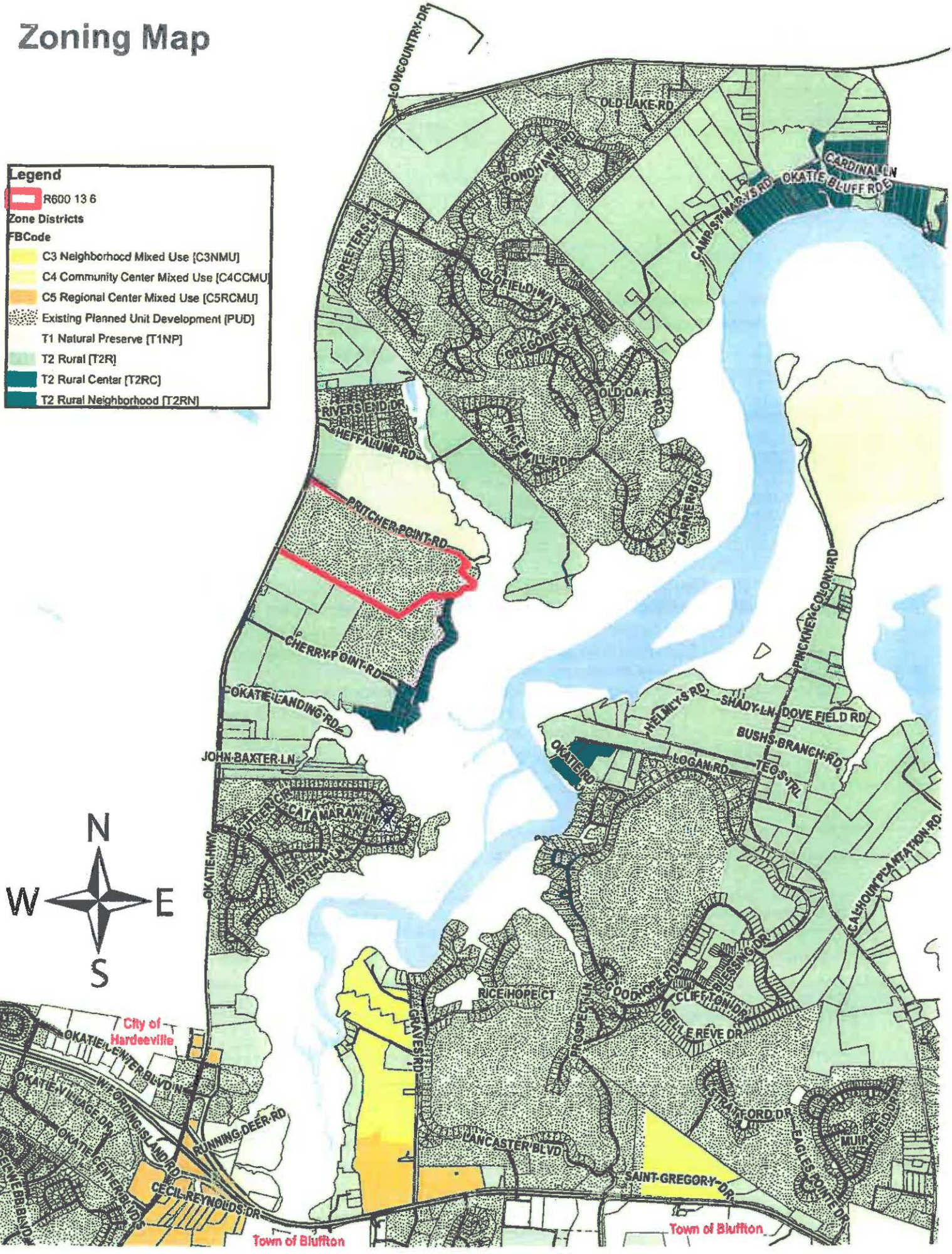
G. STAFF RECOMMENDATION: Staff **recommends approval with the following conditions**:

- The right-in/right-out intersection with SC 170 should be eliminated to bring the PUD into compliance with the County's access management standards for SC 170.
- The revised PUD document needs to clearly incorporate the County's existing Stormwater BMP Manual and any revisions that are made in the future.
- A Traffic Impact Analysis (TIA) needs to be conducted for the combined impacts of the Osprey Point and River Oaks PUDs. This TIA needs to look at existing traffic volumes and utilize the Lowcountry Regional Model. Any recommended improvements resulting from the findings of the TIA need to be incorporated into the PUD document before approval by County Council.
- The revised PUD Master Plan needs to indicate the 13 acre park located directly north of the site that will be managed by Malind Bluff (Osprey Point).

H. ATTACHMENTS:

- Locational Map
- Application with backup documentation, including TIA
- List of Property Owners Notified of Request
- Notification Letter to Property Owners

Zoning Map


Legend
R600 13 6
Zone Districts
FBCode
C3 Neighborhood Mixed Use [C3NMU]
C4 Community Center Mixed Use [C4CCMU]
C5 Regional Center Mixed Use [C5RCMU]
Existing Planned Unit Development [PUD]
T1 Natural Preserve [T1NP]
T2 Rural [T2R]
T2 Rural Center [T2RC]
T2 Rural Neighborhood [T2RN]
N
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LOWCOUNTRY DR
OLD LAKE RD
PONDHAWK RD
GREETERS LN
OLD FIELD WAY
GREGORIE LN
CAMP ST MARYS RD
CARDINAL LN
OKATIE BLUFF RD E
OLD OAK RD
RICE HILL RD
CARRIE RBL
RIVERS END DR
HEFFALUMP RD
PRITCHER POINT RD
CHERRY POINT RD
OKATIE LANDING RD
JOHN BAXTER LN
PINCKNEY COLONY RD
HELMLY'S RD
SHADY LN
DOVE FIELD RD
BUSHS BRANCH RD
OKATIE RD
LOGAN RD
TEOS TRL
CALHOUN PLANTATION RD
CUTTER CIR
CATAMARAN LN
WISTERIA LN
OKATIE HWY
RICE HOPE CT
GOOD HOPE RD
BLESSING DR
CLIFFTON DR
BELLE REVE DR
GRAVES RD
HOPE POINT LN
City of Hardeeville
OKATIE CENTER BLVD N
OKATIE VILLAGE DR
WIGGINS ISLAND RD
RUNNING DEER RD
OKATIE CENTER BLVD
CECIL REYNOLDS DR
DEER VIEW BLVD
LANCASTER BLVD
STAFFORD DR
EAGLES POINTE DR
MUIR FIELD DR
SAINT GREGORY DR
Town of Bluffton
Town of Bluffton

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): (X) 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:
   Tax District Number:_____, Tax Map Number:_____, Parcel Number(s):R600 013 000 0006 0000
   Size of subject property: 119.90 AC Square Feet / Acres (circle one)
   Location: Okatie: East of HWY 170 and South of
   Pritcher Point Rd.

3. How is this property presently zoned? (Check as appropriate)

( ) T4NC Neighborhood Center	( ) T2RC Rural Center	( ) C3 Neighborhood Mixed Use
( ) T4HC Hamlet Center	( ) T2RN Rural Neighborhood	( ) C4 Community Center Mixed Use
( ) T4HCO Hamlet Center	( ) T2RNO Rural Neighborhood Open	( ) C5 Regional Center Mixed Use
( ) T4VC Village Center	( ) T2R Rural	( ) S1 Industrial
( ) T3N Neighborhood	( ) T1 Natural Preserve	(X) Planned Unit Development/PUD
( ) T3HN Hamlet Neighborhood	( ) Community Preservation	(name) Okatie Village (Malind Bluff)
( ) T3E Edge	(specify)_____	_____

4. What new zoning do you propose for this property? Amended PUD
   (Under Item 9 explain the reason(s) for your rezoning request.)

5. Do you own all of the property proposed for this zoning change? (X) 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: N/A
   (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:

( ) MCAS-AO Airport Overlay District/MCAS	( ) MD Military Overlay District
( ) BC-AO Airport Overlay District/Beaufort County	( ) RQ River Quality Overlay District
( ) CPO Cultural Protection	( ) TDR Transfer of Development Rights
( ) CFV Commercial Fishing Village	

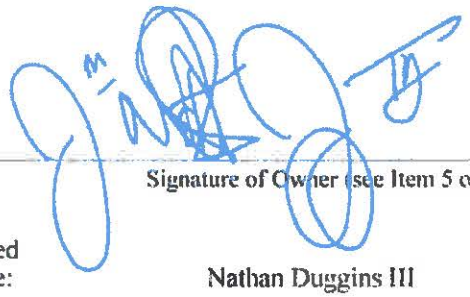
8. The following sections of the Community Development Code (CDC) (see attached sheets) should be addressed by the applicant and attached to this application form:
   a. Division 7.3.20 and 7.3.30, Comprehensive Plan Amendments and Text Amendments.
   b. Division 7.3.40, Zoning map amendments (rezoning).
   c. Diuvision 1.6.60, Planned Unit Developments (PUDs) Approved Prior to Dec. 8, 2014
   d. Division 6.3, Traffic Impact Analysis (for PUDs)

FILE NO: ~~Z~~ 16/10/Pritcher Point PUD Amendment Request / Initiated by: STAFF / OWNER
(Circle One)

17618

9. Explanation (continue on separate sheet if needed): See attached PUD Amendment Narrative

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.



7.17.2017

Signature of Owner (see Item 5 on page 1 of 1) Date

Printed Name: Nathan Duggins III

Telephone Number: 336-271-5246

Address: PO Box 2888 Greensboro, NC 27402

Email: NDuggins@tuggleduggins.com

Agent (Name/Address/Phone/email): Josh Tiller/181 Bluffton Rd. STE 201, Bluffton, SC 29910/843-815-4800 / josh@jktiller.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)

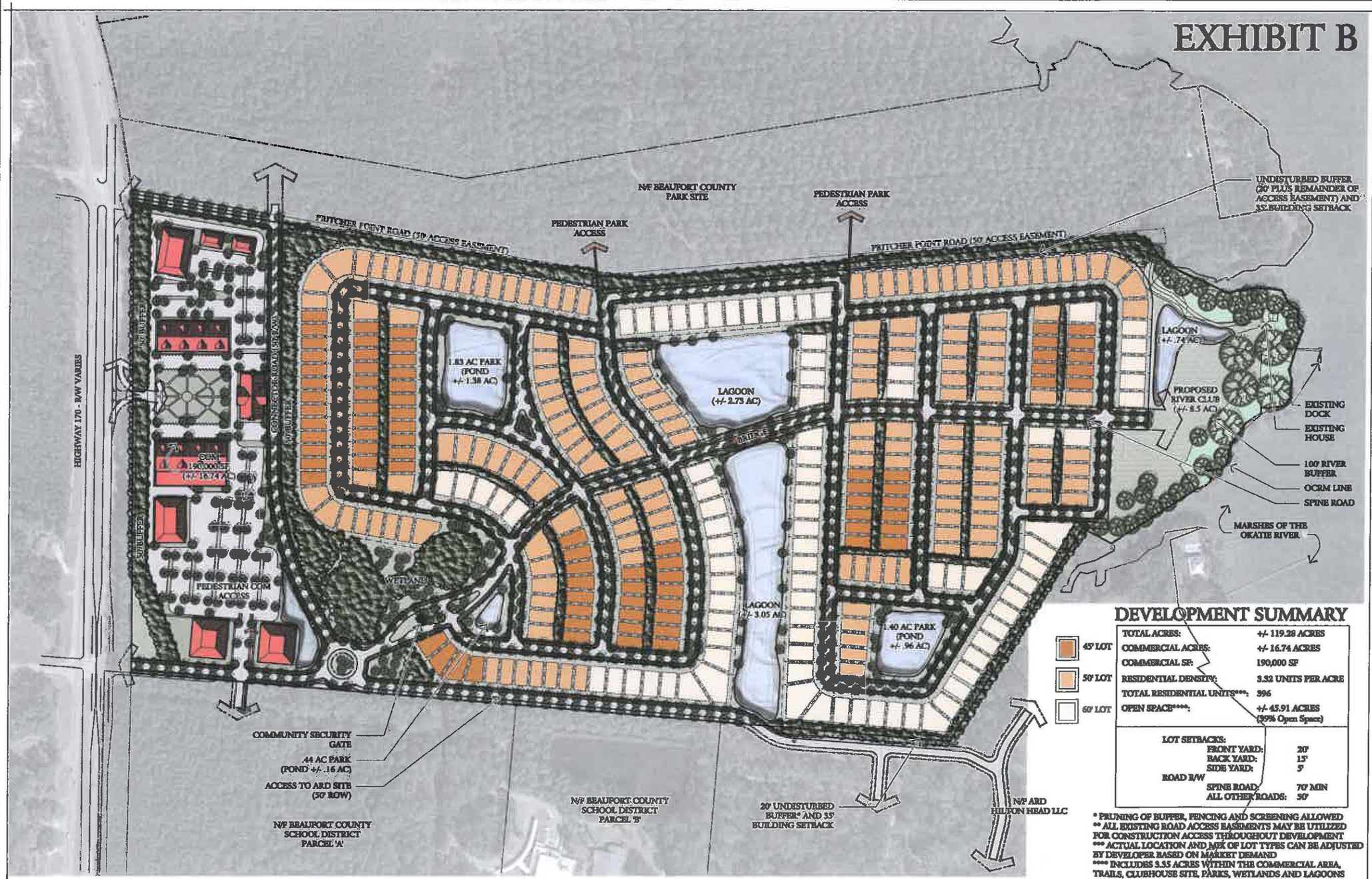
Date Posting Notice Issued:

Application Fee Amount Received:

Receipt No. for Application Fee:

FILE NO:_____// Initiated by: STAFF / OWNER
(Circle One)

EXHIBIT B



DEVELOPMENT SUMMARY

45' LOT
50' LOT
60' LOT

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL SF:	190,000 SF
RESIDENTIAL DENSITY:	3.32 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	396
OPEN SPACE****:	+/- 45.91 ACRES (39% Open Space)

LOT SETBACKS:

FRONT YARD:	20'
BACK YARD:	15'
SIDE YARD:	5'
ROAD R/W	
SPINE ROAD:	70' MIN
ALL OTHER ROADS:	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 3.55 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, CLUBHOUSE SITE, PARKS, WETLANDS AND LAGOONS

PREPARED FOR:
MALIND BLUFF DEVELOPMENT LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
788 PINCKNEY COLONY ROAD SUITE 101 BLUFFTON SC 29909

OSPREY POINT (MALIND BLUFF) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

July 29, 2014

GRAPHIC SCALE

NORTH 0 200' 400' 600'

JKT Job Number: 201403-01

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EXHIBIT B

DEVELOPMENT SUMMARY

53' LOT

60' LOT

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL SF:	190,000 SF
RESIDENTIAL DENSITY:	3.32 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	396
OPEN SPACE****:	+/- 44.44 ACRES (37% Open Space)

LOT SETBACKS:

FRONT YARD:	20'
BACK YARD:	15'
SIDE YARD:	5'
ROAD R/W	
ROADS:	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 3.35 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, CLUBHOUSE SITE, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PREPARED FOR:
COLLEGRO INVESTMENTS

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
789 PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909

OSPREY POINT (MALIND BLUFF) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

AUGUST 9, 2017

GRAPHIC SCALE

NORTH 0 200' 400' 600'

JKT Job Number: 201605-01

T:\Projects\2017\06-01\-DWG\MasterPlan.dwg, TREES, 7/5/2017 8:53:32 PM

Exhibit D

DEVELOPMENT SCHEDULE

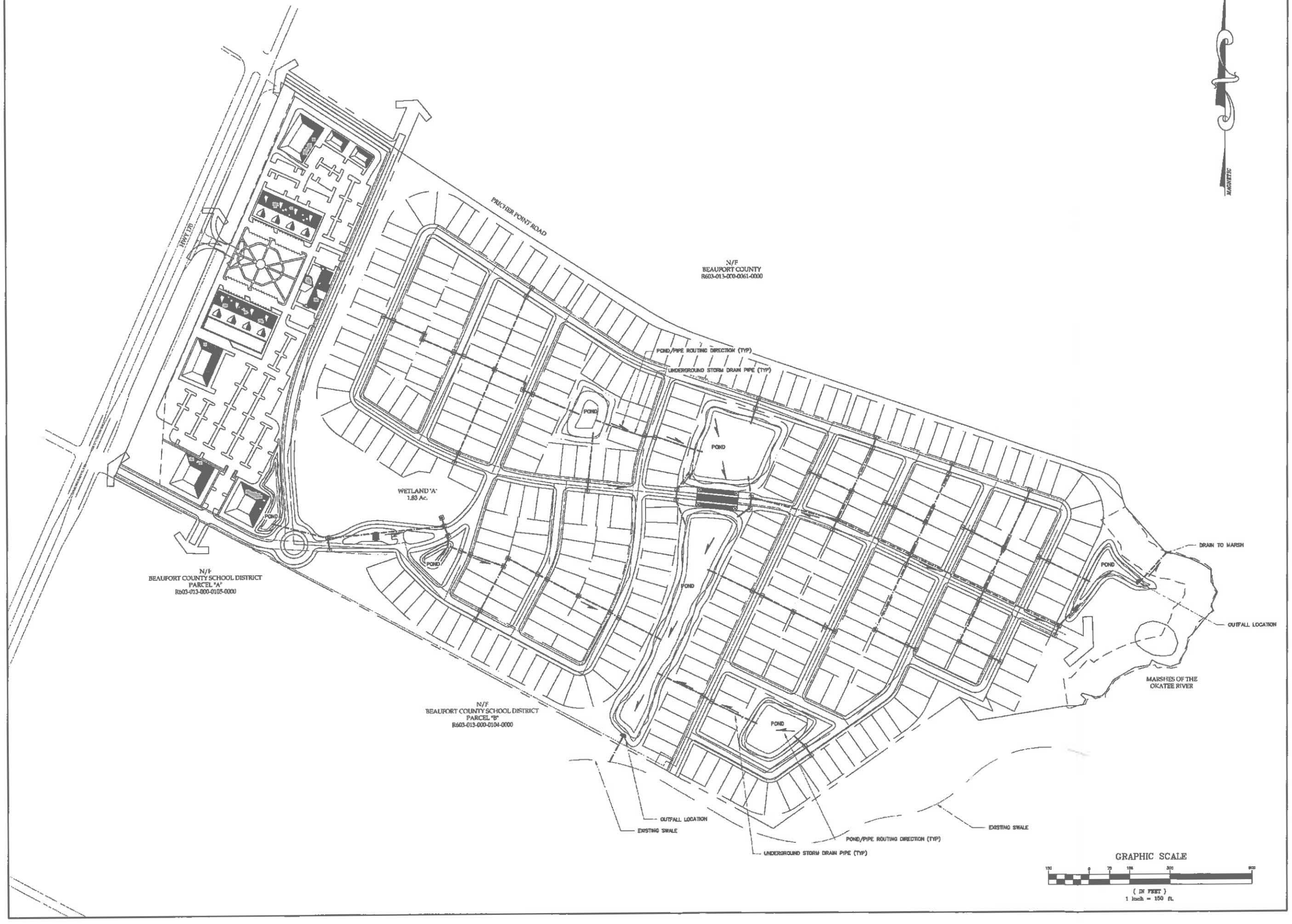
Development of the Property is expected to occur over the five (5) year term of the Agreement, with the sequence and timing of development activity to be dictated largely by market conditions. The following estimate of expected activity is hereby included, to be updated by Owner as the development evolves over the term:

	Year(s) of Commencement / Completion				
Type of Development	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**
Commercial (Sq. Ft.)		45,000	30,000	75,000	62,700
Residential, Single Family (1)	74	74	74	74	74
Residential, Multifamily (2)	--				
Affordable / Workforce Housing (3)	--				
Park -- % To Be Completed	--	100%	--	--	--
Multi-Purpose Trail & Pathways -- % To Be Completed	--	25%	30%	30%	15%
Public Safety Site Transfer -- % To Be Completed	--	100%	--	--	--

(1) 370 single family units are forecast to remain to be built at the end of five years.
(2) none planned.
(3) River Oaks Schedule

As stated in the Development Agreement, Section VI, actual development may occur more rapidly or less rapidly, based on market conditions and final product mix.

EXHIBIT E



MAGNETIC

SOUTH CAROLINA ENGINEERING CONSULTANTS INC. No. C02334 CERTIFICATE OF AUTHORIZATION

PLAN REVISIONS

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

MAYLIND BLUFF & MAYLIND POINT
HWY 170
BEAUFORT COUNTY, SC

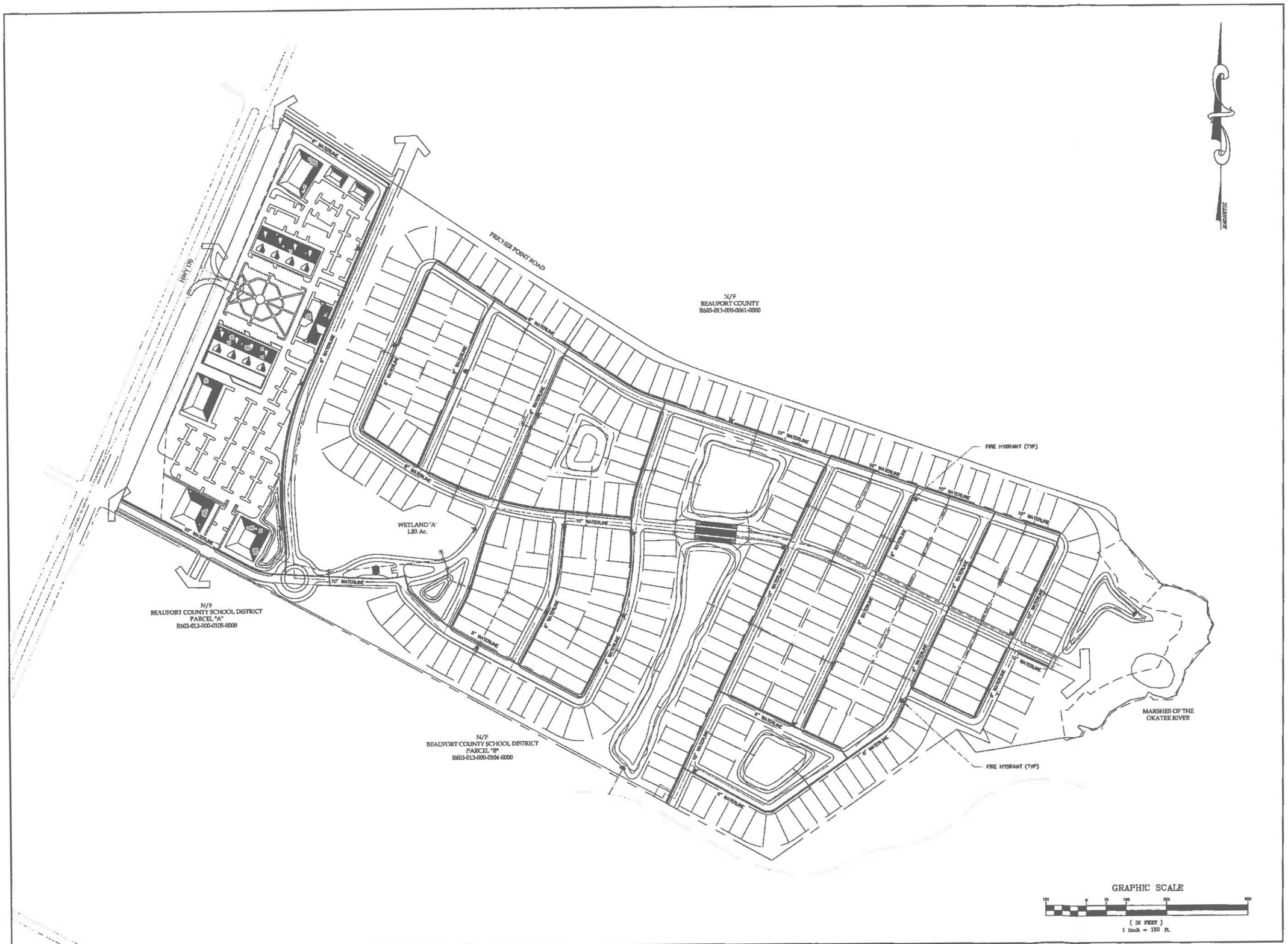
CAROLINA ENGINEERING CONSULTANTS, INC.
843/322-0553
843/322-0556 (FAX)
WWW.CAROLINAENGINEERING.COM
PO BOX 294
BEAUFORT, SC 29901

PROJECT:	1659
DATE:	06/19/14
REVISED:	06/14/17
DRAWN BY:	TAB
ENGINEER:	JPA
SCALE:	1"=150'

DRAINAGE EXHIBIT

1
OF 1

EXHIBIT F



SOUTH CAROLINA
CAROLINA ENGINEERING CONSULTANTS INC.
No. C02334
REGISTERED

PLAN REVISIONS

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

MAYLIND BLUFF & MAYLIND POINT
HWY 170
BEAUFORT COUNTY, SC

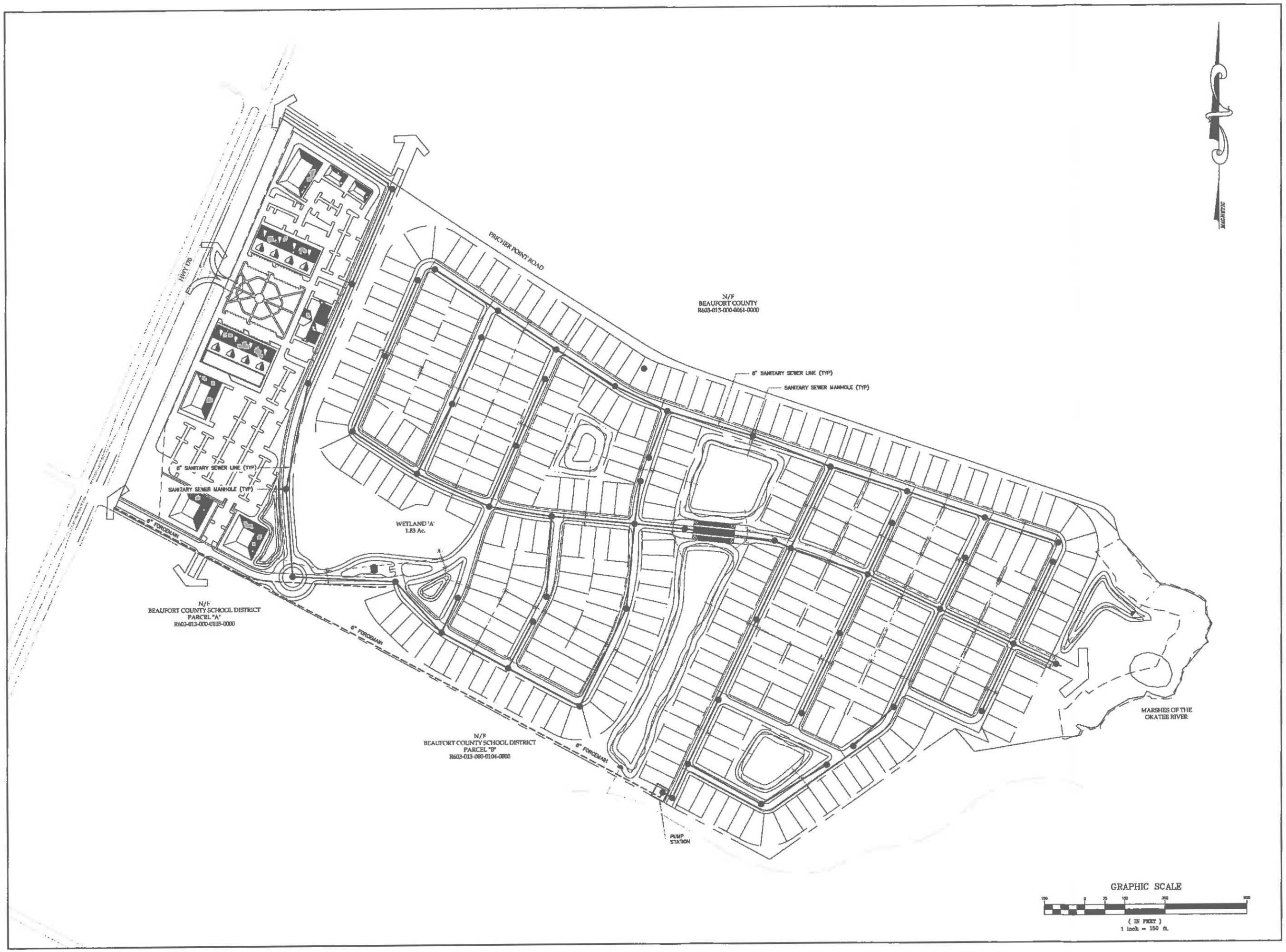
CAROLINA ENGINEERING CONSULTANTS, INC.
843/322-0553
843/322-0556 (FAX)
WWW.CAROLINAENGINEERING.COM
PO BOX 294
BEAUFORT, SC 29901

PROJECT:	1659
DATE:	06/19/14
REVISED:	06/14/17
DRAWN BY:	TAB
ENGINEER:	JPA
SCALE:	1"=150'

WATER
EXHIBIT

1
OF 1

EXHIBIT G



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

PLAN REVISIONS

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

MAYLIND BLUFF & MAYLIND POINT
HWY 170
BEAUFORT COUNTY, SC

CAROLINA ENGINEERING CONSULTANTS, INC.
PO BOX 394
BEAUFORT, SC 29901
843/322-0553
843/322-0556 (FAX)
WWW.CAROLINAENGINEERING.COM

PROJECT:	1659
DATE:	06/19/14
REVISED:	06/14/17
DRAWN BY:	TAB
ENGINEER:	JPA
SCALE:	1"=150'

SANITARY SEWER EXHIBIT

1
OF 1

PREPARED FOR:
BAUFORT COUNTY

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING — LANDSCAPE ARCHITECTURE
101 BLUFFTON ROAD, SUITE F105 — BLUFFTON, SC 29910

OKATIE RIVER PASSIVE PARK
Conceptual Master Plan A
BEAUFORT COUNTY, SOUTH CAROLINA

SEPT. 9, 2016

JKT Job Number 201608-01

EXHIBIT I

BIHL ENGINEERING

Memorandum

To: Richard Schwartz, Village Park Homes

From: Jennifer Bihl, PE, PTOE

Date: July 16, 2017

Re: *Traffic Impact and Access Summary for Okatie Village Planned Unit Development*

This memorandum documents the traffic intensity for the original Planned Unit Development (PUD) and the proposed changes to the PUD as a part of this update. The PUD is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. A graphic of the proposed changes is shown in **Figure 1.**

The original PUD plan (11/20/07) included of approximately 272,500 square feet (sf) of commercial space (204,375 sf of retail and 68,125 sf of office space), 636 single-family detached units, 316 single-family attached units, and 388 multi-family apartment units.

The proposed updated PUD plan includes approximately 190,000 sf of commercial space (142,500 sf of retail and 47,500 sf of office space), 861 single-family detached units, 103 single-family attached units, and 165 multi-family apartment units. This is an overall reduction of units and square footage as well as a reduction in each area of the PUD.

Trip Generation

The traffic generation potential of the existing/currently allowed development and proposed development was determined using trip generation published in Institute of Transportation Engineers' (ITE) *Trip Generation, Ninth Edition.* **Table 1** shows a comparison of the projected trips for the original uses and the updated uses. Note that the gross trips are shown below to be conservative and do not include internal capture or pass-by trips.

As shown in **Table 1**, the proposed updated PUD plan uses are projected to generate 1,048 gross trips during the AM peak hour (391 in and 657 out) and 1,791 gross trips during the PM peak hour (958 in and 833 out). Compared to the original PUD uses, the proposed updated PUD uses result in 113 fewer AM peak hour trips and 271 fewer PM peak hour trips with lower entering and exiting trips for each time period. The gross daily trips are also projected to be reduced by 3,084 trips.

Site Access

The access plan for the site is not planned to be changed as a part of this update. The PUD has four access points along SC 170. The detailed analysis associated with these access points was not performed, however, it is expected that this will be performed during the site plan process. However, since all parcels have a lower intensity than the original plan, it is expected that the original PUD analysis is considered conservative and overall impacts are expected to be lower than the original PUD.

BIHL ENGINEERING

Table 1: Trip Generation								
Land Use and Intensity	**ITE Land Use Code**	**Daily**	**AM Peak Hour**			**PM Peak Hour**		
		Total	**Total**	**In**	**Out**	**Total**	**In**	**Out**
Original PUD Uses								
636 Single-Family Detached Units	210	5,761	455	114	341	555	350	205
316 Residential Condominium/Townhouse Units	230	1,750	130	22	108	154	103	51
388 Apartments	220	2,475	194	39	155	231	150	81
204,375 sf Retail	820	10,807	241	149	92	967	464	503
68,125 sf Office	710	981	141	124	17	155	26	129
Gross Trips		**21,774**	**1,161**	**448**	**713**	**2,062**	**1,093**	**969**
Updated PUD Uses								
861 Single-Family Detached Units	210	7,612	612	153	459	729	459	270
103 Residential Condominium/Townhouse Units	230	660	53	9	44	62	42	20
165 Apartments	220	1,123	85	17	68	108	70	38
142,500 sf Retail	820	8,549	193	120	73	760	365	395
47,500 sf Office	710	746	105	92	13	132	22	110
Gross Trips		**18,690**	**1,048**	**391**	**657**	**1,791**	**958**	**833**
Difference		**-3,084**	**-113**	**-57**	**-56**	**-271**	**-135**	**-136**

OKATIE VILLAGE COMPOSITE PLAN DEVELOPMENT SUMMARY

OKATIE VILLAGE PUD MASTER PLAN (Okatie Marsh, Osprey Point, River Oaks and Other Parcels)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	+/-372,500 SF
TOTAL DWELLING UNITS:	1670 UNITS
SINGLE-FAMILY DETACHED:	656 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	316 UNITS
MULTI-FAMILY/APARTMENTS:	388 UNITS
DENSITY:	3.92 UNITS/AC
OPEN SPACE:	191.47 AC = 44.9 %

OKATIE MARSH PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	+/-64,800 SF
TOTAL DWELLING UNITS:	395 UNITS
SINGLE-FAMILY DETACHED:	267 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	128 UNITS
DENSITY:	3.89 UNITS/AC
OPEN SPACE:	34.77 AC = 34.3 %

OSPREY POINT PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	+/-307,700 SF
TOTAL DWELLING UNITS:	527 UNITS
SINGLE-FAMILY DETACHED:	204 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	213 UNITS
MULTI-FAMILY/APARTMENTS:	110 UNITS
DENSITY:	4.41 UNITS/AC
OPEN SPACE:	40.80 AC = 34.2 %

RIVER OAKS PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	330 UNITS
DENSITY:	5.39 UNITS/AC
OPEN SPACE:	28.40 AC = 46.4 %

OTHER PARCELS (Includes Existing Elementary School, Future Middle School, and Future Development)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PREPARED FOR:
Village Park Homes & Callegro Investments

LAND PLANNING:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNERS LANDSCAPE ARCHITECTURES
747 HILTON HEAD ISLAND PKWY, SUITE F101 HILTON HEAD ISLAND, SC 29926

CIVIL CONSULTANT:
Carolina Engineering Consultants, Inc.

OKATIE VILLAGE
COMPOSITE PLAN
BEAUFORT COUNTY, SOUTH CAROLINA
JUNE 21, 2017

NORTH

GRAPHIC SCALE
0 300' 600' 900'

JKT Job Number: 2017705-01
2017716-01

OKATIE VILLAGE COMPOSITE PLAN DEVELOPMENT SUMMARY

OKATIE VILLAGE PUD MASTER PLAN (Okatie Marsh, Osprey Point, River Oaks and Other Parcels)

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	+/-273,500 SF
TOTAL DWELLING UNITS:	1670 UNITS
SINGLE-FAMILY DETACHED:	696 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	316 UNITS
MULTI-FAMILY/APARTMENTS:	388 UNITS
DENSITY:	3.92 UNITS/AC
OPEN SPACE:	191.47 AC = 44.9 %

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	190,000 SF
TOTAL DWELLING UNITS:	1129 UNITS
SINGLE-FAMILY DETACHED:	861 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	103 UNITS
MULTI-FAMILY/APARTMENTS:	165 UNITS
DENSITY:	2.65 UNITS/AC
OPEN SPACE:	+/- 257.88 AC = 60.5 %

OKATIE MARSH PUD

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	+/-64,800 SF
TOTAL DWELLING UNITS:	395 UNITS
SINGLE-FAMILY DETACHED:	267 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	128 UNITS
DENSITY:	3.89 UNITS/AC
OPEN SPACE:	34.77 AC = 34.3 %

COUNTY PASSIVE PARK

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	N/A
SINGLE-FAMILY DETACHED:	N/A
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	N/A
DENSITY:	N/A
OPEN SPACE:	+/-98.3 AC = 97 %

OSPREY POINT PUD

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	+/-207,700 SF
TOTAL DWELLING UNITS:	527 UNITS
SINGLE-FAMILY DETACHED:	204 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	213 UNITS
MULTI-FAMILY/APARTMENTS:	110 UNITS
DENSITY:	4.41 UNITS/AC
OPEN SPACE:	40.80 AC = 34.2 %

MALIND BLUFF PUD

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	190,000 SF
TOTAL DWELLING UNITS:	396 UNITS
SINGLE-FAMILY DETACHED:	381 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	15 UNITS
DENSITY:	3.32 UNITS/AC
OPEN SPACE:	44.44 AC = 37 %

RIVER OAKS PUD

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	330 UNITS
DENSITY:	5.39 UNITS/AC
OPEN SPACE:	28.40 AC = 46.4 %

MALIND POINTE PUD

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	315 UNITS
DENSITY:	5.15 UNITS/AC
OPEN SPACE:	27.64 AC = 45.1 %

OTHER PARCELS (Includes Existing Elementary School, Future Middle School, and Future Development)

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PREPARED FOR:
Village Park Homes & Callegro Investments

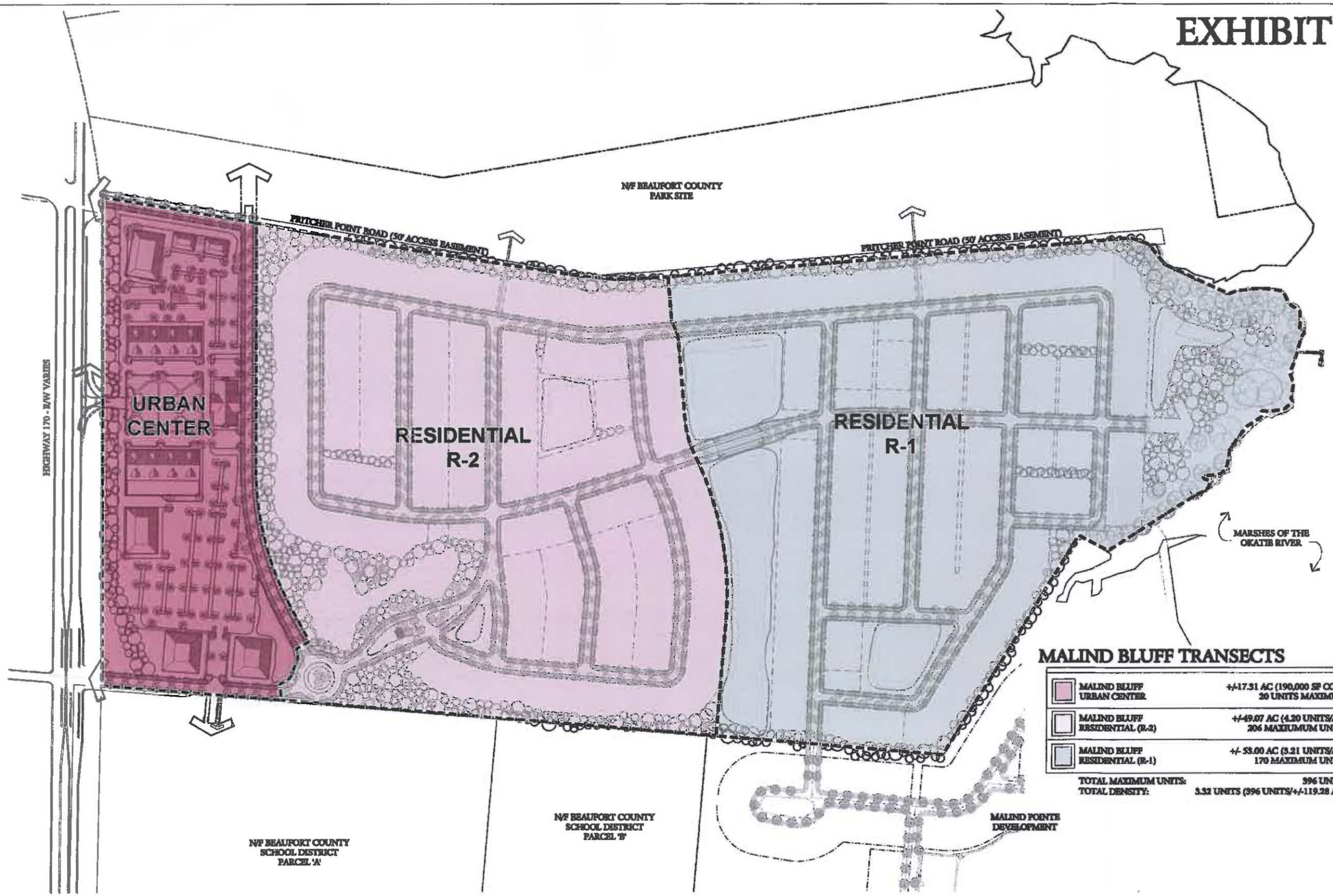
LAND PLANNING:
J. K. TILLER ASSOCIATES, INC.

CIVIL CONSULTANT:
Carolina Engineering Consultants, Inc.

OKATIE VILLAGE
COMPOSITE PLAN
BEAUFORT COUNTY, SOUTH CAROLINA
JUNE 21, 2017

GRAPHIC SCALE
NORTH 0 300' 600' 900'

EXHIBIT J



MALIND BLUFF TRANSECTS

MALIND BLUFF URBAN CENTER	+/-17.31 AC (190,000 SF COM) 20 UNITS MAXIMUM
MALIND BLUFF RESIDENTIAL (R-2)	+/-49.07 AC (4.20 UNITS/AC) 206 MAXIUMUM UNITS
MALIND BLUFF RESIDENTIAL (R-1)	+/- 53.00 AC (3.21 UNITS/AC) 170 MAXIMUM UNITS
TOTAL MAXIMUM UNITS:	396 UNITS
TOTAL DENSITY:	3.32 UNITS (396 UNITS/+/-119.28 AC)

PREPARED FOR:
COLLEGRO INVESTMENTS

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
7788 PINCHENEY COLONY ROAD SUITE 101 BLUFFTON SC 29909
Voice 843.815.4800 jkt@jktiller.com Fax 843.815.4802

OSPREY POINT (MALIND BLUFF)
TRANSECT MAP

BEAUFORT COUNTY, SOUTH CAROLINA

July 5, 2017

NORTH

GRAPHIC SCALE
0 200' 400' 600'

JKT Job Number: 201403-01

COMBINED NARRATIVE

(Revised October 16, 2017)

OSPREY POINT AND RIVER OAKS AT OKATIE VILLAGE AMENDMENT REQUESTS

Introduction

Okatie Village originally consisted of Okatie Marsh PUD, Osprey Point PUD, and River Oaks PUD, each passed by Beaufort County Council as separate parts of a coordinated whole in 2008. Each was passed with its separate, but coordinated, Development Agreement at the same time, following over two years of active planning and negotiations.

The dream of Okatie Village was a mixed-use community, where kids could walk or be driven to the elementary school (without entering Highway 170), families could shop at the Neighborhood Commercial Village, park facilities were to be available to all, and an historic Workforce Housing requirement would make it possible for average income, working families to be part of the community. Environmental controls were the highest in the County, to protect the river and marsh, with required water quality testing.

The dream evaporated during the Great Recession. Nothing was built or developed on any of the three properties. Okatie Marsh went bankrupt and was purchased by the County for open space. River Oaks went bankrupt next and was sold by the bank, with an uncertain future. Osprey Point came in to Beaufort County for an amendment to its PUD and Development Agreement in 2014, attempting to salvage something with a prospective development partner. The 2014 Osprey Point plan envisioned an age restricted and gated community. That plan also failed to move forward, after approval, due to high projected lot costs.

A new vision has emerged for a new, coordinated development that seeks to restore much of the original vision of Okatie Village, while competing successfully in the current market. Osprey Point has a new Second Amended PUD, and River Oaks comes forward with a coordinated First Amendment to its PUD. The details of each proposal are contained in the respective submittals which accompany this Narrative. To lend context to the proposals, this Narrative summarizes the allowed development within Okatie Village in 2008, followed by the allowed development in 2014 (at the time of the Osprey Point First Amendment), and finally, a brief summary of allowed development within Okatie Village under these current proposals.

The requested changes that are specific to the **Osprey Point PUD and Master Plan** only are listed and justified in the final section of this narrative.

The Original Okatie Village Plan (2008)

The original Okatie Village included Okatie Marsh (with 395 allowed homes and 64,800 square feet of commercial), Osprey Point (with 527 allowed homes and 207,700 square feet of Village Commercial), and River Oaks (with 330 allowed retirement cottages, apartments and condos, with nursing and other facilities). Of the combined total of 1,250 homes, 922 homes allowed families, with the remainder being age restricted within River Oaks.

Complete traffic, environmental, and economic studies were performed at the time. The traffic and road improvements were designed to accommodate these larger expected populations, and the storm water and other environmental features were designed to accommodate these loads. In fact, at the request of Planning Staff, these studies included projected development of nearby properties, to ensure that the Okatie Village communities could function and the designed systems were adequate. It should be noted that the enclosed traffic letter (Exhibit H) also includes densities projected for the adjacent properties.

Only the River Oaks retirement PUD was envisioned to be gated, so that all family residences within both Okatie Marsh and Osprey Point could reach, through internal roads and paths, both the nearby school site and the planned Village Commercial area off Highway 170. The original developers of both Osprey Point and Okatie Marsh made historic commitments to include affordable, workforce housing for at least some of the product types, but not for single family housing.

Okatie Village Plan in 2014

The years from the original 2008 approvals of Okatie Village communities, through 2013, were very dark times. As stated above, Okatie Marsh failed completely and was purchased by Beaufort County for open space. River Oaks, the proposed retirement community, foundered and was in bankruptcy and foreclosure. Osprey Point was the last standing of the three communities, but no development had taken place and disaster was on its horizon as well. A national builder sought the Osprey Point property for an age restricted, gated community. Many months were spent in negotiations with Beaufort County, and finally the First Amendment to Osprey Point Development Agreement and PUD was passed in late 2014. But alas, internal negotiations and projected lot cost overruns doomed the new Osprey Point direction. No development took place and the proposed national builder moved on.

With the passage of the Osprey Point First Amendment in 2014, the original vision for Okatie Village was all but lost. Okatie Marsh was gone, and its potential for 396 homes was down to zero. River Oaks was in bankruptcy, with no one stepping up to develop the retirement center at that location. Osprey Point was down to 396 potential residents (from its 527 original approval). All of the anticipated homes within Osprey Point were to be age restricted homes,

with no provision for families to interact with the schools or the planned Village Commercial area. The loss of much of the residential density darkened the possibility of the Village Commercial area ever being built as envisioned, and doomed its future to a highway strip center.

The new 2014 commitment of Osprey Point to develop a minimum of 15 affordable homes became a somewhat hollow commitment, with no houses being built at all, at any price range.

New Okatie Village Plan of 2017

Against this background, the owners of Osprey Point and River Oaks have joined forces to present a new coordinated plan, which revives much of the original Okatie Village dream. All homes in both communities will now allow families.

Even more importantly, the two communities have pledged to allow cross access to one another, so that all residents can reach the schools and all residents can reach the Village Commercial area. Total residential density for Osprey Point remains at 396, and River Oaks density is forecast at 315 homes. The Village Commercial density remains at 207,700, but now has a chance to thrive as part of an active, family oriented community.

One of the best features of the revived Okatie Village vision is an increased commitment to affordable, workforce housing. At present, before these amendments, the requirement for all of Okatie Village (if it develops as expected as single family) is 15 affordable homes. The new development partner has stepped up this commitment. A new minimum commitment of 40 affordable workforce homes within Okatie Village has been added. This important pledge will allow working families, teachers, police, fire fighters and others to buy homes in a beautiful new community.

The official documents for the First Amendment to River Oaks PUD, and the Second Amendment to Osprey Point PUD, are attached to this Narrative. The plans are explained in greater detail, along with the justifications for changes, in the body of these documents. The Owners, the prospective developer, and all team members will stand ready to answer any questions that arise in the process.

We urge all Beaufort County residents, and of course, Members of Council, to review these requests carefully, and approve this revived vision for Okatie Village.

LIST OF PROPOSED PUD CHANGES

OSPREY POINT AT OKATIE VILLAGE PUD (Second Amendment)

1. Only a few changes to the PUD and Master Plan, many of which are a restoration of the original agreement:
2. Changes:
    a. Master Plan and Trail Plan- Changes to the approved layout to reflect restored direct interconnectivity with adjoining River Oaks (Vehicular, Bike and Pedestrian), so all can reach schools, village commercial, Highway 170, and the planned 13 Acre Park. This change removes the parallel road easement along the southern property line of Osprey Point that connected River Oaks to Highway 170 and the Commercial area of Osprey Point. In the previous Amendment, there was no commitment to build a road, just a provision to provide the easement. The change restores the original interconnectivity between Osprey Point and River Oaks by use of roads already obligated for construction. – No change in density or development and design standards from approved 1st Amendment.
    b. Added a second vehicular access point to the Connector Road.
    c. Allowed use for family housing restored. (Previously changed to age restricted).
    d. All other items in Second Amendment relate to the Development Agreement issues. All stormwater, environmental and related standards continue, including commitment to stormwater quality testing.

BIHL ENGINEERING

Memorandum

To: Josh Tiller, PLA, ASLA, J.K. Tiller Associates, Inc.

From: Jennifer Bihl, PE, PTOE

Date: October 16, 2017

Re: *Status of Traffic Impact Analysis for Osprey Point (Malind Bluff) PUD and River Oaks (Malind Pointe) PUD*

The Traffic Impact Analysis (TIA) associated with the updates to the Osprey Point (Malind Bluff) PUD and the River Oaks (Malind Pointe) PUD is in process. The updated to the PUD land uses result in 685 single family units and 212,700 square feet of commercial space (office and retail). The latest master plans for these two PUDs are attached. The PUD is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road.

Peak hour intersection turning movement counts including vehicular, pedestrians, and heavy vehicle traffic were performed in October 2017 from 7:00 AM to 9:00 AM and from 2:00 PM to 6:00 PM at the following intersections:

- SC 170 at SC 140
- Argent Boulevard at Jasper Station Road/Short Cut Road
- SC 170 at Pritcher Point Road/Short Cut Road
- SC 170 at Red Oaks Drive
- SC 170 at Pearlstine Drive/Cherry Point Road
- SC 170 at Schinger Avenue
- SC 170 at River Walk Boulevard
- SC 170 at Tidewatch Drive

Background traffic volumes on the roadway network are being developed in coordination with Lowcountry Council of Governments using the Lowcountry Travel Demand Model to project the project trip distribution along with development of projected total traffic volumes in the surrounding study area.

EXHIBIT B

DEVELOPMENT SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL BUILDING SF:	207,700 SF
RESIDENTIAL DENSITY:	3.32 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	396
OPEN SPACE****:	+/- 49.01 ACRES (41.08% Open Space)
LOT SETBACKS (See Exhibit B-1):	-
FRONT YARD:	20'
BACK YARD:	10'
SIDE YARD:	5'
LOT DIMENSIONS:	55' X 120' (TYP.)
ROAD R/W	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, AMENITY SITE, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING — LANDSCAPE ARCHITECTURE

OSPREY POINT (MALIND BLUFF)
AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA
OCTOBER 16, 2017

NORTH

GRAPHIC SCALE
0 200' 400' 600'

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

EXHIBIT B

LOT YEILD: 315

30' X 110'

40' X 110'

Total Acres: +/-61.21

Residential Density: 5.14 DU/AC

Open Space: 26.26 AC (42.90%)

NORTH

GRAPHIC SCALE 0 150' 300' 450'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
101 BLUFFTON ROAD POINTE #100 BLUFFTON, SC 29910

RIVER OAKS (MALIND POINTE) AMENDED MASTER PLAN

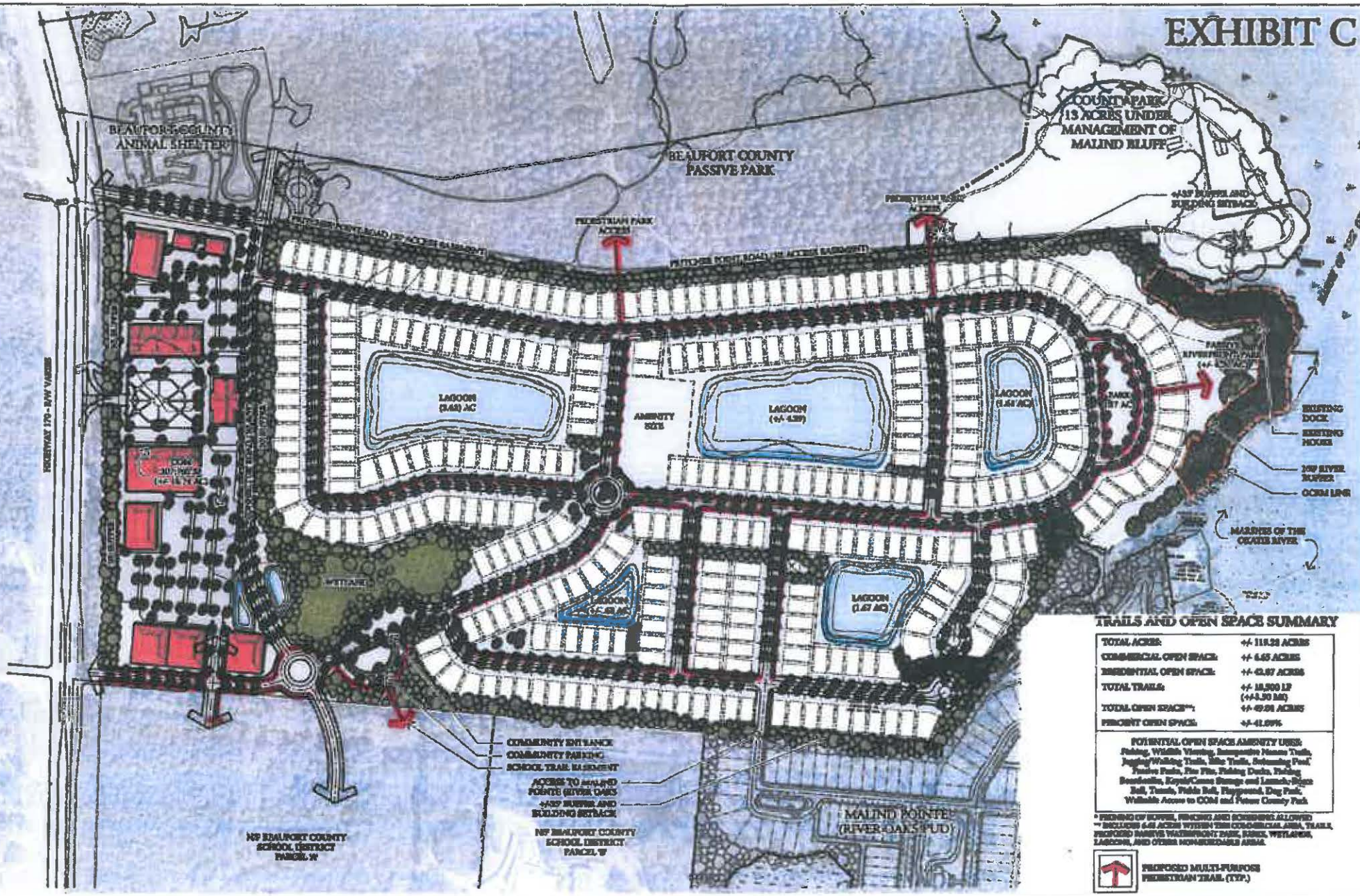
BEAUFORT COUNTY, SOUTH CAROLINA

OCTOBER 16, 2017

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

JKT Job Number 201709-01

EXHIBIT C



TRAILS AND OPEN SPACE SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL OPEN SPACE:	+/- 6.65 ACRES
RESIDENTIAL OPEN SPACE:	+/- 42.97 ACRES
TOTAL TRAILS:	+/- 18,300 LF (+/-3.50 MI)
TOTAL OPEN SPACE**:	+/- 49.01 ACRES
PERCENT OPEN SPACE:	+/- 41.09%

POTENTIAL OPEN SPACE AMENITY USES: Fishing, Wildlife Viewing, Interpretive Nature Trails, Jogging/Walking Trails, Bike Trails, Swimming Pool, Picnic Pods, Fire Pits, Fishing Docks, Fishing Boardwalks, Kayak/Canoe Storage and Launch, Sports Ball, Tennis, Pickle Ball, Playground, Dog Park, Walkable Access to CORE and Future County Park

* FENCING OF BUFFER, FENCING AND SCREENING ALLOWED
** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, PROPOSED PASSIVE WATERFRONT PARK, BASIN, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PROPOSED MULTI-PURPOSE PEDESTRIAN TRAIL (TYP.)

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LANDSCAPE ARCHITECTURE

OSPREY POINT (MALIND BLUFF)
TRAILS AND OPEN SPACE PLAN
BEAUFORT COUNTY, SOUTH CAROLINA
OCTOBER 16, 2017

NORTH

GRAPHIC SCALE
0 200' 400' 600'

JKT Job Number: 201715-01

September 20, 2017

Anthony Criscitiello (email to ***tonyc@bcgov.net***)
Beaufort County Planning Director
100 Ribault Road, Room 115
PO Drawer 1228
Beaufort, SC 29901-1228

RE: Proposed Planned Unit Development Master Plan Amendment for R600-013-000-0006 (Osprey Point Malind Bluff)

Mr. Criscitiello:

Thank you for submitting a copy of the application materials for the Proposed Master Plan Amendment for Osprey Point for comments. In the spirit of the Southern Beaufort County Regional Plan's (SBCRP) implementation strategies, Town Staff has taken the opportunity to review the information.

Since the proposed changes do not change the density or the permitted uses, the changes are unlikely to have a regional impact on the Town of Bluffton and are outside of the scope of the Regional Plan. However, due to the proposed removal of the age restrictions, the recommendations and approval from the Beaufort County School District should be taken into consideration.

The Town of Bluffton staff supports Beaufort County's staff recommended conditions concerning the traffic management and the requirement to conduct a Traffic Impact Analysis. Because of the location of the proposed development, adjacent to the Okatie River, we request that best practices are used to minimize any negative impacts on the surrounding watershed and river.

I would like to request that you forward me subsequent staff reports and any supplemental information that is received after this letter to my email at hcolin@townofbluffton.com or via standard mail to Town Hall for additional review and consideration.

Sincerely,

Heather L. Colin, AICP
Director of Growth Management
hcolin@townofbluffton.com
Office (843)706-4592
Mobile (843)540-6946

Cc: Marc Orlando, ICMA-CM, Town Manager
Mayor and Town Council

TOWN OF HILTON HEAD ISLAND

One Town Center Court, Hilton Head Island, S.C. 29928
(843) 341-4600 Fax (843) 842-7728
www.hiltonheadislandsc.gov

September 15, 2017

Tony Criscitiello
Planning Director
100 Ribaut Road
Beaufort, SC 29901

RE: Osprey Point and River Oaks PUD Master Plan Amendments

Dear Tony:

Thank you for submitting a copy of the application materials for the Osprey Point and River Oaks PUD master plan amendments to the Town of Hilton Head Island. In the spirit of the Southern Beaufort County Regional Plan's (SCBRP) implementation strategies, Town Staff has taken the opportunity to review the information and make the following comments:

Removing the age restrictions on the Osprey Point PUD and developing the River Oaks PUD as a single-family development will significantly change projected traffic impacts. Town staff agrees that a Traffic Impact Analysis (TIA) using existing traffic volumes and the Lowcountry Regional model should be required to ensure adequate access management.

These amendments will have a significant impact on area schools, particularly Okatie Elementary School. The review of the proposed amendments should be coordinated with the Beaufort County School District's Facilities-Planning and Construction Department.

These comments are provided to for your consideration and review.

Again, thanks for the opportunity to provide input.

Respectfully Submitted,

Shawn Colin, AICP, Deputy Director of Community Development

November 30, 2017

Beaufort County Planning Division
Beaufort County
Post Office Drawer 1228
Beaufort, SC 29901-1228

Re: Proposed PUD Master Plan Amendments for Osprey Point (Malind Bluff) and River Oaks (Malind Pointe)

Dear Sir/Madam,

This letter is to update the previously submitted September letter regarding the Proposed PUD Master Plan Amendments for Osprey Point (Malind Bluff) and River Oaks (Malind Pointe). Beaufort County School District is currently working with the developer, PulteGroup, on access to SC highway 170. It appears that we are headed in a mutually beneficial direction. To date Beaufort County School Board has not had the opportunity to review this agreement.

On the second topic regarding impact fees. It is my understanding that the developer is petitioning for the removal of impact fees. Due to the overcrowding of schools in the Bluffton area, the Beaufort County School District has been in conversation with Beaufort County Council on leveraging impact fees on all new developments. I cannot be in favor in the removal of impact fees. Impact fees are needed on all new developments of this nature.

While the Beaufort County School District is a proponent of economic growth and free enterprise, this residential development has the potential to increase student population, dictating the need for additional facility capacity, operational costs and staff resources. The combined amendments to the Osprey Point and Cherry Point PUDs is for a 711-home single family development with no age restrictions. This type of development would attract resident families with school age children. Presently the School District does not have the capacity to handle additional school children in the Bluffton area. The impact fees in the existing PUD agreement are needed to ensure that there are facilities available for the future school age children of Beaufort County. I cannot recommend that the Beaufort County School District support any agreement that includes the removal of impact fees.

Sincerely,

Jeffery C. Moss, Ed.D
Superintendent, Beaufort County School District

Re: Rob Merchant, Beaufort County
Tony Criscitiello, Beaufort County
Drew Davis, Beaufort County School District
Tonya Crosby, Beaufort County School District

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LEAGUE

December 4, 2017

Staff and Members of the Planning Commission,

Please accept these comments regarding Southern Beaufort County Map and PUD Master Plan amendments for Osprey Village (R00 013 000 0006 0000) and River Oaks (R600 013 000 008C 0000), collectively known as Malind Pointe. The comments below address the 182 acres in total, unless otherwise noted, and restate many of our original concerns from the cancelled September meeting.

We appreciate the developer's efforts to incorporate some of the League's previous suggestions in its current plan; however, we remain concerned about the map and PUD amendments as presented in three main categories.

1. Stormwater:
   The Okatie River headwaters are east of the property and any development here will have significant impact to the headwaters of the Okatie. The river's declining health has been well documented and studied, and the Okatie is currently protected by a set of Total Maximum Daily Load (TMDL) regulations to ensure its continued or improved health in the future. If we set the expectation that the health of the Okatie River headwaters is important, the stormwater systems and development nearby need to meet those expectations in their design, capture and treatment of stormwater and/or failure to generate stormwater in the first place. Development of this nature inevitably generates stormwater, so how it is addressed must be of the highest quality or development plans should be rearranged potentially with rights transferred or reduced to reduce the total volume generated.

   It is a little surprising to see virtually no change from a 2008 PUD to a 2017 submission with respect to stormwater given the research and investment that has taken place in this field over the same time period. The PUD amendment states: "*All stormwater, environmental and related standards continue, including commitment to stormwater quality testing.*" What advances in land use design or stormwater engineering have taken place over the past 10 years can be implemented to reduce the development's impact on the Okatie River? The county has built up its stormwater program and there may be lessons learned that should be shared and implemented. Similarly, there may be best practices from elsewhere that should change the design of the ponds. We encourage the planning commission to study this issue further, consult

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with the county stormwater managers and other experts in the field to better protect the Okatie.

2. Land Use: Although they can be helpful, improved stormwater improvements alone may not steady or improve the overall water quality in the Okatie. In fact, the best indicator of water quality is the land use and extent of development in the watershed. The only aquatic systems that will retain the full range of species and ecological functions will be those where less than ten percent of the watershed is impervious. (Schueller & Holland, 2000). Within Beaufort County, we should strive to maintain watersheds at or below that threshold by concentrating density in village and town centers, protecting land along the vulnerable edge. To date, Beaufort County has protected 16 parcels and over 700 acres on the Okatie River; thus the County has an interest in what development takes place alongside the River. Intense growth pressures in Jasper County, including the newly proposed East Argent development, make it even more important that Beaufort County think critically about how and where it develops within this watershed.

   The PUD in 2008 resulted in zoning that would not be possible with the Community Development Code alone, creating a bypass for the comprehensive plan and base zoning guidelines. Approving amendments today is an opportunity to promote development that is better aligned with the comprehensive plan for growth. To be clear, we do not believe low-density suburban sprawl development, with a monoculture of single family homes generating single-occupancy vehicle trips, is the viable alternative but rather that the planning commission and staff should seek to engage the developer to consider the ways a true village area can be knit together with surrounding development. A single-family residential development with homogenous lot sizes does not accomplish these goals.

3. Connected transportation: We appreciate the continued attempt to reconnect neighborhoods with returned pedestrian access points. Removing the gate between communities is certainly a step in the right direction and a more integrated street grid is proposed. Planning Commission should insist on more options to access the neighborhood and navigate within the neighborhood by car, bike and foot to increase internal trip capture and not overcrowd neighborhood streets or Highway 170.

Thank you for taking our comments into account during your review. We look forward to continuing this thoughtful conversation.

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Respectfully submitted,

Rikki Parker
South Coast Project Manager
Coastal Conservation League

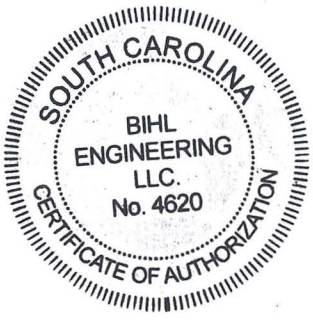
PROPERTY OWNERS NOTIFIED OF OSPREY POINT (MALIND BLUFF)
PLANNED UNIT DEVELOPMENT (PUD) MASTER PLAN AMENDMENT REQUEST)
R600 013 000 0006 0000 (119.90 acres east of Highway 170, Okatie, SC)

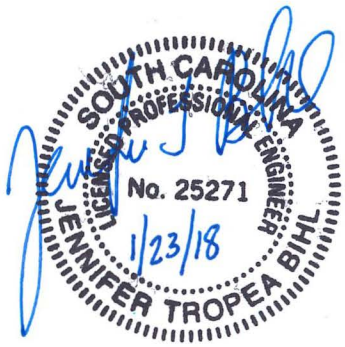
PIN_	Owner	Mailing Address	City	State	ZIP
R600 13 6	LCP III LLC % J NATHAN DUGGINS III	POST OFFICE BOX 2888	GREENSBORO	NC	27402
R600 13 8C	BBII HOLDING COMPANY LLC	145 E 74TH STREET	NEW YORK	NY	10021
R600 13 43	BOULINEAU CHRISTOPHER	282 CHERRY POINT ROAD NORTH	OKATIE	SC	29909
R600 13 61	BEAUFORT COUNTY	POST OFFICE BOX 1228	BEAUFORT	SC	29901
R600 13 6A, 6B & 6C	FORTON WILLIAM P & JULIE M	POST OFFICE BOX 2135	BLUFFTON	SC	29910
R600 13 104 & 105	BEAUFORT COUNTY SCHOOL DISTRICT	POST OFFICE DRAWER 309	BEAUFORT	SC	29901-0309
R600 13 372	MALIND BLUFF DEVELOPMENT LLC	100 NORTH GREENS STREET, SUITE 600	GREENSBORO	NC	27401

Traffic Impact Analysis
Okatie Village
Okatie, SC

Prepared for:
Village Park Homes

Prepared by:
Bihl Engineering, LLC
304 Meeting Street, Suite D
Charleston, SC 29401
Mail:
P.O. Box 31318
Charleston, SC 29417
(843) 637-9187





January 2018

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1.0 Executive Summary

Okatie Village is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. With the proposed updates to the PUD the land use intensities will include a total of 212,700 square feet (sf) of commercial space (159,525 sf of retail and 53,175 sf of office space) and 711 single-family detached units. Okatie Village consists of two development areas being updated, Osprey Point PUD and River Oaks PUD, these land use intensities further break down as follows:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units
- River Oaks PUD – 315 single-family detached units

The development will be accessed via three access points along SC 170.

The most recent traffic analysis for the PUD was performed in 2007.

For the purposes of this TIA, the proposed development is assumed to be complete by 2023, constructed in three phases. This report reviews the 2017 existing, 2019 background and projected total traffic peak hour conditions, 2021 background and projected total traffic peak hour conditions, and 2023 background and projected total traffic peak hour conditions and presents the trip generation, distribution, and traffic analysis, and any recommendations for transportation improvements required to meet anticipated traffic demands.

The study area includes the following existing intersections:

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)
- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)

Today the study area intersections are operating with some delays during the peak times, particularly the unsignalized intersections. However, it is not uncommon for unsignalized intersections on heavily traveled corridors to experience delays while the traffic along the corridor is moving with little to no delays. At these intersections, the wide medians allow two-step maneuver to occur for side street vehicles providing an area for vehicle storage. The intersection of SC 170 at Cherry Point Road experiences delays during peak student pick-up and drop-off times as this is the primary access point for Okatie Elementary School.

The SC 170 corridor is subject to an access management plan where signalized intersection locations have been identified. Back access is also planned for the properties east and west of SC 170 in this area. These connections within the PUD area are planned and shown on the site plans.

As part of the study, the Lowcountry Travel Demand Model was run with and without the land uses associated with this project. It was found that the growth rate along SC 170 is expected to be approximately 3% per year for the background conditions.

The project phases include the following land uses. Land uses listed are cumulative.

The Phase 1 2019 Phase 1 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

The Phase 2 2021 Phase 2 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

The Buildout 2023 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units
- River Oaks PUD – 315 single-family detached units

Based on the analysis the following Phase 1 (2019) transportation improvements are recommended:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.
- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following Phase 2 (2021) transportation improvements are recommended:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following ultimate (2023) transportation improvements are recommended:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

Results in this report are based solely on traffic studies and are considered input into final design considerations. The final design will be determined by the project engineer after other design elements (such as, but not limited to, utilities, stormwater, etc.) are taken into consideration.

2.0 Introduction

Okatie Village is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. The most recent traffic study performed for the site was in 2007. This study is included in the **Appendix**.

With the proposed updates to the PUD the land use intensities will include a total of 212,700 sf of commercial space (159,525 sf of retail and 53,175 sf of office space) and 711 single-family detached units. Okatie Village consists of two development areas being updated, Osprey Point PUD and River Oaks PUD, these land use intensities further break down as follows:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units

- River Oaks PUD – 315 single-family detached units

The development will be ultimately accessed via three full access points along SC 170 and one right-in, right-out access point. Per the Access Management Ordinance for SC 170, the right-in, right-out access location will need to be approved.

For the purposes of this TIA, the proposed development is assumed to be complete by 2023, constructed in three phases with final buildout in 2023.

The 2019 Phase 1 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

The 2021 Phase 2 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

This report reviews the potential external traffic impacts of Okatie Village and identifies recommended transportation improvements to accommodate future background traffic conditions and projected total traffic conditions for buildout and interim phase years.

3.0 Inventory

The following section discuss the existing conditions of the study area and the SC 170 Access Management Plan.

3.1 Study Area

The study area for the traffic impact analysis includes the following existing intersections.

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)
- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)

Figure 1 (Appendix) shows the site location and **Figure 2A and 2B (Appendix)** shows the project conceptual site plans.

3.2 Existing Conditions

Roadways in the project vicinity include SC 170, Pritcher Point Road, Short Cut Drive, Argent Boulevard, Jasper Station Road, Red Oaks Drive, Pearlstine Drive, Cherry Point Road, Schinger Avenue, Riverwalk Boulevard, and Tidewatch Drive.

SC 170 is a principal arterial four-lane divided roadway with a grassed median and a posted speed limit of 55 miles per hour (mph) north and south of Argent Boulevard and 45 mph around the intersection with Argent Boulevard. SC 170 has a 2016 South Carolina Department of Transportation (SCDOT) annual average daily traffic (AADT) of 30,100 vehicles per day (vpd) in the vicinity of the site.

Argent Boulevard is a two-lane roadway with a posted speed limit of 45 mph. Argent Boulevard connects SC 170 to US 278.

Short Cut Drive/Jasper Station Road is a two-lane roadway. Short Cut Drive connects SC 170 and Argent Boulevard. Pritcher Point Road is located opposite Short Cut Drive/Jasper Station Road is a dirt roadway that is currently being improved for the animal hospital with a southbound left-turn lane and a northbound right-turn lane on SC 170 and a shared through-left and right-turn lanes on the east approach.

Cherry Point Road is a two-lane roadway that provides access to Okatie Elementary School and the Cherry Point area. Cherry Point Road is paved from SC 170 to Okatie Elementary School and unpaved east of Okatie Elementary School. This roadway experiences congestion during school pickup and drop-off periods.

Pearlstine Drive, Schinger Avenue, Riverwalk Boulevard are two-lane roadways.

Tidewatch Drive is a two-lane roadway with a speed limit of 25 mph west of SC 170 and 10 mph east of SC 170.

Figure 3 (Appendix) shows the existing roadway laneage in the study area.

3.3 SC 170 Access Management Plan

The *SC 170/US 278 Corridor Study Analysis Findings and Recommended Access Management Standards* prepared for Beaufort County by Day Wilburn Associates, Inc. (December 2003) provides an access management plan for SC 170. Within the Access Management Plan the following minimum spacing requirements are given:

- Full signalized access – 3,200 feet
- Directional signalized access – 1,900 feet
- Driveways – 500 feet

The following intersection controls are noted for SC 170 intersections in the study area –

- Full signalized intersections on SC 170 at Pritcher Point Road/Short Cut Drive, Cherry Point Road, and Tidewatch Drive
- Directional signalized intersections on SC 170 at Argent Boulevard, Heffallump Road, and south of Riverwalk Boulevard

In addition, the report identifies a back access connection throughout the Okatie Village area as well as back access connections for the properties west of SC 170.

This report is included in the **Appendix.**

Connectivity through the Okatie Village area is shown on the site plans.

4.0 Traffic Generation

The trip generation of the proposed development was determined using trip generation rates published in Institute of Transportation Engineers (ITE) Trip Generation handbook (Institute of Transportation Engineers, Tenth Edition). Internal capture and pass-by trips were also applied. Internal capture trips are those trips that stay internal to the development and do not use the external roadway network. The internal capture trips were calculated using National Cooperative Highway Research Program (NCHRP) Report 684 standards. If internal capture was calculated to be greater than 20% of the overall trips, it was limited to 20% of the overall trips in the analysis per SCDOT guidelines. Pass-by trips are those trips currently on the external roadway network (SC 170) that enter and exit the development then resume their trip. The pass-by trips were calculated using ITE standards.

Table 1 summarizes the peak hour trips associated with the proposed PUDs.

The proposed PUDs are projected to generate 771 new trips during the AM peak hour (318 entering and 453 exiting) and 991 new trips during the PM peak hour (539 entering and 452 exiting).

Tables 2 and **3** summarize the peak hour trips noted above specifically associated with each of the PUDs.

Table 2 summarizes the peak hour trips associated with the Osprey Point PUD. The proposed development is projected to generate 551 new trips during the AM peak hour (264 entering and 287 exiting) and 757 new trips during the PM peak hour (383 entering and 374 exiting).

Table 3 summarizes the peak hour trips associated with the River Oaks PUD. The proposed development is projected to generate 220 new trips during the AM peak hour (54 entering and 166 exiting) and 234 new trips during the PM peak hour (156 entering and 78 exiting).

Table 1:
Year 2023 Buildout
Okatie Village Overall Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
711 Single-Family Detached Units	210	510	128	382	668	421	247
53,175 sf Office	710	76	65	11	62	10	52
159,525 sf Retail	820	232	144	88	768	369	399
Gross Trips		818	337	481	1,498	800	698
Internal Capture w/ Overall Okatie Village		-30	-15	-15	-278	-139	-139
Driveway Trips		788	322	466	1,220	661	559
Pass-by Trips		0	0	0	-209	-109	-100
Net New Trips		**788**	**322**	**466**	**1,011**	**552**	**459**

Table 2:
Year 2023 Buildout
Osprey Point PUD Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
396 Single-Family Detached Units	210	284	71	213	372	234	138
53,175 sf Office	710	76	65	11	62	10	52
159,525 sf Retail	820	232	144	88	768	369	399
Gross Trips		592	280	312	1,202	613	589
Internal Capture w/ Overall Okatie Village		-24	-12	-12	-216	-108	-108
Driveway Trips		568	268	300	986	505	481
Pass-by Trips		0	0	0	-209	-109	-100
Net New Trips		**568**	**268**	**300**	**777**	**396**	**381**

Table 3:
Year 2023 Buildout
River Oaks PUD Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
315 Single-Family Detached Units	210	226	57	169	296	187	109
Gross Trips		226	57	169	296	187	109
Internal Capture		-6	-3	-3	-62	-31	-31
Driveway Trips		220	54	166	234	156	78
Pass-by Trips		0	0	0	0	0	0
Net New Trips		**220**	**54**	**166**	**234**	**156**	**78**

Table 4 summarizes the peak hour trips associated with the 2019 Phase 1 Build year trip generation. The proposed development is projected to generate 149 new trips during the AM peak hour (37 entering and 112 exiting) and 200 new trips during the PM peak hour (126 entering and 74 exiting).

Table 4:
2019 Phase 1
Okatie Village Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
203 Single-Family Detached Units	210	149	37	112	200	126	74
Gross Trips		149	37	112	200	126	74
Internal Capture		0	0	0	0	0	0
Driveway Trips		149	37	112	200	126	74
Pass-by Trips		0	0	0	0	0	0
Net New Trips		**149**	**37**	**112**	**200**	**126**	**74**

Table 5 summarizes the peak hour trips associated with the 2021 Phase 2 Build year trip generation. The proposed development is projected to generate 463 new trips during the AM peak hour (116 entering and 347 exiting) and 609 new trips during the PM peak hour (384 entering and 225 exiting).

Table 5:
2021 Phase 2
Okatie Village Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
646 Single-Family Detached Units	210	463	116	347	609	384	225
Gross Trips		463	116	347	609	384	225
Internal Capture		0	0	0	0	0	0
Driveway Trips		463	116	347	609	384	225
Pass-by Trips		0	0	0	0	0	0
Net New Trips		**463**	**116**	**347**	**609**	**384**	**225**

5.0 Lowcountry Council of Governments Traffic Demand Model

The Lowcountry Council of Governments maintains the Lowcountry Travel Demand Model which includes the study area for this project. The validated 2010, the projected 2030 (Beaufort County Comprehensive Plan Existing plus Committed Network), and the projected 2030 with the update to the traffic analysis zone (TAZ) that includes this development were used to determine trip distribution and traffic growth for the project. The TAZ includes the land use data associated with this section of the model. The Travel Demand Model runs for the study area performed by CDM Smith are provided in the **Appendix**.

In the 2010 model, SC 170 (in the project area) had 23,700 vehicles traveling daily on the segment. In the 2030 model based on the Beaufort County Comprehensive Plan on the Existing plus Committed

transportation network, this segment was determined to have approximately 37,200 daily vehicles in year 2030. With the addition of the updated traffic analysis zone information for this project, the daily volumes were expected to be 38,900 daily vehicles in this segment.

The 2030 Beaufort County Comprehensive Plan on the Existing plus Committed transportation network model estimates the volume to capacity ratio for this area from 1.01 to 0.96 and projecting LOS C and LOS D operation. With the addition of the updated TAZ data the volume to capacity ratio for the area ranges from 0.92 to 1.2 and projecting LOS C to LOS E operation depending on the location of the segment.

Table 6 summarizes the projected growth rate in the study area which included data from SC 170 and Argent Boulevard. Model data points were taken on SC 170 north of Argent Boulevard and three additional points between Argent Boulevard and US 278 and two model data points were taken west of SC 170 to determine the modeled growth in the area.

Table 6:
Lowcountry Council of Governments Travel Demand Model
Traffic Volumes and Growth Rates

Roadway	Road Section		Model Year			% Growth per Year	
	Start	End	2010	2030 Beaufort County Comp Plan E+C	2030 E+C Model with TAZ Update	2030 Beaufort County Comp Plan E+C	2030 E+C Model with TAZ Update
SC 170	Argent Blvd	Oldfield Way	31,300	46,200	47,700	2.4%	2.6%
SC 170	Green Acres Rd	SC 141	23,700	37,200	38,900	2.8%	3.2%
SC 170	Tidewatch Dr.	Green Acres Road	23,900	39,100	44,700	3.2%	4.4%
SC 170	US 278	Tidewatch Dr.	25,500	41,700	47,200	3.2%	4.3%
SC 170 Weighted Average						**2.9%**	**3.6%**
Argent Blvd	Jasper Station Rd	SC 170	7,800	10,300	11,700	1.6%	2.5%
Argent Blvd	Sergeant William Jasper Blvd	Jasper Station Rd	7,700	9,900	11,100	1.4%	2.2%
SC 141 (Argent Blvd) Weighted Average						**1.5%**	**2.4%**
Overall Study Area Weighted Average						**2.7%**	**3.5%**

The overall study area growth rate in the model was 2.7% per year without the proposed Okatie Village, and 3.5% per year with the proposed Okatie Village.

A select zone was also completed for the updated 2030 traffic model to help determine the distribution of the project trips. This figure is included in the **Appendix.**

6.0 Site Traffic Distribution

The development will be accessed via three roadways. Pritcher Point Road, Site Access #2, and Cherry Point Road are all full access points located on SC 170. Site Access #1 will be a right-in, right-out (RIRO) access point located on SC 170.

The proposed project traffic was assigned to the surrounding roadway network. The directional distribution and assignment were based on the 2030 travel demand model Select Zone run performed as part of the regional modeling efforts **(Section 5)**. The following overall trip distribution was calculated and proposed to be used in the analysis:

- 65% to/from the south on SC 170
- 18% to/from the north on SC 170
- 2% to/from the west on Short Cut Road/Jasper Station Road
- 4% to/from the south on Argent Boulevard
- 1% to/from the west on Red Oaks Drive
- 1% to/from the west on Pearlstine Drive
- 5% to/from the west on Riverwalk Boulevard
- 2% to/from the west Tidewatch Drive
- 2% to/from the east Tidewatch Drive

Figure 4 (**Appendix**) shows the projected traffic distribution through the study area.

7.0 Traffic Volumes

7.1 Existing Traffic

Peak hour intersection turning movement counts including vehicular, pedestrian, and heavy vehicle traffic were performed in October 2017 from 7:00 AM to 9:00 AM and from 2:00 PM to 6:00 PM at the following intersections:

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)

- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)

The turning movement count data is included in the **Appendix** and the AM and PM peak hour existing traffic volumes are shown in **Figure 5 (Appendix)**.

7.2 Future Background Traffic

Historic growth on the SC 170 corridor was also reviewed. Based on historic AADT data provided by SCDOT SC 170 had approximately a 4.5% per year growth rate from 2011 to 2016 (six years) as shown in **Table 7**.

Table 7:
SCDOT Average Annual Daily Traffic (AADT) Counts by Year

Roadway	Road Section		Year						% Growth per Year
	Start	End	2016	2015	2014	2013	2012	2011	
SC 170	US 278	SC 462	30,100	29,200	27,700	25,800	24,300	23,300	**4.5%**

As previously shown in **Table 6**, the overall study area growth rate in the model was 2.7% per year without the proposed Okatie Village.

Due to the difference in growth on SC 170 and Argent Boulevard, to determine the background growth, the application of a 2.9% per year growth rate was applied to the SC 170 corridor while a 1.5% per year growth rate was applied to the Argent Boulevard corridor.

The No Build traffic volumes include existing traffic grown to the buildout year. **Figure 6** (**Appendix**) and **Figure 7** (**Appendix**) show the 2019 Phase 1 No Build AM and PM peak hour traffic volumes, respectively. **Figure 8** (**Appendix**) and **Figure 9** (**Appendix**) show the 2021 Phase 2 No Build AM and PM peak hour traffic volumes, respectively. **Figure 10** (**Appendix**) and **Figure 11** (**Appendix**) show the 2023 No Build AM and PM peak hour traffic volumes, respectively.

7.3 Project Traffic

The AM peak hour and PM peak hour projected project trips were assigned based on the trip distribution discussed in **Section 5.**

7.4 Build Traffic

The total traffic volumes include the background traffic and the proposed development traffic at buildout. The 2019 Phase 1 AM and PM peak hour total traffic volumes are shown in **Figure 6** (**Appendix**) and **Figure 7** (**Appendix**), respectively. The 2021 Phase 2 AM and PM peak hour total traffic volumes are shonw in **Figure 8** (**Appendix**) and **Figure 9** (**Appendix**), respectively. The 2023 Buildout AM and PM peak hour total traffic volumes are shonw in **Figure 10** (**Appendix**) and **Figure 11** (**Appendix**), respectively.

Intersection volume development worksheets are included in the **Appendix**.

8.0 Capacity Analysis

Capacity analyses were performed for the AM and PM peak hours for the Existing, No Build (2019, 2021, and 2023), and Build (2019, 2021, and 2023) conditions using the Synchro Version 9 software to determine the operating characteristics of the adjacent roadway network and the impacts of the proposed project. The analyses were conducted with methodologies contained in the *2010 Highway Capacity Manual* (Transportation Research Board, December 2010).

Capacity of an intersection is defined as the maximum number of vehicles that can pass through an intersection during a specified time, typically an hour. Capacity is described by level of service (LOS) for the operating characteristics of an intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst.

LOS for signalized intersections is determined by the overall intersection operations and is reflected in average delay per vehicle. LOS D or better is typically considered acceptable for signalized intersections.

LOS for a two-way stop-controlled (TWSC) intersection is determined by the delay of the poorest performing minor approach, as LOS is not defined for TWSC intersections as a whole. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay. Due to the traffic volumes on SC 170 the side street vehicle maneuvers are mostly two-step maneuvers. On roadways with higher levels of traffic with medians large enough to store vehicles, drivers will often cross one direction of traffic and wait in the median for the second direction of traffic to clear. The analysis does not fully reflect the platooning of vehicles along the corridor from adjacent signalized intersections which results in gaps for these movements. This is not fully reflected in the analysis algorithms so the study results for the unsignalized intersections where medians exist are considered conservative and are typically lower in practice.

Capacity analyses were performed for the Existing, No Build (2019, 2021, and 2023), and Build (2019, 2021, and 2023) AM and PM peak hour traffic conditions for the following intersections:

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)
- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive/Site Access #2 (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)
- SC 170 at Site Access #1 (2023 Build conditions only)

Existing signal timings were applied to the signalized intersections for the intersection analyses. Signal timings were optimized in the Build conditions to the signalized intersections.

Figure 12 (Appendix) shows the proposed roadway laneage in the study area applied in the 2023 Build conditions analysis.

8.1 2019 Capacity Analysis

Capacity analyses were performed for the Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour traffic conditions. The 2019 Phase 1 Build year conditions includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

8.1.1 SC 170 at Argent Boulevard

Table 7 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Argent Boulevard.

As shown in **Table 8**, the intersection of SC 170 at Argent Boulevard currently operates at LOS D during the AM and PM peak hours. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and operate at LOS D during the PM peak hour in the 2019 Phase 1 No Build conditions. With signal optimization, the intersection is projected to operate at LOS D during the AM and PM peak hours in the 2019 Phase 1 Build conditions.

Table 8: 2019 Phase 1 Analysis Summary SC 170 at Argent Boulevard					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB	B (12.5) D (46.8) F (149.6)	D (45.7)	B (15.8) C (22.3) F (168.1)	D (38.2)
2019 Phase 1 No Build	NB SB EB	B (13.2) E (66.8) F (164.8)	E (57.1)	B (17.7) C (24.4) F (198.4)	D (43.9)
2019 Phase 1 Build	NB SB EB	B (18.9) D (51.3) F (102.1)	D (44.2)	C (29.6) E (57.5) E (76.9)	D (46.2)

1. Delay = average seconds of delay

8.1.2 Argent Boulevard at Jasper Station Road/Short Cut Drive

Table 9 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive.

As shown in **Table 9**, the intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive currently operates at LOS D (eastbound and westbound approach) during the AM peak hour and experiences elevated delay, operating at LOS E (westbound approach), during the PM peak hour. Based on the projected traffic growth, the intersection is projected to continue to operate similarly in the 2019 Phase 1 No Build conditions. The addition of a northbound right-turn lane was included in the 2019 Phase 1 Build conditions. With this improvement, the intersection is projected to continue to operate similar to the 2019 Phase 1 No Build conditions, operating at LOS D (eastbound and westbound approach) during the AM peak hour and experiencing delay, operating at LOS E (westbound approach), during the PM peak hour in the 2019 Phase 1 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 9: 2019 Phase 1 Analysis Summary Argent Boulevard at Jasper Station Road/Short Cut Drive			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB WB	A (0.2) A (0.2) D (30.0) D (32.6)	A (0.3) A (0.2) D (32.6) E (36.4)
2019 Phase 1 No Build	NB SB EB WB	A (0.2) A (0.1) D (30.6) D (33.2)	A (0.3) A (0.2) E (36.0) E (40.6)
2019 Phase 1 Build with Improvements	NB SB EB WB	A (0.2) A (0.2) D (27.0) D (31.3)	A (0.3) A (0.2) D (34.4) E (40.4)

1. Delay = average seconds of delay

8.1.3 SC 170 at Pritcher Point Road/Short Cut Drive

Table 10 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the intersection of SC 170 at Pritcher Point Road/Short Cut Drive. The intersection is currently unsignalized. Construction associated with the nearby animal shelter, accessed via Pritcher Point Road, includes the following intersection improvements, included in the 2019 Phase 1 No Build and 2019 Phase 1 Build conditions:

- Northbound right-turn lane on SC 170
- Southbound left-turn lane on SC 170
- Westbound through/left-turn lane and right-turn lane on Pritcher Point Road

The intersection was signalized in the 2019 Phase 1 Build conditions. This is consistent with the SC 170 Access Management Plan.

As shown in **Table 10**, the intersection of SC 170 at Jasper Station Road/Short Cut Drive currently experiences elevated delay, operating at LOS F (westbound approach), during the AM peak hour and operates at LOS E during the PM peak hour (eastbound approach). The current westbound approach traffic volume is very low in the morning (two vehicles) however, those vehicles do experience delay. As stated previously, improvements to the intersection are being completed as part of construction associated with the nearby animal shelter on Pritcher Point Road. These improvements include installation of a northbound right-turn lane, a southbound left-turn lane, and configuration of the westbound approach to include a right-

turn lane and a shared through-left lane. With these improvements, based on the projected traffic growth the intersection is projected to experience elevated delays, operating at LOS F (eastbound and westbound approaches) during the AM peak hour and at LOS C (eastbound approach) during the PM peak hours in the 2019 Phase 1 No Build conditions. The intersection is planned to be signalized in the 2019 Phase 1 Build conditions. With signalization the intersection is projected to operate at LOS C during the AM and PM peak hours in the 2019 Phase 1 Build conditions. Performance of a traffic signal warrant analysis should be performed for this intersection at completion of Phase 1.

Table 10:
2019 Phase 1 Analysis Summary
SC 170 at Pritcher Point Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB WB	A (1.7) A (0.0) E (48.3) F (*)[2]	N/A[3]	A (0.6) A (0.0) E (36.7) A (0.0)	N/A[3]
2019 Phase 1 No Build	NB SB EB WB	A (2.0) A (0.0) F (68.0) F (55.0)	N/A[3]	A (0.6) A (0.0) C (22.5) A (0.0)	N/A[3]
2019 Phase 1 Build with Improvements	NB SB EB WB	B (18.3) D (41.1) D (49.5) D (51.3)	C (32.3)	C (24.3) B (16.4) C (34.7) C (30.7)	C (21.5)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds
3. Overall intersection delay not calculated for two-way stop controlled intersections

8.1.4 SC 170 at Pearlstine Road/Cherry Point Road

Table 11 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Pearlstine Road/Cherry Point Road.

As shown in **Table 11**, the intersection of SC 170 at Pearlstine Road/Cherry Point Road currently experiences elevated delay in the AM peak hour and operates at LOS B during the PM peak hour. The AM peak hour delay is elevated on the westbound approach primarily due to the impacts of the Okatie Elementary School (intersection is the only access to the school from SC 170). School hours are from 7:40 AM – 2:45 PM with drop-off in the morning allowed from 7:00 AM – 7:35 AM which coincides with the

morning peak time of the SC 170 corridor. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and to operate at LOS B during the PM peak hour in the 2019 Phase 1 No Build conditions. With signal optimization the intersection is projected to operate at LOS D and LOS B during the AM and PM peak hours, respectively, in the 2019 Phase 1 Build conditions.

Table 11:
2019 Phase 1 Analysis Summary
SC 170 at Pearlstine Road/Cherry Point Road

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB WB	C (22.5) D (39.5) D (40.6) F (*)[2]	E (72.8)	B (18.0) B (13.8) D (37.2) D (35.7)	B (16.7)
2019 Phase 1 No Build	NB SB EB WB	C (24.1) D (52.1) D (40.9) F (*)[2]	F (85.2)	C (22.3) B (15.3) D (37.5) D (35.8)	B (19.6)
2019 Phase 1 Build	NB SB EB WB	C (27.5) D (40.1) D (49.6) F (233.4)	D (54.5)	B (12.6) B (13.8) C (32.2) C (31.3)	B (13.8)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.1.5 Cherry Point Road

Based on the projected flow on Cherry Point Road, an eastbound left-turn lane entering the school is recommended for consideration along with improvements to Cherry Point Road which may include restriping and repaving. These items should be closely coordinated with Beaufort County Staff regarding their requirements. In addition, it may be prudent for the school to consider a review of their drop-off and pick-up operations to limit impacts to Cherry Point Road. Coordination with the developer, school, and County is recommended.

8.1.6 SC 170 at Red Oaks Drive/Site Access #2

Table 12 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Red Oaks Drive/Site Access #2.

As shown in **Table 12**, the intersection of SC 170 at Red Oaks Drive currently experiences elevated delays during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2019 Phase 1 No Build conditions. The installation of an eastbound right-turn lane was applied in the 2019 Phase 1 Build conditions. The intersection was further reviewed for consideration of the installation of an exclusive northbound right-turn lane based on SCDOT Design Manual guidelines and the projected intersection volumes. It was found that a northbound right-turn lane was warranted in the 2019 Phase 1 Build conditions. With these improvements the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2019 Phase 1 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 12:
2019 Phase 1 Analysis Summary
SC 170 at Red Oaks Drive/Site Access #2

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB SB EB	A (0.4) A (0.0) F (279.1)	A (0.4) A (0.0) F (*)[2]
2019 Phase 1 No Build	NB SB EB	A (0.4) A (0.0) E (47.2)	A (0.4) A (0.0) F (64.4)
2019 Phase 1 Build with Improvements	NB SB EB WB	A (0.5) A (0.0) F (59.7) E (40.7)	A (0.4) A (0.0) F (94.7) F (55.5)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.1.7 SC 170 at Schinger Avenue

Table 13 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Schinger Avenue.

As shown in **Table 13**, the intersection of SC 170 at Schinger Avenue currently operates acceptably at LOS D and LOS C during the AM and PM peak hours, respectively. Based on the projected traffic growth the eastbound approach of the intersection is expected to experience elevated delays during the AM peak hour, operating at LOS E and to operate at LOS D during the PM peak hours in the 2019 Phase 1 No Build and 2019 Phase 1 Build conditions. It is typical for minor stop-controlled side streets and driveways on major

streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 13:
2019 Phase 1 Analysis Summary
SC 170 at Schinger Avenue

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB SB EB	A (0.0) A (0.0) D (32.2)	A (0.0) A (0.0) C (22.7)
2019 Phase 1 No Build	NB SB EB	A (0.0) A (0.0) E (37.9)	A (0.0) A (0.0) D (25.9)
2019 Phase 1 Build	NB SB EB	A (0.0) A (0.0) E (42.2)	A (0.0) A (0.0) D (27.5)

1. Delay = average seconds of delay

8.1.8 SC 170 at Riverwalk Boulevard

Table 14 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Riverwalk Boulevard.

As shown in **Table 14**, the intersection of SC 170 at Riverwalk Boulevard currently experiences elevated delay during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2019 Phase 1 No Build and 2019 Phase 1 Build conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

It is recommended based on the results of the No Build and Build conditions that consideration of extending the eastbound turn-lane to accommodate the project queue from the left-turn. This would allow right-turning vehicles to not be delayed by the left-turns.

Table 14: 2019 Phase 1 Analysis Summary SC 170 at Riverwalk Boulevard			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (4.4) A (0.0) F (*)[2]	A (0.9) A (0.0) F (*)[2]
2019 Phase 1 No Build	NB SB EB	A (6.3) A (0.0) F (50.7)	A (1.0) A (0.0) F (*)[2]
2019 Phase 1 Build	NB SB EB	A (7.7) A (0.0) F (75.8)	A (1.0) A (0.0) F (77.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.1.9 SC 170 at Tidewatch Drive

Table 15 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Tidewatch Drive.

Table 15: 2019 Phase 1 Analysis Summary SC 170 at Tidewatch Drive					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	A (7.9) A (9.6) D (44.5) D (44.2)	B (10.0)	A (8.4) A (8.0) D (44.2) D (45.9)	A (9.8)
2019 Phase 1 No Build	NB SB EB WB	A (8.7) B (10.9) D (44.7) D (44.3)	B (11.0)	A (9.2) A (8.7) D (44.3) D (46.2)	B (10.5)
2019 Phase 1 Build	NB SB EB WB	B (14.7) B (10.5) D (37.0) D (36.7)	B (13.6)	B (13.8) B (12.5) C (31.6) C (32.7)	B (14.0)

1. Delay = average seconds of delay

As shown in Table 15, the intersection of SC 170 at Tidewatch Drive currently operates acceptably at LOS B and LOS A during the AM and PM peak hours. Based on the projected traffic growth the intersection is projected to operate acceptably at LOS B during the AM and PM peak hours in the 2019 Phase 1 No Build conditions. In the 2019 Phase 1 Build conditions, signal optimization was applied to the signalized intersection. With this improvement the intersection is projected to continue to operate acceptably, operating at LOS B, during the AM and PM peak hours in the 2019 Phase 1 Build conditions.

8.1.10 2019 Phase 1 Capacity Analysis Summary

Based on the projected 2019 Phase 1 Build year future conditions, the following transportation improvements are recommended as a part of this project:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.
- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of and eastbound left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

8.2 2021 Capacity Analysis

Capacity analyses were performed for the Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour traffic conditions. The 2021 Phase 2 Build year conditions includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

8.2.1 SC 170 at Argent Boulevard

Table 16 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Argent Boulevard.

As shown in **Table 16**, the intersection of SC 170 at Argent Boulevard currently operates at LOS D during the AM and PM peak hours. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and to operate at LOS D during the PM peak hour in the 2021 Phase 2 No Build conditions. With signal optimization of the intersection, the intersection is projected to operate at LOS D during the AM and PM peak hours in the 2021 Phase 2 Build conditions.

Table 16:
2021 Phase 2 Analysis Summary
SC 170 at Argent Boulevard

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB	B (12.5) D (46.8) F (149.6)	D (45.7)	B (15.8) C (22.3) F (168.1)	D (38.2)
2021 Phase 2 No Build	NB SB EB	B (14.2) F (94.1) F (179.2)	E (72.0)	C (20.8) C (27.6) F (231.8)	D (51.0)
2021 Phase 2 Build	NB SB EB	C (21.6) E (64.6) F (110.5)	D (52.2)	D (40.9) D (41.9) F (80.5)	D (46.3)

1. Delay = average seconds of delay

8.2.2 Argent Boulevard at Jasper Station Road/Short Cut Drive

Table 17 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive.

As shown in **Table 17**, the intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive currently operates at LOS D (eastbound and westbound approaches) during the AM peak hour and experiences elevated delay, operating at LOS E (westbound approach) during the PM peak hour. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM and PM peak hours for the 2021 Phase 2 No Build conditions for the eastbound and westbound approaches. As stated previously, the addition of a northbound right-turn lane was included in the 2019 Phase 1 Build conditions. In addition, the installation of a westbound left-turn lane was included in the 2021 Phase 2 Build conditions. With these improvements the intersection is projected to operate at LOS D during the AM peak hour (eastbound and westbound approaches) and to experience elevated delay, operating at LOS E

(westbound approach) in the PM peak hour during the 2021 Phase 2 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 17:
2021 Phase 2 Analysis Summary
Argent Boulevard at Jasper Station Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB	A (0.2)	A (0.3)
	SB	A (0.2)	A (0.2)
	EB	D (30.0)	D (32.6)
	WB	D (32.6)	E (36.4)
2021 Phase 2 No Build	NB	A (0.2)	A (0.3)
	SB	A (0.2)	A (0.2)
	EB	E (35.9)	E (39.2)
	WB	E (39.9)	E (45.6)
2021 Phase 2 Build with Improvements	NB	A (0.2)	A (0.3)
	SB	A (0.1)	A (0.2)
	EB	D (30.1)	E (38.8)
	WB	D (27.9)	D (34.6)

1. Delay = average seconds of delay

8.2.3 SC 170 at Pritcher Point Road/Short Cut Drive

Table 18 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the intersection of SC 170 at Pritcher Point Road/Short Cut Drive. The intersection is currently unsignalized. As discussed previously, construction associated with a nearby animal shelter, accessed via Pritcher Point Road, includes the following intersection improvements, included in the 2021 Phase 2 No Build and 2021 Phase 2 Build conditions:

- Northbound right-turn lane on SC 170
- Southbound left-turn lane on SC 170
- Westbound through/left-turn lane and right-turn lane on Pritcher Point Road

The intersection was assumed to be signalized in the 2021 Phase 2 conditions.

Table 18:
2021 Phase 2 Analysis Summary
SC 170 at Pritcher Point Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1,2])	Approach LOS (Delay[1,2])	Overall LOS (Delay[1,2])
Existing	NB SB EB WB	A (1.7) A (0.0) E (48.3) F (*)[2]	N/A[3]	A (0.6) A (0.0) E (36.7) A (0.0)	N/A[3]
2021 Phase 2 No Build	NB SB EB WB	A (2.4) A (0.0) F (101.6) F (107.6)	N/A[3]	A (0.7) A (0.0) F (78.2) A (0.0)	N/A[3]
2021 Phase 2 Build with Improvements	NB SB EB WB	C (26.3) E (56.7) E (56.1) F (163.4)	D (49.7)	C (27.1) C (20.4) D (37.6) D (37.1)	C (25.1)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds
3. Overall intersection delay not calculated for two-way stop controlled intersections

As shown in **Table 18**, the intersection of SC 170 at Jasper Station Road/Short Cut Drive currently experiences elevated delay, operating at LOS F (westbound approach), during the AM peak hour and operates at LOS E during the PM peak hour (eastbound approach). The current westbound approach traffic volume is very low in the morning (two vehicles) however, those vehicles do experience delay. As discussed previously, construction associated with a nearby animal shelter on Pritcher Point Road, includes installation of a northbound right-turn lane, a southbound left-turn lane, and configuration of the westbound approach to include a right-turn lane and a through-left lane. With these improvements, based on the projected traffic growth the intersection is projected to experience elevated delays, operating at LOS F (westbound and eastbound approaches) during the AM peak hour and to operate at LOS F during the PM peak hour (eastbound approach) in the 2021 Phase 2 No Build conditions. The intersection is planned to be signalized in the 2021 Phase 2 Build conditions. With signalization the intersection is projected to operate at LOS D and LOS C during the AM and PM peak hours, respectively, in the 2021 Phase 2 Build conditions.

8.2.4 SC 170 at Pearlstine Road/Cherry Point Road

Table 19 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Pearlstine Road/Cherry Point Road.

Table 19: 2021 Phase 2 Analysis Summary SC 170 at Pearlstine Road/Cherry Point Road					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	C (22.5) D (39.5) D (40.6) F (*)[2]	E (72.8)	B (18.0) B (13.8) D (37.2) D (35.7)	B (16.7)
2021 Phase 2 No Build	NB SB EB WB	C (26.2) F (70.3) D (44.2) F (*)[2]	F (99.2)	C (30.1) B (16.9) D (37.6) D (35.8)	C (24.6)
2021 Phase 2 Build with Improvements	NB SB EB WB	B (19.9) C (34.5) D (48.9) F (88.9)	D (35.8)	B (15.8) B (14.4) D (37.7) D (36.4)	B (16.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 19**, the intersection of SC 170 at Pearlstine Road/Cherry Point Road currently experiences elevated delay in the AM peak hour and operates at LOS B during the PM peak hour. The AM peak hour delay is elevated on the westbound approach primarily due to the impacts of the Okatie Elementary School (intersection is the only access to the school from SC 170). Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and to operate at LOS C during the PM peak hour in the 2021 Phase 2 No Build conditions. The installation of a second westbound left-turn lane with restriping of the westbound approach to dual left-turn lanes with a shared through right lane, and signal optimization were applied in the 2021 Phase 2 Build conditions. With these improvements the intersection is projected to operate at LOS D and LOS B during the AM and PM peak hours, respectively, in the 2021 Phase 2 Build conditions.

The Cherry Point Road improvements were assumed to be complete as part of Phase 1.

8.2.5 SC 170 at Red Oaks Drive/Site Access #2

Table 20 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Red Oaks Drive/Site Access #2.

Table 20: 2021 Phase 2 Analysis Summary SC 170 at Red Oaks Drive/Site Access #2			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (0.4) A (0.0) F (279.1)	A (0.4) A (0.0) F (*)[2]
2021 Phase 2 No Build	NB SB EB	A (0.5) A (0.0) F (56.6)	A (0.4) A (0.0) F (87.2)
2021 Phase 2 Build with Improvements	NB SB EB WB	A (0.6) A (0.0) F (86.8) F (70.1)	A (0.4) A (0.0) F (159.7) F (91.4)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 20**, the intersection of SC 170 at Red Oaks Drive currently experiences elevated delays during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 No Build conditions. As stated previously, the addition of an eastbound right-turn lane and northbound right-turn lane were included in the 2019 Phase 1 Build conditions. In addition, the installation of an exclusive westbound right-turn lane with a shared through left lane exiting the site were applied in the 2021 Phase 2 Build conditions. With these improvements the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 Build conditions (eastbound and westbound approaches). It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.2.6 SC 170 at Schinger Avenue

Table 21 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Schinger Avenue.

As shown in **Table 21**, the intersection of SC 170 at Schinger Avenue currently operates acceptably at LOS D and LOS C during the AM and PM peak hours, respectively. Based on the projected traffic growth the intersection is expected to experience elevated delays during the AM peak hour and to operate at LOS D during PM peak hour in the 2023 No Build conditions. The intersection is projected to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 Build conditions. It is typical for minor stop-

controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 21:
2021 Phase 2 Analysis Summary
SC 170 at Schinger Avenue

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB SB EB	A (0.0) A (0.0) D (32.2)	A (0.0) A (0.0) C (22.7)
2021 Phase 2 No Build	NB SB EB	A (0.0) A (0.0) E (46.7)	A (0.0) A (0.0) D (30.4)
2021 Phase 2 Build	NB SB EB	A (0.0) A (0.0) F (69.2)	A (0.0) A (0.0) E (38.8)

1. Delay = average seconds of delay

8.2.7 SC 170 at Riverwalk Boulevard

Table 22 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Riverwalk Boulevard.

As shown in **Table 22**, the intersection of SC 170 at Riverwalk Boulevard currently experiences elevated delay during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 No Build and 2021 Phase 2 Build conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

As stated in Phase 1, it is recommended based on the results of the No Build and Build conditions that consideration of extending the eastbound turn-lane to accommodate the project queue from the left-turn. This would allow right-turning vehicles to not be delayed by the left-turns.

Table 22: 2021 Phase 2 Analysis Summary SC 170 at Riverwalk Boulevard			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (4.4) A (0.0) F (*)[2]	A (0.9) A (0.0) F (*)[2]
2021 Phase 2 No Build	NB SB EB	A (9.8) A (0.0) F (117.4)	A (1.2) A (0.0) F (*)[2]
2021 Phase 2 Build	NB SB EB	D (19.4) A (0.0) F (75.9)	A (1.2) A (0.0) F (192.1)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.2.8 SC 170 at Tidewatch Drive

Table 23 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Tidewatch Drive.

Table 23: 2021 Phase 2 Analysis Summary SC 170 at Tidewatch Drive					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	A (7.9) A (9.6) D (44.5) D (44.2)	B (10.0)	A (8.4) A (8.0) D (44.2) D (45.9)	A (9.8)
2021 Phase 2 No Build	NB SB EB WB	A (9.6) B (12.6) D (44.7) D (44.3)	B (12.3)	B (10.2) A (9.6) D (44.3) D (46.4)	B (11.4)
2021 Phase 2 Build	NB SB EB WB	A (8.9) B (13.8) E (57.8) E (57.2)	B (13.1)	B (14.8) B (12.2) D (42.0) D (43.4)	B (14.8)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 23**, the intersection of SC 170 at Tidewatch Drive currently operates acceptably at LOS B and LOS A during the AM and PM peak hours. Based on the projected traffic growth the intersection is projected to operate at LOS B during the AM and PM peak hours in the 2021 Phase 2 No Build conditions. In the 2021 Phase 2 Build conditions, signal optimization was applied to the signalized intersection. With this improvement the intersection is projected to continue to operate similarly, operating at LOS B, during the AM and PM peak hours in the 2021 Phase 2 Build conditions.

8.2.9 2021 Phase 2 Capacity Analysis Summary

Based on the projected 2021 Phase 2 Build year future conditions, the following transportation improvements are recommended as a part of this project, in addition to the recommendations for the projected 2019 Phase 1 Build year future conditions:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

8.3 2023 Capacity Analysis

Capacity analyses were performed for the Existing, 2023 No Build, and 2023 Build AM and PM peak hour traffic conditions. The 2023 Build year conditions include the following land uses:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units
- River Oaks PUD – 315 single-family detached units

8.3.1 SC 170 at Argent Boulevard

Table 24 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Argent Boulevard.

Table 24: 2023 Analysis Summary SC 170 at Argent Boulevard					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB	B (12.5) D (46.8) F (149.6)	D (45.7)	B (15.8) C (22.3) F (168.1)	D (38.2)
2023 No Build	NB SB EB	B (15.4) F (123.7) F (196.1)	F (88.3)	C (26.4) C (33.1) F (267.0)	E (60.5)
2023 Build with Improvements	NB SB EB	B (11.3) D (36.1) F (84.5)	C (31.2)	C (21.8) D (35.6) D (51.2)	C (30.7)

1. Delay = average seconds of delay

As shown in **Table 24**, the intersection of SC 170 at Argent Boulevard currently operates acceptably at LOS D during the AM and PM peak hours. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2023 No Build conditions. With the current intersection configuration, the intersection was projected to continue to experience elevated delay during the Build conditions. It is recommended that the eastbound approach movements be reconfigured, to provide dual left-turn lanes along with a right-turn lane. Based on the geometrics of this intersection the eastbound approach may be able to be restriped or the intersection approach may need to be redesigned. This would be determined as part of the design of the improvements by the project team in coordination with the County staff. With this improvement and signal optimization, the intersection is projected to operate acceptably at LOS C during the AM and PM peak hours in the 2023 Build conditions.

8.3.2 Argent Boulevard at Jasper Station Road/Short Cut Drive

Table 25 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive.

Table 25: 2023 Analysis Summary Argent Boulevard at Jasper Station Road/Short Cut Drive			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB WB	A (0.2) A (0.2) D (30.0) D (32.6)	A (0.3) A (0.2) D (32.6) E (36.4)
2023 No Build	NB SB EB WB	A (0.2) A (0.2) E (40.2) E (45.5)	A (0.3) A (0.2) E (45.1) F (50.9)
2023 Build with Improvements	NB SB EB WB	A (0.2) A (0.2) D (34.2) D (31.9)	A (0.3) A (0.2) E (47.1) E (45.5)

1. Delay = average seconds of delay

As shown in **Table 25**, the intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive currently operates at LOS D during the AM peak hour and experiences elevated delay, operating at LOS E, during the PM peak hour (westbound approach). Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM and PM peak hours for the 2023 No Build conditions. As stated previously, the addition of a northbound right-turn lane and a westbound left-turn lane were included in the 2021 Phase 2 Build conditions and were also applied in the 2023 Build conditions. With these improvements the intersection is projected to operate acceptably at LOS D during the AM peak hour and to experience elevated delay, operating at LOS E, in the PM peak hour during the 2023 Build conditions (eastbound and westbound approaches). It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.3.3 SC 170 at Pritcher Point Road/Short Cut Drive

Table 26 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the intersection of SC 170 at Pritcher Point Road/Short Cut Drive. The intersection is currently unsignalized. As discussed previously, construction associated with a nearby animal shelter, accessed via Pritcher Point Road, includes the following intersection improvements, included in the 2023 No Build and 2023 Build conditions:

- Northbound right-turn lane on SC 170
- Southbound left-turn lane on SC 170
- Westbound through/left-turn lane and right-turn lane on Pritcher Point Road

The intersection was assumed to be signalized in the 2023 conditions. A second westbound left-turn lane installed in Phase 2 was also included in the 2023 analysis.

Table 26:
2023 Analysis Summary
SC 170 at Pritcher Point Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB WB	A (1.7) A (0.0) E (48.3) F (*)[2]	N/A[3]	A (0.6) A (0.0) C (19.7) A (0.0)	N/A[3]
2023 No Build	NB SB EB WB	A (3.0) A (0.0) F (154.1) F (*)[2]	N/A[3]	A (0.7) A (0.0) D (30.9) A (0.0)	N/A[3]
2023 Build with Improvements	NB SB EB WB	C (23.2) E (56.3) F (86.8) F (135.5)	D (47.4)	C (34.6) C (28.2) E (72.3) F (110.4)	D (37.4)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds
3. Overall intersection delay not calculated for two-way stop controlled intersections

As shown in **Table 26**, the intersection of SC 170 at Jasper Station Road/Short Cut Drive currently experiences elevated delay, operating at LOS F (westbound approach), during the AM peak hour and operates at LOS E during the PM peak hour (eastbound approach). The current westbound approach traffic volume is very low in the morning (two vehicles) however, those vehicles do experience delay. Based on the projected traffic growth the intersection is projected to continue to experience elevated delays during the AM peak hour, operating at LOS F (eastbound and westbound approaches), and to operate at LOS D during the PM peak hour in the 2023 conditions. With the improvements discussed above, the intersection is projected to operate acceptably at LOS D in the AM and PM peak hours during the 2023 Build conditions.

8.3.4 SC 170 at Pearlstine Road/Cherry Point Road

Table 27 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Pearlstine Road/Cherry Point Road.

Table 27: 2023 Analysis Summary SC 170 at Pearlstine Road/Cherry Point Road					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	C (22.5) D (39.5) D (40.6) F (*)[2]	E (72.8)	B (18.0) B (13.8) D (37.2) D (35.7)	B (16.7)
2023 No Build	NB SB EB WB	C (29.4) F (94.3) D (44.5) F (*)[2]	F (118.8)	D (46.0) B (19.3) D (37.8) D (35.9)	C (34.1)
2023 Build with Improvements	NB SB EB WB	C (34.1) D (46.7) E (75.5) F (109.7)	D (48.9)	C (27.4) B (15.3) E (67.6) F (96.8)	C (25.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 27**, the intersection of SC 170 at Pearlstine Road/Cherry Point Road currently experiences elevated delay in the AM peak hour (westbound approach) and operates at LOS B during the PM peak hour. The AM peak hour delay is elevated on the westbound approach due to the impacts of the Okatie Elementary School using this intersection as the primary access to the school. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour (westbound approach) and to operate at LOS C during the PM peak hour in the 2023 No Build conditions. As stated in Phase 2, the installation of a second westbound left-turn lane, and signal optimization were applied in the 2021 Phase 2 Build conditions and were applied in the 2023 Build conditions analysis. In addition, the installation of an eastbound left-turn lane was applied in the 2023 Build conditions. With these improvements the intersection is projected to operate at LOS D and LOS C during the AM and PM peak hours, respectively, in the 2023 Build conditions.

The Cherry Point Road improvements were assumed to be complete as part of Phase 1.

8.3.5 SC 170 at Red Oaks Drive/Site Access #2

Table 28 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Red Oaks Drive/Site Access #2.

Table 28: 2023 Analysis Summary SC 170 at Red Oaks Drive/Site Access #2			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (0.4) A (0.0) F (279.1)	A (0.4) A (0.0) F (*)[2]
2023 No Build	NB SB EB	A (0.5) A (0.0) F (75.6)	A (0.4) A (0.0) F (124)
2023 Build with Improvements	NB SB EB WB	A (0.6) A (0.0) F (189.5) F (268.4)	A (0.5) A (0.1) F (*) F (188.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 28**, the intersection of SC 170 at Red Oaks Drive currently experiences elevated delays during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2023 No Build conditions. As stated previously, the installation of an eastbound right-turn lane, a northbound right-turn lane, and a westbound right-turn lane and a through-left lane exiting the site to help facilitate traffic flow out of the site were applied in the 2021 Phase 2 Build conditions. These improvements were also applied in the 2023 Build conditions. With these improvements the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2023 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay. As the development builds out and as back access is established on both sides of SC 170, this location may be considered for right-in, right-out operations.

8.3.6 SC 170 at Schinger Avenue

Table 29 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Schinger Avenue.

Table 29: 2023 Analysis Summary SC 170 at Schinger Avenue			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (0.0) A (0.0) D (32.2)	A (0.0) A (0.0) C (22.7)
2023 No Build	NB SB EB	A (0.0) A (0.0) F (59.6)	A (0.0) A (0.0) E (37.0)
2023 Build	NB SB EB	A (0.0) A (0.0) F (113.4)	A (0.0) A (0.0) F (70.8)

1. Delay = average seconds of delay

As shown in **Table 29**, the intersection of SC 170 at Schinger Avenue currently operates acceptably at LOS D and LOS C during the AM and PM peak hours, respectively. Based on the projected traffic growth the intersection is expected to experience elevated delays during the AM and PM peak hours during the 2023 No Build and 2023 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.3.7 SC 170 at Riverwalk Boulevard

Table 30 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Riverwalk Boulevard.

As shown in **Table 30**, the intersection of SC 170 at Riverwalk Boulevard currently experiences elevated delay during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2023 No Build and 2023 Build conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay. It is recommended based on the results of the No Build and Build conditions that consideration of extending the eastbound turn-lane to accommodate the project queue from the left-turn. This would allow right-turning vehicles to not be delayed by the left-turns.

Table 30: 2023 Analysis Summary SC 170 at Riverwalk Boulevard			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (4.4) A (0.0) F (*)[2]	A (0.9) A (0.0) F (*)[2]
2023 No Build	NB SB EB	C (15.3) A (0.0) F (66.6)	A (1.3) A (0.0) F (136.5)
2023 Build	NB SB EB	D (32.8) A (0.0) F (196.5)	A (1.8) A (0.0) F (*)[2]

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.3.8 SC 170 at Tidewatch Drive

Table 31 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Tidewatch Drive.

Table 31: 2023 Analysis Summary SC 170 at Tidewatch Drive					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	A (7.9) A (9.6) D (44.5) D (44.2)	B (10.0)	A (8.4) A (8.0) D (44.2) D (45.9)	A (9.8)
2023 No Build	NB SB EB WB	B (10.9) B (15.3) D (44.8) D (44.4)	B (14.3)	B (11.5) B (10.8) D (44.4) D (46.6)	B (12.6)
2023 Build	NB SB EB WB	B (12.0) C (22.0) E (58.3) E (57.4)	B (18.8)	B (14.9) B (13.0) E (57.8) E (60.0)	B (15.9)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 31**, the intersection of SC 170 at Tidewatch Drive currently operates acceptably at LOS B and LOS A during the AM and PM peak hours. Based on the projected traffic growth the intersection is projected to operate acceptably at LOS B during the AM and PM peak hours in the 2023 No Build conditions. In the 2023 Build conditions, signal optimization was applied to the signalized intersection. With this improvement the intersection is projected to continue to operate acceptably, operating at LOS B, during the AM and PM peak hours in the 2023 Build conditions.

8.3.9 SC 170 at Site Access #1

Table 32 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Site Access #1.

This location has been shown in previous planning efforts for the PUDs but is not consistent with the SC 170 Access Management Plan as noted by Staff in their comments. Formal allowance of this access will need to be coordinated with the County. If this access point is not allowed, the trips assigned to this intersection would be redistributed to other access points.

Table 32:
2023 Analysis Summary
SC 170 at Site Access #1

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
2023 Build	NB	A (0.0)	A (0.0)
	SB	A (0.0)	A (0.0)
	WB	C (21.7)	E (48.0)

1. Delay = average seconds of delay

The RIRO intersection of SC 170 at Site Access #1 was reviewed for consideration of the installation of an exclusive northbound right-turn lane on SC 170 based on SCDOT Design Manual guidelines and projected intersection volumes. The AM and PM peak hour conditions meet the guidelines for installation of an exclusive northbound right-turn lane. As shown in **Table 32**, with this improvement the intersection is projected to operate acceptably at LOS C during the AM peak hour and to experience elevated delays during the PM peak hour in the 2023 Build conditions. The westbound approach queuing is projected to be approximately one vehicle in the AM peak hour conditions and two vehicles in the PM peak hour conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.3.10 2023 Capacity Analysis Summary

Based on the projected 2023 Build future conditions, the following transportation improvements are recommended as a part of this project:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

8.4 Year 2023 - SC 170 Arterial Analysis

Arterial analysis was performed for the SC 170 in the study area for the AM, Midday and PM peak hour conditions. The arterial level of service reviews the travel speed on a corridor. Travel speed considers intersection delay and travel time along the segments. The SC 170 corridor from Argent Boulevard to Tidewatch Drive was reviewed. **Table 33** provides a comparison of the arterial level of service between the Existing, 2023 No Build and 2023 Build conditions during the AM and PM peak hours.

In the Existing and 2023 No Build conditions, the intersection of Pritcher Point Road is not included because it is unsignalized in those conditions. During the morning and evening peak hour conditions, the arterial is operating at LOS D or better in the northbound direction (to Beaufort area) for all scenarios. In the southbound direction (to Bluffton area) in the morning peak, the arterial is operating at LOS D in the Existing conditions and LOS E in the 2023 No Build and Build conditions with 0.1 mph difference in overall travel speed between No Build and Build. In the southbound direction (to Bluffton area) in the evening peak, the arterial is operating at LOS C in the Existing conditions and 2023 No Build conditions and LOS D in the 2023 Build conditions.

Table 33: Arterial Level of Service – SC 170 LOS (Speed in mph)						
	Existing Conditions		**2023 No Build Conditions**		**2023 Build Conditions**	
Cross Street	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
NB SC 170						
Tidewatch Drive	D (26.6)	D (25.7)	D (24.5)	D (22.9)	D (23.7)	E (20.3)
Cherry Point Road	D (26.7)	B (34.2)	D (23.2)	D (29.6)	D (22.4)	D (25.4)
Pritcher Point Road	n/a	n/a	n/a	n/a	D (23.1)	E (16.9)
Argent Boulevard	B (36.5)	B (34.6)	B (34.8)	C (29.8)	C (27.9)	D (22.0)
Total	**C (31.0)**	**C (32.9)**	**C (38.2)**	**C (28.6)**	**D (24.0)**	**D (21.1)**
SB SC 170						
Argent Boulevard	F (6.2)	F (8.0)	F (2.9)	F (6.5)	F (6.8)	F (7.3)
Pritcher Point Road	n/a	n/a	n/a	n/a	F (14.0)	E (20.5)
Cherry Point Road	C (30.8)	B (39.1)	E (19.0)	B (36.8)	F (16.0)	D (26.4)
Tidewatch Drive	B (35.9)	B (36.8)	C (32.7)	B (34.7)	C (30.0)	C (32.9)
Total	**D (27.0)**	**C (32.1)**	**E (17.1)**	**C (29.2)**	**E (17.2)**	**D (23.2)**

1. n/a = not signalized

8.5 Analysis Summary

Based on the analysis the following Phase 1 (2019) transportation improvements are recommended:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.

- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following Phase 2 (2021) transportation improvements are recommended:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following ultimate (2023) transportation improvements are recommended:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

Results in this report are based solely on traffic studies and are considered input into final design considerations. The final design will be determined by the project engineer after other design elements (such as, but not limited to, utilities, stormwater, etc.) are taken into consideration.

9.0 Conclusion

The Okatie Village is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. Okatie Village includes two development areas being studied, Osprey Point PUD

and River Oaks PUD. The development will be accessed via three full access points along SC 170 and a RIRO access point. For the purposes of this TIA, the proposed development is assumed to be complete by 2023, constructed in three phases. Land uses listed are cumulative.

The Phase 1 2019 Phase 1 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

The Phase 2 2021 Phase 2 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

The Buildout 2023 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 370 single-family detached units
- River Oaks PUD – 315 single-family detached units

Based on the analysis the following Phase 1 (2019) transportation improvements are recommended:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.
- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following Phase 2 (2021) transportation improvements are recommended:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive

- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following ultimate (2023) transportation improvements are recommended:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

Results in this report are based solely on traffic studies and are considered input into final design considerations. The final design will be determined by the project engineer after other design elements (such as, but not limited to, utilities, stormwater, etc.) are taken into consideration.

SC 170/US 278 Corridor Study Analysis Findings and Recommended Access Management Standards

Prepared for:
Beaufort County

Prepared by:

DWA
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Atlanta, Georgia 30309
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www.daywilburn.com

December 2003

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The SC 170 and US 278 corridors are key arterials in Beaufort County. These arterials currently serve high traffic volumes during the peak hours, with the US 278 corridor serving heavy seasonal traffic flow to/from Hilton Head Island and the Town of Bluffton. In the face of high existing volumes and strong projected growth in the area, Beaufort County is interested in maximizing the available capacity on these existing roadway corridors that link the City of Beaufort, Town of Bluffton, Hilton Head Island, and I-95. The SC 170 corridor north of US 278 borders Jasper County, which is also projecting high growth into the future.

At the request of Beaufort County, Day Wilburn Associates, Inc. (DWA) has performed an analysis of the SC 170 corridor from US 278 to Old Baileys Road and the US 278 corridor from SC 170 to the Jasper County Line. The study of the SC 170 corridor began by considering application of the existing US 278 corridor access management standards (east of SC 170). The existing access management standards for the US 278 corridor are documented in the US 278 Immediate Needs Study, 2000, by Wilbur Smith Associates, Inc. (WS). The existing US 278 standards were overlaid onto the SC 170 roadway network and major development access locations, and the intersection spacing criteria were modified slightly to fit the conditions along the SC 170 corridor. Analysis of traffic conditions along the SC 170 corridor revealed that the proposed standards provide good operations which maximize available throughput. These draft SC 170 corridor standards were used as the basis for development of draft Countywide Access Management Standards, in conjunction with the Comprehensive Plan update. The draft Countywide Access Management Standards are documented in Beaufort County Access Management Standards, September 2002, by DWA.

DWA then performed additional analysis along the SC 170 corridor north of US 278 and along US 278 west of SC 170 with additional planned development, including the USC New River Campus. The following paragraphs summarize the need for access management standards along the US 278 and SC 170 corridors and describe the consistency in application of the access management standards along US 278 east and west of SC 170, as well as along SC 170 north of US 278.

Need for Access Management Standards

The Beaufort County Draft Comprehensive Plan Future Land Use Update, January 2003, indicates southern Beaufort County grew by 73% in the 1990s, and the county as a whole was the fastest growing county in South Carolina. The future land use plan indicates the County has a capacity for 177,000 additional residents. This additional growth will further strain the arterial roadway network in Beaufort County, including the US 278 and SC 170 corridors.

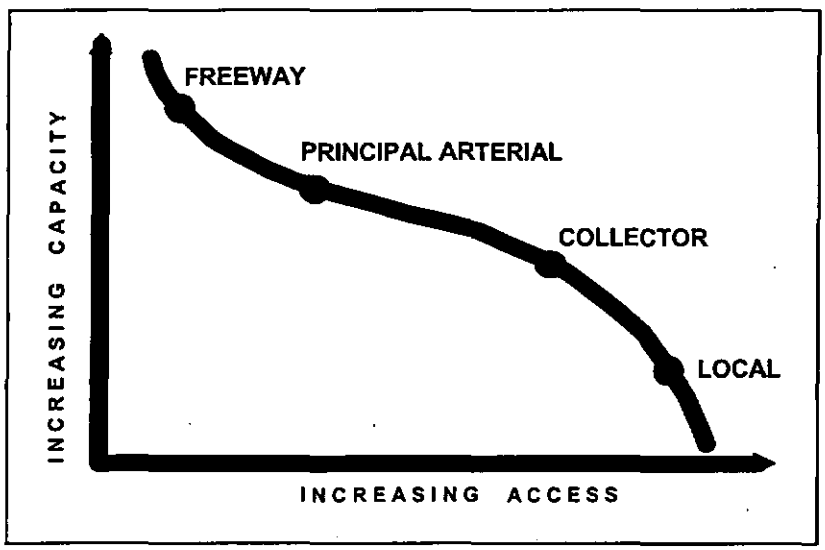
The US 278 and SC 170 corridors are designated as principal arterials on the County's Functional Classification Map. These are the only roads in southern Beaufort County providing for long distance through travel. Therefore, the through capacity along these roadways must be.

preserved, as indicated in the Comprehensive Plan. Preserving the throughput capacity in a manner consistent with serving long trips along the corridor means preserving capacity at a reasonable corridor level of service (LOS) to allow consistent travel times with minimal stopping.

Physical barriers provide constraints on implementation of new parallel principal arterials, including:

- Distances between Beaufort and Bluffton/Hilton Head
- Wetlands and waterways which limiting capacity expansion
- Increased development reducing available routes and increasing right-of-way cost

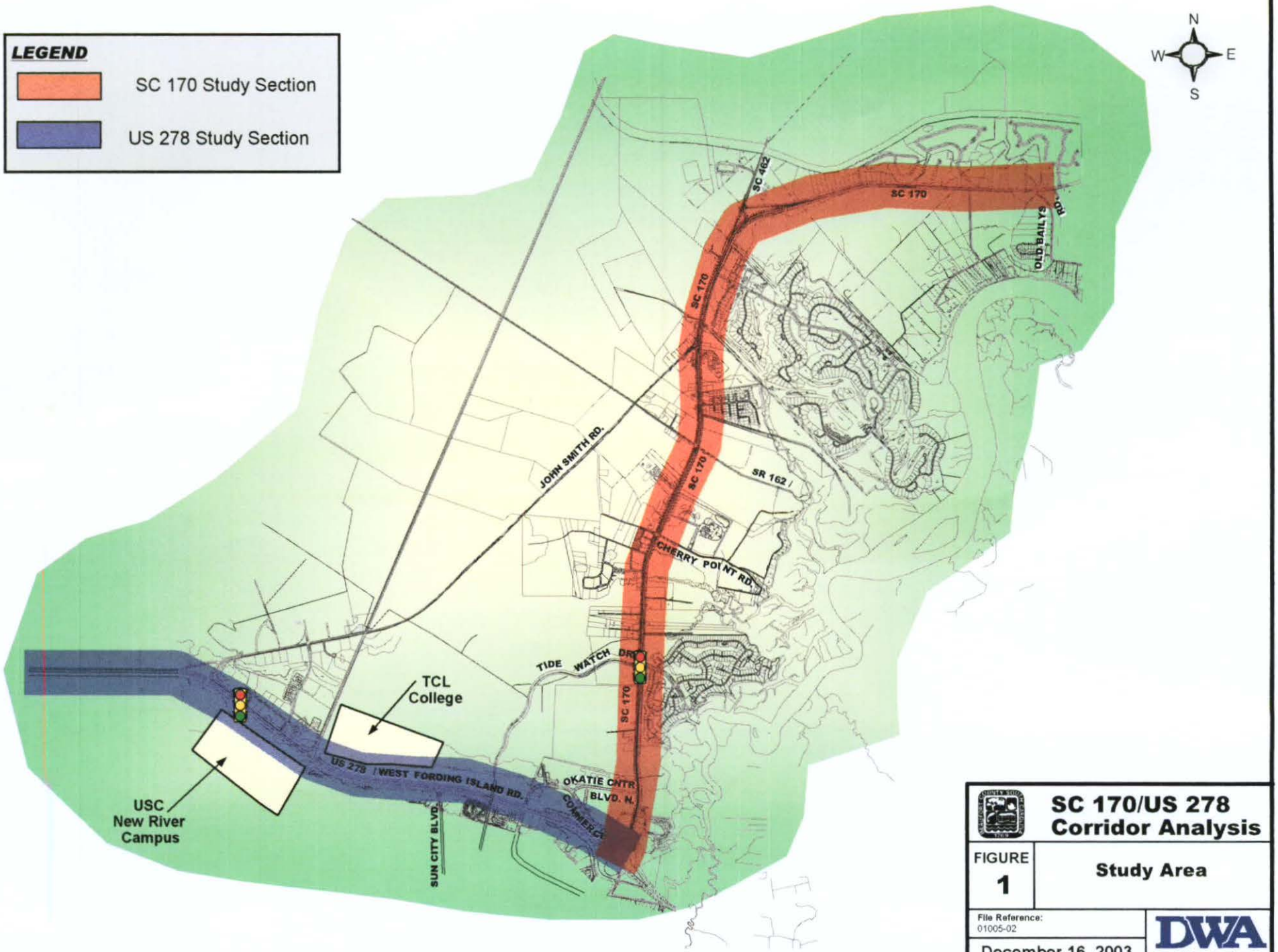
Therefore, preservation of the existing capacity to satisfy long trips is needed to accommodate the planned growth, as indicated in the County's Comprehensive Plan and accounted for in the Countywide TRANPLAN travel demand model.



As this graphic shows, as a roadway provides more access it will experience reduced capacity. A principal arterial such as US 278 and SC 170 focuses on mobility as a priority over local access.

The County's comprehensive planning process and other planning efforts have recognized the goal of focusing on mobility for the US 278 and SC 170 corridors. It would be more expensive and have greater impacts to install a new continuous parallel roadway to satisfy long trips versus installing shorter connecting roadways to accommodate shorter trips. Therefore, the operational strategy for the US 278 and SC 170 corridors includes:

- Maximize the throughput capacity along US 278 and SC 170.
- Use existing parallel roadways, such as Bluffton Parkway, to satisfy shorter trips, and install additional parallel roadway connections.
- Use backside connections and interparcel access to minimize the need for travel along US 278 or SC 170 to access development generated trips from within the local area.



SC 170/US 278 Corridor Analysis

FIGURE 1	Study Area
File Reference: 01005-02	DWA Day Wilburn Associates, Inc.
December 16, 2003	

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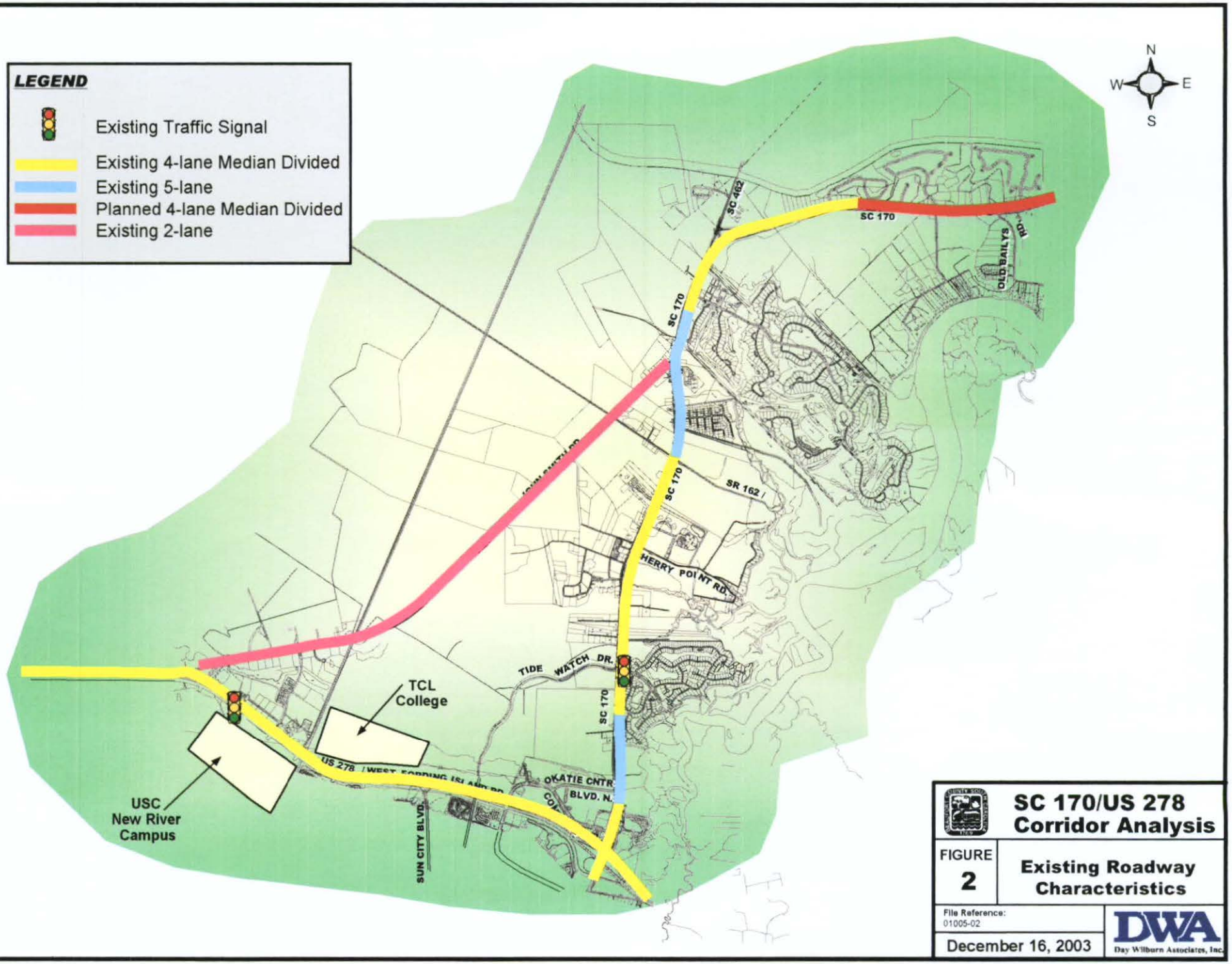
LEGEND
Existing Traffic Signal
Existing 4-lane Median Divided
Existing 5-lane
Planned 4-lane Median Divided
Existing 2-lane
N
W
E
S
SC 462
SC 170
OLD BAILYS RD.
SC 170
SR 162 /
SC 170
HERRY POINT RD.
TIDE WATCH DR.
SC 170
TCL College
US 278 / WEST FORDING ISLAND RD.
OKATIE CNTR BLVD. N.
SUN CITY BLVD.
USC New River Campus
SC 170/US 278 Corridor Analysis
FIGURE 2
Existing Roadway Characteristics
File Reference: 01005-02
December 16, 2003
DWA
Day Wilburn Associates, Inc.

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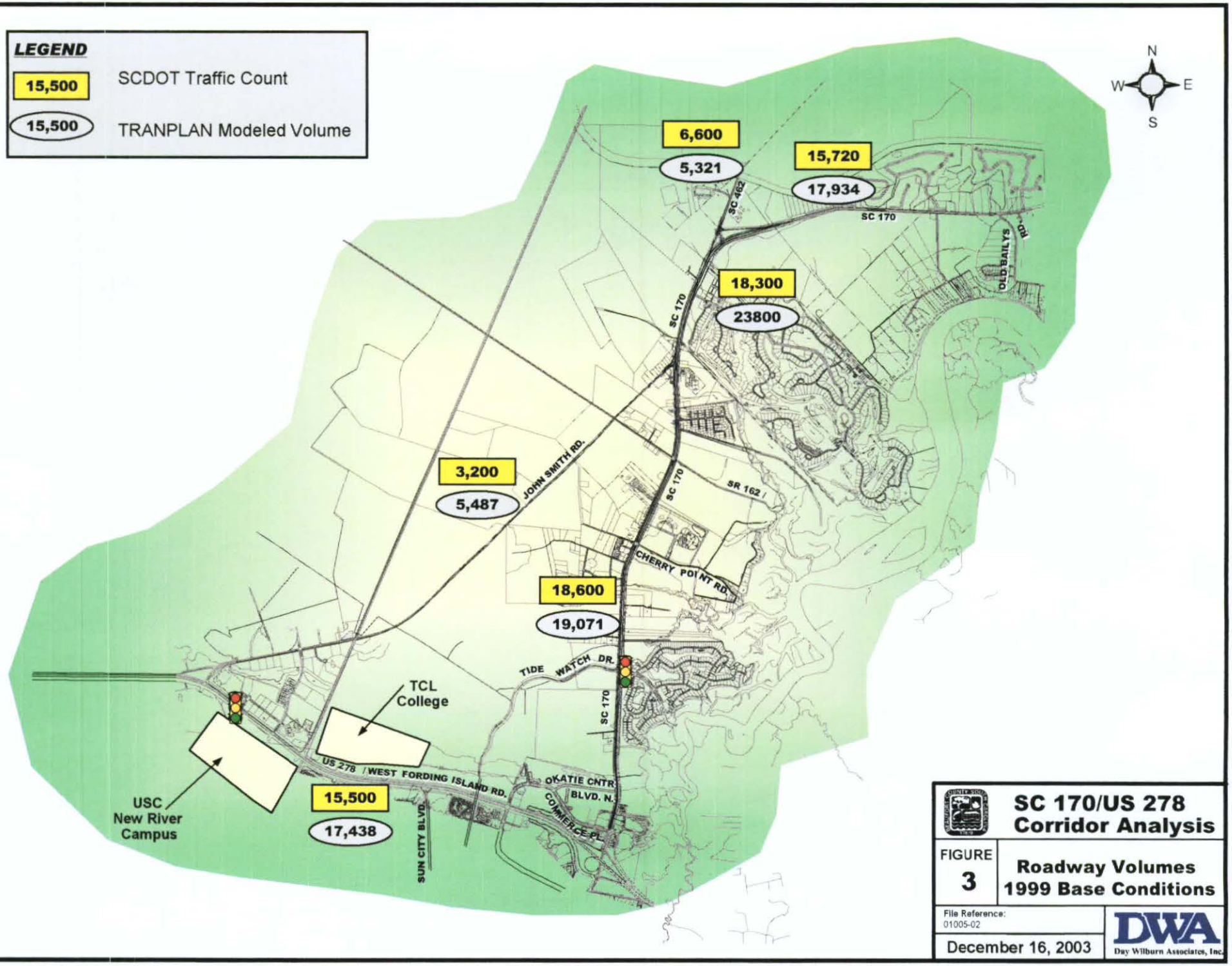
LEGEND
15,500
SCDOT Traffic Count
15,500
TRANPLAN Modeled Volume
N
W
E
S
6,600
5,321
15,720
17,934
SC 462
SC 170
OLD BAILYS RD.
18,300
23800
SC 170
3,200
5,487
JOHN SMITH RD.
SC 170
SR 162
CHERRY POINT RD.
18,600
19,071
TIDE WATCH DR.
SC 170
TCL College
USC New River Campus
US 278 / WEST FORDING ISLAND RD.
OKATIE CNTR BLVD. N.
COMMERCE PL.
15,500
17,438
SUN CITY BLVD.
SC 170/US 278 Corridor Analysis
FIGURE 3
Roadway Volumes 1999 Base Conditions
File Reference: 01005-02
December 16, 2003
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Day Wilburn Associates, Inc.

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In addition to the operational benefits of less frequent interruptions to mainline traffic flow, the spacing of access points facilitates use of minor arterials and collectors to provide connections to final trip origins/destinations.

Analysis Area

The following corridor sections were examined as a part of this analysis:

- SC 170 from US 278 to Old Baileys Road
- US 278 from SC 170 to Jasper County Line

This study area is shown in Figure 1. Existing roadway conditions, including the location of existing traffic signals and the number of travel lanes on each section of roadway, are shown in Figure 2. As this figure indicates, the study corridors are primarily four-lane divided roads with some existing five-lane sections (including two-way left turn lanes). Discussions with SCDOT revealed that the locations of existing median breaks was negotiated as a part of the right-of-way purchase along these corridors. Therefore, the existing breaks in access along the corridors are likely to remain in place. Existing traffic volumes for the 1999 base year conditions are shown in Figure 3. These volumes indicate conditions below the capacities of the SC 170 and US 278 corridors with few existing signalized access points.

New Development Considered in Analysis

The corridor analysis considered planned growth above the growth by TAZ already provided in the growth assumptions for the Beaufort County TRANPLAN model. The TRANPLAN model was modified to account for the following growth:

- *Specific growth planned along SC 170 in Beaufort County was considered*
  - Growth assumed in Beaufort County TRANPLAN model to reflect buildout conditions (year 2020) was used as a starting point
  - Beaufort County TAZ 74 disaggregated to account for development patterns along east side of SC 170
  - Additional growth planned in vicinity of Cherry Point Road / Pritcher Point Road was added to model (TAZs 90 and 91)

- *Jasper County growth planned in the Branigar Plan was included in analysis*
  - Additional TAZs added west of SC 170 and north of US 278 to account for Branigar Planned Development in Jasper County
  - Additional primary roadway network in Jasper County and/or new interchange with I-95 was not considered

- *Additional College Campus growth was considered along US 278*
  - Additional growth added in new TAZ 107 to account for USC New River Campus south of US 278
  - Additional growth added in new TAZ 108 to account for TCL College north of US 278

Analysis Methodology

A variety of analysis tools were used to determine the roadway capacity available along sections of the corridor and compare it to projected volumes with access management standards applied along the corridor. The corridor analysis was performed using future year 2020 traffic volumes obtained from modifying the Beaufort County TRANPLAN model to reflect additional planned development in Beaufort County and adjacent portions of Jasper County, as documented in SC 170/US 278 Corridor Study Travel Demand Model Technical Memorandum, September 2003. The paragraphs below indicate the analysis steps undertaken.

Modification of County TRANPLAN Model

The Beaufort County TRANPLAN model was used to project future buildout traffic volumes for year 2020 (refer to Figure 4). The TRANPLAN runs included:

- Base year conditions
- 2020 E+C network
- 2020 E+C network with potential roadway connections in Jasper County, including widening of John Smith Road to five-lane section and connection of roadway from Tide Watch Drive to John Smith Road

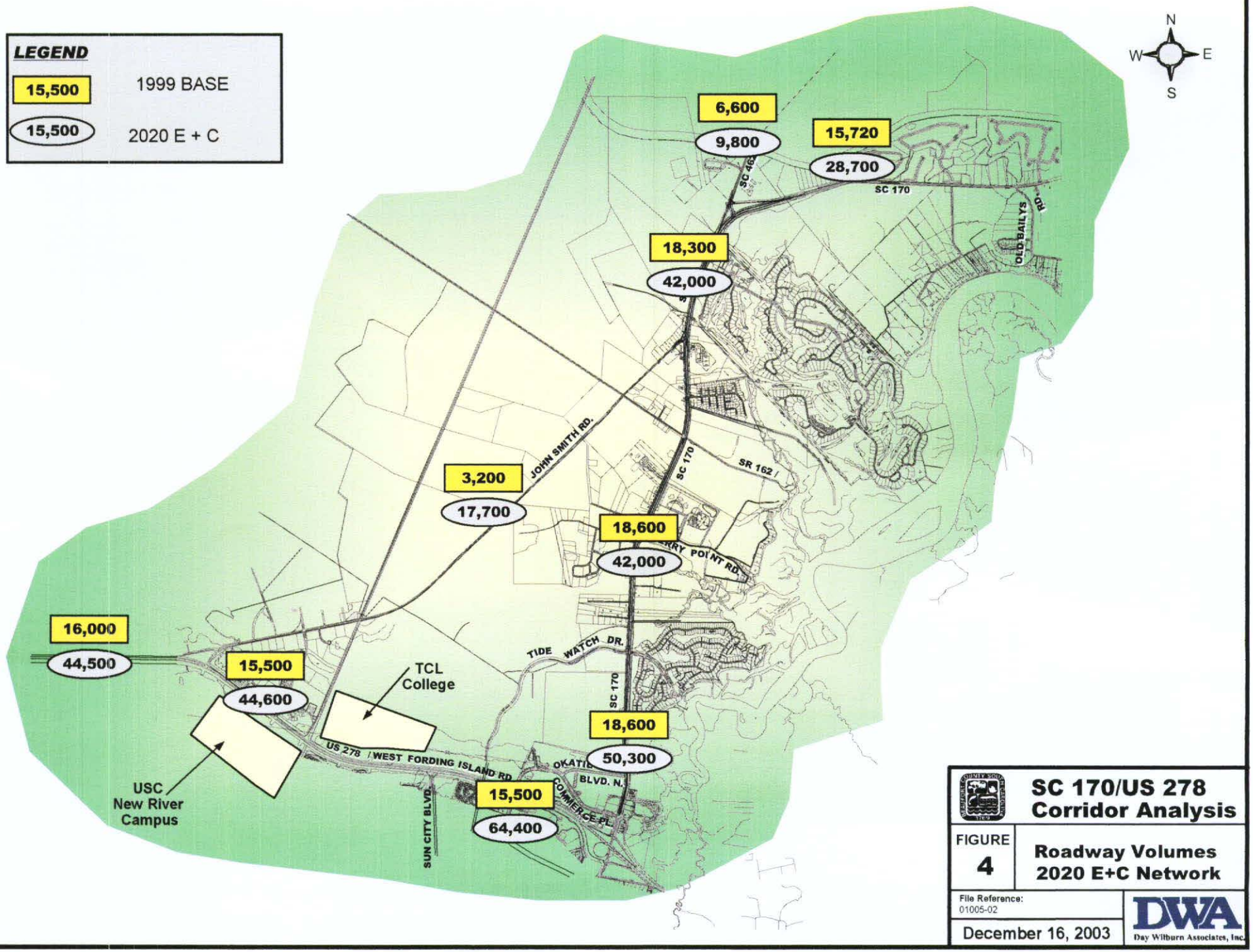
Corridor Capacity Determined

The corridor capacity was determined through examination of operations along the arterial as a whole as well as at typical intersections. Arterial analysis was conducted using HCM methodology to examine potential access spacing. Individual intersection analysis was performed using Synchro software to determine the throughput capacity at typical intersections with projected future operations.

Corridor Capacity Compared to Future Projected Volumes at Buildout (2020)

The capacity of the corridor was compared to future projected traffic volumes at buildout for the following two future conditions:

- 2020 E+C
- 2020 E+C with potential improvements to roadway network currently under consideration by Jasper County


LEGEND
15,500
1999 BASE
15,500
2020 E + C
N
W
E
S
6,600
9,800
15,720
28,700
SC 46
SC 170
OLD BAILYS RD.
18,300
42,000
JOHN SMITH RD.
SC 170
SR 162
3,200
17,700
18,600
42,000
FERRY POINT RD.
16,000
44,500
15,500
44,600
TCL College
TIDE WATCH DR.
SC 170
18,600
50,300
US 278 / WEST FORDING ISLAND RD
OKATIE BLVD. N.
USC New River Campus
15,500
64,400
COMMERCE PL.
SUN CITY BLVD.
SC 170/US 278 Corridor Analysis
FIGURE 4
Roadway Volumes 2020 E+C Network
File Reference: 01005-02
December 16, 2003
DWA
Day Wilburn Associates, Inc.

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Existing US 278 Access Management Standards Considered for Application

The corridor analysis began with the existing access management standards, currently adopted by the County and applied along US 278 east of SC 170, including the following:

- Full signalized access – 3,600' spacing
- Directional signalized access – 2,000' spacing
- Right-in-right out only driveway spacing – 1,000'

As intersection spacing standards were considered for SC 170 north of US 278, the existing US 278 access management standards were modified to reflect likely signalized access needs as reflected by local development patterns and existing roadway network. This resulted in the following signal spacing standards:

- Full signalized access – 3,200' spacing
- Directional signalized access – 1,900' spacing
- Right-in/right-out only driveway spacing – 500'

These draft SC 170 corridor standards were used as the basis for development of draft Countywide Access Management Standards, in conjunction with the Comprehensive Plan update. DWA then performed additional analysis along the SC 170 corridor north of US 278 and along US 278 west of SC 170 with additional planned development, including the USC New River Campus.

As the modified intersection spacing standards were applied, they were compared to the existing US 278 access management standards, currently applied east of SC 170. The section of SC 170 north of US 278 has more frequent intersections with arterial and collector streets and existing major development access points than are present along US 278 east of SC 170, where the existing access management standards are in place. Similarly, the US 278 corridor from Sun City through John Smith Road has more frequent intersections with existing roads and planned college access locations than are present along US 278 east of SC 170. The modified signal spacing developed along US 278 west of SC 170 and along SC 170 north of US 278 fit with these roadway and major access spacings, while providing adequate signal spacing so that interaction between traffic signals does not limit throughput capacity.

Study Findings and Conclusions

Analysis of the SC 170 and US 278 corridors has resulted in the study findings and conclusions described below. The analysis indicates access management is needed to maximize the use of the existing roadway for servicing through vehicles as traffic volumes increase in the future. The access management standards allow the roadway to operate with less friction, at levels closer to the available volume throughput at the intersections. With frequent signal spacing, usable roadway capacity can decrease 15-20% due to friction and multiple stops.

Projected Traffic Volume Growth

The TRANPLAN results indicate significant traffic volume growth to year 2020 (4-5% per year):

- Traffic volumes along SC 170 are projected to increase by 26,000 vpd through 2020 (4.7% per year)
- Traffic volumes along US 278 are projected to increase by 35,000 vpd through 2020 (5.5% per year)

Comparison of Projected Volumes to Corridor Capacity

The arterial analysis confirmed the intersection spacing standards are appropriate to facilitate through traffic flow along the corridors. Though less than the original 3,600', the reduced spacing is not short enough to change the operating environment from rural/suburban to urban which results in slower overall travel speeds, increased travel time, and reduced throughput capacity. Therefore, these spacings are recommended for application in the DWA study, through implementation of access management standards, as part of a corridor management plan for the study corridors.

The maximum throughput capacity was determined based on arterial analysis using HCS software and operations of critical intersections using Synchro software. Based on this analysis, the following maximum capacities were achieved based on the operational factors as indicated:

- US 278 maximum capacity of 44,600 vpd based on assumed corridor operational factors (90% or 40,000 vpd used for arterial capacity):
  - Directional distribution of 65%
  - K factor of 10%
  - Cycle length of 160 seconds = allowable through delay
  - 55% of green time allocated to through movement
  - 20% of approach vehicles turning at intersection
- SC 170 maximum capacity of 43,000 based on assumed corridor operational factors (90% or 39,000 vpd used for arterial capacity):
  - Directional distribution of 65%
  - K factor of 10%
  - Cycle length of 130 seconds = allowable through delay
  - 55% of green time allocated to through movement
  - 20% of approach vehicles turning at intersection

These capacities result in individual intersection approach LOS equal to the cycle length (130 to 160 seconds), which represents LOS F conditions for that intersection approach. However, with intersection spacing per the indicated spacing standards, the corridor is projected to operate with overall travel times indicating LOS D conditions.

A comparison of the calculated roadway volume to capacity (v/c) with access management standards implemented is shown in Table 1.

Table 1
Comparison of Projected Daily Volume to Available Daily Capacity for US 278 and SC 170 Corridors

Segment	1999 Volume SCDOT Count	2020 Model Volume	Throughput Capacity	2020 V/C W/ recs	2020 Volume Under(Over) Capacity
US 278 west of John Smith Rd.	16,000	44,500	40,000	1.11	(4,500)
US 278 from USC Campus to John Smith Rd.	15,500	44,600	40,000	1.12	(4,600)
US 278 from SC 170 to USC Campus	15,500	64,400	40,000	1.61	(24,400)
SC 170 from US 278 to Tide Watch Dr.	18,600	50,300	33,000[1]	0.15	(17,300)
SC 170 from Tide Watch Dr. to John Smith Rd.	18,600	42,000	39,000	1.08	(3,000)
SC 170 north of John Smith Rd.	18,300	42,000	39,000	1.08	(3,000)

[1] The proximity of signalized intersections on this section of SC 170 limits throughput capacity to values less than that for other sections.

As this tables shows. the 2020 v/c ratios are near or over capacity for both roadways. In addition, each of the links is projected to be over capacity in year 2020. Most of the roadway segments are anticipated to be slightly over capacity, with the exception of US 278 just west of SC 170 and SC 170 just north of US 278, both of which experience significant capacity deficiencies.

Identification of Continuing Deficiencies

The analysis indicates that, even with access management standards in place, significant capacity deficiencies will remain in some areas, including:

- US 278 east of the New River Campus – Heavy traffic volume demand in this area is well over capacity (24,400 vpd deficiency). Development of the USC New River Campus and TCL College contribute to the additional travel demand in this area.
- SC 170 north of US 278 – A concentration of volumes in this area combines with planned signal spacing that is less than recommended in the access management standards, resulting in a major capacity deficiency (projected at 17,300 vpd).

Roadway modifications being considered by Jasper County include widening John Smith Road to five lanes and providing a roadway connection from John Smith Road to Tide Watch Drive. These improvements could reduce the additional capacity needs along SC 170 from Tide Watch Drive to US 278 by 4,150 vpd (a continuing capacity deficiency of 13,150 vpd will remain on this section).

The results of the current corridor analysis along US 278 are consistent with the previous US 278 corridor study in identifying the potential benefits of access management. However, the revised land use assumptions in the current analysis indicate the potential need to continue access management west of SC 170, along with the need for additional through roadway capacity along US 278 (potential six-lane section) and/or parallel roadways to accommodate the high projected volumes (64,400 vpd resulting in a capacity deficiency of 24,400 vpd).

Signal Spacing Exception to Recommended Standards

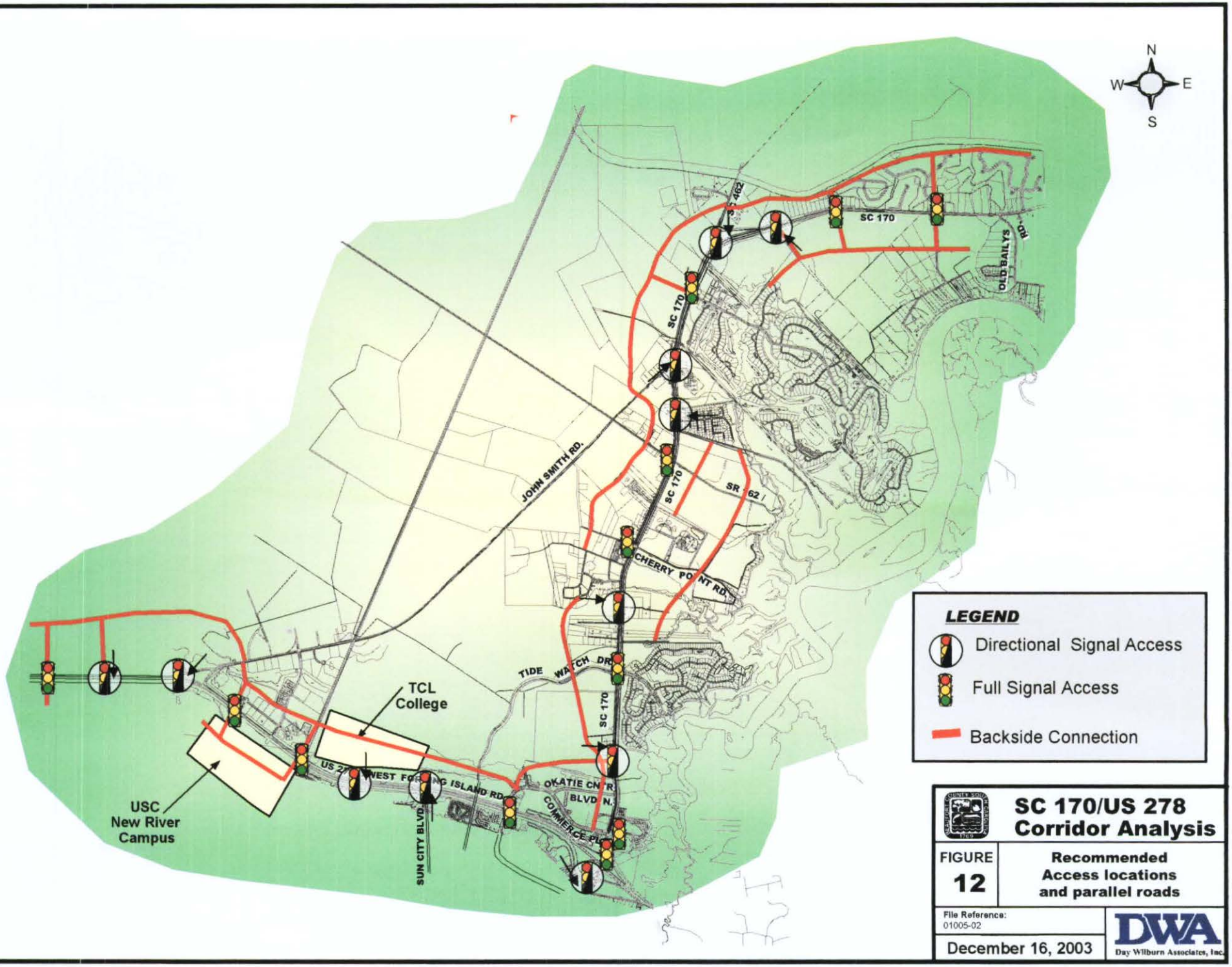
Due to the existing property boundaries of the USC New River Campus site and the location of its access points relative to the existing roadway network, an exception to the recommended signal spacing standard is recommended to allow a spacing of 2,640 feet between the following full signalized access points:

- US 278 at New River Campus West Access/Wal-Mart Access Road - The Wal-Mart access road north of US 278 is planned for extension to John Smith Road, providing an intersection with through capabilities from the USC New River Campus to John Smith Road.
- US 278 at New River Campus East Access/TCL College West Access - This access point will serve both colleges and connect to an east/west road, which will lead from the TCL New River Campus across New River Parkway to the Wal-Mart site. Connection of the signalized access point north to intersect with John Smith Road is recommended to provide multiple travel paths to the north for access to the colleges without requiring travel on US 278.

The spacing exception of 2,640' is at the low end of the recommended spacing for signalized intersections to maximize throughput. These intersections should be closely coordinated to maximize US 278 throughput and minimize friction between intersections.

Need for Parallel Roadway Connections and Backside Access

For the recommended access management standards to work effectively, implementation of parallel roadway connections and backside access is needed. Achieving the capacities indicated in this study requires maximizing utilization of the arterial through movement at the intersections, as well as increasing the spacing of access locations. The analysis assumptions include the allocation of a minimum of 55% of the signal green time to the main roadway through movement. Implementation of this green time split with fewer access points can result in backups of vehicles on the side streets unless alternative access is provided to satisfy local trips. Roads parallel to the principal arterials with connection to the parcels via side roads or backside access is critical to serving local trips without the need to access the arterial for traveling a few blocks. The Access Management Plan drawings shown in Figures 5 through 11 provide a concept for implementation of parallel roadways along the SC 170 and US 278 corridors. An overview of the recommended parallel roadways is shown in Figure 12.



SC 170/US 278 Corridor Analysis

FIGURE 12	Recommended Access locations and parallel roads
File Reference: 01005-02	DWA Day Wilburn Associates, Inc.
December 16, 2003	

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Providing additional capacity parallel to SC 170 and US 278 is recommended for study, in conjunction with increasing the development of college campuses and Branigar Master Plan, as a part of the Beaufort County Southern Regional Study. Installation of backside and parallel roadway connections can reduce the need for drivers to access the main roadway for short trips.

In the area of SC 170 between Tide Watch Drive and John Smith Road, if the backside connections accommodate 25% of generated traffic in adjacent TAZs assigned to SC 170, a total trip reduction of 5,700 vpd will result on this section. However, assuming the same 25% capture rate in the critical area of SC 170 north of US 278, the backside connection west of SC 170 would amount to a total trip reduction of only 550 vpd on this congested section.

The results of the corridor analysis provide specific guidance regarding the application of access management standards, including:

- Based on analysis of projected buildout (year 2020) conditions along the SC 170 and US 278 corridors, application of the Countywide Access Management Standards is strongly recommended. In conjunction with these standards, incorporation of future signalized access points only as defined in this study into the Corridor Management Plans for US 278 and SC 170 is critical.
- Eight signal locations are proposed along the US 278 corridor (four full access signals and four directional access signals)
- Fifteen signal locations are proposed along the SC 170 corridor (eight full access signals and seven directional access signals)
- Backside connections are recommended along the SC 170 and US 278 corridors in conjunction with implementation of the access locations within a Corridor Management Plan.

Recommended Access Locations

The following signal locations are recommended along the US 278 corridor (refer to Figures 5, 6, and 7):

- Second median break west of John Smith Road (full signal access)
- First median break west of John Smith Road (directional signal access –north side)
- John Smith Road (directional signal access – north side)
- Wal-Mart Entrance/USC New River Campus (full signal access)
- USC New River Campus East Entrance (full signal access)
- TCL Campus (directional signal access – north side)
- Sun City Boulevard (directional signal access – south side)
- Oakatie Boulevard (full signal access)

The following signal locations are proposed along the SC 170 corridor (refer to Figures 8 through 11):

- US 278 Eastbound ramp (directional signal access – west side)
- US 278 Westbound ramp (full signal access)
- Oakatie Boulevard (full signal accesss)
- Oakatie Center (directional signal access (west side)
- Tide Watch Drive (full signal access)
- Median break north of Tide Watch Drive (directional signal access – west side)
- Cherry Point Road (full signal access)
- Pritcher Point Road (full signal access)
- Residential development north of Prichard Point Road (directional signal access – east side)
- John Smith Road (directional signal access – west side)
- Old Field Plantation Entrance (full signal access)
- SC 462 (directional access – north side)
- Median break east of SC 462 (directional access – south side)
- Median break west of Old Baileys Road (full access)
- Camp St. Mary's Road (full access)

Backside connections are recommended along the SC 170 and US 278 corridors in conjunction with implementation of the access locations within a corridor management plan (refer to Figure 12).

Opportunities to provide additional capacity parallel to SC 170 and US 278 are recommended for study, in conjunction with increasing development of college campuses and Branigar Master Plan, as a part of the Beaufort County Southern Regional Study.

Recommended Access Management Standards

Based on analysis of projected buildout (year 2020) conditions along the SC 170 and US 278 corridors, application of the Countywide Access Management Standards is recommended. In conjunction with these standards, incorporation of the future signalized access points, defined in this study and identified above, is recommended for incorporation in the Corridor Management Plans for US 278 and SC 170.

The application of access management standards can improve the efficiency of a transportation network. Access management is a tool that can help prevent traffic congestion by limiting and controlling vehicles entering, exiting, and turning along a corridor. Traffic movement is facilitated by minimizing the potential disruptions to the vehicles in the roadway. Effective access standards benefit a community by reducing accidents, increasing roadway capacity, providing better access to businesses, and improving mobility.

The recommended access management standards for US 278 west of SC 170 and for SC 170 north of US 278 address the following:

- Number of Driveways
- Driveway Spacing and Corner Clearance
- Driveway Design
- Driveway Linkages
- Acceleration and Deceleration Lanes
- Driveway Retrofit Techniques
- Signal Spacing
- Median Breaks
- Backside Access

The following sections explain the various access management techniques and establish standards for each technique.

Signal Spacing

The placement of traffic signals significantly impacts the ability to move traffic along a roadway. Signals placed too closely together can impede the flow of traffic on the roadway. Traffic signals should only be erected if they are warranted for a particular location and, if warranted, should follow specific placement guidelines. The following signal spacing shall apply along the study corridors:

- Full signalized access – 3200' spacing
- Directional signalized access – 1,900' spacing

A full signalized access location provides signalized access to both sides of the arterial. A directional signalized access provides signalized access to one side of the arterial. The other side remains free flowing past the signalized access point. On the side of the arterial where access is provided, the arterial traffic is stopped. On the side of the arterial where access is not provided, the movements to and from the accessed side of the arterial are provided via acceleration and deceleration lanes on the left side of the free flowing arterial section. By requiring only one side of the arterial to stop, this unique signal configuration requires coordination of flow for only one direction, simplifying signal operations (since there is no need to provide signal coordination in two directions).

Signal Operations to Maximize Throughput

Maintaining throughput capacity along the SC 170 and US 278 corridors requires the maximizing the available green time along the corridor. Therefore, all signalized intersections shall provide a minimum of 55% of the signal cycle length for through movement green time for US 278 and SC 170. Along the corridor as a whole, an average of 65% of the signal cycle shall be allocated to for through movement green time for US 278 and SC 170.

Median Breaks

Median breaks along a roadway have a significant effect on the ability to move traffic safely. A median break allows for potential conflict created by traffic crossing over several lanes of traffic. Median breaks should only be allowed at specific intervals to minimize the number of potential conflict points. New median breaks shall not be permitted along US 278 or SC 170 unless they are replacing a closed median break to provide a better location for a full or directional signal in a manner consistent with the signal locations identified for the corridors and included in the Corridor Management Plan.

Number of Driveways

A minimum of one point of access to a property will be allowed. Additional access points above the one permitted may be granted provided the continuous roadway frontage of the property exceeds 200 feet. Driveways should be limited to the number needed to provide adequate access to a property. Factors such as alignment with opposing driveways and minimum spacing requirements will have a bearing on the location and number of driveways approved. Refer to Table 2.

Table 2
Maximum Number of Driveways per Frontage

Length of Frontage	Maximum Number of Driveways
200 feet or less	1
200+ to 600 feet	2
600+ to 1,000 feet	3
1,000+ to 1,500 feet	4
More than 1,500 feet	4 plus 1 per each additional 500 feet of frontage

SCDOT Access and Roadside Management Standards

Driveway Spacing and Corner Clearance

Driveway spacing and corner clearance standards are an essential tool used to manage potential conflicts between through traffic and traffic generated by development. The establishment of driveway and corner clearance standards serves to limit the number of potential conflict points and separate potential conflict points. These standards are particularly effective in preventing future traffic problems in lightly to moderately developed areas likely to develop in the future.

Driveways should be located away from other intersections to minimize the potential for conflict. When possible, access should be limited or denied along higher class roadways and access should be provided from the lower class intersecting roadway. A minimum driveway spacing of 500' shall be maintained along SC 170 and US 278. Driveway spacing shall be measured from the closest edge of pavement to the next closest edge of pavement. All driveways shall be right-in and right-out only unless located at an existing median break location. If safety issues associated with left turns into or out of a driveway that is not identified as a future signalized access location in the Corridor Management Plan exist, the safety issues shall be mitigated through conversion of the driveway to right-in and right-out access only.

Driveway Design

Traffic entering and exiting developments creates potential conflict with vehicles traveling on the roadway. Appropriate driveway design can improve safety and reduce congestion. Driveways should be designed to allow vehicles to enter and exit the roadway quickly and safely with minimum impact to the traffic on the roadway. Driveways should have appropriate turn radii and driveway width. The throat of a driveway must be adequate in depth in order to allow a vehicle to queue as it enters or exits the highway. An access point must also be designed to accommodate appropriate vehicle types. Table 3 outlines driveway width and turn radii standards. The principal elements of driveway design are outlined in SCDOT's Access and Roadside Management Standards.

Driveway Linkages

There are several techniques for linking driveways to improve access from the roadway and between parcels. Shared driveways serve two or more adjacent properties that may or may not be comprised of land from each property. Shared driveways allow for larger driveway spacing and improved management of traffic entering and exiting a development.

Cross access driveways interconnect the parking facilities of two or more abutting properties. They are always comprised of land from both properties. Cross access driveways provide an opportunity for vehicles to move between developments without using the roadway. Cross access driveways reduce traffic on the roadway and reduce the potential for conflict between entering, exiting, and through traffic.

Table 3
Driveway Width and Tuning Radii

Land Use or Design Vehicle	Driveway Width (feet)	Turning Radii (feet)
Single Residence (with curb and gutter)	10-16	5-10
Single Residence (with shoulder)	10-16	10-20
Small Apartment Complex (with curb and gutter)	10-16	5-10
Small Apartment Complex (with shoulder)	10-16	10-20
Large Apartment Complex	24-40	20-40
Urban Commercial (One-Way)	14-24	See Design Vehicle Type Below
Urban Commercial (Two-Way)	24-40	See Design Vehicle Type Below
Rural Commercial (One-Way)	18-24	See Design Vehicle Type Below
Rural Commercial (Two-Way)	24-50	See Design Vehicle Type Below
Industrial (Single Unit Truck)		40
Industrial (WB-40 Tractor Trailer)		40
Industrial (WB-50 Tractor Trailer)		50
Industrial (WB-62 Tractor Trailer)		50

The land comprising the shared or cross access driveways should be recorded as an easement and serve as a covenant attached to the property. Joint maintenance agreements should also be incorporated into the property deed. Linkages requiring mutually executed easements should be required between adjoining properties to provide movement without requiring a return to the public roadway.

A circulation road may be used as the linkage when a uniform setback line is established on a number of properties so that drives at the front of the building can be interconnected. A common road should be provided if possible to avoid the striping of lots.

A system of joint-use driveways and cross access easements should be established wherever feasible. Vehicle and pedestrian links to adjacent properties with provisions for stubbed out connections should be required when adjacent land is not developed.

Acceleration and Deceleration Lanes

Acceleration and deceleration lanes on corridors providing access into and out of developments that produce a substantial number of trips can reduce the slowing and stopping of traffic caused by turning vehicles. The purpose of an acceleration or deceleration lane is to enhance motorist safety and the through movement of vehicles on the corridor. These lanes are desirable features on any road, but offer the most benefit on principal arterials. These lanes are needed when the volume of traffic turning at a site is high enough in relation to the through traffic to constitute the potential for disruption.

A traffic impact study will be required according to the *Beaufort County Traffic Impact Analysis Ordinance* to determine the need for acceleration or deceleration lanes. Beaufort County staff will review the traffic impact study to determine the need for acceleration or deceleration lanes.

Driveway Retrofit Techniques

Opportunities to bring existing driveways to the current standards appear when a business changes ownership or when any improvements to the existing driveways or parking lots occur. As changes are made to previously developed property or to the roadway, driveways will be evaluated for the need to be relocated, consolidated, or eliminated if they do not meet the access management standards.

Backside Access

The development of backside access roads provides an opportunity to remove turning traffic from the roadway and serve businesses with alternate access. Backside access to businesses provides exposure to a greater number of businesses, thus increasing commercial value, and improves intersection spacing on cross roads. Traffic that would otherwise enter and exit from the main roadway has access to a large number of businesses from a safer, less conflicting location.

Where feasible, a backside access road should be provided. Developments should be designed to connect to existing backside access, where provided. Where feasible, a continuous backside access road shall be provided either immediately behind the buffer yard or, if outlots are provided, along the rear property line of the outlots.

Where backside access does not exist, developments should be designed to allow for future backside access through construction of circulation roads to the rear and parking on the side and in the rear of properties.

Additional Guidelines

In addition to the aforementioned guidelines, it is recommended that multimodal access be considered, planned and incorporated. Signalized intersections should have marked crosswalks and appropriate crosswalk signalization.

Unless specifically stated otherwise, SCDOT Roadside Management Standards should be followed. The recommended guidelines in this document should be utilized in addition to the SCDOT strategies. When they are in conflict, the stricter requirement shall govern.

COUNTY COUNCIL OF BEAUFORT COUNTY
Community Development Department
Beaufort County Government Robert Smalls Complex
Administration Building, 100 Ribaut Road
Post Office Drawer 1228, Beaufort, South Carolina 29901-1228

TO: Natural Resources Committee of Beaufort County Council

FROM: Anthony Criscitiello, Beaufort County Community Development Director

DATE: December 28, 2017

SUBJECT: **River Oaks Planned Unit Development (PUD) Master Plan Amendment**

PLANNING COMMISSION RECOMMENDATION from the excerpt of its December 4, 2017, draft minutes:

Mr. Merchant briefed the Planning Commission on the history of the Osprey Point PUD property, including a 2008 rezoning that included three properties—Okatie Marsh, Osprey Point and River Oaks, as a unified plan. 284 acres were involved, with 900+ dwelling units, 270,000 square feet of commercial development, 300+ assisted/independent living units, and a nursing home on the River Oaks site. The intent was a master plan of a traditional neighborhood with a walkable community, a mix of housing units with a commercial center, with internal trips captured, and capitalizing on the walkability to the neighboring school. County Council adopted the PUDs in 2008 where the properties were formerly zoned rural. Recession occurred and the properties have changed hands—Okatie Marsh was bought by County's Rural & Critical Land Preservation Program, and Osprey Point came in for major amendments with a reduction of density and commercial square footage and making it an age-restricted community. The proposed amendment is removing the age restriction concept from the Osprey Point PUD. The River Oaks PUD is being changed from assisted/senior living and a nursing home to all single-family homes which will affect the neighboring school. The Osprey Point applicant has made soil borings and changed the positioning of the homes with a connectivity to River Oaks. Other minor changes include an improvement of a more direct connection with two connections versus one circuitous route. Staff has not received the Traffic Impact Analysis (TIA) that was requested at the September 2017 Commission meeting. Staff believes a conditional approval recommendation could be considered until the County Traffic Engineer reviews and approves the TIA. Other staff concerns include eliminating the right-in/right-out turn based on the County's adopted Access Management Plan, requiring current stormwater best management practices, and adding the verbiage of Mailand Bluff maintaining the abutting 13-acre County park which was part of the last submittal but not the current submittal. Mr. Merchant noted comments by the Beaufort County School District and the Coastal Conservation League that were added to the meeting packet.

Mr. Semmler queried having both projects (Osprey Point and River Oaks PUDs) to be addressed by all parties, and there were no objections from the Commissioners.

Mr. Merchant briefed the Planning Commission on the River Oaks PUD and its history. The existing PUD calls for independent/assisted living, age-restricted, with 118 cottages, 146 apartment units, and a 66-bed nursing facility. The Applicant is converting all into a single-family subdivision of 315 lots, including converting the 66-bed nursing home into single-family homes (not age-restricted). The proposed subdivision will have 30' X 110' and 40' X 110' lots. Staff concerns from the September 2017 proposal include parking, vehicular traffic, and pedestrian safety with the narrower proposed lots. The new proposed layout is more formal, with the perimeter lots being front loaded. Staff current concerns are the missing TIA, the impact of the proposed community to the surrounding properties and Okatie Elementary School, and the stormwater handling that was not addressed.

Commission discussion included the staff's rationale to eliminate the right-in/right-out along Highway 170 and for traffic to use one of the existing roads instead, and the traffic light concerns for Osprey Point.

Applicants Comments:

1. Mr. Lewis Hammet, the attorney representing both applicants, regarding the Osprey Point PUD stated that improvements and long-term maintenance of the abutting County owed park has not been withdrawn and the verbiage will be part of the current proposal. The original Osprey Point was for families and walkability to the school; the applicant is simply returning to the original concept but cutting the density. The applicant will provide for meeting stormwater standards. On River Oaks, it was expected to be age-restricted. He noted that the development agreement states that 330 units were allowed, including single-family units at the developer's discretion. While the footprint looks considerably different, the development agreement language allows for single-family units, it gave flexibility to the developer. Age-restricted was not imposed on the developer. He noted that schools and growth have always been an issue. Having family oriented development next to the school was a good idea to avoid bussing students to the school. The development agreement terms will be discussed with County Council.
2. Mr. Josh Tiller, the applicants' representative and of J.K. Tiller Associates, handed out a couple of pages to the Commission for their convenience. He noted that Mr. Hammet has mentioned a reduction in density from the original 3 PUDs of 1670 units—395 units for Okatie Marsh, 527 units for Osprey Point, 330 units for River Oaks. The proposal is 396 units from 527 for Osprey Point, and 315 units from 330 for River Oaks. Mr. Tiller noted the loss of 395 units from the Okatie Marsh purchase by the County. Mr. Tiller noted that Pulte Developers will be developing Osprey Point. The TIA is being held until Mr. Kinton reviews it. Ms. Bihl, the applicants' transportation consultant, will speak on her TIA. Mr. Tiller noted that family housing, not age-restricted, is being proposed. The active amenities were moved to the central of the property and the river site became a passive park area. The commercial area has the right-in/right-out feature that was in the original PUD and the applicant wants to keep it. The applicant is willing to add the maintenance responsibility verbiage of the abutting County's 13-acre park. *(Commission queries included details of the right-in/right-out whether there would be separate roads, and ad for clarification on the staff's recommendation to eliminate the right-in/right-out feature.)* Mr. Tiller showed the trails and open space plan as part of a power point presentation.

   Regarding River Oaks, Mr. Tiller noted that the lot setbacks would be 5 feet on the sides, 10 feet on the rear, and 20 feet on the front. Alleyways were provided for the smaller lots, while the larger lots were front loaded. He noted that the alleyway lots have zero lot lines.

Further Commission discussion included concern with the small rear yard setback, an explanation of the deeper front yard setback for parked cars, and a clarification on the width of the garages.

Public Comment:

1. Ms. Carol Crutchfield, Planning Coordinator with Beaufort County School District, noted School Board Superintendent Dr. Jeff Moss' letter. Okatie Elementary is full. They are concerned with school impact fees and would like to see the fees continued. She noted the 711 single-family units proposed. She is uncertain about the full impact of the development on Okatie Elementary. An easement to the school has been discussed with the developer. She is looking forward to seeing the TIA. Commission discussion included the 87% capacity that included Rose Hill, the district having property at a New River site and the abutting property but lacking funding to develop either, concern with traffic from the current enrollment at Okatie Elementary (the issue being the cars and busses coming from the same entrance/exit), and a proposed walking path from River Oaks/Malind Point and Osprey Point/Malind Bluff to Okatie Elementary School.

2. Mr. Colin Kinton, the County Transportation Engineering Director, stated that he was looking for a TIA of the proposed developments. He noted that it would take a couple of weeks from the receipt of the TIA for him to make his recommendations. Regarding the rationale to eliminate the right-in/right-out feature along Highway 170, Mr. Kinton stated that the County's Access Management Ordinance that was adopted by County Council shows the allowed access points in order to continue the flow of Highway 170 did not include the requested right-in/right-out from Osprey Point. He did note that the TIA on the original PUDs was adopted. However, uses and density issues have caused a need for a new TIA. Mr. Kinton noted that the new regional transportation model includes Jasper County development; the old model did not.
3. Ms. Jennifer Bihl, of Bihl Engineering, the applicant's traffic consultant, noted that Mr. Tiller covered everything. She noted that her calculation uses the 9th Trip Generation edition since the 10th has just come out. A different mix of development is involved with the proposed project.
4. Mr. Joe Dugan, a resident at 254 Cherry Point Road for 25 years, was involved in the original process that took 4 years. There was tremendous resistance because of the bottle neck traffic. Okatie River is compromised. Walking to school is not acceptable. Turning River Oaks from assistant living to single-family housing is a huge change and density will cause traffic from hundreds of homes to dump onto Highway 170. Freshwater is detrimental to the marsh. He noted the earlier comment regarding what about folks wanting to live in a rural area. As a resident in Cherry Point he is trapped by the lighted intersection on Cherry Point Road and further down at the intersection of Highways 278 and 170. The homes will be built in my backyard—they are too close to my home.
5. Mr. Shawn Custer addressed the River Oaks plan. He believes it a step in the right direction toward affordable housing. He is a business and homeowner. There was only 1 affordable housing project he could purchase into. He noted hundreds of commuters coming into Beaufort County due to the lack of affordable housing. Businesses need these homes. If this is affordable housing, this is exactly what is needed. It's impossible to find affordable housing. He supports this plan that is very needed.
6. Ms. Jane Hornburger, a new resident in Bluffton from Hilton Head, moved into housing next to May River School. She noted that existing children would go from renters to homeowners. She noted that this community will help, not tax, the school. She believes the children are already being serviced by the school.
7. Ms. Allison Melton, a realtor in Bluffton, has a child attending a Bluffton school. She noted that she has families that are not ready to purchase the surrounding developments such as Oldfield and River Bend. Families are desperate to purchase in the area. She noted taking her child to school on golf cart. Highway 170 is growing.
8. Ms. Julie Forton, a Cherry Point resident, realizes growth happens. Her children went to Okatie Elementary. There have been numerous accidents on Highway 170. She would not let her children walk to school. There is a growing population of retirement people. Assisted living is desperately needed. She urges catering to the different ages. An age-restricted development will not impact the roads as much. She believes the proposed project will negatively affect waterways.
9. Mr. Terry Lassiter, a resident at 146 Cherry Point Road, noted the history including the impact fees involved. Adding another lane because of the traffic impact is costly. He is touch by the affordable housing issue. He queried if the tax money has been taken from the USC-Beaufort development. He disagrees with the numbers. Cherry Point was a quaint little fishing village; he doesn't want his quality of life messed up. If it can be guaranteed, then he will get on board. He believes Okatie River has been shut down—he blames the Oldfield Subdivision. He noted that the PUD documentation was received with a short turn around by Council. He urges leaving the Cherry Point area out of the development.
10. Ms. Kathy Scott, a 35-year Cherry Point resident, noted the affordable housing home size and cost were missing. She is a real estate broker. She was a business owner on Hilton Head. By paying top dollar, she obtained loyal workers. She gave Kudos on requiring a TIA. She asked about considering the development in the adjoining counties; and suggests all traffic going out of Pritchard Point Road

instead of Cherry Point Road. She emphasized the age-restricted population in the original plan. She asks for a compromise with the Cherry Point residents.

11. Ms. Juanita DeGregorio stated she was from the Bronx and there were other options for homeownership such as getting a roommate, Section 8, etc.

Additional Commission discussion included a clarification on affordable housing and work-force housing *(Mr. Merchant noted that affordable housing were those who have 80% of the median income, work-force housing are those who are within 80 to 120% of the median income. He noted that the applicants have labeled 40 units as affordable housing.)*, noting the affordable housing units being reduced from 45 to 40 because of the suggested back alleys, a clarification on the density approved under the old ordinance, proposed ordinance not consistent with CDC, Oyster Bluff fencing versus 10-foot rear buffer, concern with using the 9th Trip Generation edition instead of the latest 10th edition, concern with not having the TIA despite the two-month timeframe from the last meeting in September to this December meeting, a clarification on commission voting options for these projects, desiring a denial recommendation, concern with impairment of the river, concern with overloading the school, concern with PUD handling by Commission, the details of the first Osprey Point amendment, the statistics of original PUDs and the proposed PUD amendments, noting the two separate applicants/owners for each PUD, and the non-receipt of the TIA from the applicants.

Motion: Mr. Robert Semmler made a motion **to recommend <u>approval</u> to County Council on the Southern Beaufort County Map Amendment / Osprey Point (Malind Bluff) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-0006-0000 (119.90 acres east of Highway 170, Okatie) with the following conditions:**

- **incorporate the Beaufort County Stormwater Best Management Practice (BMP) Manual into the plan;**
- **conduct a Traffic Impact Analysis (TIA) using the regional transportation model; and**
- **include the verbiage where the County's abutting 13-acre park will be maintained by Malind Bluff.**

Discussion on the motion included amending the motion to require using the 10th Trip Generation edition instead of the 9th edition that was used and to request an exemption to the Access Management Ordinance to allow the proposed right-in/right-out feature along Highway 170. Mr. Jason Hincher seconded the motion. The motion **<u>failed</u> (FOR: Hincher, Mitchell, and Semmler; AGAINST: Chmelik, Fermin, Pappas, and Stewart; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

Motion: Mr. Robert Semmler made a motion to County Council **to recommend <u>approval</u> to County Council on the Southern Beaufort County Map Amendment / River Oaks (Malind Pointe) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-008C-0000 (+/- 63.54 acres east of Highway 170, Okatie) with the following conditions:**

- **incorporate the Beaufort County Stormwater Best Management Practice (BMP) Manual into the plan; and**
- **conduct a Traffic Impact Analysis (TIA) using the Lowcountry regional transportation model.**

Mr. Ed Pappas seconded the motion. Discussion on the motion included the lack of a TIA. The motion **<u>failed</u> (FOR: Semmler; AGAINST: Chmelik, Fermin, Hincher, Mitchell, Pappas, and Stewart; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

Commission discussion over the above motions resulted in the following motions.

Motion: Mr. Semmler made a motion, and Dr. Caroline Fermin seconded, **to recommend <u>denial</u> to County Council on the Southern Beaufort County Map Amendment / Osprey Point (Malind Bluff) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-0006-0000**

(119.90 acres east of Highway 170, Okatie). The motion **carried (FOR: Chmelik, Fermin, Mitchell, Pappas, and Stewart; AGAINST: Hincher and Semmler; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

Motion: Mr. Semmler made a motion, and Mr. Jason Hincher seconded, **to recommend denial to County Council on the Southern Beaufort County Map Amendment / River Oaks (Malind Pointe) Planned Unit Development (PUD) Master Plan Amendment Request for R600-013-000-008C-0000 (+/- 63.54 acres east of Highway 170, Okatie).** The motion **carried (FOR: Chmelik, Fermin, Hincher, Mitchell, Pappas, and Stewart; AGAINST: Semmler; ABSENT: Hennelly; VACANCY: St. Helena Island representative)**.

STAFF REPORT:

A. BACKGROUND:

Case No.	ZMA-2017-11
Owner:	BBII Holding Company, LLC (Roger L. Saunders)
Applicant:	Joshua Tiller, J.K. Tiller and Associates
Property Location:	Located in the Okatie area on Cherry Point Road approximately 2,000 feet from SC 170
District/Map/Parcel:	R603-013-000-008C-0000
Property Size:	63.5 acres

A. SUMMARY OF REQUEST: The River Oaks PUD is located in the Okatie area on Cherry Point Road approximately 2,000 feet from SC 170. The property is immediately to the East of the Okatie Elementary school and south of the Osprey Point PUD. The applicant is requesting to amend the PUD by changing it from a senior village to a single-family subdivision. The revised master plan consists of 315 single-family houses. 124 of the lots will be 4,400 square feet (40' x 110'); and the remaining 191 lots will be 3,300 square feet (30' x 110'). The main entrance of the subdivision is off Cherry Point Road. The PUD proposes a connection to the Osprey Point PUD. The revised master plan provides a network of pedestrian sidewalks with a connection to the property line of Okatie Elementary. The lots along the perimeter of the property are proposed to be 4,400 square feet and be accessed from the front. The remaining lots will be 3,300 square feet and will be accessed by alleys. The applicant is proposing to develop 45 affordable housing units in the combined Osprey Point and River Oaks PUDs.

Changes from September 7 Planning Commission Meeting: The applicant revised the plan to address some of concerns of the Planning Commission. They reconfigured the master plan to provide for a more traditional pattern of streets and blocks. In the original plan, all of the 315 lots were accessed from the street. In the revised plan, 60% of the lots are accessed from the rear via alleys. The open spaces were largely reconfigured to be surrounded by streets rather that located at the rear of the lots. While these revisions are improvements on the previously submitted master plan, it should be noted that the total number of workforce housing units to be supplied in the combined PUDs has been reduced from 45 to 40.

Existing PUD: The River Oaks PUD sits on 63.5 acres and was designed to accommodate seniors (65 or older) with a combination of independent and assisted living quarters and a nursing home. The PUD consists of 118 cottages for independent living, 146 apartment units for independent and

assisted living, and 66 nursing home beds. The original River Oaks PUD was approved by County Council in 2008 in conjunction with two adjoining PUDs – Osprey Point and Okatie Marsh. This action amended the zoning of a total of 284 acres and increased the allowable density nine-fold. The combined PUDs featured an integrated street network, a mix of land uses and housing types, and a system of pathways, sidewalks and bike lanes. County Council eventually supported the zoning change because they determined that these features made the community economically sustainable and provided enough internal trip capture to reduce the development's impact on SC 170. Since the adoption of the original PUD, in 2012 Okatie Marsh (395 dwelling units, 97.7 acres) was purchased through the Rural and Critical Lands Program.

B. CONSISTENCY WITH ZDSO PUD STANDARDS: The Zoning and Development Standards Ordinance states the purpose of PUDs is to implement the Comprehensive Plan by allowing flexibility that would result in improved design, character, and quality while preserving natural and scenic features. Innovative features may include preservation of open space and natural areas; greenways, sidewalks, and other bike/pedestrian features; enhanced landscaping and deeper buffers; vehicular and pedestrian connectivity; provision of affordable housing; dedication of public parks and community facilities; mitigating adverse impacts on neighboring properties, and burying utilities. The revised master plan addresses some of these features. The plan provides for a system of streets and blocks with a network of sidewalks and pathways. Three of the stormwater ponds also function as usable civic spaces that are accessible to community residents by being located on streets rather than in the interior of blocks. The plan also makes a provision for affordable housing.

C. CONSISTENCY WITH THE COMPREHENSIVE PLAN: The future land use designation for the River Oaks PUD is Neighborhood Mixed-Use. This district calls for new development to be pedestrian-friendly, have a mix of housing types, a mix of land uses and interconnected streets. The maximum gross residential density is approximately two dwelling units per acre. Residential areas are to have a network of sidewalks and trails to link the development to retail, employment, and schools. The Plan allows for some density bonuses for the creation of affordable housing.

The River Oaks PUD is also designated as a village in the Place Type Overlay District which calls for clusters of residential neighborhoods of sufficient intensity to support a central, mixed-use environment. Villages are meant to be organized within an interconnected network of streets and blocks in multiple pedestrian sheds. They include areas where one has the opportunity to walk, bike, or ride transit to work, to fulfill daily shopping needs (such as groceries), and to access other amenities within close proximity.

D. STORMWATER: The County's Stormwater Manager reviewed the revised PUD and drainage plan and stated that the concept that the applicant has submitted is acceptable. However, the revised PUD document needs to clearly incorporate the County's existing Stormwater BMP Manual and any revisions that are made in the future. When the original PUD was approved in 2008, the County did not have volume control standards in place. The project's location on the Okatie River makes it crucial that it follow the latest standards and practices for stormwater management. The Okatie River is an impaired waterway and is currently protected by a set of Total Maximum Daily Load (TMDL) regulations to ensure its continued or improved health in the future.

E. CONSISTENCY WITH THE COMMUNITY DEVELOPMENT CODE (CDC):
The Community Development Code provides transect zones to foster the creation of walkable communities with density and character ranging from the most rural (T1) to the most urban (T4). The only districts that would allow lots this small are T4 Hamlet Center and T4 Neighborhood Center.

F. TRANSPORTATION ISSUES:

- **Updated Traffic Impact Analysis (TIA) Ordinance Needed:** At the September 7, 2017 meeting, the Planning Commission requested that the applicant provide a new Traffic Impact Analysis (TIA) that accounted for the combined impacts of the Osprey Point and River Oaks PUDs. The revised TIA needs to look at existing traffic volumes and utilize the Lowcountry Regional Model. The applicant has stated that the revised TIA is underway but not complete due to a backlog of work at CDM Smith, the consultant charged with running the traffic model. Therefore the results of the TIA are not available to the Planning Commission for this review.
- **Paving of Cherry Point Road:** Approximately 1,300 feet of Cherry Point Road would need to be paved in order to accommodate this PUD.

G. POTENTIAL SCHOOL IMPACTS: The combined amendments to the Osprey Point and Cherry Point PUDs may have significant implications on the number of potential students. Both existing PUDs have age restrictions and therefore would have little to no impacts. The proposed amendments would result in the creation of 711 single-family dwelling units with no age restrictions. The School District has been given copies of the two revised PUDs and has expressed concerns about not having excess capacity to address the potential increase in the number of students in southern Beaufort County.

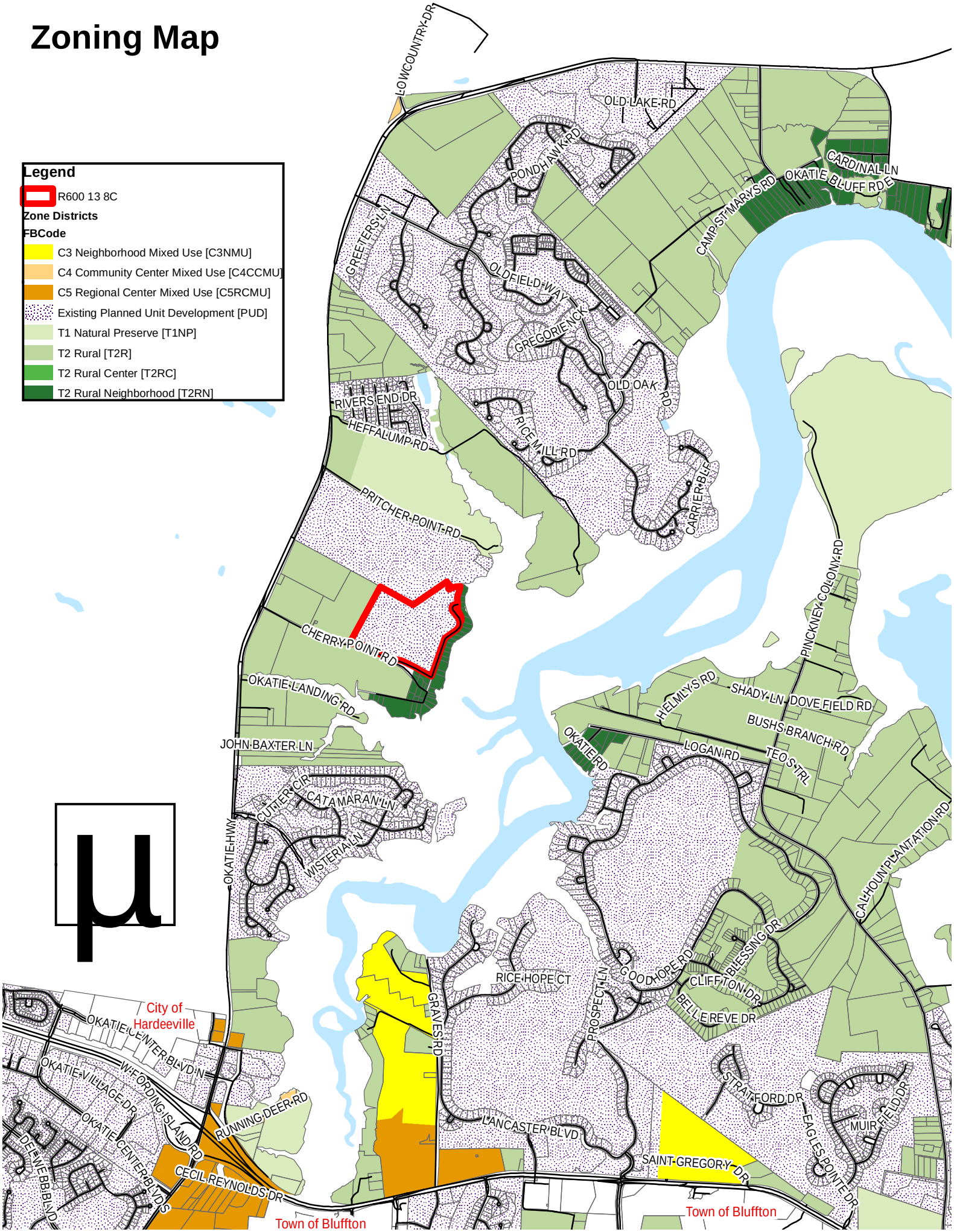
H. RECOMMENDATION: Staff **recommends conditional approval** of the application for the following conditions:

- The revised PUD document needs to clearly incorporate the County's existing Stormwater BMP Manual and any revisions that are made in the future.
- A Traffic Impact Analysis (TIA) needs to be conducted for the combined impacts of the Osprey Point and River Oaks PUDs. This TIA needs to look at existing traffic volumes and utilize the Lowcountry Regional Model. Any recommended improvements resulting from the findings of the TIA need to be incorporated into the PUD document before approval by County Council.

I. ATTACHMENTS:

- Locational Map
- Application with backup documentation, including TIA
- List of Property Owners Notified of Request
- Notification Letter to Property Owners

Zoning Map


Legend
R600 13 8C
Zone Districts
FBCode
C3 Neighborhood Mixed Use [C3NMU]
C4 Community Center Mixed Use [C4CCMU]
C5 Regional Center Mixed Use [C5RCMU]
Existing Planned Unit Development [PUD]
T1 Natural Preserve [T1NP]
T2 Rural [T2R]
T2 Rural Center [T2RC]
T2 Rural Neighborhood [T2RN]
LOWCOUNTRY DR
OLD LAKE RD
POND HAWK RD
CARDINAL LN
OKATIE BLUFF RD E
CAMP ST MARYS RD
GREETERS LN
OLDFIELD WAY
GREGORIE NCK
OLD OAK RD
RIVERS END DR
HEFFALUMP RD
RICE MILL RD
CARRIER BLF
PRITCHER POINT RD
CHERRY POINT RD
OKATIE LANDING RD
JOHN BAXTER LN
PINCKNEY COLONY RD
HELMLY S RD
SHADY LN
DOVE FIELD RD
BUSHS BRANCH RD
LOGAN RD
TEOS TRL
OKATIE RD
CUTTER CIR
CATAMARAN LN
WISTERIA LN
OKATIE HWY
CALHOUN PLANTATION RD
RICE HOPE CT
GOOD HOPE RD
BLESSING DR
CLIFFTON DR
BELLE REVE DR
PROSPECT LN
GRAVES RD
City of Hardeeville
OKATIE CENTER BLVD N
W FORDING ISLAND RD
OKATIE VILLAGE DR
OKATIE CENTER BLVD S
DELAWEBB BLVD
RUNNING DEER RD
CECIL REYNOLDS DR
LANCASTER BLVD
SAINT GREGORY DR
STRATFORD DR
MUIRFIELD DR
EAGLES POINTE DR
Town of Bluffton
Town of Bluffton

RECEIVED
AUG 01 2017
PLANNING DIVISION

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
   (X) Community Development Code Text
2. Give exact information to locate the property for which you propose a change:
   Tax District Number:_____, Tax Map Number:_____, Parcel Number(s):**R600 013 000 008C 0000**
   Size of subject property: **+/- 63.54 Acres** Square Feet / Acres (circle one)
   Location: **Cherry Point Road, East of HWY 170 in Okatie (River Oaks PUD)**
3. How is this property presently zoned? (Check as appropriate)

( ) T4NC Neighborhood Center	( ) T2RC Rural Center	( ) C3 Neighborhood Mixed Use
( ) T4HC Hamlet Center	( ) T2RN Rural Neighborhood	( ) C4 Community Center Mixed Use
( ) T4HCO Hamlet Center	( ) T2RNO Rural Neighborhood Open	( ) C5 Regional Center Mixed Use
( ) T4VC Village Center	( ) T2R Rural	( ) S1 Industrial
( ) T3N Neighborhood	( ) T1 Natural Preserve	(X) Planned Unit Development/PUD
( ) T3HN Hamlet Neighborhood	( ) Community Preservation	(name)_____
( ) T3E Edge	(specify)_____	

4. What new zoning do you propose for this property? **Amendment to the River Oaks PUD**
   (Under Item 9 explain the reason(s) for your rezoning request.)
5. Do you own all of the property proposed for this zoning change? (X) 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: **N/A**
   (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:

( ) MCAS-AO Airport Overlay District/MCAS	( ) MD Military Overlay District
( ) BC-AO Airport Overlay District/Beaufort County	( ) RQ River Quality Overlay District
( ) CPO Cultural Protection	( ) TDR Transfer of Development Rights
( ) 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. Diuvision 1.6.60, Planned Unit Developments (PUDs) Approved Prior to Dec. 8, 2014
   d. Division 6.3, Traffic Impact Analysis (for PUDs)

FILE NO: 2017/11/River Oaks PUD Amendment Request / Initiated by: STAFF / OWNER
(Circle One)

17512

9. Explanation (continue on separate sheet if needed): **See attached River Oaks (Malind Pointe) PUD Amendment Narrative**

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.

Roger L. Saunders — 7/28/17

Signature of Owner (see Item 5 on page 1 of 1) — Date

Printed Name: **Roger L. Saunders**
BBII Holding Company LLC

Telephone Number: **212-772-1178**

Address: **106 Mariomi Road, New Canaan, CT 06840**

Email: **roger@cedarhillholdings.com**

Agent (Name/Address/Phone/email): **Josh K. Tiller/181 Bluffton Road, STE 203, Bluffton, SC 29910 843-815-4800**

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:

FILE NO:_____// Initiated by: STAFF / OWNER
(Circle One)

COMBINED NARRATIVE

(Revised October 16, 2017)

OSPREY POINT AND RIVER OAKS AT OKATIE VILLAGE AMENDMENT REQUESTS

Introduction

Okatie Village originally consisted of Okatie Marsh PUD, Osprey Point PUD, and River Oaks PUD, each passed by Beaufort County Council as separate parts of a coordinated whole in 2008. Each was passed with its separate, but coordinated, Development Agreement at the same time, following over two years of active planning and negotiations.

The dream of Okatie Village was a mixed-use community, where kids could walk or be driven to the elementary school (without entering Highway 170), families could shop at the Neighborhood Commercial Village, park facilities were to be available to all, and an historic Workforce Housing requirement would make it possible for average income, working families to be part of the community. Environmental controls were the highest in the County, to protect the river and marsh, with required water quality testing.

The dream evaporated during the Great Recession. Nothing was built or developed on any of the three properties. Okatie Marsh went bankrupt and was purchased by the County for open space. River Oaks went bankrupt next and was sold by the bank, with an uncertain future. Osprey Point came in to Beaufort County for an amendment to its PUD and Development Agreement in 2014, attempting to salvage something with a prospective development partner. The 2014 Osprey Point plan envisioned an age restricted and gated community. That plan also failed to move forward, after approval, due to high projected lot costs.

A new vision has emerged for a new, coordinated development that seeks to restore much of the original vision of Okatie Village, while competing successfully in the current market. Osprey Point has a new Second Amended PUD, and River Oaks comes forward with a coordinated First Amendment to its PUD. The details of each proposal are contained in the respective submittals which accompany this Narrative. To lend context to the proposals, this Narrative summarizes the allowed development within Okatie Village in 2008, followed by the allowed development in 2014 (at the time of the Osprey Point First Amendment), and finally, a brief summary of allowed development within Okatie Village under these current proposals.

The requested changes that are specific to the **River Oaks PUD and Master Plan** only are listed and justified in the final section of this narrative.

The Original Okatie Village Plan (2008)

The original Okatie Village included Okatie Marsh (with 395 allowed homes and 64,800 square feet of commercial), Osprey Point (with 527 allowed homes and 207,700 square feet of Village Commercial), and River Oaks (with 330 allowed retirement cottages, apartments and condos, with nursing and other facilities). Of the combined total of 1,250 homes, 922 homes allowed families, with the remainder being age restricted within River Oaks.

Complete traffic, environmental, and economic studies were performed at the time. The traffic and road improvements were designed to accommodate these larger expected populations, and the storm water and other environmental features were designed to accommodate these loads. In fact, at the request of Planning Staff, these studies included projected development of nearby properties, to ensure that the Okatie Village communities could function and the designed systems were adequate. It should be noted that the enclosed traffic letter (Exhibit H) also includes densities projected for the adjacent properties.

Only the River Oaks retirement PUD was envisioned to be gated, so that all family residences within both Okatie Marsh and Osprey Point could reach, through internal roads and paths, both the nearby school site and the planned Village Commercial area off Highway 170. The original developers of both Osprey Point and Okatie Marsh made historic commitments to include affordable, workforce housing for at least some of the product types, but not for single family housing.

Okatie Village Plan in 2014

The years from the original 2008 approvals of Okatie Village communities, through 2013, were very dark times. As stated above, Okatie Marsh failed completely and was purchased by Beaufort County for open space. River Oaks, the proposed retirement community, foundered and was in bankruptcy and foreclosure. Osprey Point was the last standing of the three communities, but no development had taken place and disaster was on its horizon as well. A national builder sought the Osprey Point property for an age restricted, gated community. Many months were spent in negotiations with Beaufort County, and finally the First Amendment to Osprey Point Development Agreement and PUD was passed in late 2014. But alas, internal negotiations and projected lot cost overruns doomed the new Osprey Point direction. No development took place and the proposed national builder moved on.

With the passage of the Osprey Point First Amendment in 2014, the original vision for Okatie Village was all but lost. Okatie Marsh was gone, and its potential for 396 homes was down to zero. River Oaks was in bankruptcy, with no one stepping up to develop the retirement

center at that location. Osprey Point was down to 396 potential residents (from its 527 original approval). All of the anticipated homes within Osprey Point were to be age restricted homes, with no provision for families to interact with the schools or the planned Village Commercial area. The loss of much of the residential density darkened the possibility of the Village Commercial area ever being built as envisioned, and doomed its future to a highway strip center.

The new 2014 commitment of Osprey Point to develop a minimum of 15 affordable homes became a somewhat hollow commitment, with no houses being built at all, at any price range.

New Okatie Village Plan of 2017

Against this background, the owners of Osprey Point and River Oaks have joined forces to present a new coordinated plan, which revives much of the original Okatie Village dream. All homes in both communities will now allow families.

Even more importantly, the two communities have pledged to allow cross access to one another, so that all residents can reach the schools and all residents can reach the Village Commercial area. Total residential density for Osprey Point remains at 396, and River Oaks density is forecast at 315 homes. The Village Commercial density remains at 207,700, but now has a chance to thrive as part of an active, family oriented community.

One of the best features of the revived Okatie Village vision is an increased commitment to affordable, workforce housing. At present, before these amendments, the requirement for all of Okatie Village (if it develops as expected as single family) is 15 affordable homes. The new development partner has stepped up this commitment. A new minimum commitment of 40 affordable workforce homes within Okatie Village has been added. This important pledge will allow working families, teachers, police, fire fighters and others to buy homes in a beautiful new community.

The official documents for the First Amendment to River Oaks PUD, and the Second Amendment to Osprey Point PUD, are attached to this Narrative. The plans are explained in greater detail, along with the justifications for changes, in the body of these documents. The Owners, the prospective developer, and all team members will stand ready to answer any questions that arise in the process.

We urge all Beaufort County residents, and of course, Members of Council, to review these requests carefully, and approve this revived vision for Okatie Village.

LIST OF PROPOSED PUD CHANGES

RIVER OAKS AT OKATIE VILLAGE PUD

1. Changes:
    a. Master Plan and Trail Plan reflect new direction as a family oriented community, including restored interconnectivity with Osprey Point, so all residents in both communities can reach schools, village commercial, and the 13 Acre park (by internal connections).
    b. The 30' and 40' Lot layout reflects single family uses, which was allowed previously, but previous layout reflected an expected retirement center. See Exhibits B-1 and B-2 for lot building placement details.
    c. Density reduction from 330 units to 315 units.
    d. Design and development standards adjusted to match the standards in the adjacent Osprey Point neighborhood, to accommodate more affordable, single family product. The builder has agreed to increase the commitment to affordable/workforce housing in the two communities (under the Development Agreement).
    e. As requested by Staff and the Planning Commission, the Master Plan has been updated to include alleyways on all 30' lots. In addition, these 30' Lots will be "zero" lot line (Z-Lots), which maximizes private open space within the lots. (See Exhibit B-1)
    f. All stormwater, environmental and related standards continue, including the commitment to stormwater quality testing.
2. All other items in the First Amendment to the River Oaks PUD and Development Agreement relate to Development Agreement issues.

BIHL ENGINEERING

Memorandum

To: Josh Tiller, PLA, ASLA, J.K. Tiller Associates, Inc.

From: Jennifer Bihl, PE, PTOE

Date: October 16, 2017

Re: *Status of Traffic Impact Analysis for Osprey Point (Malind Bluff) PUD and River Oaks (Malind Pointe) PUD*

The Traffic Impact Analysis (TIA) associated with the updates to the Osprey Point (Malind Bluff) PUD and the River Oaks (Malind Pointe) PUD is in process. The updated to the PUD land uses result in 685 single family units and 212,700 square feet of commercial space (office and retail). The latest master plans for these two PUDs are attached. The PUD is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road.

Peak hour intersection turning movement counts including vehicular, pedestrians, and heavy vehicle traffic were performed in October 2017 from 7:00 AM to 9:00 AM and from 2:00 PM to 6:00 PM at the following intersections:

- SC 170 at SC 140
- Argent Boulevard at Jasper Station Road/Short Cut Road
- SC 170 at Pritcher Point Road/Short Cut Road
- SC 170 at Red Oaks Drive
- SC 170 at Pearlstine Drive/Cherry Point Road
- SC 170 at Schinger Avenue
- SC 170 at River Walk Boulevard
- SC 170 at Tidewatch Drive

Background traffic volumes on the roadway network are being developed in coordination with Lowcountry Council of Governments using the Lowcountry Travel Demand Model to project the project trip distribution along with development of projected total traffic volumes in the surrounding study area.

EXHIBIT B

DEVELOPMENT SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL BUILDING SF:	207,700 SF
RESIDENTIAL DENSITY:	3.32 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	396
OPEN SPACE****:	+/- 49.01 ACRES (41.09% Open Space)

LOT SETBACKS (See Exhibit B-1):	
FRONT YARD:	20'
BACK YARD:	10'
SIDE YARD:	5'
LOT DIMENSIONS:	53' X 120' (TYP.)
ROAD R/W	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, AMENITY SITE, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.

OSPREY POINT (MALIND BLUFF)
AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA
OCTOBER 16, 2017

NORTH

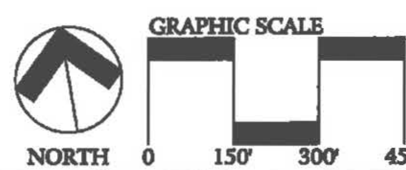
GRAPHIC SCALE
0 200' 400' 600'

EXHIBIT B

LOT YEILD: 315

▭	30' X 110'
▭	40' X 110'

Total Acres: +/-61.21
Residential Density: 5.14 DU/AC
Open Space: 26.26 AC (42.90%)



PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE

RIVER OAKS (MALIND POINTE) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA
OCTOBER 16, 2017

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

EXHIBIT B

LOT YEILD: 315

30' X 110'

40' X 110'

Total Acres: +/-61.21

Residential Density: 5.14 DU/AC

Open Space: 26.26 AC (42.90%)

NORTH

GRAPHIC SCALE 0 150' 300' 450'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
101 BLUFFTON ROAD SUITE 203 BLUFFTON, SC 29910

RIVER OAKS (MALIND POINTE) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

OCTOBER 16, 2017

JKT Job Number: 201708-01

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EXHIBIT C

TRAILS AND OPEN SPACE

INTERNAL SIDEWALKS

PARKS

Total Acres: +/-61.21

Residential Density: 5.23 DU/AC

Open Space*: 27.64 AC (45.15 %)

*THE OPEN SPACES INCLUDE GARDENS, NATURAL AREAS, BUFFERS, STORMWATER AMENITIES, TRAILS AND OTHER NON-BUILDABLE LAND.

NORTH

GRAPHIC SCALE

0 200' 400' 600'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
101 BLUFFTON ROAD SUITE F101 BLUFFTON, SC 29910

RIVER OAKS (MALIND POINTE) TRAILS AND OPEN SPACE PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

AUGUST 9, 2017

JKT Job Number: 201709-01

Exhibit D

DEVELOPMENT SCHEDULE

MALIND POINT (RIVER OAKS)

Development of the Property is expected to occur over the five (5) year term of the Agreement, with the sequence and timing of development activity to be dictated largely by market conditions. The following estimate of expected activity is hereby included, to be updated by Owner as the development evolves over the term:

	Year(s) of Commencement / Completion				
Type of Development	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**
Residential, Single Family (1)	50	50	50	50	50
Affordable / Workforce Housing (3) --	15	15	15	15	15
Park -- % To Be Completed --		100%	--	--	--
Multi-Purpose Trail & Pathways -- % To Be Completed --		25%	30%	30%	15%

(1) 300 single family units are forecast to remain to be built at the end of six years.
(2) none planned.
(3) River Oaks Schedule

As stated in the Development Agreement, Section VI, actual development may occur more rapidly or less rapidly, based on market conditions and final product mix.

EXHIBIT H

BIHL ENGINEERING

Memorandum

To: Richard Schwartz, Village Park Homes

From: Jennifer Bihl, PE, PTOE

Date: July 16, 2017

Re: *Traffic Impact and Access Summary for Okatie Village Planned Unit Development*

This memorandum documents the traffic intensity for the original Planned Unit Development (PUD) and the proposed changes to the PUD as a part of this update. The PUD is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. A graphic of the proposed changes is shown in **Figure 1.**

The original PUD plan (11/20/07) included of approximately 272,500 square feet (sf) of commercial space (204,375 sf of retail and 68,125 sf of office space), 636 single-family detached units, 316 single-family attached units, and 388 multi-family apartment units.

The proposed updated PUD plan includes approximately 190,000 sf of commercial space (142,500 sf of retail and 47,500 sf of office space), 861 single-family detached units, 103 single-family attached units, and 165 multi-family apartment units. This is an overall reduction of units and square footage as well as a reduction in each area of the PUD.

Trip Generation

The traffic generation potential of the existing/currently allowed development and proposed development was determined using trip generation published in Institute of Transportation Engineers' (ITE) *Trip Generation, Ninth Edition.* **Table 1** shows a comparison of the projected trips for the original uses and the updated uses. Note that the gross trips are shown below to be conservative and do not include internal capture or pass-by trips.

As shown in **Table 1**, the proposed updated PUD plan uses are projected to generate 1,048 gross trips during the AM peak hour (391 in and 657 out) and 1,791 gross trips during the PM peak hour (958 in and 833 out). Compared to the original PUD uses, the proposed updated PUD uses result in 113 fewer AM peak hour trips and 271 fewer PM peak hour trips with lower entering and exiting trips for each time period. The gross daily trips are also projected to be reduced by 3,084 trips.

Site Access

The access plan for the site is not planned to be changed as a part of this update. The PUD has four access points along SC 170. The detailed analysis associated with these access points was not performed, however, it is expected that this will be performed during the site plan process. However, since all parcels have a lower intensity than the original plan, it is expected that the original PUD analysis is considered conservative and overall impacts are expected to be lower than the original PUD.

BIHL ENGINEERING

Table 1: Trip Generation								
Land Use and Intensity	ITE Land Use Code	Daily	AM Peak Hour			PM Peak Hour		
		Total	Total	In	Out	Total	In	Out
Original PUD Uses								
636 Single-Family Detached Units	210	5,761	455	114	341	555	350	205
316 Residential Condominium/Townhouse Units	230	1,750	130	22	108	154	103	51
388 Apartments	220	2,475	194	39	155	231	150	81
204,375 sf Retail	820	10,807	241	149	92	967	464	503
68,125 sf Office	710	981	141	124	17	155	26	129
Gross Trips		**21,774**	**1,161**	**448**	**713**	**2,062**	**1,093**	**969**
Updated PUD Uses								
861 Single-Family Detached Units	210	7,612	612	153	459	729	459	270
103 Residential Condominium/Townhouse Units	230	660	53	9	44	62	42	20
165 Apartments	220	1,123	85	17	68	108	70	38
142,500 sf Retail	820	8,549	193	120	73	760	365	395
47,500 sf Office	710	746	105	92	13	132	22	110
Gross Trips		**18,690**	**1,048**	**391**	**657**	**1,791**	**958**	**833**
Difference		**-3,084**	**-113**	**-57**	**-56**	**-271**	**-135**	**-136**

OKATIE VILLAGE COMPOSITE PLAN DEVELOPMENT SUMMARY

OKATIE VILLAGE PUD MASTER PLAN (Okatie Marsh, Osprey Point, River Oaks and Other Parcels)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	+/-273,500 SF
TOTAL DWELLING UNITS:	1670 UNITS
SINGLE-FAMILY DETACHED:	656 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	316 UNITS
MULTI-FAMILY/APARTMENTS:	388 UNITS
DENSITY:	3.92 UNITS/AC
OPEN SPACE:	191.47 AC = 44.9 %

OKATIE MARSH PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	+/-64,800 SF
TOTAL DWELLING UNITS:	395 UNITS
SINGLE-FAMILY DETACHED:	267 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	128 UNITS
DENSITY:	3.89 UNITS/AC
OPEN SPACE:	34.77 AC = 34.3 %

OSPREY POINT PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	+/-207,700 SF
TOTAL DWELLING UNITS:	927 UNITS
SINGLE-FAMILY DETACHED:	204 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	213 UNITS
MULTI-FAMILY/APARTMENTS:	110 UNITS
DENSITY:	4.41 UNITS/AC
OPEN SPACE:	40.80 AC = 34.2 %

RIVER OAKS PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	330 UNITS
DENSITY:	5.39 UNITS/AC
OPEN SPACE:	28.40 AC = 46.4 %

OTHER PARCELS (Includes Existing Elementary School, Future Middle School, and Future Development)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-144.23 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PREPARED FOR:
Village Park Homes & Callegro Investments

LAND PLANNING:
J. K. TILLER ASSOCIATES, INC.

CIVIL CONSULTANT:
Carolina Engineering Consultants, Inc.

OKATIE VILLAGE
COMPOSITE PLAN
BEAUFORT COUNTY, SOUTH CAROLINA
JUNE 21, 2017

NORTH

GRAPHIC SCALE
0 300' 600' 900'

JKT job Number: 201705-01
201710-01

OKATIE VILLAGE COMPOSITE PLAN DEVELOPMENT SUMMARY

OKATIE VILLAGE PUD MASTER PLAN (Okatie Marsh, Osprey Point, River Oaks and Other Parcels)

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	+/-272,500 SF
TOTAL DWELLING UNITS:	1670 UNITS
SINGLE-FAMILY DETACHED:	636 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	316 UNITS
MULTI-FAMILY/APARTMENTS:	388 UNITS
DENSITY:	3.92 UNITS/AC
OPEN SPACE:	191.47 AC = 44.9 %

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	190,000 SF
TOTAL DWELLING UNITS:	1129 UNITS
SINGLE-FAMILY DETACHED:	861 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	103 UNITS
MULTI-FAMILY/APARTMENTS:	165 UNITS
DENSITY:	2.65 UNITS/AC
OPEN SPACE:	+/- 257.88 AC = 60.5 %

OKATIE MARSH PUD

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	+/-64,800 SF
TOTAL DWELLING UNITS:	395 UNITS
SINGLE-FAMILY DETACHED:	267 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	128 UNITS
DENSITY:	3.89 UNITS/AC
OPEN SPACE:	34.77 AC = 34.5 %

COUNTY PASSIVE PARK

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	N/A
SINGLE-FAMILY DETACHED:	N/A
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	N/A
DENSITY:	N/A
OPEN SPACE:	+/-98.3 AC = 97 %

OSPREY POINT PUD

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	+/-207,700 SF
TOTAL DWELLING UNITS:	327 UNITS
SINGLE-FAMILY DETACHED:	204 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	213 UNITS
MULTI-FAMILY/APARTMENTS:	110 UNITS
DENSITY:	4.41 UNITS/AC
OPEN SPACE:	40.80 AC = 34.2 %

MALIND BLUFF PUD

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	190,000 SF
TOTAL DWELLING UNITS:	396 UNITS
SINGLE-FAMILY DETACHED:	381 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	15 UNITS
DENSITY:	3.32 UNITS/AC
OPEN SPACE:	44.44 AC = 37 %

RIVER OAKS PUD

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	330 UNITS
DENSITY:	5.39 UNITS/AC
OPEN SPACE:	28.40 AC = 46.4 %

MALIND POINTE PUD

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	315 UNITS
DENSITY:	5.15 UNITS/AC
OPEN SPACE:	27.64 AC = 45.1 %

OTHER PARCELS (Includes Existing Elementary School, Future Middle School, and Future Development)

ORIGINAL DENSITY SUMMARY	
OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PROPOSED DENSITY SUMMARY	
OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PREPARED FOR:
Village Park Homes & Callegro Investments

LAND PLANNING:
J. K. TILLER ASSOCIATES, INC.

CIVIL CONSULTANT:
Carolina Engineering Consultants, Inc.

OKATIE VILLAGE
COMPOSITE PLAN
BEAUFORT COUNTY, SOUTH CAROLINA
JUNE 21, 2017

GRAPHIC SCALE
NORTH 0 300' 600' 900'

EXHIBIT E

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

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
CAROLINA ENGINEERING CONSULTANTS INC.
No. C20284
CERTIFICATE OF AUTHORIZATION

RIVER OAKS
CHERRY POINT ROAD
BEAUFORT COUNTY, SC

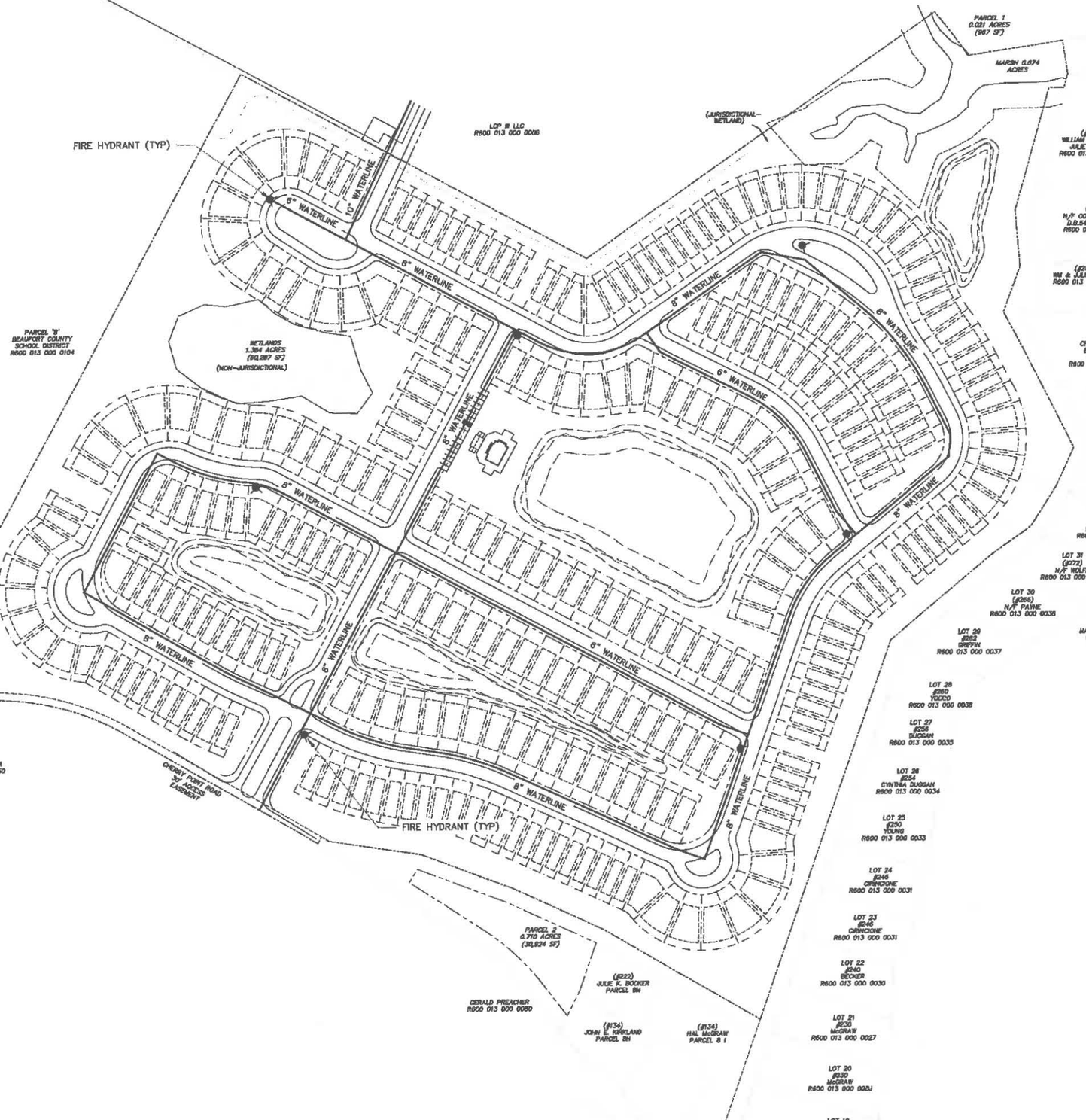
CAROLINA ENGINEERING CONSULTANTS, INC.
PO BOX 294
BEAUFORT, SC 29901
843/322-0353
843/322-0556 (FAX)
WWW.CAROLINAENGINEERING.COM

PROJECT:	1659
DATE:	06/13/17
REVISED:	06/13/17
DRAWN BY:	TAB
ENGINEER:	JPA
SCALE:	1"=100'

DRAINAGE EXHIBIT

1
OF 1

EXHIBIT F



PLAN REVISIONS

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

RIVER OAKS
CHERRY POINT ROAD
BEAUFORT COUNTY, SC

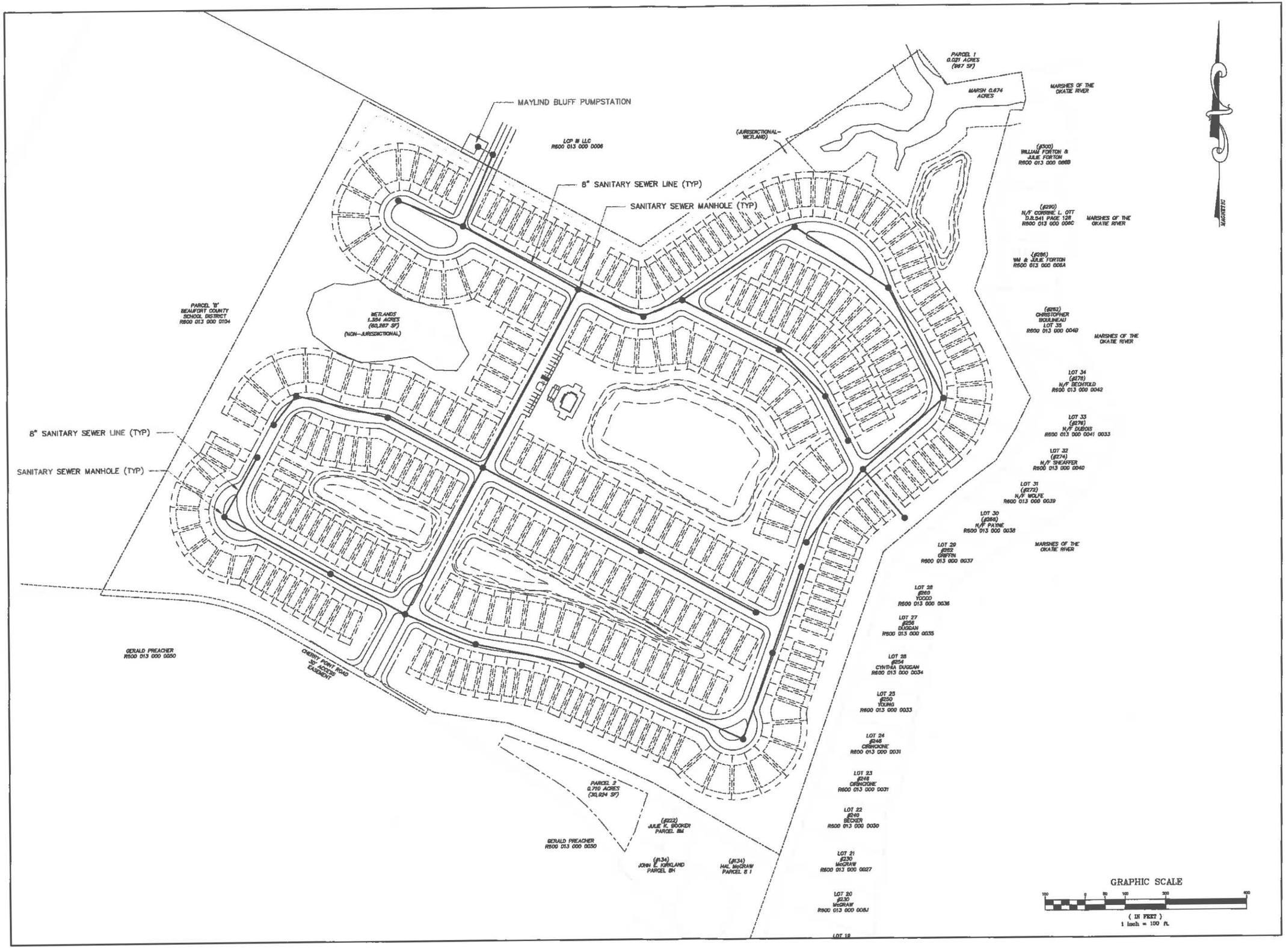
CAROLINA ENGINEERING CONSULTANTS, INC.
PO BOX 294
BEAUFORT, SC 29901
843/322-0553
843/322-0556 (FAX)
WWW.CAROLINAENGINEERING.COM

PROJECT:	1659
DATE:	06/13/17
REVISED:	06/13/17
DRAWN BY:	TAB
ENGINEER:	JPA
SCALE:	1"=100'

WATER EXHIBIT

1
OF 1

EXHIBIT G



NORTH CAROLINA ENGINEERING CONSULTANTS INC. No. C02354

PLAN REVISIONS

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

RIVER OAKS
CHERRY POINT ROAD
BEAUFORT COUNTY, SC

CAROLINA ENGINEERING CONSULTANTS, INC.
PO BOX 294
BEAUFORT, SC 29901
843/322-0533
843/322-0566 (FAX)
WWW.CAROLINAENGINEERING.COM

PROJECT:	2061
DATE:	06/13/17
REVISED:	07/07/17
DRAWN BY:	TAB
ENGINEER:	JPA
SCALE:	1"=100'

SANITARY SEWER EXHIBIT

1
OF 1

September 20, 2017

Anthony Criscitiello (email to ***tonyc@bcgov.net***)
Beaufort County Planning Director
100 Ribault Road, Room 115
PO Drawer 1228
Beaufort, SC 29901-1228

RE: Proposed Planned Unit Development Master Plan Amendment for R600-013-000-008C (River Oaks PUD)

Mr. Criscitiello:

Thank you for submitting a copy of the application materials for the Proposed Master Plan Amendment for the River Oaks PUD for comments. In the spirit of the Southern Beaufort County Regional Plan's (SBCRP) implementation strategies, Town Staff has taken the opportunity to review the information.

Although the applicant refers to the density as a simple conversion, the conversion of a mixed independent living development to a single family subdivision may result in an overall increase in the number of units. The use conversion from a mix of assisted living units to single family subdivision will result in an increase in the average daily trips and school aged children. This may have a regional impact on the Town of Bluffton in terms of increased traffic as well as an increased need for school facilities. It is important that prior to any approval of this request, the recommendations and the approval from Beaufort County School District is taken into consideration and the requirements in Beaufort County's Access Management Plan are adhered to.

Overall, Town of Bluffton staff supports the recommendation of denial based on the reasons stated in the staff report dated August 31, 2017. We are generally supportive of the inclusion of workforce and affordable housing units, as long as the overall development meets the requirements in Beaufort County's Community Development Code and Comprehensive Plan.

Many of the other concerns addressed by Beaufort County Planning Staff in the staff report are site plan related in terms of internal access, lot size and open space. Although these items are important to the overall development, they would not have a regional impact on the Town and are outside of the scope of the regional plan implementation committee.

I would like to request that you forward me subsequent staff reports and any supplemental information that is received after this letter to my email at hcolin@townofbluffton.com or via standard mail to Town Hall for additional review and consideration.

Sincerely,

Heather L Colin

Heather L. Colin, AICP
Director of Growth Management
hcolin@townofbluffton.com
Office (843)706-4592
Mobile (843)540-6946

Cc: Marc Orlando, ICMA-CM, Town Manager
Mayor and Town Council

TOWN OF HILTON HEAD ISLAND

One Town Center Court, Hilton Head Island, S.C. 29928
(843) 341-4600 Fax (843) 842-7728
www.hiltonheadislandsc.gov

September 15, 2017

Tony Criscitiello
Planning Director
100 Ribaut Road
Beaufort, SC 29901

RE: Osprey Point and River Oaks PUD Master Plan Amendments

Dear Tony:

Thank you for submitting a copy of the application materials for the Osprey Point and River Oaks PUD master plan amendments to the Town of Hilton Head Island. In the spirit of the Southern Beaufort County Regional Plan's (SCBRP) implementation strategies, Town Staff has taken the opportunity to review the information and make the following comments:

Removing the age restrictions on the Osprey Point PUD and developing the River Oaks PUD as a single-family development will significantly change projected traffic impacts. Town staff agrees that a Traffic Impact Analysis (TIA) using existing traffic volumes and the Lowcountry Regional model should be required to ensure adequate access management.

These amendments will have a significant impact on area schools, particularly Okatie Elementary School. The review of the proposed amendments should be coordinated with the Beaufort County School District's Facilities-Planning and Construction Department.

These comments are provided to for your consideration and review.

Again, thanks for the opportunity to provide input.

Respectfully Submitted,

Shawn Colin, AICP, Deputy Director of Community Development

November 30, 2017

Beaufort County Planning Division
Beaufort County
Post Office Drawer 1228
Beaufort, SC 29901-1228

Re: Proposed PUD Master Plan Amendments for Osprey Point (Malind Bluff) and River Oaks (Malind Pointe)

Dear Sir/Madam,

This letter is to update the previously submitted September letter regarding the Proposed PUD Master Plan Amendments for Osprey Point (Malind Bluff) and River Oaks (Malind Pointe). Beaufort County School District is currently working with the developer, PulteGroup, on access to SC highway 170. It appears that we are headed in a mutually beneficial direction. To date Beaufort County School Board has not had the opportunity to review this agreement.

On the second topic regarding impact fees. It is my understanding that the developer is petitioning for the removal of impact fees. Due to the overcrowding of schools in the Bluffton area, the Beaufort County School District has been in conversation with Beaufort County Council on leveraging impact fees on all new developments. I cannot be in favor in the removal of impact fees. Impact fees are needed on all new developments of this nature.

While the Beaufort County School District is a proponent of economic growth and free enterprise, this residential development has the potential to increase student population, dictating the need for additional facility capacity, operational costs and staff resources. The combined amendments to the Osprey Point and Cherry Point PUDs is for a 711-home single family development with no age restrictions. This type of development would attract resident families with school age children. Presently the School District does not have the capacity to handle additional school children in the Bluffton area. The impact fees in the existing PUD agreement are needed to ensure that there are facilities available for the future school age children of Beaufort County. I cannot recommend that the Beaufort County School District support any agreement that includes the removal of impact fees.

Sincerely,

Jeffery C. Moss, Ed.D
Superintendent, Beaufort County School District

Re: Rob Merchant, Beaufort County
Tony Criscitiello, Beaufort County
Drew Davis, Beaufort County School District
Tonya Crosby, Beaufort County School District

COASTAL
CONSERVATION
LEAGUE

December 4, 2017

Staff and Members of the Planning Commission,

Please accept these comments regarding Southern Beaufort County Map and PUD Master Plan amendments for Osprey Village (R00 013 000 0006 0000) and River Oaks (R600 013 000 008C 0000), collectively known as Malind Pointe. The comments below address the 182 acres in total, unless otherwise noted, and restate many of our original concerns from the cancelled September meeting.

We appreciate the developer's efforts to incorporate some of the League's previous suggestions in its current plan; however, we remain concerned about the map and PUD amendments as presented in three main categories.

1. Stormwater:
   The Okatie River headwaters are east of the property and any development here will have significant impact to the headwaters of the Okatie. The river's declining health has been well documented and studied, and the Okatie is currently protected by a set of Total Maximum Daily Load (TMDL) regulations to ensure its continued or improved health in the future. If we set the expectation that the health of the Okatie River headwaters is important, the stormwater systems and development nearby need to meet those expectations in their design, capture and treatment of stormwater and/or failure to generate stormwater in the first place. Development of this nature inevitably generates stormwater, so how it is addressed must be of the highest quality or development plans should be rearranged potentially with rights transferred or reduced to reduce the total volume generated.

   It is a little surprising to see virtually no change from a 2008 PUD to a 2017 submission with respect to stormwater given the research and investment that has taken place in this field over the same time period. The PUD amendment states: "*All stormwater, environmental and related standards continue, including commitment to stormwater quality testing.*" What advances in land use design or stormwater engineering have taken place over the past 10 years can be implemented to reduce the development's impact on the Okatie River? The county has built up its stormwater program and there may be lessons learned that should be shared and implemented. Similarly, there may be best practices from elsewhere that should change the design of the ponds. We encourage the planning commission to study this issue further, consult

COASTAL
CONSERVATION
LEAGUE

with the county stormwater managers and other experts in the field to better protect the Okatie.

2. Land Use: Although they can be helpful, improved stormwater improvements alone may not steady or improve the overall water quality in the Okatie. In fact, the best indicator of water quality is the land use and extent of development in the watershed. The only aquatic systems that will retain the full range of species and ecological functions will be those where less than ten percent of the watershed is impervious. (Schueller & Holland, 2000). Within Beaufort County, we should strive to maintain watersheds at or below that threshold by concentrating density in village and town centers, protecting land along the vulnerable edge. To date, Beaufort County has protected 16 parcels and over 700 acres on the Okatie River; thus the County has an interest in what development takes place alongside the River. Intense growth pressures in Jasper County, including the newly proposed East Argent development, make it even more important that Beaufort County think critically about how and where it develops within this watershed.

   The PUD in 2008 resulted in zoning that would not be possible with the Community Development Code alone, creating a bypass for the comprehensive plan and base zoning guidelines. Approving amendments today is an opportunity to promote development that is better aligned with the comprehensive plan for growth. To be clear, we do not believe low-density suburban sprawl development, with a monoculture of single family homes generating single-occupancy vehicle trips, is the viable alternative but rather that the planning commission and staff should seek to engage the developer to consider the ways a true village area can be knit together with surrounding development. A single-family residential development with homogenous lot sizes does not accomplish these goals.

3. Connected transportation: We appreciate the continued attempt to reconnect neighborhoods with returned pedestrian access points. Removing the gate between communities is certainly a step in the right direction and a more integrated street grid is proposed. Planning Commission should insist on more options to access the neighborhood and navigate within the neighborhood by car, bike and foot to increase internal trip capture and not overcrowd neighborhood streets or Highway 170.

Thank you for taking our comments into account during your review. We look forward to continuing this thoughtful conversation.

COASTAL
CONSERVATION
LEAGUE

Respectfully submitted,

Rikki Parker
South Coast Project Manager
Coastal Conservation League

R600 13 8C
BBII HOLDING COMPANY LLC
145 E 74TH STREET
NEW YORK NY 10021

R600 13 104
BEAUFORT COUNTY SCHOOL DISTRICT
POST OFFICE BOX 309
BEAUFORT SC 29901

R600 13 42
BECHTOLD KERRY
19823 SE 123 STREET
ISSAQUAH WA 98027

R600 13 30
BECKER GINA LYNCH
LYNCH WILLIAM CHAR
503 NESLO LANE
LAKELAND FL 33813

R600 13 8I
BOLLIN WILLIAM H
23 BIG OAK STREET
HILTON HEAD ISLAND SC 29926

R600 13 8M
BOOKER JULIE K
222 CHERRY POINT ROAD NORTH
OKATIE SC 29909

R600 13 43
BOULINEAU CHRISTOPHER
282 CHERRY POINT ROAD NORTH
OKATIE SC 29909

R600 13 31
CIRINCIONE GLORIA A
95 SKIDAWAY ISLAND PARK ROAD APT 433
SAVANNAH GA 31411

R600 13 8N
COLCOCK TISCH
128 CHERRY POINT ROAD
OKATIE SC 29909

R600 13 25 & 25A
DAVIS EATHEN D LOIS A
303 E CREGOR STREET
BLOOMINGDALE GA 31302-1903

R600 13 8L
DAVIS TROY D
POST OFFICE BOX 1217
POOLER GA 31322

R600 13 41
DUBOIS JEAN-LOUIS S & VIRGINIA A
POST OFFICE BOX 5234
HILTON HEAD ISLAND SC 29938

R600 13 34
DUGGAN CYNTHIA MARHOFFER & JOE
254 CHERRY POINT ROAD NORTH
OKATIE SC 29909

R600 13 35
DUGGAN JOSEPH B
254 CHERRY POINT ROAD NORTH
OKATIE SC 29909

R600 13 6A, 6B & 6C
FORTON WILLIAM P & JULIE M
POST OFFICE BOX 2135
BLUFFTON SC 29910

R600 13 37
GRIFFIN WILLIAM P
13 BOW CIRCLE
HILTON HEAD ISLAND SC 29928

R600 13 8B & 8H
KIRKLAND JOHN E
123 CHERRY POINT ROAD SOUTH
OKATIE SC 29909

R600 13 8E
LASETER LAURA ELIZEY
146 CHERRY POINT ROAD
OKATIE SC 29909

R600 13 6
LCP III LLC
% J NATHAN DUGGINS III
POST OFFICE BOX 2888
GREENSBORO NC 27402

R600 13 8F
LEE JUDITH DIANNE
800 DORSET ROAD
PT WENTWORTH GA 31407

R600 13 8J & 27
MCGRAW HAL & MARCY
230 CHERRY POINT ROAD NORTH
OKATIE SC 29909

R600 13 38
PAYNE JOHN P LINDA
30 TORRINGTON LANE
BLUFFTON SC 29910

R600 13 8K & 50
PREACHER JAMES E
165 CHERRY POINT ROAD
BEAUFORT SC 29902

R600 13 23 & 115
SCOTT FAMILY REVOC LIV TRUST
139 CHERRY POINT ROAD
OKATIE SC 29909

R600 13 8G
SECRETARY OF VETERANS AFFAIRS
1801 ASSEMBLY STREET
COLUMBIA SC 29201

R600 13 40
SHEAFFER LOUISE B
274 NORTH CHERRY POINT ROAD
BLUFFTON SC 29909

R600 13 33
STRAIT BENJAMIN W
POST OFFICE BOX 2186
BLUFFTON SC 29910

R600 13 8A & 26
WHITAKER FAMILY TRUST (THE)
214 CHRISTY ROAD
SAVANNAH GA 31410

R600 13 39
WOLFE V MICHELE
210 FIFTH AVE UNIT 22
BELMAR NJ 07719

R600 13 36
YOCCO WILLIAM M NANCY H
17 BIG OAK STREET
HILTON HEAD ISLAND SC 29926

ADD-ONS

The document(s) herein were provided to Council for information and/or discussion after release of the official agenda and backup items.

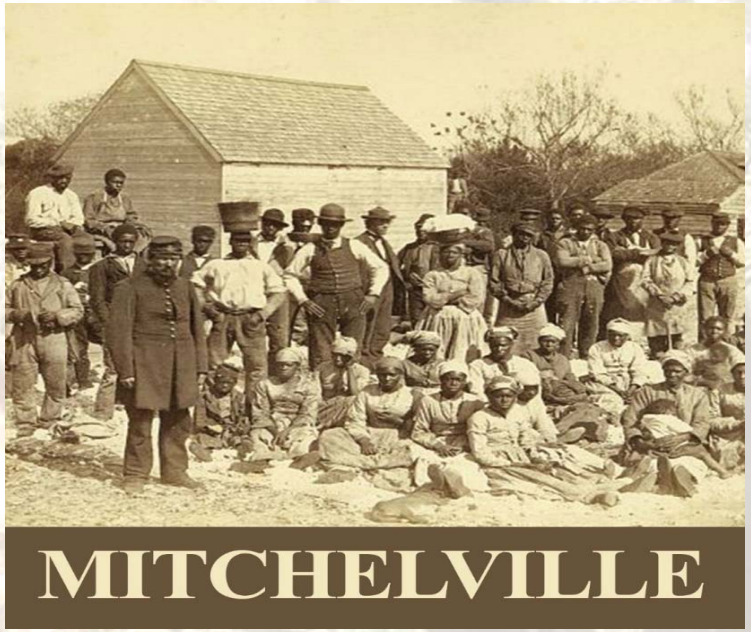
Topic:	Presentation / Mitchelville Preservation Project
Date Submitted:	February 19, 2018
Submitted By:	Ahmad Ward
Venue:	Natural Resources Committee

Mitchelville Preservation Project
Presentation to Beaufort County Natural Resources Committee
February 19, 2018

Topic: Presentation / Mitchelville Preservation Project
Date Submitted: February 19, 2018
Submitted By: Ahmad Ward
Venue: Natural Resources Committee

OUR MISSION

The Mitchelville Preservation Project (MPP) is a 501(c) non-profit organization whose mission is to replicate, preserve and sustain a historically significant site and to educate the public about the sacrifice, resilience and perseverance of the freedmen of Mitchelville, which in 1862 was the first self-governed town of freed slaves in America.



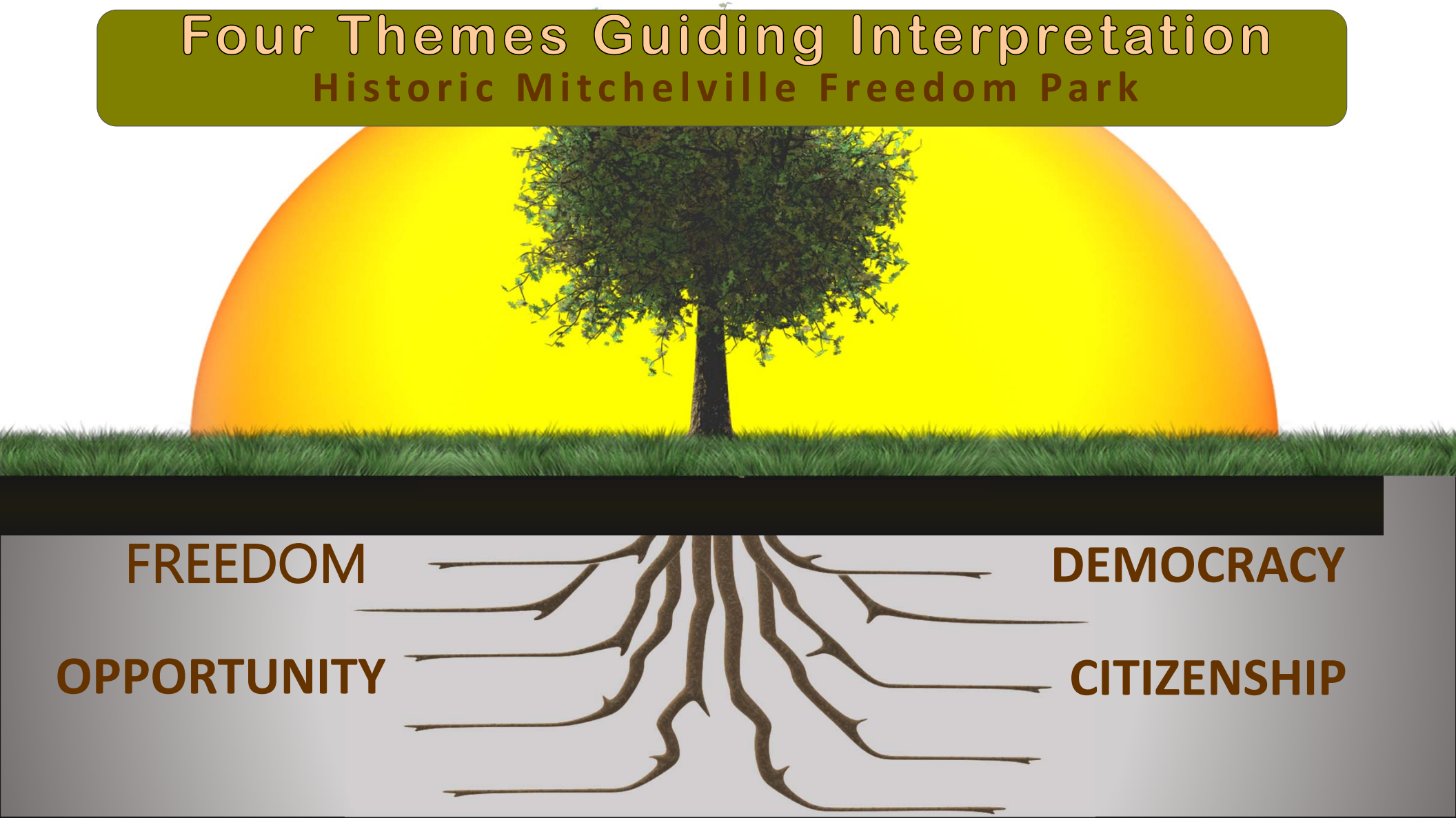

Government's
Cattle Yard
MITCHELVILLE
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USD
Aerogrid, IGN, IGP, swisstopo, and the GIS User

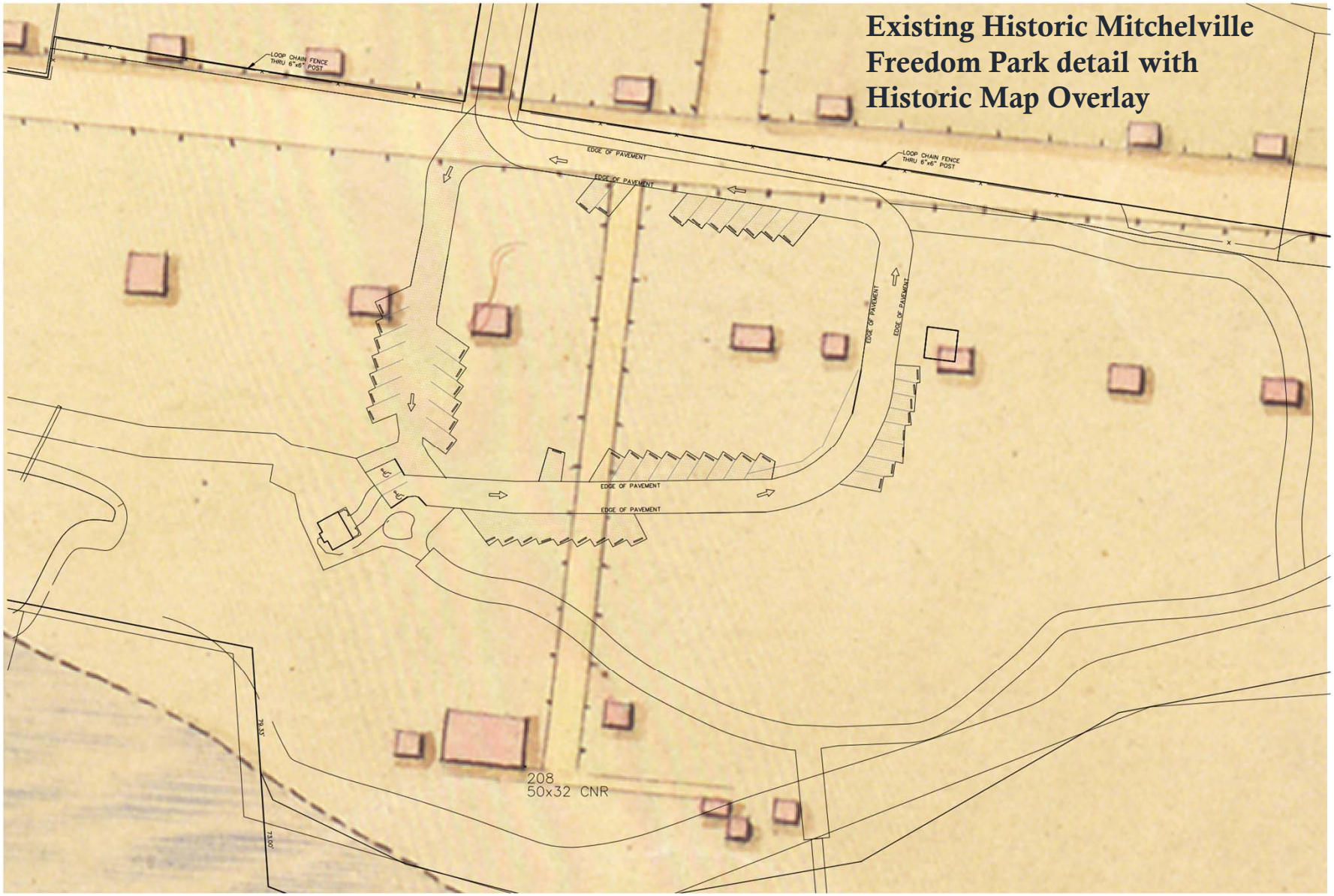
SUMMARY

MPP, in cooperation with the Town of Hilton Head and Beaufort County, endeavors to establish an active public park in the historic Mitchelville area, which will be known as “Historic Mitchelville Freedom Park.”

Four Themes Guiding Interpretation

Historic Mitchelville Freedom Park





Existing Historic Mitchelville Freedom Park detail with Historic Map Overlay

OUR REQUEST

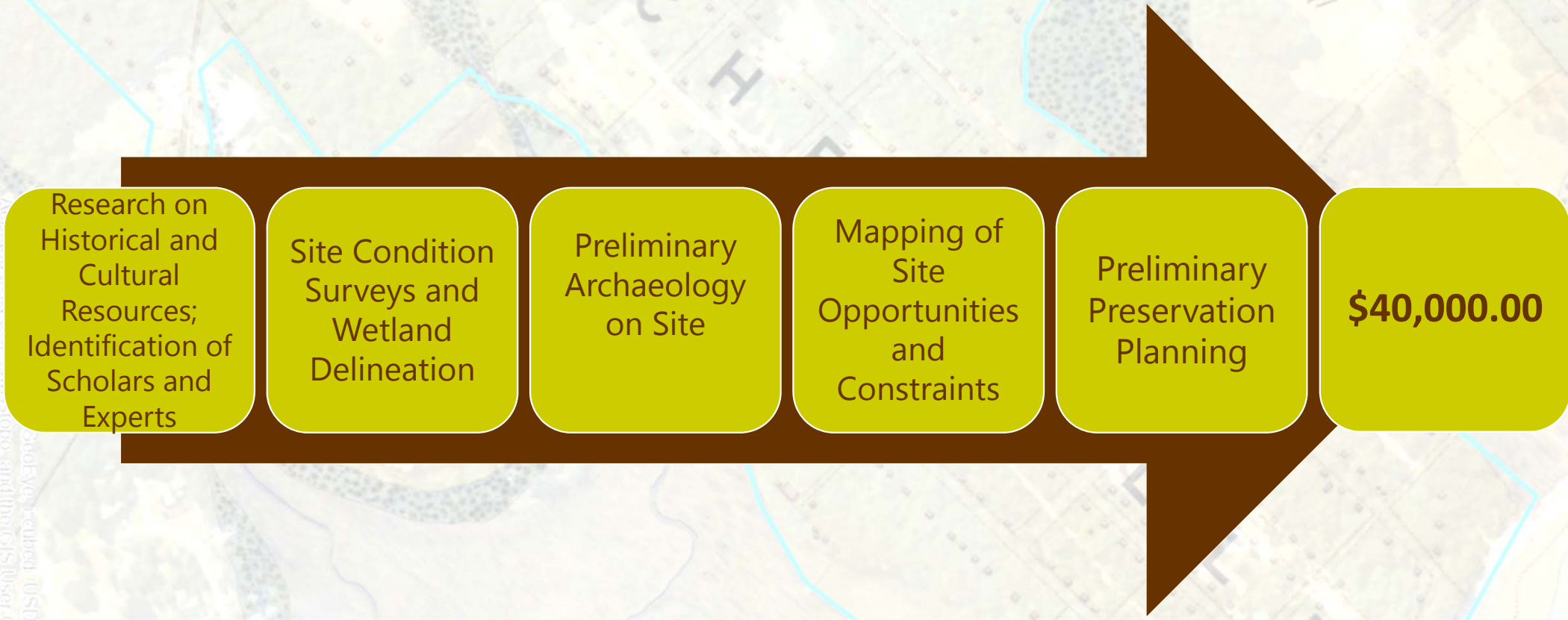
The Mitchelville Preservation Project (MPP) is seeking a total of **$1,400,000** to develop a comprehensive master plan and implement the first stages of construction at Historic Mitchelville Freedom Park.

The immediate phase is the Master Plan, which will include an interpretive plan, site development plan, archaeological mitigation plan, business and financial plans, along with other components. Approximately **$250,000** is reserved for the master planning component of the project. The subsequent **$1,150,000** would be for implementing Phase 1 improvements.

Master Plan Task Description	Estimated Cost
Project Initiation, Community Outreach and Case Study Tours	$40,000
Historical Research, Surveys, Archaeology and Site Inventory/Analysis	$40,000
Conceptual Master Plan Development	$110,000
Final Master Plan Implementation	$60,000
All Services Total	**$250,000**

Project Initiation, Community Outreach and Case Study Tours

Historical Research, Surveys, Archaeology and Site Inventory/Analysis



Conceptual Master Plan Development

Final Master Plan Implementation

Master Plan Grand Total: $250,000

Phase One: Design, permitting and construction

- Clearing and developing appropriate spaces to interpret the experience of Mitchelville
- Recreating the Praise House on/near its historical placement to serve as an educational building used by school children and other groups for programming and as a potential exhibition space
- Reconstruction of period homes to serve as interpretive centers illustrating themes related to various aspects of Mitchelville life;
- Partial restoration of the historic Mitchelville street grid
- Placing high-quality interpretive signage on the property to aid in self-guided tours and creating a virtual tour of the property.

PHASE 1 COMPONENTS	ESTIMATED COSTS
Archaeology	$150,000
Land Surveying and Environmental Services	$50,000
Roads, Parking and Pathway System	$350,000
Signage and Site Improvements	$150,000
Phase 1 Buildings, Structures/ Site improvements	$450,000
Component Total	**$1,150,000**


Questions?

Topic:	Information / Mitchelville Preservation Project
Date Submitted:	February 19, 2018
Submitted By:	Ahmad Ward
Venue:	Natural Resources Committee

Mitchelville Preservation Project Presentation to Beaufort County Natural Resources Committee February 19, 2018

Topic: Information / Mitchelville Preservation Project
Date Submitted: February 19, 2018
Submitted By: Ahmad Ward
Venue: Natural Resources Committee

HISTORIC MITCHELVILLE FREEDOM PARK

The Mitchelville Preservation Project (MPP) is a 501 (c) non-profit organization whose mission is to replicate, preserve and sustain and historically significant site and to educate the public about the sacrifice, resilience and perseverance of the freedmen of Mitchelville, which in 1862 was the first self-governed town of freed slaves in America. The brave men and women that built this community planted strong and enduring familial roots for generations of future African-Americans.

Mitchelville's significance in American history is profound. It represents the first African American self-governed town in the United States. The courage, perseverance, and resourcefulness of the freedmen on Hilton Head Island, ushered in the dawn of freedom. Their experiences during an era of war and the Reconstruction Period, exposed a culture that had survived from its roots in Africa, demonstrating how deeply the ideas of self-dependence and freedom were embedded in the minds of the African Americans. Mitchelville's founder, General Ormsby M. Mitchel, an astronomer by profession and a son of the South, envisioned that former slaves might best learn freedom from the practice of self-dependence.

HISTORY OF MITCHELVILLE

On November 7, 1861, Union forces attacked two Confederate forts and the Sea Islands of South Carolina near Port Royal. "The Battle of Port Royal" later drove the Confederate forces to retreat to the mainland. One island, Hilton Head Island, immediately became the headquarters for the Union Army. It also would become the setting for the first self-governed town of freed Africans in the country. After the Battle of Port Royal, men, women, and children fled the plantations and sought freedom with the Union army. However, the Emancipation Proclamation was yet to be signed so these former slaves—though seeking new lives as freedmen--would be labeled "contrabands of war" and housed in ill-constructed shacks on the grounds of the Union outpost. In need of labor, the Union Army hired these "contrabands", as carpenters, blacksmiths, launderers, coopers, clerks and cooks.

Due to overcrowding in the barracks in the Union camp, General Ormsby Mitchel dedicated a large parcel of the land, near the old Drayton Plantation, to the newly freed Blacks that they would be able to cultivate and govern. Individuals and families were given a quarter acre lot and material to build a home. The freedmen elected their own officials, created their own system of law, built three churches, four stores and established the first compulsory school system in the state of South Carolina. Education was required for every child from age 6 to 15 and when the school district was created in 1866, there were 238 students in the town. Commercial organizations and churches were established and weddings were conducted. Men were recruited for the on-going Civil War and Black soldiers built nearby Fort Howell to protect Mitchelville. On weekends, the marsh tacky work horses were raced along the beaches for enjoyment. They designed sweet grass baskets and fishing nets and sang songs interpreting their burdens.

After the slaves were freed by the Emancipation Proclamation, Mitchelville (named after General Mitchel following his death from yellow fever in 1862) became a template for the creation of future freedmen towns and served as the "rehearsal for Reconstruction" This experiment of independence was a radical idea. It addressed the former slaves' longings for their own land, the right to choose who would represent them, the responsibility of keeping families intact, the right to negotiate wages for their labor, and to initiate their own religious and commercial enterprises.

At its height, Mitchelville boasted over 3,000 residents, but after the Union army left the area in 1868, the population began to decrease. Many residents began farming and engaging in local commerce to sustain themselves and the town would maintain until the end of the century. Eventually, the residents took apart their homes and moved inland towards the area of Squire Pope, Bayard and Chaplain. Even though the citizens of this important community moved on from the physical property, their connection to the town endures through their descendants and the impact of the first taste of African American independence. Mitchelville truly is: "Where Freedom Began"

ORGANIZATION BACKGROUND

Mitchelville Preservation Project [MPP], Inc. is a non-profit South Carolina corporation which was formed to preserve the history of, and educate the public about the historic Mitchelville settlement. Mitchelville was placed on the National Register of Historic Places in 1988 (as the Fish Haul Archaeological Site), making the site important to preserving and understanding the nation's difficulties during Reconstruction. MPP has been formed to act as a steward for the benefit of preserving the rich history of Mitchelville and its connection to local Gullah culture. In 1995, the Town of Hilton Head and the State of South Carolina recognized the historic value of the Mitchelville site and erected the official State historical marker at the corner of Beach City and Fish Haul Roads. This marker has recently been relocated to the entrance of Fish Haul Creek Park, the future Historic Mitchelville Freedom Park site. In that same year, the Chicora Foundation completed their archaeological work at the Fish Haul site. This excavation uncovered 25,000 objects causing Chicora to refer to the site as "the richest African American archaeological site in the Southeast."

In 2005, a diverse group of Hilton Head Island citizens took up the cause of preserving and promoting the heritage of Mitchelville. This first group kept the importance of the Mitchelville site to Hilton Head on the community's agenda. In 2009, the group approached Mr. Thomas C. Barnwell and asked that he become chairman for a renewed effort to preserve what is left of the Mitchelville site and to interpret the heritage and commemorate the story. In 2010, the Mitchelville Preservation Project was officially organized with Barnwell as chairman. During the next couple of years, MPP created by-laws, developed an initial land architectural design of the site and obtained 501(c)3 status.

MPP, in cooperation with the Town of Hilton Head and Beaufort County, endeavors to establish an active public park in the historic Mitchelville area, that will be known as "Historic Mitchelville Freedom Park." The Town has leased the park area to MPP for 99 years at $1.00 per year. Long term goals include the construction of a replica of the school that once existed, replicas of the historic homes and other structures that align with the themes that govern the interpretation of the site. Those themes include: the importance of education, the desire for land ownership, laws and citizenship, the power of opportunity, everyday life before Reconstruction, and others.

MPP, through the generosity of the Town of Hilton Head, has recently hired its first Executive Director to develop a Master Plan for the site and lead the general workings of the project.

Historic Mitchelville Freedom Park will allow visitors to understand Mitchelville as it existed in the 19th century. This historic site, drenched in Hilton Head's pristine island atmosphere, endeavors to be known as the Lowcountry key Heritage Tourism attraction, inspiring visitors from around the world to travel to South Carolina to experience the people of the Mitchelville's first sweet taste of freedom.

Proposal to Beaufort County
For the Master Planning and Phase 1 Development of
Historic Mitchelville Freedom Park

Summary:

The Mitchelville Preservation Project (MPP) is seeking a total of $ 1,400,000 to develop a comprehensive master plan and implement the first stages of construction at Historic Mitchelville Freedom Park. The Master Plan will include an interpretive plan, development plan, archaeological mitigation plan, business and financial plans, along with other components. Approximately $250,000 is reserved for the master planning component of the project. The remaining $1,150,000 is for implementing Phase 1 improvements.

Preliminary Budget Proposed:

The MPP request to the County of Beaufort for master planning involves the components detailed below. Mitchelville and the Coastal Discovery Museum (CDM) are willing to manage the process to the extent determined feasible by Beaufort County and the Town of Hilton Head Island. The first request is for the master planning phase of $250,000 which will determine the scope of subsequent Phase 1 construction. The goal is to enhance and improve Historic Mitchelville Freedom Park so that it supports the MPP mission, maintains the open use of the park by the public under the management of MPP, and is economically viable. Some components such as the land surveying, environmental and archaeology services may be procured separately from the overall master planning phase.

The remainder of the total funding request will be for Phase 1 design, permitting and construction, which is anticipated to include: Clearing and developing appropriate spaces to interpret the experience of Mitchelville; recreating the Church School on/near its historical placement to serve as an educational building used by school children and other groups for programming and as a potential exhibition space; the reconstruction of some of the homes that will serve as interpretive centers illustrating themes related to various aspects of Mitchelville life; partial restoration of the historic Mitchelville street grid; placing high-quality interpretive signage on the property to aid in self-guided tours and creating a virtual tour of the property.

Master Planning Phase:

The Master Planning phase will include the following components, which generally follow the guidelines produced by the Georgia DNR Historic Preservation Division, and widely recognized as standard components in a Historic Site Master Plan.

1. Vision Statement: this will be a short and concise statement of the purpose and goals of the organization regarding the preservation and use of the historic site (which is not necessarily the overall mission of the organization). An important part of the vision statement will be to recognize and incorporate within it aspects of why the property is historically important—its historic context—and avoid objectives that conflict with preservation principles.

2. Historical Overview: this will be a highly detailed history of the site, its historical development, its historic features, archaeological resources, and will be a chronicle of important people or events associated with the property. Copious amounts of information about the history of the site are available, and a summary history will be included, with reference to a separate historic overview document. An existing historic overview was completed as a Historic Property Information Form (HPIF) as part of nominating the property for listing in the National Register of Historic Places.

3. Organization Overview and Goals & Objectives for Use of the Historic Site: this section will include a detailed history of the administering organization and will explain thoroughly how goals and objectives for the use, care, and management of the historic site are determined and how decisions were made. These goals and objectives will be the result of a vetting process that collected and considered such relevant information as: preliminary ideas regarding potential site usage, identification of historic resources on the site and their preservation needs, the historic context of the site, including association with important events or people, identification of issues beyond the immediate control of the organization and options for addressing these issues, costs of implementing a goal or objective, and priorities. Again, while this section of the Historic Site Master Plan is toward the beginning of the document, its final form may be dependent on information that follows.

4. Interpretation Plan: this section will be the primary guidance tool for determining and managing how the historic aspects of the site will be presented to the public. The interpretation plan will include: information about how historic collections are displayed and curated; how physical and visual historic resources are explained; the themes that will guide the messages conveyed in the Park; the method and materials used for training docents / guides that will aid in interpretation; In addition, there will be information about display designs, signage, markers, plaques, and monuments, etc.

5. Development Plan: this section will be the primary guidance tool for implementing the goals and objectives for the physical development of the historic site. Initially, the development plan will provide a general and broad perspective of what will be occurring to the property over time. As related individual projects are planned and implemented, they will be incorporated or referenced in the development plan section of the master plan. The development plan will include a site plan identifying historic resources, an overall layout of the proposed improvements and planned new construction, and other site alterations.

6. Preservation Plan: this section will be the primary tool for determining the appropriate treatment of the historic resources on the property. The preservation plan will characterize and evaluate historic resources and objects, provide the necessary information to responsibly deal with existing issues and concerns about the resources /objects and plan for their future, guide implementation of recommendations resulting from the plan, and act as a reference source. Incorporated within the preservation plan will be acknowledgement of the Secretary of the Interior's Standards for the Treatment of Historic Properties, and a Maintenance Plan. Associated documents include inventories of historic collections, photo documentation of the site, Conditions Assessment Reports, Archival status report of objects/artwork in the collection, other applicable reports, and archaeological studies. These may be included within the preservation plan or developed separately and incorporated. For related information see: Preservation Plan Guidelines for Historic Properties.

7. Operations Plan: this section will be the primary guidance tool for managing the various types of uses that are planned for the historic site. Within the use plan will be information on hours of operation, staffing needs, a general maintenance plan, and other day-to-day operational

requirements. It should also outline work plans and task lists for operating the site, assign management responsibilities, and set schedules.

8. Disaster Plan: this section will be the primary guidance tool for reacting to an emergency situation involving the historic site, such as fire or natural disaster. Within the disaster plan will be information about emergency response measures, including notification responsibilities, emergency decision-making policies, recovery activity team assignments, and safety procedures. Notification responsibilities, team leader assignments, and other duties should include back-ups and be designated by position within the organization rather than to an individual to ensure continuity as terms and personal involvement fluctuate.

9. Business Plan: this section will establish how the administering organization professionally manages the site. Within the business plan will be information about the management team, staff and board of directors and their duties and responsibilities in operating the site, including marketing, developing and managing the budget, hiring practices, purchasing procedures, personnel policies and contracting for services.

10. Financial Plan: this section will establish how funding the historic site's operational and developmental needs will be achieved. Within the financial plan will be information about budgets, income, expenses, taxes, accounting and auditing practices, user fees, fund-raising activities, projects costs, etc. The financial plan should be updated on an annual basis.

11. Other Information: this will include, as applicable, appendices and reference documents. Appendices should include the Secretary of the Interior's Standards for the Treatment of Historic Properties, copies of Preservation Briefs and other helpful technical information, maintenance plans, project estimates, inventories, and other reference materials, which may be mentioned in other sections of the master plan. Other information could also include items that don't sensibly belong in the major sections of the plan. These might include membership lists, contact lists, organization officers and board of directors' lists, and such things as information on strategic partnership development.

12. Master Plan Report and Executive Summary: this will summarize the property's history and importance, why the Historic Site Master plan is being created, goals for the use of the property, information about the administering organization, and other important information as applicable. While the executive summary is at the beginning of the master plan document, it will be one of the last things written so that all aspects of the plan contents can be considered before deciding what should be included. The Executive Summary will be engaging, informative, easy to read by the general public, and relatively short—no more than two pages. Excerpts from the Executive Summary and the Vision Statement might also provide text for public relations or educational tools as pamphlets or flyers about the property.

Consultant Fee Estimates for Master Planning

Task Description	Estimated Fee By Task
Project Initiation, Community Outreach and Case Study Tours	$40,000
Historical Research, Surveys, Archaeology and Site Inventory/Analysis	$40,000
Conceptual Master Plan Development	$110,000
Final Master Plan Implementation	$60,000
All Services Total	**$250,000**

The Phase 1 Development Program:

This will be based on the Master Plan, but will likely include several components including the following:

1. As a public park, Mitchelville must pay careful attention to both the landscape and its history. The landscape, or the physical environment in general, would play an active, meaningful role in historical site interpretation for the public, and serve as an active tool for communicating important understandings about the past. Thus, the Development Plan will be the product of combining the work of a landscape architect with that of a historian and interpretive consultant.

2. The conceptual design will include various structures that will highlight selected themes, serve as education and exhibition portals and an interpretive scope (acreage to be determined) of the park that presents an interpretation of Mitchelville in its historic context, as the first self-governed town operated by African Americans in the South. It is important to note that this proposed landscape is not intended to replicate the landscape that existed on this site. Instead, it is a newly created landscape intentionally designed to support the interpretive / thematic strategies and goals of the complex.

Proposed components include:

- Points of entry, arrival and visitor drop off
- Site layout, vehicular circulation, parking (cars and buses)
- Pathways and interpretive trails and circulation
- Church School education /exhibit center, historic renderings of homes, and other structures including artifact storage
- Interpretive panels for self-guided daytime walks on the interpretive grounds

Phase 1 Planning Elements:

Phase one physical improvements will be determined, modified, and/or detailed out during the master planning process, but current thought includes some of the options outlined below. Ideally we would like to obtain approval for funding for both the Master Planning Phase and Phase 1 improvements at the outset. Phase 1 funds will include archaeology, land surveying, environmental, design, construction and permitting that are estimated to be in the range of $1,150,000. Our request

is to have these funds approved and set aside during the master planning phase, and then released as needed and generally following completion of the Master Plan.

1. Archaeology: Archaeological work on the property would include clearing underbrush for remote sensing surveys, establishing a permanent grid system at the property and determining the location of the Mitchelville era road system and the location of building foundations. These efforts include ground penetrating radar, magnetometry, and resistivity surveys, and conducting selected test excavations to determine the depth of buried features and to ground-truth the results of the remote sensing survey. This is required to prevent archaeological resources from being damaged by construction. This process has started in small fashion due to surface sonar and Magnetometry on a selected area of the park that was conducted by the Masters in Public Archaeology from Binghamton University in July 2017. This plan would move forward inspired by the findings from this process.

2. Land Surveying and Environmental Services: Proposed land surveying and environmental services would include an updated tree and topography survey, identification and boundary certification of the OCRM critical line and wetlands on the property.

3. Roads, Parking and Pathway System: Phase 1 roads, parking, and a trail way that mirrors the Mitchelville era road system and creates an interpretive path that explores the property. Surface the main road and trail way system so that it is ADA accessible and enables full exploration of the site, including access to the Port Royal Sound. This project will likely mean a relocation of the current parking lot and access road.

4. Signage and Site Improvements: Interpretive systems to tell the story of Mitchelville through a series of interpretive elements, gathering areas, structures and signs on the property. The interpretive story will also be told through technology including a virtual tour of the property so that it can be seen by prospective visitors to Hilton Head Island from around the world.

5. Phase 1 buildings, structure(s) and other site improvements on the property: The exact form and location of this building(s) and site improvements will be determined in the master planning process in the detailed design and permitting phases.

Phase 1 estimates – These may shift according to Master Plan recommendations

Phase 1 components	**Estimated Costs**
Archaeology	$150,000
Land Surveying and Environmental Services	$50,000
Roads, Parking and Pathway System	$350,000
Signage and Site Improvements	$150,000
Phase 1 Buildings, Structures/ Site improvements	$450,000
Component Total	**$1,150,000**

Task Description	**Estimated Fee By Task**
Project Initiation, Community Outreach and Case Study Tours	$40,000
Historical Research, Surveys, Archaeology and Site Inventory/Analysis	$40,000
Conceptual Master Plan Development	$110,000
Final Master Plan Implementation	$60,000
All Services Total	**$250,000**

Project Initiation, Community Outreach and Case Study Tours

- Project Initiation for Consultant Group and Principals
- Meetings with Stakeholders (community partners, elected officials, sister organizations, etc.)
- Site Visits to Comparable Museums, Parks and Cultural Institutions
- Pre-Plan Focus Group Conversations

TOTAL: $40,000.00

Historical Research, Surveys, Archaeology and Site Inventory/Analysis

- Research on Historical and Cultural Resources; Identification of Scholars and Experts
- Site Condition Surveys and Wetland Delineation
- Preliminary Archaeology on Site
- Mapping of Site Opportunities and Constraints
- Preliminary Preservation Planning

TOTAL: $40,000.00

Conceptual Master Plan Development

- Creation of Site Development Scope Including Interpretation Program, Site Alterations, Construction Phases
- Market and Audience Research
- Business Plan structure including Financial Policies and Operations Plan
- Preliminary Disaster Plan
- Conceptual Design and Draft Plan Report

TOTAL: $110,000.00

Final Master Plan Implementation

- Completed Illustrations of Conceptual Phases
- Completed Disaster and Preservation Plans
- Post-Plan Focus Group Conversations
- Final Master Plan Report and Documentation

TOTAL: $60,000.00

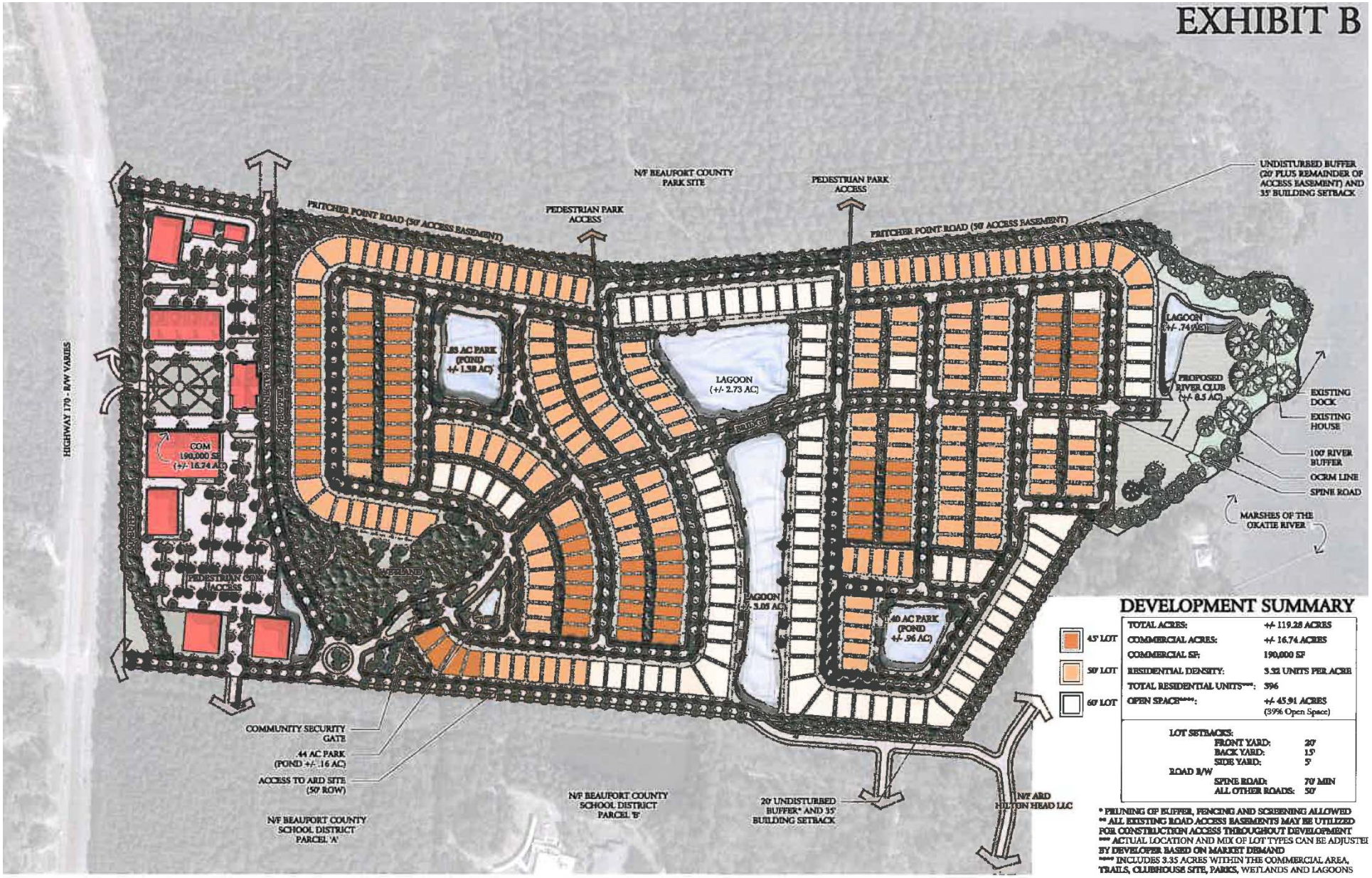
Master Plan Grand Total: $250,000

Topic:	Presentation / Osprey Point and River Oaks
Date Submitted:	February 19, 2018
Submitted By:	Rob Merchant
Venue:	Natural Resources Committee

Topic: Presentation / Osprey Point and River Oaks
Date Submitted: February 19, 2018
Submitted By: Rob Merchant
Venue: Natural Resources Committee


LAGOON
PUBLIC TRAIL SYSTEM
OKATIE ELEMENTARY SCHOOL
150 UNITS MULTI-FAMILY APARTMENTS
105 UNITS SINGLE-FAMILY ATTACHED
140 UNITS SINGLE-FAMILY DETACHED
25 UNITS SINGLE-FAMILY DETACHED
RECREATION AREA
COMMONS
OVERLOOK PARK
MALIND CREEK

EXHIBIT B



DEVELOPMENT SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL SF:	190,000 SF
RESIDENTIAL DENSITY:	3.32 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	396
OPEN SPACE****:	+/- 45.91 ACRES (39% Open Space)

LOT SETBACKS:	
FRONT YARD:	20'
BACK YARD:	15'
SIDE YARD:	5'
ROAD R/W	
SPINE ROAD:	70' MIN
ALL OTHER ROADS:	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 3.35 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, CLUBHOUSE SITE, PARKS, WETLANDS AND LAGOONS

PREPARED FOR:
MALIND BLUFF DEVELOPMENT LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TIM PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909

OSPREY POINT (MALIND BLUFF) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

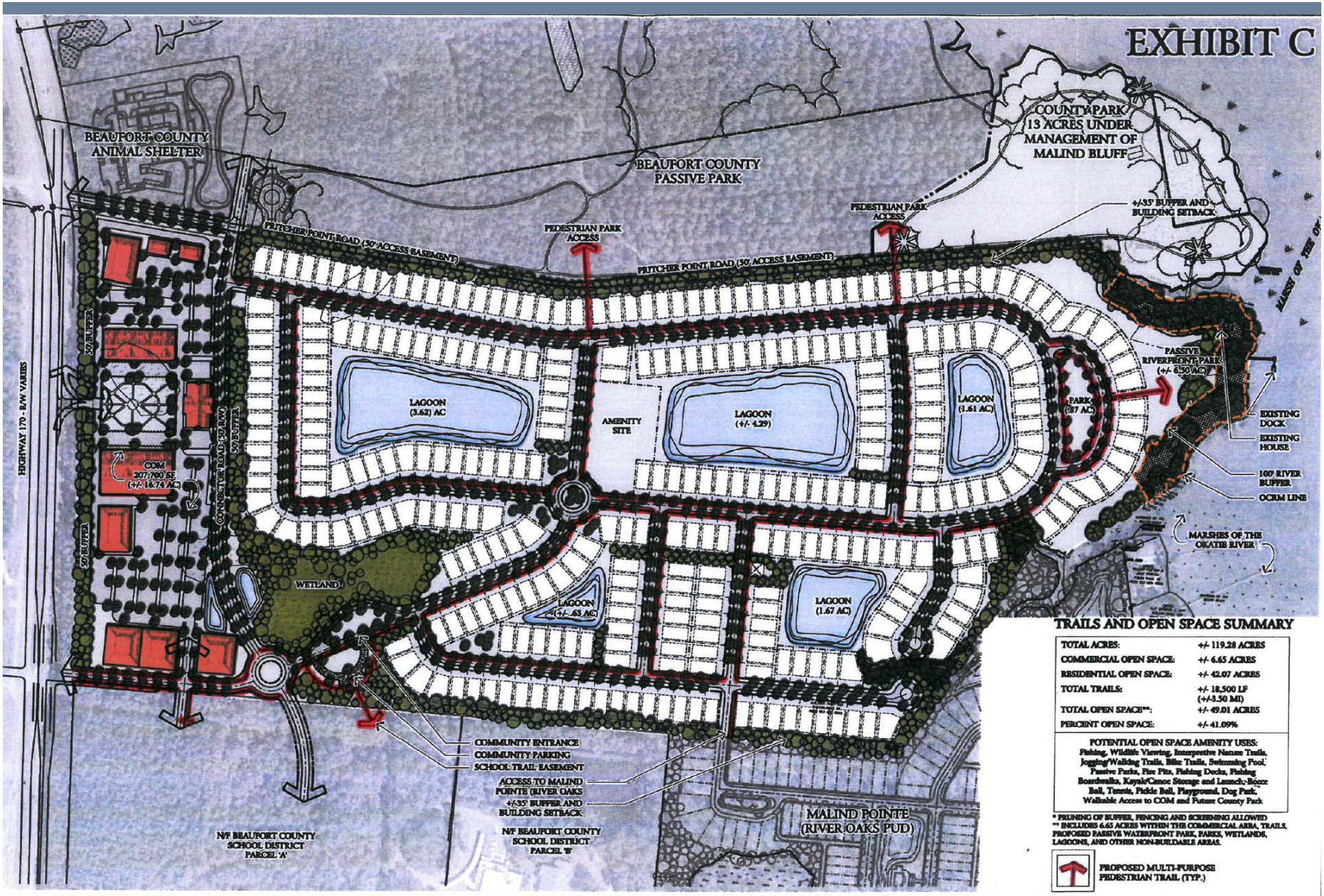
July 29, 2014

GRAPHIC SCALE

NORTH 0 200' 400' 600'

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

JKT Job Number: 2014028-01



TRAILS AND OPEN SPACE SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL OPEN SPACE:	+/- 6.65 ACRES
RESIDENTIAL OPEN SPACE:	+/- 42.07 ACRES
TOTAL TRAILS:	+/- 18,500 LF (+/-3.50 MI)
TOTAL OPEN SPACE**:	+/- 49.01 ACRES
PERCENT OPEN SPACE:	+/- 41.09%

POTENTIAL OPEN SPACE AMENITY USES:
Fishing, Wildlife Viewing, Interpretive Nature Trails, Jogging/Walking Trails, Bike Trails, Swimming Pool, Passive Parks, Pier Pits, Fishing Docks, Fishing Boardwalks, Kayak/Canoe Storage and Launch, Bocce Ball, Tennis, Pickle Ball, Playground, Dog Park, Walkable Access to COM and Future County Park

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, PROPOSED PASSIVE WATERFRONT PARK, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PROPOSED MULTI-PURPOSE PEDESTRIAN TRAIL (TYP.)

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J.K. TILLER ASSOCIATES, INC.

OSPREY POINT (MALIND BLUFF)
TRAILS AND OPEN SPACE PLAN

GRAPHIC SCALE

Osprey Point – Staff Recommendation

Approval with conditions:

- Eliminate the right-in/right-out intersection with SC 170
- Conduct a Traffic Impact Analysis (TIA) that looks at the combined impacts of the Osprey Point and River Oaks PUDs.
- Incorporate the County's existing Stormwater BMP Manual and future revisions into PUD document.
- Indicate that the 13 acre park located north of site will be managed by Malind Bluff (Osprey Point).

Osprey Point – Planning Commission Recommendation

Denial due to concerns about the impacts on roads, schools and stormwater


LAGOON
LAGOON
LAGOON
LAGOON
50' BUFFER
50' BUFFER
50' BUFFER
50' BUFFER
25 UNITS
SINGLE-FAMILY DETACHED

EXHIBIT B


MALIND CREEK
OCRM LINE
50' OCRM LINE SETBACK
MALIND BLUFF PUD (OSPREY POINT)
LAGOON
BUFFER
CHERRY POINT ROAD
ACCESS TO MALIND BLUFF PUD
PARK
BEAUFORT COUNTY SCHOOL DISTRICT (OKATIE ELEMENTARY)
NON-JURISDICTIONAL WETLAND 1.384 AC
CLUB & POOL
ALLEY
LAGOON
BUFFER
PEDESTRIAN PATH TO OKATIE ELEMENTARY
LAGOON
LAGOON
CHERRY POINT ROAD
PARK
PARK
BUFFER
BUFFER
TO HIGHWAY 170
CHERRY POINT ROAD

River Oaks – Staff Recommendation

Staff recommends conditional approval:

- The revised PUD document needs to clearly incorporate the County's existing Stormwater BMP Manual and any revisions that are made in the future.
- A Traffic Impact Analysis (TIA) needs to be conducted for the combined impacts of the Osprey Point and River Oaks PUDs. This TIA needs to look at existing traffic volumes and utilize the Lowcountry Regional Model. Any recommended improvements resulting from the findings of the TIA need to be incorporated into the PUD document before approval by County Council.

River Oaks– Planning Commission Recommendation

Denial due to concerns about the impacts on roads, schools and stormwater

Topic:	Information / Okatie Village - Osprey Point and River Oaks
Date Submitted:	February 19, 2018
Submitted By:	Josh Tiller
Venue:	Natural Resources Committee

Topic: Information / Okatie Village - Osprey Point and River Oaks
Date Submitted: February 19, 2018
Submitted By: Josh Tiller
Venue: Natural Resources Committee

OKATIE VILLAGE COMPOSITE PLAN DEVELOPMENT SUMMARY

OKATIE VILLAGE PUD MASTER PLAN (Okatie Marsh, Osprey Point, River Oaks and Other Parcels)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-428.31 ACRES
COMMERCIAL SF:	+/-272,500 SF
TOTAL DWELLING UNITS:	1670 UNITS
SINGLE-FAMILY DETACHED:	636 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	316 UNITS
MULTI-FAMILY/APARTMENTS:	388 UNITS
DENSITY:	3.13 UNITS/AC
OPEN SPACE:	191.47 AC = 44.7 %

OKATIE MARSH PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	+/-64,800 SF
TOTAL DWELLING UNITS:	395 UNITS
SINGLE-FAMILY DETACHED:	267 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	128 UNITS
DENSITY:	3.89 UNITS/AC
OPEN SPACE:	34.77 AC = 34.3 %

OSPREY POINT PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	+/-207,700 SF
TOTAL DWELLING UNITS:	527 UNITS
SINGLE-FAMILY DETACHED:	204 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	213 UNITS
MULTI-FAMILY/APARTMENTS:	110 UNITS
DENSITY:	4.41 UNITS/AC
OPEN SPACE:	40.80 AC = 34.2 %

RIVER OAKS PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-63.34 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	330 UNITS
DENSITY:	5.19 UNITS/AC
OPEN SPACE:	28.40 AC = 44.7 %

OTHER PARCELS (Includes Existing Elementary School, Future Middle School, and Future Development)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PREPARED FOR:
Village Park Homes & Callegro Investments

LAND PLANNING:

J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD, SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4800 Fax: 843.815.4802
jktiller@jktiller.com

CIVIL CONSULTANT:

Ward Edwards ENGINEERING

OKATIE VILLAGE COMPOSITE PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

JUNE 13, 2017

NORTH

GRAPHIC SCALE
0 300' 600' 900'

JKT Job Number: 201703-01

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OKATIE VILLAGE COMPOSITE PLAN DEVELOPMENT SUMMARY

OKATIE VILLAGE PUD MASTER PLAN (Okatie Marsh, Osprey Point, River Oaks and Other Parcels)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	+/-272,500 SF
TOTAL DWELLING UNITS:	1670 UNITS
SINGLE-FAMILY DETACHED:	636 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	316 UNITS
MULTI-FAMILY/APARTMENTS:	388 UNITS
DENSITY:	3.92 UNITS/AC
OPEN SPACE:	191.47 AC = 44.9 %

PROPOSED DENSITY SUMMARY

OVERALL ACREAGE:	+/-425.98 ACRES
COMMERCIAL SF:	190,000 SF
TOTAL DWELLING UNITS:	1129 UNITS
SINGLE-FAMILY DETACHED:	861 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	103 UNITS
MULTI-FAMILY/APARTMENTS:	165 UNITS
DENSITY:	2.65 UNITS/AC
OPEN SPACE:	+/- 257.88 AC = 60.5 %

OKATIE MARSH PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	+/-64,800 SF
TOTAL DWELLING UNITS:	395 UNITS
SINGLE-FAMILY DETACHED:	267 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	128 UNITS
DENSITY:	3.89 UNITS/AC
OPEN SPACE:	34.77 AC = 34.3 %

COUNTY PASSIVE PARK

PROPOSED DENSITY SUMMARY

OVERALL ACREAGE:	+/-101.3 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	N/A
SINGLE-FAMILY DETACHED:	N/A
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	N/A
DENSITY:	N/A
OPEN SPACE:	+/-98.3 AC = 97 %

OSPREY POINT PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	+/-207,700 SF
TOTAL DWELLING UNITS:	527 UNITS
SINGLE-FAMILY DETACHED:	204 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	213 UNITS
MULTI-FAMILY/APARTMENTS:	110 UNITS
DENSITY:	4.41 UNITS/AC
OPEN SPACE:	40.80 AC = 34.2 %

MALIND BLUFF PUD

PROPOSED DENSITY SUMMARY

OVERALL ACREAGE:	+/-119.25 ACRES
COMMERCIAL SF:	190,000 SF
TOTAL DWELLING UNITS:	396 UNITS
SINGLE-FAMILY DETACHED:	381 UNITS
SINGLE-FAMILY ATTACHED/VILLAGE CONDO:	N/A
MULTI-FAMILY/APARTMENTS:	15 UNITS
DENSITY:	3.32 UNITS/AC
OPEN SPACE:	44.44 AC = 37 %

RIVER OAKS PUD

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	330 UNITS
DENSITY:	5.39 UNITS/AC
OPEN SPACE:	28.40 AC = 46.4 %

MALIND POINTE PUD

PROPOSED DENSITY SUMMARY

OVERALL ACREAGE:	+/-61.21 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	315 UNITS
DENSITY:	5.15 UNITS/AC
OPEN SPACE:	27.64 AC = 45.1 %

OTHER PARCELS (Includes Existing Elementary School, Future Middle School, and Future Development)

ORIGINAL DENSITY SUMMARY

OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PROPOSED DENSITY SUMMARY

OVERALL ACREAGE:	+/-144.22 ACRES
COMMERCIAL SF:	N/A
TOTAL DWELLING UNITS:	418 UNITS
SINGLE-FAMILY DETACHED:	165 UNITS
SINGLE-FAMILY ATTACHED:	103 UNITS
MULTI-FAMILY/APARTMENTS:	150 UNITS
DENSITY:	2.90 UNITS/AC
OPEN SPACE:	87.5 AC = 60.70 %

PREPARED FOR:
Village Park Homes & Callegro Investments

LAND PLANNING:

J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD, SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4800 jktiller@jktiller.com Fax: 843.815.4802

CIVIL CONSULTANT:

Ward Edwards ENGINEERING

OKATIE VILLAGE COMPOSITE PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

NORTH

GRAPHIC SCALE 0 300' 600' 900'

JKT Job Number: 201703-01
201710-01

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EXHIBIT B

BEAUFORT COUNTY ANIMAL SHELTER

BEAUFORT COUNTY PASSIVE PARK

COUNTY PARK 13-ACRES UNDER MANAGEMENT OF MALIND BLUFF

PEDESTRIAN PARK ACCESS

PEDESTRIAN PARK ACCESS

+/-35' BUFFER AND BUILDING SETBACK

PRITCHER POINT ROAD (50' ACCESS EASEMENT)

PRITCHER POINT ROAD (50' ACCESS EASEMENT)

MARSH OF THE OK

HIGHWAY 170 - R/W VARIES

50' BUFFER

50' BUFFER

50' BUFFER

CONNECTOR ROAD (50' R/W)

COM 207,700 SF (+/- 16.74 AC)

LAGOON (3.62) AC

AMENITY SITE

LAGOON (+/- 4.29)

LAGOON (1.61 AC)

PARK (.87 AC)

PASSIVE RIVERFRONT PARK (+/- 6.50 AC)

EXISTING DOCK

EXISTING HOUSE

100' RIVER BUFFER

OCRM LINE

MARSHES OF THE OKATIE RIVER

WETLAND

LAGOON (+/- .63 AC)

LAGOON (1.67 AC)

COMMUNITY ENTRANCE

COMMUNITY PARKING

SCHOOL TRAIL EASEMENT

ACCESS TO MALIND POINTE (RIVER OAKS

+/-35' BUFFER AND BUILDING SETBACK

MALIND POINTE (RIVER OAKS PUD)

N/F BEAUFORT COUNTY SCHOOL DISTRICT PARCEL 'A'

N/F BEAUFORT COUNTY SCHOOL DISTRICT PARCEL 'B'

DEVELOPMENT SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL BUILDING SF:	207,700 SF
RESIDENTIAL DENSITY:	3.39 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	396
OPEN SPACE****:	+/- 48.05 ACRES (40.28% Open Space)

LOT SETBACKS (See Exhibit B-1):	
FRONT YARD:	20'
BACK YARD:	10'
SIDE YARD:	5'
LOT DIMENSIONS:	52' X 120' (TYP.)
ROAD R/W	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, AMENITY SITE, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TEN PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909
Voice 843.815.4800 jktiller@jktiller.com Fax: 843.815.4802

Ward Edwards ENGINEERING

OSPREY POINT (MALIND BLUFF) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

GRAPHIC SCALE

NORTH 0 200' 400' 600'

JKT Job Number: 201731-01

EXHIBIT C

BEAUFORT COUNTY ANIMAL SHELTER

BEAUFORT COUNTY PASSIVE PARK

COUNTY PARK 13 ACRES UNDER MANAGEMENT OF MALIND BLUFF

PEDESTRIAN PARK ACCESS

PEDESTRIAN PARK ACCESS

+/-35' BUFFER AND BUILDING SETBACK

PRITCHER POINT ROAD (50' ACCESS EASEMENT)

PRITCHER POINT ROAD (50' ACCESS EASEMENT)

MARSH OF THE OK

HIGHWAY 170 - R/W VARIES

50' BUFFER

50' BUFFER

CONNECTOR ROAD (50' R/W)

50' BUFFER

LAGOON (3.62) AC

AMENITY SITE

LAGOON (+/- 4.29)

LAGOON (1.61 AC)

PARK (.87 AC)

PASSIVE RIVERFRONT PARK (+/- 6.50 AC)

EXISTING DOCK

EXISTING HOUSE

100' RIVER BUFFER

OCRM LINE

COM 207,700 SF (+/- 16.74 AC)

WETLAND

LAGOON (+/- .63 AC)

LAGOON (1.67 AC)

MARSHES OF THE OKATIE RIVER

COMMUNITY ENTRANCE

COMMUNITY PARKING

SCHOOL TRAIL EASEMENT

ACCESS TO MALIND POINTE (RIVER OAKS

+/-35' BUFFER AND BUILDING SETBACK

N/F BEAUFORT COUNTY SCHOOL DISTRICT PARCEL 'A'

N/F BEAUFORT COUNTY SCHOOL DISTRICT PARCEL 'B'

MALIND POINTE (RIVER OAKS PUD)

TRAILS AND OPEN SPACE SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL OPEN SPACE:	+/- 6.65 ACRES
RESIDENTIAL OPEN SPACE:	+/- 42.07 ACRES
TOTAL TRAILS:	+/- 18,500 LF (+/-3.50 MI)
TOTAL OPEN SPACE**:	+/- 49.01 ACRES
PERCENT OPEN SPACE:	+/- 41.09%

POTENTIAL OPEN SPACE AMENITY USES:
Fishing, Wildlife Viewing, Interpretive Nature Trails, Jogging/Walking Trails, Bike Trails, Swimming Pool, Passive Parks, Fire Pits, Fishing Docks, Fishing Boardwalks, Kayak/Canoe Storage and Launch, Bocce Ball, Tennis, Pickle Ball, Playground, Dog Park, Walkable Access to COM and Future County Park

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, PROPOSED PASSIVE WATERFRONT PARK, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PROPOSED MULTI-PURPOSE PEDESTRIAN TRAIL (TYP.)

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TEN PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909
Voice 843.815.4800 jktiller@jktiller.com Fax: 843.815.4802

Ward Edwards ENGINEERING

OSPREY POINT (MALIND BLUFF)
TRAILS AND OPEN SPACE PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

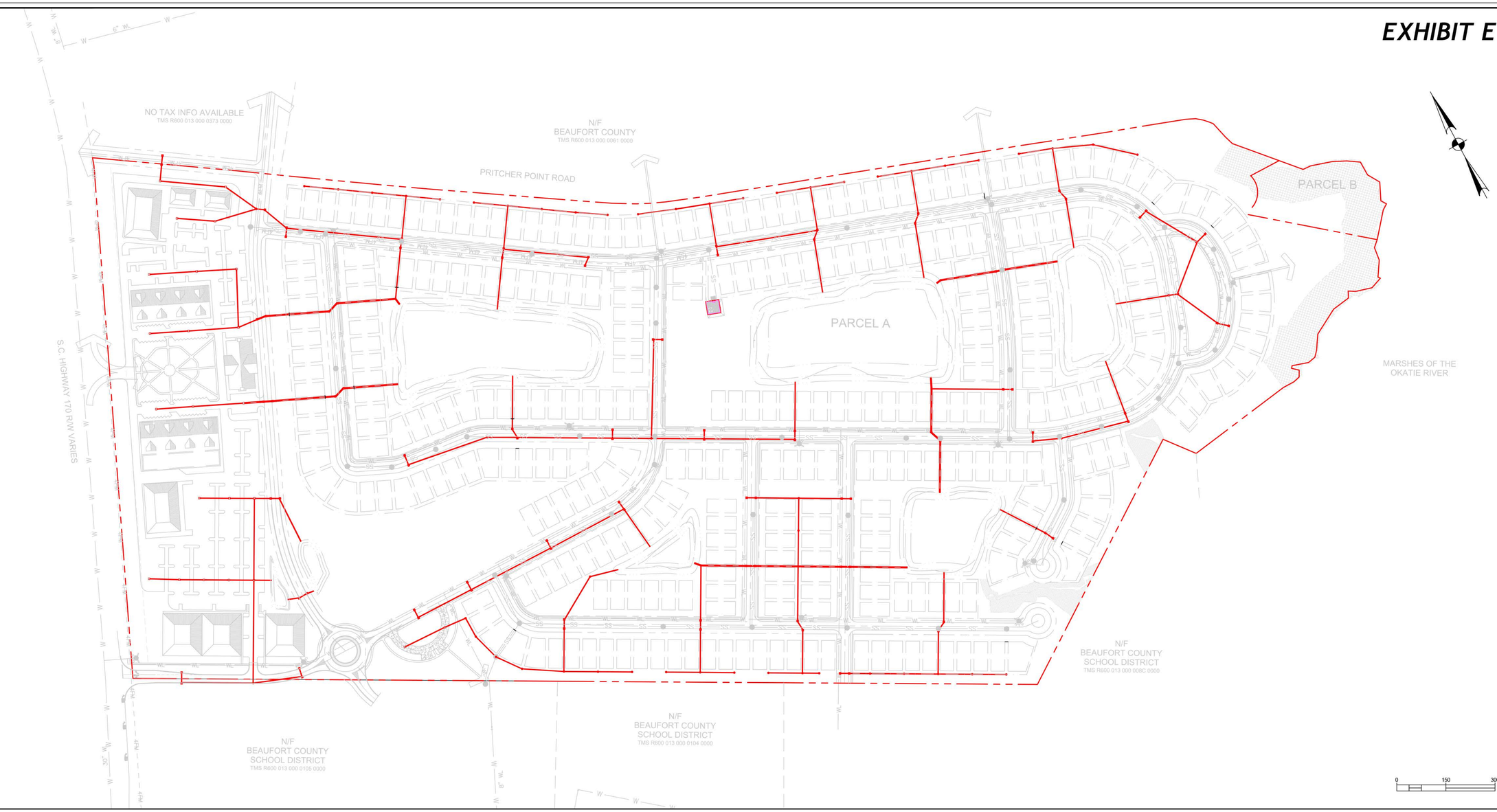
FEBRUARY 2, 2018

GRAPHIC SCALE

NORTH 0 200' 400' 600'

JKT Job Number: 201731-01

EXHIBIT E



LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
ATLAS SURVEYING, INC.

LIDAR REFERENCE:
BEAUFORT COUNTY

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

EXISTING WATER LEGEND	
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING VALVE	
EXISTING METER	

EXISTING SEWER LEGEND	
EXISTING GRAVITY SEWER LINE	SS
EXISTING GRAVITY SEWER MANHOLE	
EXISTING FORCE MAIN	

EXISTING DRAINAGE LEGEND	
EXISTING STORM DRAIN (SOLID WALL)	SD
EXISTING STORM DRAIN (PERFORATED CMP)	
EXISTING STORM STRUCTURE	
EXISTING WATERSHED DELINEATION	

PROPOSED WATER LEGEND	
PROPOSED WATER MAIN	WL
PROPOSED FIRE HYDRANT	
PROPOSED VALVE	
PROPOSED METER	

PROPOSED SEWER LEGEND	
PROPOSED GRAVITY SEWER LINE	SS
PROPOSED GRAVITY SEWER MANHOLE	
PROPOSED FORCE MAIN	FM
PROPOSED SERVICE LATERAL	

PROPOSED DRAINAGE LEGEND	
PROPOSED STORM DRAIN (SOLID WALL)	
PROPOSED STORM DRAIN (PERFORATED CMP)	
PROPOSED STORM STRUCTURE	
SPOT ELEVATION	EL: XX.X

PROPOSED DRAINAGE SYSTEM

OSPREY POINT (MALIND BLUFF)
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 01-25-18
PROJECT NO.: 170252
SCALE: 1"=150'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
WWW.WARDEDWARDS.COM

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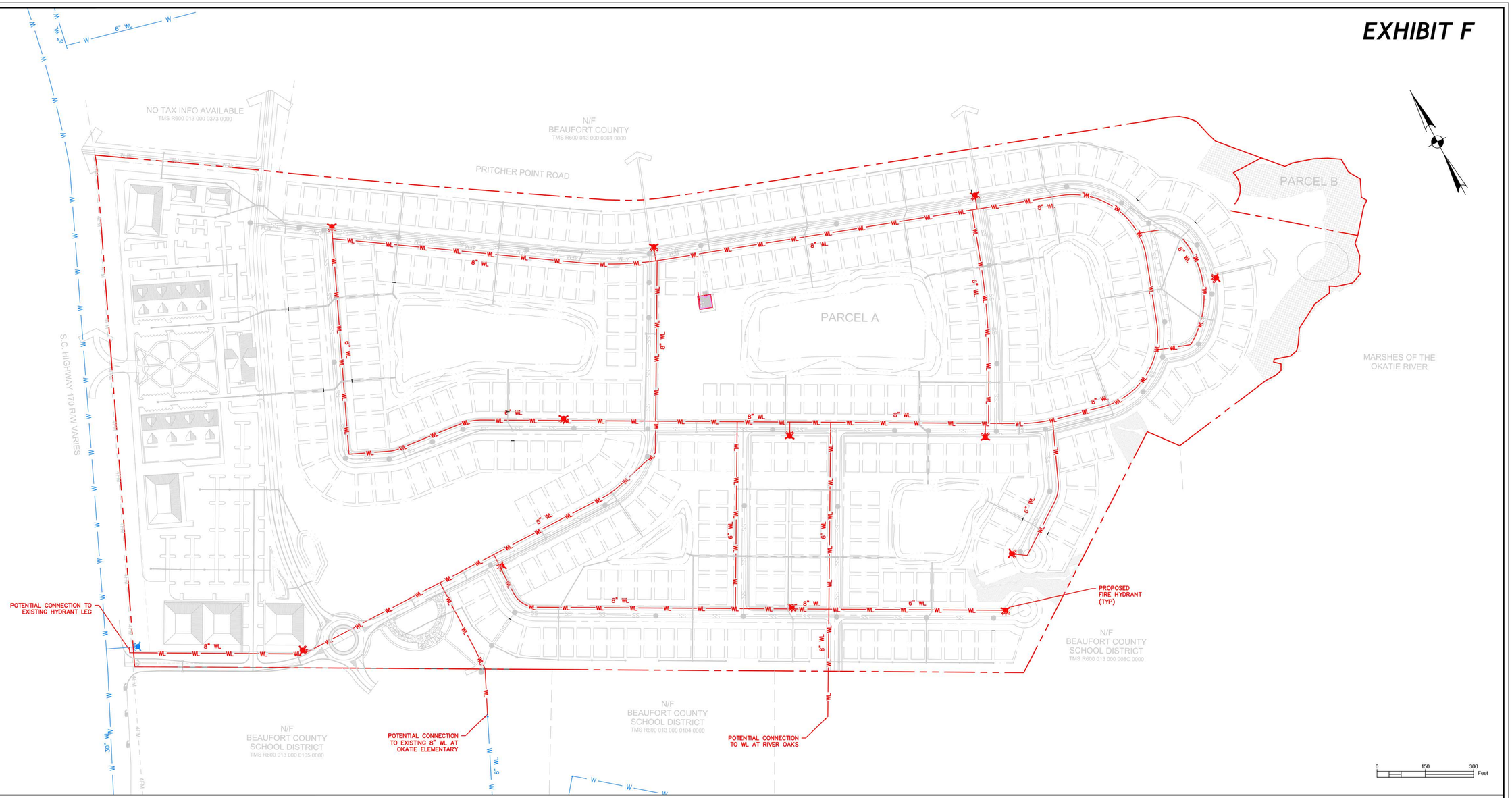
EXHIBIT F



LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
ATLAS SURVEYING, INC.

LIDAR REFERENCE:
BEAUFORT COUNTY

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

EXISTING WATER LEGEND	
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING VALVE	
EXISTING METER	

EXISTING SEWER LEGEND	
EXISTING GRAVITY SEWER LINE	SS
EXISTING GRAVITY SEWER MANHOLE	
EXISTING FORCE MAIN	

EXISTING DRAINAGE LEGEND	
EXISTING STORM DRAIN (SOLID WALL)	SD
EXISTING STORM DRAIN (PERFORATED CMP)	
EXISTING STORM STRUCTURE	
EXISTING WATERSHED DELINEATION	

PROPOSED WATER LEGEND	
PROPOSED WATER MAIN	WL
PROPOSED FIRE HYDRANT	
PROPOSED VALVE	
PROPOSED METER	

PROPOSED SEWER LEGEND	
PROPOSED GRAVITY SEWER LINE	SS
PROPOSED GRAVITY SEWER MANHOLE	
PROPOSED FORCE MAIN	FM
PROPOSED SERVICE LATERAL	E

PROPOSED DRAINAGE LEGEND	
PROPOSED STORM DRAIN (SOLID WALL)	
PROPOSED STORM DRAIN (PERFORATED CMP)	
PROPOSED STORM STRUCTURE	
SPOT ELEVATION	EL: XX.X

PROPOSED WATER DISTRIBUTION SYSTEM

OSPREY POINT (MALIND BLUFF)
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 01-25-18
PROJECT NO.: 170252
SCALE: 1"=150'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
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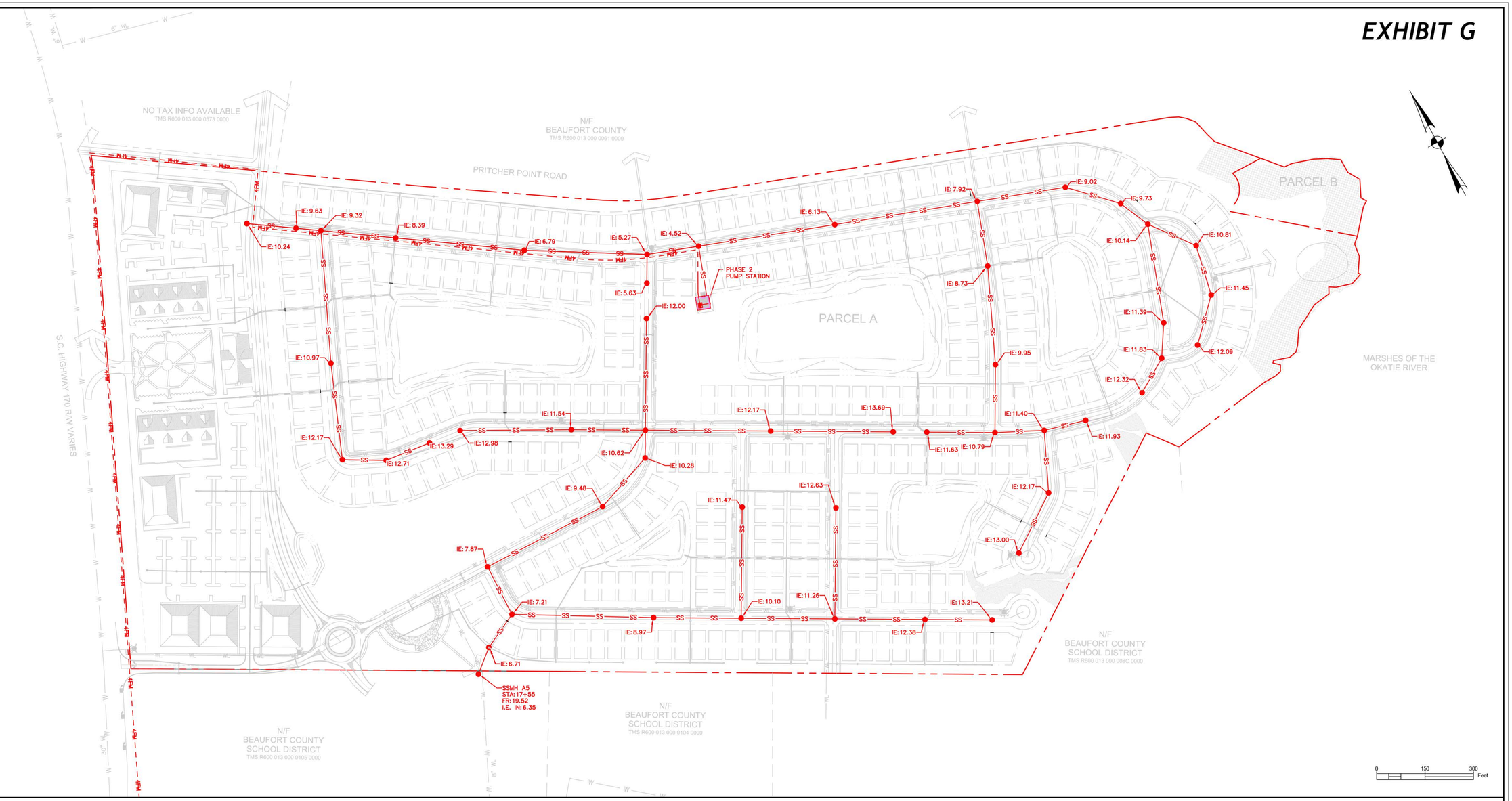
EXHIBIT G



LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
ATLAS SURVEYING, INC.

LIDAR REFERENCE:
BEAUFORT COUNTY

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

EXISTING WATER LEGEND	
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING VALVE	
EXISTING METER	

EXISTING SEWER LEGEND	
EXISTING GRAVITY SEWER LINE	SS
EXISTING GRAVITY SEWER MANHOLE	
EXISTING FORCE MAIN	

EXISTING DRAINAGE LEGEND	
EXISTING STORM DRAIN (SOLID WALL)	SD
EXISTING STORM DRAIN (PERFORATED CMP)	
EXISTING STORM STRUCTURE	
EXISTING WATERSHED DELINEATION	

PROPOSED WATER LEGEND	
PROPOSED WATER MAIN	WL
PROPOSED FIRE HYDRANT	
PROPOSED VALVE	
PROPOSED METER	

PROPOSED SEWER LEGEND	
PROPOSED GRAVITY SEWER LINE	SS
PROPOSED GRAVITY SEWER MANHOLE	
PROPOSED FORCE MAIN	FM
PROPOSED SERVICE LATERAL	E

PROPOSED DRAINAGE LEGEND	
PROPOSED STORM DRAIN (SOLID WALL)	
PROPOSED STORM DRAIN (PERFORATED CMP)	
PROPOSED STORM STRUCTURE	
SPOT ELEVATION	EL: XX.X

PROPOSED SANITARY SEWER SYSTEM

OSPREY POINT (MALIND BLUFF)
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 01-25-18
PROJECT NO.: 170252
SCALE: 1"=150'

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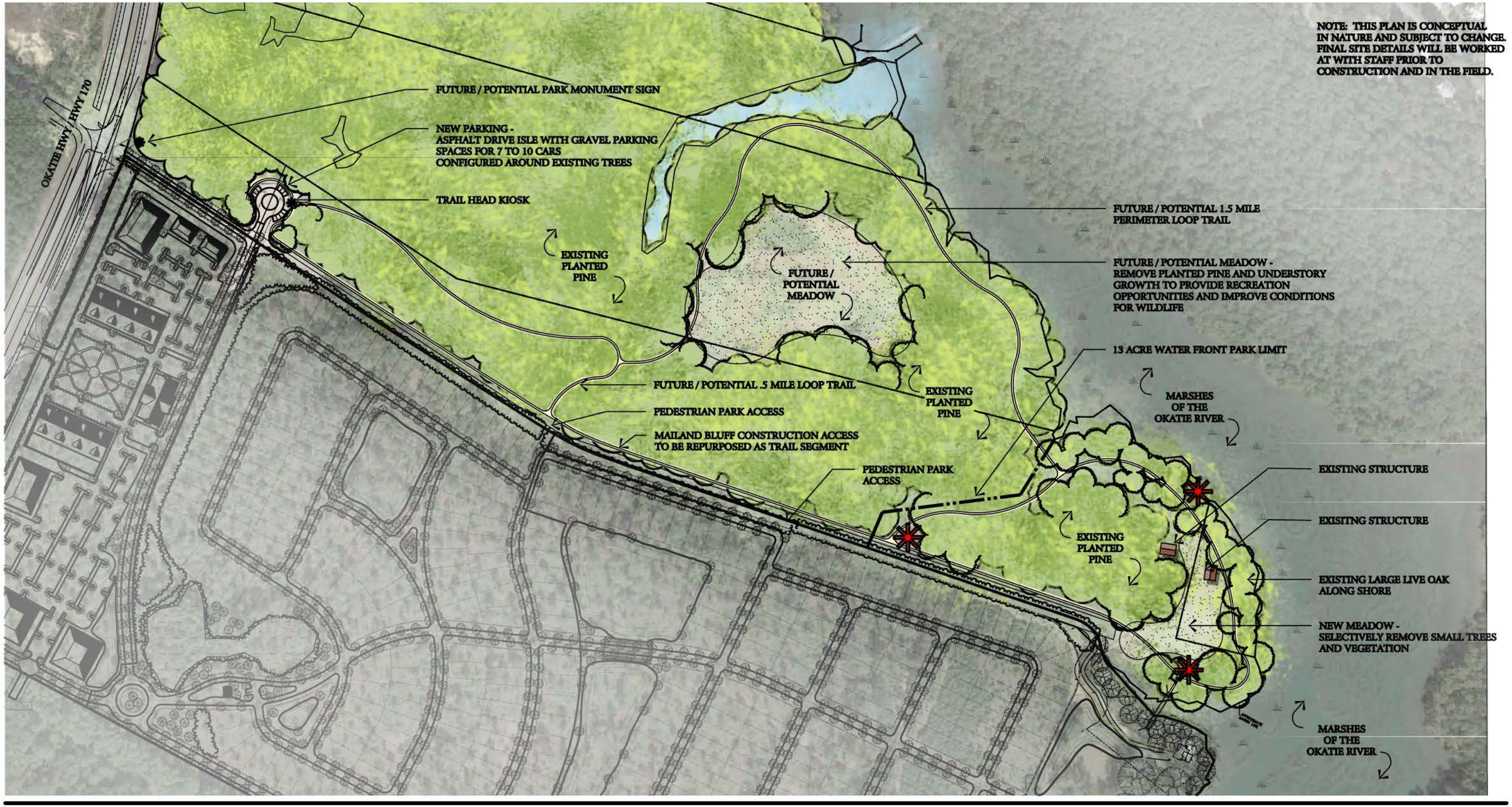
EXHIBIT H



PREPARED FOR:
BAUFORT COUNTY

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TEN PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909
Voice 843.815.4600 jktiller@jktiller.com Fax 843.815.4602

OKATIE RIVER PASSIVE PARK
Conceptual Master Plan
BEAUFORT COUNTY, SOUTH CAROLINA

OCT. 23, 2014

NORTH

SCALE 1" = 300'
0 300' 600' 900'

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. PARK DETAILS TO BE WORKED OUT WITH COUNTY STAFF IN THE FUTURE. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

JKT Job Number: 201403-02

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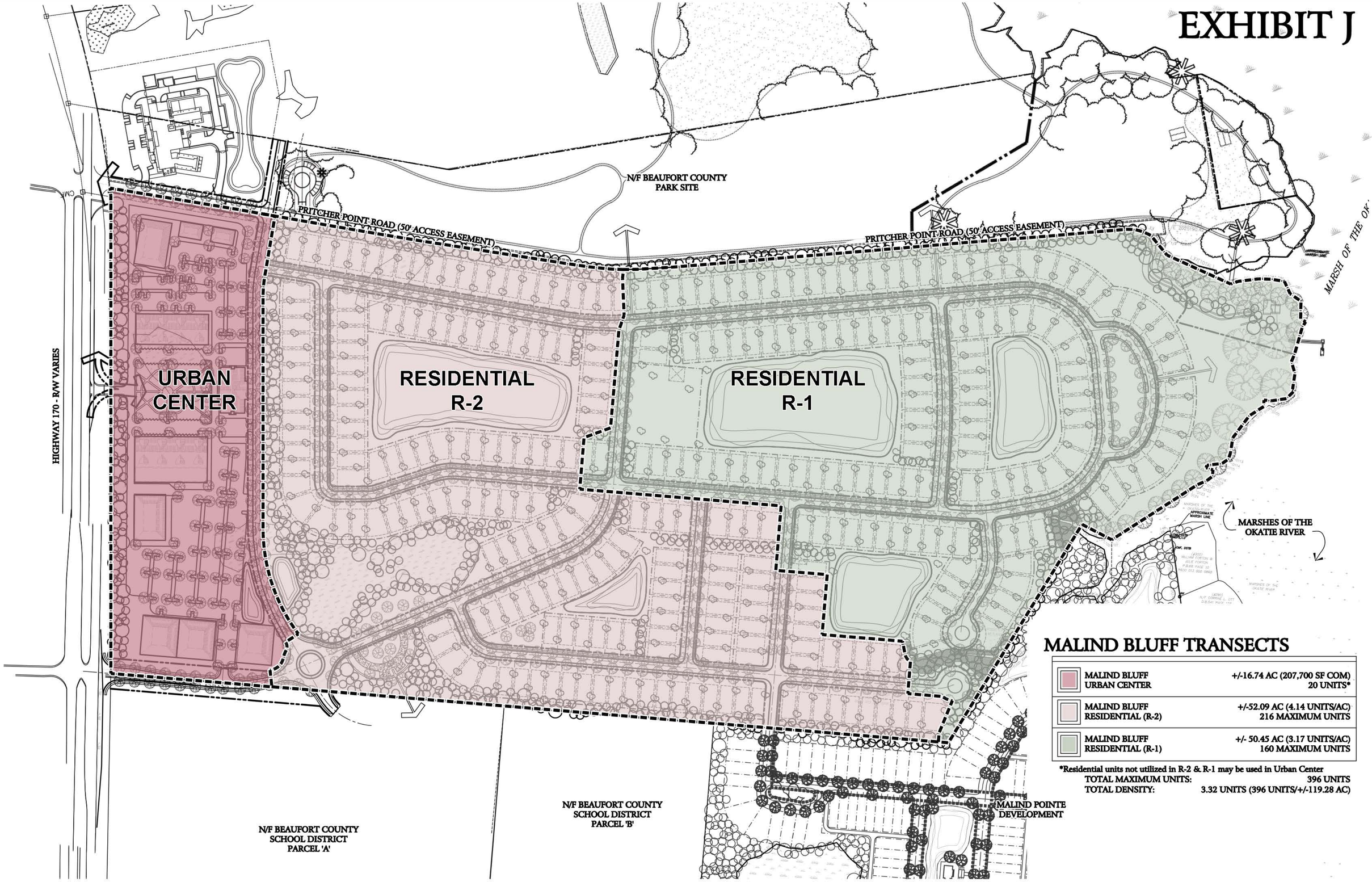

MALIND BLUFF TRANSECTS

MALIND BLUFF URBAN CENTER	+/-16.74 AC (207,700 SF COM) 20 UNITS*
MALIND BLUFF RESIDENTIAL (R-2)	+/-52.09 AC (4.14 UNITS/AC) 216 MAXIMUM UNITS
MALIND BLUFF RESIDENTIAL (R-1)	+/- 50.45 AC (3.17 UNITS/AC) 160 MAXIMUM UNITS

*Residential units not utilized in R-2 & R-1 may be used in Urban Center

TOTAL MAXIMUM UNITS: 396 UNITS

TOTAL DENSITY: 3.32 UNITS (396 UNITS/+/-119.28 AC)

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TEN PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909
Voice 843.815.4800 jktiller@jktiller.com Fax: 843.815.4802

Ward Edwards ENGINEERING

OSPREY POINT (MALIND BLUFF) TRANSECT MAP

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

NORTH

GRAPHIC SCALE 0 200' 400' 600'

JKT Job Number: 201731-01

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WHERE LEARNING LEADS THE WAY

BEAUFORT
COUNTY SCHOOL DISTRICT

February 15, 2018

Beaufort County Planning Division
Beaufort County
Post Office Drawer 1228
Beaufort, SC 29901-1228

Re: Proposed PUD Master Plan Amendments for Osprey Point (Malind Bluff) and River Oaks (Malind Pointe)

Dear Sir/Madam,

This letter is to update the previously submitted September 2017 and November 2017 letters regarding the Proposed PUD Master Plan Amendments for Osprey Point (Malind Bluff) and River Oaks (Malind Pointe). Beaufort County School District is currently working with the developers, PulteGroup and Village Park Homes, on access to SC highway 170. It appears that we are headed in a mutually beneficial direction.

It is my understanding that the developer has removed their petition for the removal of impact fees. Due to the potential overcrowding of schools in the Bluffton area, the Beaufort County School District has been requesting that Beaufort County leverage impact fees on all new developments. The Beaufort County School Board met and reviewed the developer's request on January 16, 2018. At that meeting, the Board did not support any agreements with the developer that included the removal of impact fees. Now that the impact fees are included, I see potential for the Board supporting an agreement.

I feel confident that this type of development would attract residential families with school aged children. The additional homes in this area has the potential to produce a localized neighborhood school. Presently the School District does not have the funding to add capacity to handle additional school children in the Bluffton area. The impact fees in the existing PUD agreement will go a long way to ensure that there are facilities available for future school aged children of Beaufort County. I can recommend to the Beaufort County School District to support an agreement that includes the existing impact fees.

Sincerely,

Jeffery C. Moss, Ed.D
Superintendent, Beaufort County School District

Re: Rob Merchant, Beaufort County
Tony Criscitiello, Beaufort County
Drew Davis, Beaufort County School District
Tony Crosby, Beaufort County School District
Charles Norris, Pulte Homes
Richard Swartz, Village Park Homes

Terms of Agreement between Beaufort County School District and Developers of Osprey Pointe (Malind Bluff) and River Oaks (Malind Pointe)

We propose the following terms for an agreement between the Beaufort County School District (BCSD) and the developers of Osprey Pointe/Malind Bluff and River Oaks/Malind Point communities (Developer):

- BCSD will provide letter of support for Developer's community.
- BCSD will provide easement to Developer at Red Oaks Drive for inbound lane of entrance.
- Developer will provide easement to BCSD at Red Oaks Drive for necessary school traffic and emergency vehicle access over inbound and outbound lanes.
- Developer will provide easement to BCSD along connector road to Pritchard Point Road for necessary school traffic and emergency vehicle access over inbound and outbound lanes.
- Developer will build and stub new entrance road for necessary school traffic to BCSD property line for future connectivity once BCSD determines future plans of BCSD property. BCSD will not be responsible for cost sharing agreement associated with the infrastructure.
- Developer will allow non-bus traffic on associated entrance and connector roads and will accept pickup and drop-off traffic stacking.
- Developer will install traffic light at Prichard Point intersection in accordance with Hwy 170 traffic plan.
- Developer will be responsible to maintain associated roads. BCSD will not be responsible for cost sharing agreement associated with the short or long-term maintenance.
- Developer will grant BCSD a drainage easement for Okatie Elementary current stormwater outfall ditch that cuts through Developer's property.
- Developer will size outfall pipe through River Oaks (Malind Pointe) to maximize BCSD usage of buildable acreage for future development of BCSD property. Property sizing of stormwater infrastructure will allow more of BCSD's additional property to become buildable and increase current value.
- Developer will be responsible for maintaining BCSD's current stormwater outfall ditch to the Okatie River.
- Developer will improve Cherry Point intersection with two left turning lanes. (Please provide more details and size and purpose of two left lanes. Will property be needed from BCSD?)
- Developer will coordinate community pedestrian access to school with approval from BCSD.
- Developer will provide $2,500 new home discount to any BCSD teachers.

- Developer will pay a flat rate School Capital Construction fee of $2,000 per unit, payable at time of building permit. The flat rate fee, easements, cost of infrastructure, and cost of maintenance will replace the adjustable fee in the current Development Agreement. If at some point in the future, Beaufort County passes an area-wide school impact fee, then that fee would replace the above $1,275 fee from the point the area-wide fee is implemented forward.

If agreeable, a formal agreement will be prepared for review and execution.

Sincerely,

Village Park Homes & Pulte Home Company

EXHIBIT B

LOT YEILD: 315

- 30' X 110'
- 40' X 110'

Total Acres: +/-61.21

Residential Density: 5.14 DU/AC

Open Space: 26.26 AC (42.90%)

GRAPHIC SCALE

NORTH 0 150' 300' 450'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4800 jktiller@jktiller.com Fax: 843.815.4802

Ward Edwards ENGINEERING

RIVER OAKS (MALIND POINTE) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

JKT Job Number: 201703-01

EXHIBIT C

MALIND BLUFF PUD
(OSPREY POINT)

APPROXIMATE MARSH LINE

MALIND CREEK

OCRM LINE

50' OCRM LINE SETBACK

LAGOON

BUFFER

CHERRY POINT ROAD

ACCESS TO MALIND BLUFF PUD

PARK

BEAUFORT COUNTY SCHOOL DISTRICT (OKATIE ELEMENTARY)

NON-JURISDICTIONAL WETLAND 1.384 AC

CLUB & POOL

SIDEWALKS (TYPICAL)

PARK

PARK

PARK

PEDESTRIAN PATH TO OKATIE ELEMENTARY

PARK

BUFFER

CHERRY POINT ROAD

TO HIGHWAY 170

TRAILS AND OPEN SPACE

INTERNAL SIDEWALKS

PARKS

Total Acres: +/-61.21

Residential Density: 5.14 DU/AC

Open Space*: 26.26 AC (42.90 %)

*THE OPEN SPACES INCLUDE GARDENS, NATURAL AREAS, BUFFERS, STORMWATER AMENITIES, TRAILS AND OTHER NON-BUILDABLE LAND.

NORTH

GRAPHIC SCALE 0 200' 400' 600'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:

J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4800 jktiller@jktiller.com Fax: 843.815.4802

Ward Edwards ENGINEERING

RIVER OAKS (MALIND POINTE) TRAILS AND OPEN SPACE PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

JKT Job Number: 201703-01

EXHIBIT E

EXISTING WATER LEGEND
- EXISTING WATER MAIN — W —
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING METER

PROPOSED WATER LEGEND
- PROPOSED WATER MAIN — WL —
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED METER

EXISTING SEWER LEGEND
- EXISTING GRAVITY SEWER LINE — SS —
- EXISTING GRAVITY SEWER MANHOLE
- EXISTING FORCE MAIN

PROPOSED SEWER LEGEND
- PROPOSED GRAVITY SEWER LINE
- PROPOSED GRAVITY SEWER MANHOLE
- PROPOSED FORCE MAIN — FM —
- PROPOSED SERVICE LATERAL — C — F —

EXISTING DRAINAGE LEGEND
- EXISTING STORM DRAIN (SOLID WALL) — SD —
- EXISTING STORM DRAIN (PERFORATED CMP)
- EXISTING STRUCTURE
- EXISTING WATERSHED DELINEATION

PROPOSED DRAINAGE LEGEND
- PROPOSED STORM DRAIN (SOLID WALL)
- PROPOSED STORM DRAIN (PERFORATED CMP)
- PROPOSED STRUCTURE
- SPOT ELEVATION — EL: XX.X

LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
COASTAL SURVEYING, INC.

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

PROPOSED DRAINAGE SYSTEM

0 120 240 Feet

RIVER OAKS
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 02-02-18
PROJECT NO.: 180203
SCALE: 1"=120'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
WWW.WARDEDWARDS.COM

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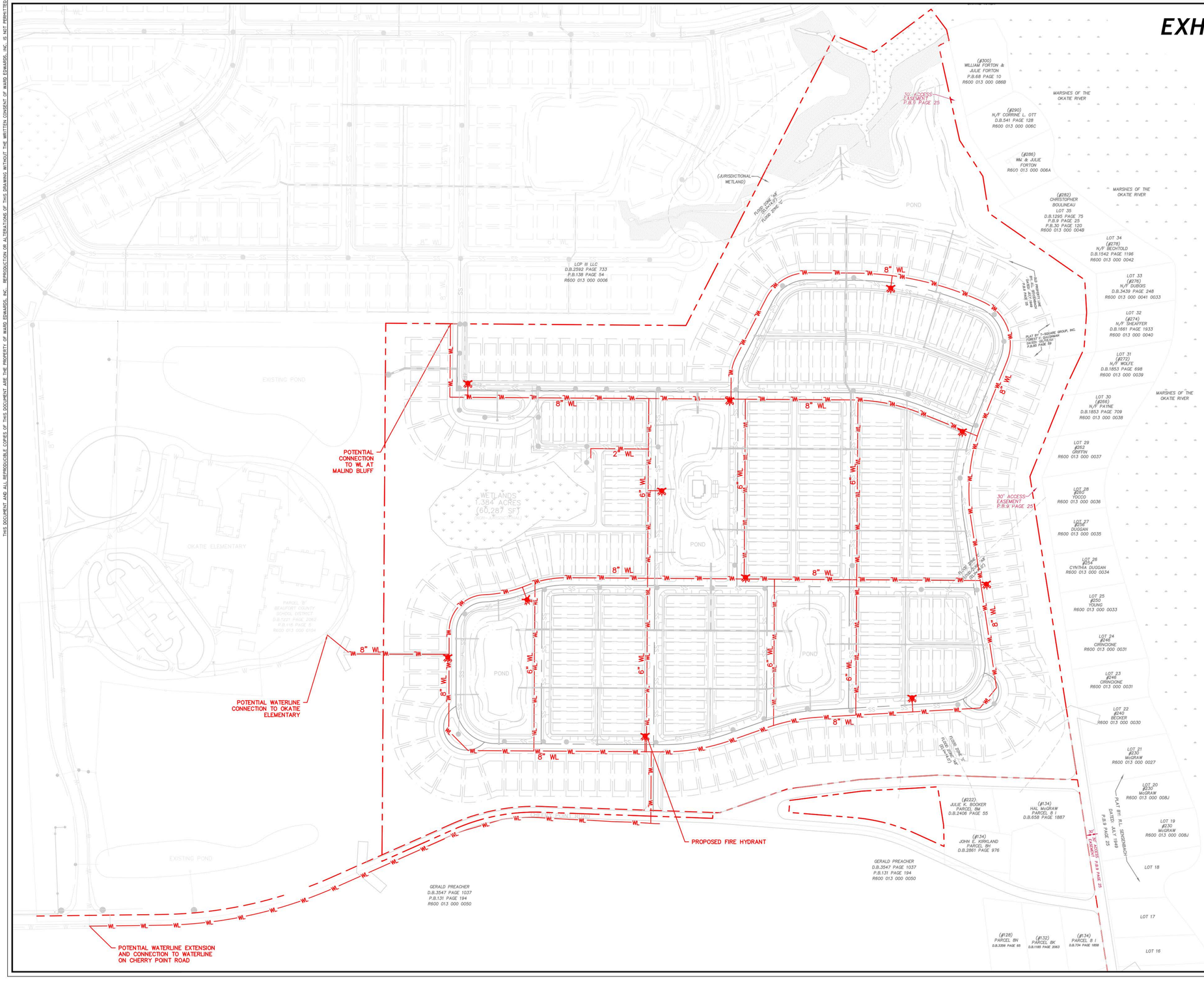
EXHIBIT F



EXISTING WATER LEGEND
- EXISTING WATER MAIN — W —
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING METER

PROPOSED WATER LEGEND
- PROPOSED WATER MAIN — WL —
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED METER

EXISTING SEWER LEGEND
- EXISTING GRAVITY SEWER LINE — SS —
- EXISTING GRAVITY SEWER MANHOLE
- EXISTING FORCE MAIN

PROPOSED SEWER LEGEND
- PROPOSED GRAVITY SEWER LINE
- PROPOSED GRAVITY SEWER MANHOLE
- PROPOSED FORCE MAIN — FM —
- PROPOSED SERVICE LATERAL — C — F —

EXISTING DRAINAGE LEGEND
- EXISTING STORM DRAIN (SOLID WALL) — SD —
- EXISTING STORM DRAIN (PERFORATED CMP)
- EXISTING STORM STRUCTURE
- EXISTING WATERSHED DELINEATION

PROPOSED DRAINAGE LEGEND
- PROPOSED STORM DRAIN (SOLID WALL)
- PROPOSED STORM DRAIN (PERFORATED CMP)
- PROPOSED STORM STRUCTURE
- SPOT ELEVATION — EL: XX.X

LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
COASTAL SURVEYING, INC.

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

PROPOSED WATER DISTRIBUTION SYSTEM

0 120 240 Feet

RIVER OAKS
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 02-02-18
PROJECT NO.: 180203
SCALE: 1"=120'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
WWW.WARDEDWARDS.COM

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EXHIBIT G

EXISTING WATER LEGEND

- EXISTING WATER MAIN — W —
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING METER

PROPOSED WATER LEGEND

- PROPOSED WATER MAIN — WL —
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED METER

EXISTING SEWER LEGEND

- EXISTING GRAVITY SEWER LINE — SS —
- EXISTING GRAVITY SEWER MANHOLE
- EXISTING FORCE MAIN

PROPOSED SEWER LEGEND

- PROPOSED GRAVITY SEWER LINE
- PROPOSED GRAVITY SEWER MANHOLE
- PROPOSED FORCE MAIN — FM —
- PROPOSED SERVICE LATERAL — C — F —

EXISTING DRAINAGE LEGEND

- EXISTING STORM DRAIN (SOLID WALL) — SD —
- EXISTING STORM DRAIN (PERFORATED CMP)
- EXISTING STORM STRUCTURE
- EXISTING WATERSHED DELINEATION

PROPOSED DRAINAGE LEGEND

- PROPOSED STORM DRAIN (SOLID WALL)
- PROPOSED STORM DRAIN (PERFORATED CMP)
- PROPOSED STORM STRUCTURE
- SPOT ELEVATION — EL: XX.X

LAND PLAN REFERENCE:

J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:

COASTAL SURVEYING, INC.

WETLANDS REFERENCE:

NEWKIRK ENVIRONMENTAL INC.

PROPOSED SANITARY SEWER SYSTEM

0 120 240 Feet

RIVER OAKS

BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 02-02-18
PROJECT NO.: 180203
SCALE: 1"=120'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
WWW.WARDEDWARDS.COM

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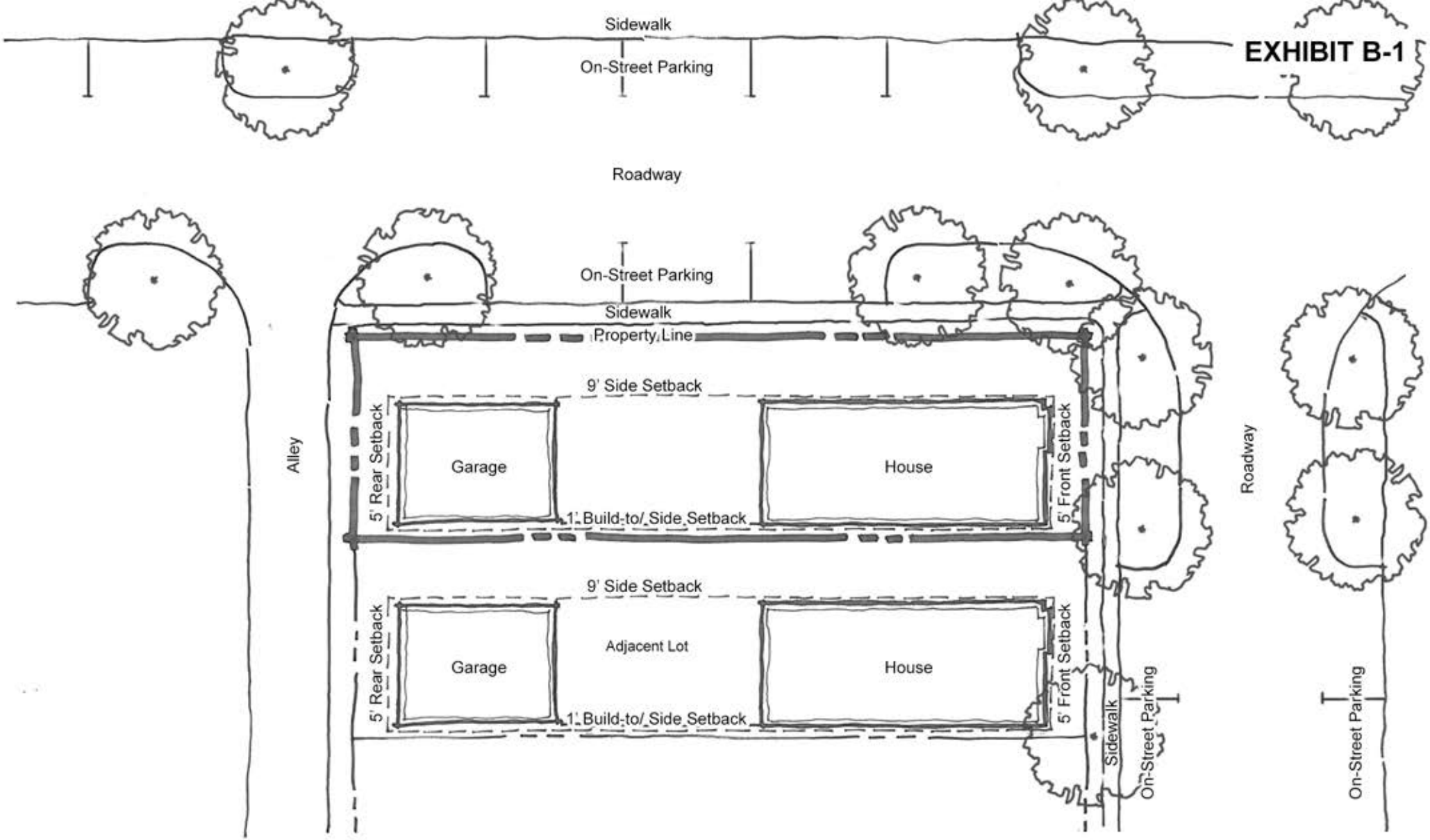
EXHIBIT B-1



River Oaks (Malind Pointe) - Typical 30' Z-Lot Building Placement

LOT DEVELOPMENT STANDARDS:

Standard Lot Information:

30' wide x 110' deep, alley access

Setbacks:

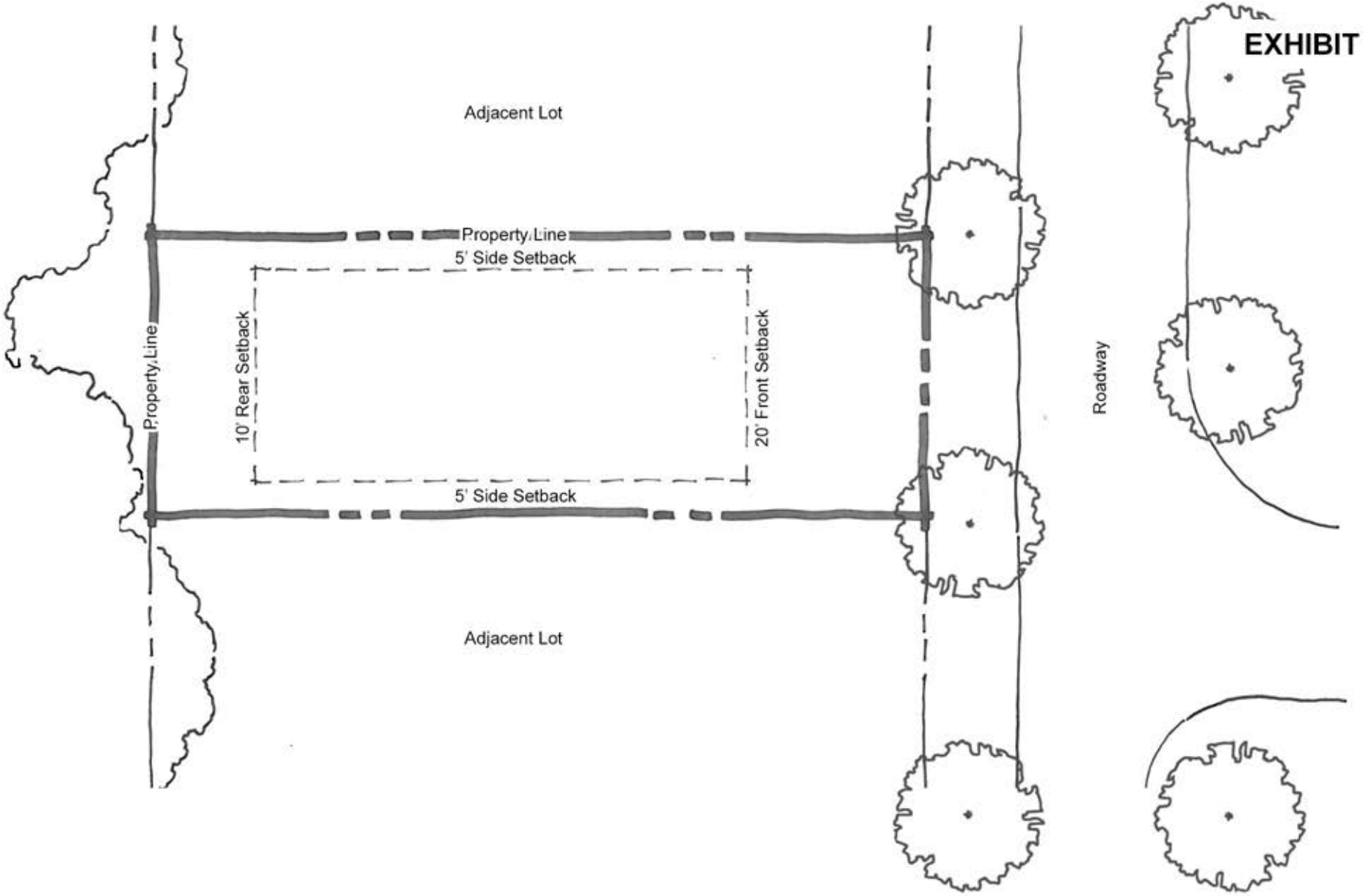
5' front, 5' rear, 9' & 1' (build-to) side

NOTES:

1. Garage may be substituted for carport or paved pad
2. The 1' build-to side setback is to be placed next to the 9' setback on the adjacent lot.
3. Corner lots must address both adjacent roadways. Build to line is located on the side neighboring the adjacent lot.

J.K. TILLER ASSOCIATES

EXHIBIT B-2



River Oaks (Malind Pointe) - Typical 40' Lot Building Placement

LOT DEVELOPMENT STANDARDS:

Standard Lot Information:

40' wide x 110' deep, front load access

Setbacks:

20' front, 10' rear, 5' side

J.K. TILLER ASSOCIATES

Topic:	Traffic Impact Analysis - Okatie Village
Date Submitted:	February 19, 2018
Submitted By:	Josh Tiller
Venue:	Natural Resources Committee

Topic: Traffic Impact Analysis - Okatie Village
Date Submitted: February 19, 2018
Submitted By: Josh Tiller
Venue: Natural Resources Committee

Traffic Impact Analysis

Okatie Village
Okatie, SC

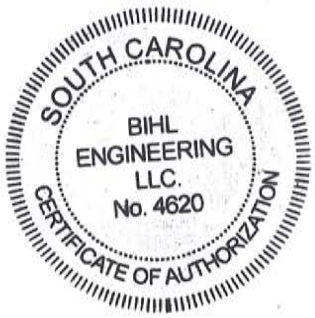
Prepared for:
Village Park Homes

BIHL ENGINEERING

Traffic Impact Analysis
Okatie Village
Okatie, SC

Prepared for:
Village Park Homes

Prepared by:
Bihl Engineering, LLC
304 Meeting Street, Suite D
Charleston, SC 29401
Mail:
P.O. Box 31318
Charleston, SC 29417
(843) 637-9187



January 2018

TABLE OF CONTENTS

Page No.

LIST OF TABLES

1.0 Executive Summary

Okatie Village is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. With the proposed updates to the PUD the land use intensities will include a total of 212,700 square feet (sf) of commercial space (159,525 sf of retail and 53,175 sf of office space) and 711 single-family detached units. Okatie Village consists of two development areas being updated, Osprey Point PUD and River Oaks PUD, these land use intensities further break down as follows:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units
- River Oaks PUD – 315 single-family detached units

The development will be accessed via three access points along SC 170.

The most recent traffic analysis for the PUD was performed in 2007.

For the purposes of this TIA, the proposed development is assumed to be complete by 2023, constructed in three phases. This report reviews the 2017 existing, 2019 background and projected total traffic peak hour conditions, 2021 background and projected total traffic peak hour conditions, and 2023 background and projected total traffic peak hour conditions and presents the trip generation, distribution, and traffic analysis, and any recommendations for transportation improvements required to meet anticipated traffic demands.

The study area includes the following existing intersections:

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)
- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)

Today the study area intersections are operating with some delays during the peak times, particularly the unsignalized intersections. However, it is not uncommon for unsignalized intersections on heavily traveled corridors to experience delays while the traffic along the corridor is moving with little to no delays. At these intersections, the wide medians allow two-step maneuver to occur for side street vehicles providing an area for vehicle storage. The intersection of SC 170 at Cherry Point Road experiences delays during peak student pick-up and drop-off times as this is the primary access point for Okatie Elementary School.

The SC 170 corridor is subject to an access management plan where signalized intersection locations have been identified. Back access is also planned for the properties east and west of SC 170 in this area. These connections within the PUD area are planned and shown on the site plans.

As part of the study, the Lowcountry Travel Demand Model was run with and without the land uses associated with this project. It was found that the growth rate along SC 170 is expected to be approximately 3% per year for the background conditions.

The project phases include the following land uses. Land uses listed are cumulative.

The Phase 1 2019 Phase 1 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

The Phase 2 2021 Phase 2 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

The Buildout 2023 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units
- River Oaks PUD – 315 single-family detached units

Based on the analysis the following Phase 1 (2019) transportation improvements are recommended:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.
- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following Phase 2 (2021) transportation improvements are recommended:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following ultimate (2023) transportation improvements are recommended:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

Results in this report are based solely on traffic studies and are considered input into final design considerations. The final design will be determined by the project engineer after other design elements (such as, but not limited to, utilities, stormwater, etc.) are taken into consideration.

2.0 Introduction

Okatie Village is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. The most recent traffic study performed for the site was in 2007. This study is included in the **Appendix**.

With the proposed updates to the PUD the land use intensities will include a total of 212,700 sf of commercial space (159,525 sf of retail and 53,175 sf of office space) and 711 single-family detached units. Okatie Village consists of two development areas being updated, Osprey Point PUD and River Oaks PUD, these land use intensities further break down as follows:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units

- River Oaks PUD – 315 single-family detached units

The development will be ultimately accessed via three full access points along SC 170 and one right-in, right-out access point. Per the Access Management Ordinance for SC 170, the right-in, right-out access location will need to be approved.

For the purposes of this TIA, the proposed development is assumed to be complete by 2023, constructed in three phases with final buildout in 2023.

The 2019 Phase 1 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

The 2021 Phase 2 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

This report reviews the potential external traffic impacts of Okatie Village and identifies recommended transportation improvements to accommodate future background traffic conditions and projected total traffic conditions for buildout and interim phase years.

3.0 Inventory

The following section discuss the existing conditions of the study area and the SC 170 Access Management Plan.

3.1 Study Area

The study area for the traffic impact analysis includes the following existing intersections.

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)
- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)

Figure 1 (Appendix) shows the site location and **Figure 2A and 2B (Appendix)** shows the project conceptual site plans.

3.2 Existing Conditions

Roadways in the project vicinity include SC 170, Pritcher Point Road, Short Cut Drive, Argent Boulevard, Jasper Station Road, Red Oaks Drive, Pearlstine Drive, Cherry Point Road, Schinger Avenue, Riverwalk Boulevard, and Tidewatch Drive.

SC 170 is a principal arterial four-lane divided roadway with a grassed median and a posted speed limit of 55 miles per hour (mph) north and south of Argent Boulevard and 45 mph around the intersection with Argent Boulevard. SC 170 has a 2016 South Carolina Department of Transportation (SCDOT) annual average daily traffic (AADT) of 30,100 vehicles per day (vpd) in the vicinity of the site.

Argent Boulevard is a two-lane roadway with a posted speed limit of 45 mph. Argent Boulevard connects SC 170 to US 278.

Short Cut Drive/Jasper Station Road is a two-lane roadway. Short Cut Drive connects SC 170 and Argent Boulevard. Pritcher Point Road is located opposite Short Cut Drive/Jasper Station Road is a dirt roadway that is currently being improved for the animal hospital with a southbound left-turn lane and a northbound right-turn lane on SC 170 and a shared through-left and right-turn lanes on the east approach.

Cherry Point Road is a two-lane roadway that provides access to Okatie Elementary School and the Cherry Point area. Cherry Point Road is paved from SC 170 to Okatie Elementary School and unpaved east of Okatie Elementary School. This roadway experiences congestion during school pickup and drop-off periods.

Pearlstine Drive, Schinger Avenue, Riverwalk Boulevard are two-lane roadways.

Tidewatch Drive is a two-lane roadway with a speed limit of 25 mph west of SC 170 and 10 mph east of SC 170.

Figure 3 (Appendix) shows the existing roadway laneage in the study area.

3.3 SC 170 Access Management Plan

The *SC 170/US 278 Corridor Study Analysis Findings and Recommended Access Management Standards* prepared for Beaufort County by Day Wilburn Associates, Inc. (December 2003) provides an access management plan for SC 170. Within the Access Management Plan the following minimum spacing requirements are given:

- Full signalized access – 3,200 feet
- Directional signalized access – 1,900 feet
- Driveways – 500 feet

The following intersection controls are noted for SC 170 intersections in the study area –

- Full signalized intersections on SC 170 at Pritcher Point Road/Short Cut Drive, Cherry Point Road, and Tidewatch Drive
- Directional signalized intersections on SC 170 at Argent Boulevard, Heffallump Road, and south of Riverwalk Boulevard

In addition, the report identifies a back access connection throughout the Okatie Village area as well as back access connections for the properties west of SC 170.

This report is included in the **Appendix.**

Connectivity through the Okatie Village area is shown on the site plans.

4.0 Traffic Generation

The trip generation of the proposed development was determined using trip generation rates published in Institute of Transportation Engineers (ITE) Trip Generation handbook (Institute of Transportation Engineers, Tenth Edition). Internal capture and pass-by trips were also applied. Internal capture trips are those trips that stay internal to the development and do not use the external roadway network. The internal capture trips were calculated using National Cooperative Highway Research Program (NCHRP) Report 684 standards. If internal capture was calculated to be greater than 20% of the overall trips, it was limited to 20% of the overall trips in the analysis per SCDOT guidelines. Pass-by trips are those trips currently on the external roadway network (SC 170) that enter and exit the development then resume their trip. The pass-by trips were calculated using ITE standards.

Table 1 summarizes the peak hour trips associated with the proposed PUDs.

The proposed PUDs are projected to generate 771 new trips during the AM peak hour (318 entering and 453 exiting) and 991 new trips during the PM peak hour (539 entering and 452 exiting).

Tables 2 and **3** summarize the peak hour trips noted above specifically associated with each of the PUDs.

Table 2 summarizes the peak hour trips associated with the Osprey Point PUD. The proposed development is projected to generate 551 new trips during the AM peak hour (264 entering and 287 exiting) and 757 new trips during the PM peak hour (383 entering and 374 exiting).

Table 3 summarizes the peak hour trips associated with the River Oaks PUD. The proposed development is projected to generate 220 new trips during the AM peak hour (54 entering and 166 exiting) and 234 new trips during the PM peak hour (156 entering and 78 exiting).

Table 1:
Year 2023 Buildout
Okatie Village Overall Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
711 Single-Family Detached Units	210	510	128	382	668	421	247
53,175 sf Office	710	76	65	11	62	10	52
159,525 sf Retail	820	232	144	88	768	369	399
Gross Trips		818	337	481	1,498	800	698
Internal Capture w/ Overall Okatie Village		-30	-15	-15	-278	-139	-139
Driveway Trips		788	322	466	1,220	661	559
Pass-by Trips		0	0	0	-209	-109	-100
Net New Trips		**788**	**322**	**466**	**1,011**	**552**	**459**

Table 2:
Year 2023 Buildout
Osprey Point PUD Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
396 Single-Family Detached Units	210	284	71	213	372	234	138
53,175 sf Office	710	76	65	11	62	10	52
159,525 sf Retail	820	232	144	88	768	369	399
Gross Trips		592	280	312	1,202	613	589
Internal Capture w/ Overall Okatie Village		-24	-12	-12	-216	-108	-108
Driveway Trips		568	268	300	986	505	481
Pass-by Trips		0	0	0	-209	-109	-100
Net New Trips		**568**	**268**	**300**	**777**	**396**	**381**

Table 3:
Year 2023 Buildout
River Oaks PUD Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
315 Single-Family Detached Units	210	226	57	169	296	187	109
Gross Trips		226	57	169	296	187	109
Internal Capture		-6	-3	-3	-62	-31	-31
Driveway Trips		220	54	166	234	156	78
Pass-by Trips		0	0	0	0	0	0
Net New Trips		**220**	**54**	**166**	**234**	**156**	**78**

Table 4 summarizes the peak hour trips associated with the 2019 Phase 1 Build year trip generation. The proposed development is projected to generate 149 new trips during the AM peak hour (37 entering and 112 exiting) and 200 new trips during the PM peak hour (126 entering and 74 exiting).

Table 4:
2019 Phase 1
Okatie Village Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
203 Single-Family Detached Units	210	149	37	112	200	126	74
Gross Trips		149	37	112	200	126	74
Internal Capture		0	0	0	0	0	0
Driveway Trips		149	37	112	200	126	74
Pass-by Trips		0	0	0	0	0	0
Net New Trips		**149**	**37**	**112**	**200**	**126**	**74**

Table 5 summarizes the peak hour trips associated with the 2021 Phase 2 Build year trip generation. The proposed development is projected to generate 463 new trips during the AM peak hour (116 entering and 347 exiting) and 609 new trips during the PM peak hour (384 entering and 225 exiting).

Table 5:
2021 Phase 2
Okatie Village Trip Generation

Land Use and Intensity	ITE Land Use Code	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
646 Single-Family Detached Units	210	463	116	347	609	384	225
Gross Trips		463	116	347	609	384	225
Internal Capture		0	0	0	0	0	0
Driveway Trips		463	116	347	609	384	225
Pass-by Trips		0	0	0	0	0	0
Net New Trips		**463**	**116**	**347**	**609**	**384**	**225**

5.0 Lowcountry Council of Governments Traffic Demand Model

The Lowcountry Council of Governments maintains the Lowcountry Travel Demand Model which includes the study area for this project. The validated 2010, the projected 2030 (Beaufort County Comprehensive Plan Existing plus Committed Network), and the projected 2030 with the update to the traffic analysis zone (TAZ) that includes this development were used to determine trip distribution and traffic growth for the project. The TAZ includes the land use data associated with this section of the model. The Travel Demand Model runs for the study area performed by CDM Smith are provided in the **Appendix**.

In the 2010 model, SC 170 (in the project area) had 23,700 vehicles traveling daily on the segment. In the 2030 model based on the Beaufort County Comprehensive Plan on the Existing plus Committed

transportation network, this segment was determined to have approximately 37,200 daily vehicles in year 2030. With the addition of the updated traffic analysis zone information for this project, the daily volumes were expected to be 38,900 daily vehicles in this segment.

The 2030 Beaufort County Comprehensive Plan on the Existing plus Committed transportation network model estimates the volume to capacity ratio for this area from 1.01 to 0.96 and projecting LOS C and LOS D operation. With the addition of the updated TAZ data the volume to capacity ratio for the area ranges from 0.92 to 1.2 and projecting LOS C to LOS E operation depending on the location of the segment.

Table 6 summarizes the projected growth rate in the study area which included data from SC 170 and Argent Boulevard. Model data points were taken on SC 170 north of Argent Boulevard and three additional points between Argent Boulevard and US 278 and two model data points were taken west of SC 170 to determine the modeled growth in the area.

Table 6:
Lowcountry Council of Governments Travel Demand Model
Traffic Volumes and Growth Rates

Roadway	Road Section		Model Year			% Growth per Year	
	Start	End	2010	2030 Beaufort County Comp Plan E+C	2030 E+C Model with TAZ Update	2030 Beaufort County Comp Plan E+C	2030 E+C Model with TAZ Update
SC 170	Argent Blvd	Oldfield Way	31,300	46,200	47,700	2.4%	2.6%
SC 170	Green Acres Rd	SC 141	23,700	37,200	38,900	2.8%	3.2%
SC 170	Tidewatch Dr.	Green Acres Road	23,900	39,100	44,700	3.2%	4.4%
SC 170	US 278	Tidewatch Dr.	25,500	41,700	47,200	3.2%	4.3%
SC 170 Weighted Average						**2.9%**	**3.6%**
Argent Blvd	Jasper Station Rd	SC 170	7,800	10,300	11,700	1.6%	2.5%
Argent Blvd	Sergeant William Jasper Blvd	Jasper Station Rd	7,700	9,900	11,100	1.4%	2.2%
SC 141 (Argent Blvd) Weighted Average						**1.5%**	**2.4%**
Overall Study Area Weighted Average						**2.7%**	**3.5%**

The overall study area growth rate in the model was 2.7% per year without the proposed Okatie Village, and 3.5% per year with the proposed Okatie Village.

A select zone was also completed for the updated 2030 traffic model to help determine the distribution of the project trips. This figure is included in the **Appendix.**

6.0 Site Traffic Distribution

The development will be accessed via three roadways. Pritcher Point Road, Site Access #2, and Cherry Point Road are all full access points located on SC 170. Site Access #1 will be a right-in, right-out (RIRO) access point located on SC 170.

The proposed project traffic was assigned to the surrounding roadway network. The directional distribution and assignment were based on the 2030 travel demand model Select Zone run performed as part of the regional modeling efforts **(Section 5)**. The following overall trip distribution was calculated and proposed to be used in the analysis:

- 65% to/from the south on SC 170
- 18% to/from the north on SC 170
- 2% to/from the west on Short Cut Road/Jasper Station Road
- 4% to/from the south on Argent Boulevard
- 1% to/from the west on Red Oaks Drive
- 1% to/from the west on Pearlstine Drive
- 5% to/from the west on Riverwalk Boulevard
- 2% to/from the west Tidewatch Drive
- 2% to/from the east Tidewatch Drive

Figure 4 (**Appendix**) shows the projected traffic distribution through the study area.

7.0 Traffic Volumes

7.1 Existing Traffic

Peak hour intersection turning movement counts including vehicular, pedestrian, and heavy vehicle traffic were performed in October 2017 from 7:00 AM to 9:00 AM and from 2:00 PM to 6:00 PM at the following intersections:

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)

- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)

The turning movement count data is included in the **Appendix** and the AM and PM peak hour existing traffic volumes are shown in **Figure 5 (Appendix)**.

7.2 Future Background Traffic

Historic growth on the SC 170 corridor was also reviewed. Based on historic AADT data provided by SCDOT SC 170 had approximately a 4.5% per year growth rate from 2011 to 2016 (six years) as shown in **Table 7**.

Table 7:
SCDOT Average Annual Daily Traffic (AADT) Counts by Year

Roadway	Road Section		Year						% Growth per Year
	Start	End	2016	2015	2014	2013	2012	2011	
SC 170	US 278	SC 462	30,100	29,200	27,700	25,800	24,300	23,300	**4.5%**

As previously shown in **Table 6**, the overall study area growth rate in the model was 2.7% per year without the proposed Okatie Village.

Due to the difference in growth on SC 170 and Argent Boulevard, to determine the background growth, the application of a 2.9% per year growth rate was applied to the SC 170 corridor while a 1.5% per year growth rate was applied to the Argent Boulevard corridor.

The No Build traffic volumes include existing traffic grown to the buildout year. **Figure 6** (**Appendix**) and **Figure 7** (**Appendix**) show the 2019 Phase 1 No Build AM and PM peak hour traffic volumes, respectively. **Figure 8** (**Appendix**) and **Figure 9** (**Appendix**) show the 2021 Phase 2 No Build AM and PM peak hour traffic volumes, respectively. **Figure 10** (**Appendix**) and **Figure 11** (**Appendix**) show the 2023 No Build AM and PM peak hour traffic volumes, respectively.

7.3 Project Traffic

The AM peak hour and PM peak hour projected project trips were assigned based on the trip distribution discussed in **Section 5.**

7.4 Build Traffic

The total traffic volumes include the background traffic and the proposed development traffic at buildout. The 2019 Phase 1 AM and PM peak hour total traffic volumes are shown in **Figure 6** (**Appendix**) and **Figure 7** (**Appendix**), respectively. The 2021 Phase 2 AM and PM peak hour total traffic volumes are shonw in **Figure 8** (**Appendix**) and **Figure 9** (**Appendix**), respectively. The 2023 Buildout AM and PM peak hour total traffic volumes are shonw in **Figure 10** (**Appendix**) and **Figure 11** (**Appendix**), respectively.

Intersection volume development worksheets are included in the **Appendix**.

8.0 Capacity Analysis

Capacity analyses were performed for the AM and PM peak hours for the Existing, No Build (2019, 2021, and 2023), and Build (2019, 2021, and 2023) conditions using the Synchro Version 9 software to determine the operating characteristics of the adjacent roadway network and the impacts of the proposed project. The analyses were conducted with methodologies contained in the *2010 Highway Capacity Manual* (Transportation Research Board, December 2010).

Capacity of an intersection is defined as the maximum number of vehicles that can pass through an intersection during a specified time, typically an hour. Capacity is described by level of service (LOS) for the operating characteristics of an intersection. LOS is a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst.

LOS for signalized intersections is determined by the overall intersection operations and is reflected in average delay per vehicle. LOS D or better is typically considered acceptable for signalized intersections.

LOS for a two-way stop-controlled (TWSC) intersection is determined by the delay of the poorest performing minor approach, as LOS is not defined for TWSC intersections as a whole. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay. Due to the traffic volumes on SC 170 the side street vehicle maneuvers are mostly two-step maneuvers. On roadways with higher levels of traffic with medians large enough to store vehicles, drivers will often cross one direction of traffic and wait in the median for the second direction of traffic to clear. The analysis does not fully reflect the platooning of vehicles along the corridor from adjacent signalized intersections which results in gaps for these movements. This is not fully reflected in the analysis algorithms so the study results for the unsignalized intersections where medians exist are considered conservative and are typically lower in practice.

Capacity analyses were performed for the Existing, No Build (2019, 2021, and 2023), and Build (2019, 2021, and 2023) AM and PM peak hour traffic conditions for the following intersections:

- SC 170 at Argent Boulevard (signalized)
- Argent Boulevard at Jasper Station Road/Short Cut Drive (unsignalized)
- SC 170 at Pritcher Point Road/Short Cut Drive (unsignalized)
- SC 170 at Pearlstine Drive/Cherry Point Road (signalized)
- SC 170 at Red Oaks Drive/Site Access #2 (unsignalized)
- SC 170 at Schinger Avenue (unsignalized)
- SC 170 at Riverwalk Boulevard (unsignalized)
- SC 170 at Tidewatch Drive (signalized)
- SC 170 at Site Access #1 (2023 Build conditions only)

Existing signal timings were applied to the signalized intersections for the intersection analyses. Signal timings were optimized in the Build conditions to the signalized intersections.

Figure 12 (Appendix) shows the proposed roadway laneage in the study area applied in the 2023 Build conditions analysis.

8.1 2019 Capacity Analysis

Capacity analyses were performed for the Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour traffic conditions. The 2019 Phase 1 Build year conditions includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

8.1.1 SC 170 at Argent Boulevard

Table 7 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Argent Boulevard.

As shown in **Table 8**, the intersection of SC 170 at Argent Boulevard currently operates at LOS D during the AM and PM peak hours. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and operate at LOS D during the PM peak hour in the 2019 Phase 1 No Build conditions. With signal optimization, the intersection is projected to operate at LOS D during the AM and PM peak hours in the 2019 Phase 1 Build conditions.

Table 8: 2019 Phase 1 Analysis Summary SC 170 at Argent Boulevard					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB	B (12.5) D (46.8) F (149.6)	D (45.7)	B (15.8) C (22.3) F (168.1)	D (38.2)
2019 Phase 1 No Build	NB SB EB	B (13.2) E (66.8) F (164.8)	E (57.1)	B (17.7) C (24.4) F (198.4)	D (43.9)
2019 Phase 1 Build	NB SB EB	B (18.9) D (51.3) F (102.1)	D (44.2)	C (29.6) E (57.5) E (76.9)	D (46.2)

1. Delay = average seconds of delay

8.1.2 Argent Boulevard at Jasper Station Road/Short Cut Drive

Table 9 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive.

As shown in **Table 9**, the intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive currently operates at LOS D (eastbound and westbound approach) during the AM peak hour and experiences elevated delay, operating at LOS E (westbound approach), during the PM peak hour. Based on the projected traffic growth, the intersection is projected to continue to operate similarly in the 2019 Phase 1 No Build conditions. The addition of a northbound right-turn lane was included in the 2019 Phase 1 Build conditions. With this improvement, the intersection is projected to continue to operate similar to the 2019 Phase 1 No Build conditions, operating at LOS D (eastbound and westbound approach) during the AM peak hour and experiencing delay, operating at LOS E (westbound approach), during the PM peak hour in the 2019 Phase 1 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 9: 2019 Phase 1 Analysis Summary Argent Boulevard at Jasper Station Road/Short Cut Drive			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB WB	A (0.2) A (0.2) D (30.0) D (32.6)	A (0.3) A (0.2) D (32.6) E (36.4)
2019 Phase 1 No Build	NB SB EB WB	A (0.2) A (0.1) D (30.6) D (33.2)	A (0.3) A (0.2) E (36.0) E (40.6)
2019 Phase 1 Build with Improvements	NB SB EB WB	A (0.2) A (0.2) D (27.0) D (31.3)	A (0.3) A (0.2) D (34.4) E (40.4)

1. Delay = average seconds of delay

8.1.3 SC 170 at Pritcher Point Road/Short Cut Drive

Table 10 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the intersection of SC 170 at Pritcher Point Road/Short Cut Drive. The intersection is currently unsignalized. Construction associated with the nearby animal shelter, accessed via Pritcher Point Road, includes the following intersection improvements, included in the 2019 Phase 1 No Build and 2019 Phase 1 Build conditions:

- Northbound right-turn lane on SC 170
- Southbound left-turn lane on SC 170
- Westbound through/left-turn lane and right-turn lane on Pritcher Point Road

The intersection was signalized in the 2019 Phase 1 Build conditions. This is consistent with the SC 170 Access Management Plan.

As shown in **Table 10**, the intersection of SC 170 at Jasper Station Road/Short Cut Drive currently experiences elevated delay, operating at LOS F (westbound approach), during the AM peak hour and operates at LOS E during the PM peak hour (eastbound approach). The current westbound approach traffic volume is very low in the morning (two vehicles) however, those vehicles do experience delay. As stated previously, improvements to the intersection are being completed as part of construction associated with the nearby animal shelter on Pritcher Point Road. These improvements include installation of a northbound right-turn lane, a southbound left-turn lane, and configuration of the westbound approach to include a right-

turn lane and a shared through-left lane. With these improvements, based on the projected traffic growth the intersection is projected to experience elevated delays, operating at LOS F (eastbound and westbound approaches) during the AM peak hour and at LOS C (eastbound approach) during the PM peak hours in the 2019 Phase 1 No Build conditions. The intersection is planned to be signalized in the 2019 Phase 1 Build conditions. With signalization the intersection is projected to operate at LOS C during the AM and PM peak hours in the 2019 Phase 1 Build conditions. Performance of a traffic signal warrant analysis should be performed for this intersection at completion of Phase 1.

Table 10:
2019 Phase 1 Analysis Summary
SC 170 at Pritcher Point Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB WB	A (1.7) A (0.0) E (48.3) F (*)[2]	N/A[3]	A (0.6) A (0.0) E (36.7) A (0.0)	N/A[3]
2019 Phase 1 No Build	NB SB EB WB	A (2.0) A (0.0) F (68.0) F (55.0)	N/A[3]	A (0.6) A (0.0) C (22.5) A (0.0)	N/A[3]
2019 Phase 1 Build with Improvements	NB SB EB WB	B (18.3) D (41.1) D (49.5) D (51.3)	C (32.3)	C (24.3) B (16.4) C (34.7) C (30.7)	C (21.5)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds
3. Overall intersection delay not calculated for two-way stop controlled intersections

8.1.4 SC 170 at Pearlstine Road/Cherry Point Road

Table 11 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Pearlstine Road/Cherry Point Road.

As shown in **Table 11**, the intersection of SC 170 at Pearlstine Road/Cherry Point Road currently experiences elevated delay in the AM peak hour and operates at LOS B during the PM peak hour. The AM peak hour delay is elevated on the westbound approach primarily due to the impacts of the Okatie Elementary School (intersection is the only access to the school from SC 170). School hours are from 7:40 AM – 2:45 PM with drop-off in the morning allowed from 7:00 AM – 7:35 AM which coincides with the

morning peak time of the SC 170 corridor. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and to operate at LOS B during the PM peak hour in the 2019 Phase 1 No Build conditions. With signal optimization the intersection is projected to operate at LOS D and LOS B during the AM and PM peak hours, respectively, in the 2019 Phase 1 Build conditions.

Table 11:
2019 Phase 1 Analysis Summary
SC 170 at Pearlstine Road/Cherry Point Road

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB WB	C (22.5) D (39.5) D (40.6) F (*)[2]	E (72.8)	B (18.0) B (13.8) D (37.2) D (35.7)	B (16.7)
2019 Phase 1 No Build	NB SB EB WB	C (24.1) D (52.1) D (40.9) F (*)[2]	F (85.2)	C (22.3) B (15.3) D (37.5) D (35.8)	B (19.6)
2019 Phase 1 Build	NB SB EB WB	C (27.5) D (40.1) D (49.6) F (233.4)	D (54.5)	B (12.6) B (13.8) C (32.2) C (31.3)	B (13.8)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.1.5 Cherry Point Road

Based on the projected flow on Cherry Point Road, an eastbound left-turn lane entering the school is recommended for consideration along with improvements to Cherry Point Road which may include restriping and repaving. These items should be closely coordinated with Beaufort County Staff regarding their requirements. In addition, it may be prudent for the school to consider a review of their drop-off and pick-up operations to limit impacts to Cherry Point Road. Coordination with the developer, school, and County is recommended.

8.1.6 SC 170 at Red Oaks Drive/Site Access #2

Table 12 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Red Oaks Drive/Site Access #2.

As shown in **Table 12**, the intersection of SC 170 at Red Oaks Drive currently experiences elevated delays during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2019 Phase 1 No Build conditions. The installation of an eastbound right-turn lane was applied in the 2019 Phase 1 Build conditions. The intersection was further reviewed for consideration of the installation of an exclusive northbound right-turn lane based on SCDOT Design Manual guidelines and the projected intersection volumes. It was found that a northbound right-turn lane was warranted in the 2019 Phase 1 Build conditions. With these improvements the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2019 Phase 1 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 12:
2019 Phase 1 Analysis Summary
SC 170 at Red Oaks Drive/Site Access #2

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB SB EB	A (0.4) A (0.0) F (279.1)	A (0.4) A (0.0) F (*)[2]
2019 Phase 1 No Build	NB SB EB	A (0.4) A (0.0) E (47.2)	A (0.4) A (0.0) F (64.4)
2019 Phase 1 Build with Improvements	NB SB EB WB	A (0.5) A (0.0) F (59.7) E (40.7)	A (0.4) A (0.0) F (94.7) F (55.5)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.1.7 SC 170 at Schinger Avenue

Table 13 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Schinger Avenue.

As shown in **Table 13**, the intersection of SC 170 at Schinger Avenue currently operates acceptably at LOS D and LOS C during the AM and PM peak hours, respectively. Based on the projected traffic growth the eastbound approach of the intersection is expected to experience elevated delays during the AM peak hour, operating at LOS E and to operate at LOS D during the PM peak hours in the 2019 Phase 1 No Build and 2019 Phase 1 Build conditions. It is typical for minor stop-controlled side streets and driveways on major

streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 13:
2019 Phase 1 Analysis Summary
SC 170 at Schinger Avenue

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB SB EB	A (0.0) A (0.0) D (32.2)	A (0.0) A (0.0) C (22.7)
2019 Phase 1 No Build	NB SB EB	A (0.0) A (0.0) E (37.9)	A (0.0) A (0.0) D (25.9)
2019 Phase 1 Build	NB SB EB	A (0.0) A (0.0) E (42.2)	A (0.0) A (0.0) D (27.5)

1. Delay = average seconds of delay

8.1.8 SC 170 at Riverwalk Boulevard

Table 14 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Riverwalk Boulevard.

As shown in **Table 14**, the intersection of SC 170 at Riverwalk Boulevard currently experiences elevated delay during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2019 Phase 1 No Build and 2019 Phase 1 Build conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

It is recommended based on the results of the No Build and Build conditions that consideration of extending the eastbound turn-lane to accommodate the project queue from the left-turn. This would allow right-turning vehicles to not be delayed by the left-turns.

Table 14: 2019 Phase 1 Analysis Summary SC 170 at Riverwalk Boulevard			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (4.4) A (0.0) F (*)[2]	A (0.9) A (0.0) F (*)[2]
2019 Phase 1 No Build	NB SB EB	A (6.3) A (0.0) F (50.7)	A (1.0) A (0.0) F (*)[2]
2019 Phase 1 Build	NB SB EB	A (7.7) A (0.0) F (75.8)	A (1.0) A (0.0) F (77.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.1.9 SC 170 at Tidewatch Drive

Table 15 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2019 Phase 1 No Build, and 2019 Phase 1 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Tidewatch Drive.

Table 15: 2019 Phase 1 Analysis Summary SC 170 at Tidewatch Drive					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	A (7.9) A (9.6) D (44.5) D (44.2)	B (10.0)	A (8.4) A (8.0) D (44.2) D (45.9)	A (9.8)
2019 Phase 1 No Build	NB SB EB WB	A (8.7) B (10.9) D (44.7) D (44.3)	B (11.0)	A (9.2) A (8.7) D (44.3) D (46.2)	B (10.5)
2019 Phase 1 Build	NB SB EB WB	B (14.7) B (10.5) D (37.0) D (36.7)	B (13.6)	B (13.8) B (12.5) C (31.6) C (32.7)	B (14.0)

1. Delay = average seconds of delay

As shown in Table 15, the intersection of SC 170 at Tidewatch Drive currently operates acceptably at LOS B and LOS A during the AM and PM peak hours. Based on the projected traffic growth the intersection is projected to operate acceptably at LOS B during the AM and PM peak hours in the 2019 Phase 1 No Build conditions. In the 2019 Phase 1 Build conditions, signal optimization was applied to the signalized intersection. With this improvement the intersection is projected to continue to operate acceptably, operating at LOS B, during the AM and PM peak hours in the 2019 Phase 1 Build conditions.

8.1.10 2019 Phase 1 Capacity Analysis Summary

Based on the projected 2019 Phase 1 Build year future conditions, the following transportation improvements are recommended as a part of this project:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.
- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of and eastbound left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

8.2 2021 Capacity Analysis

Capacity analyses were performed for the Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour traffic conditions. The 2021 Phase 2 Build year conditions includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

8.2.1 SC 170 at Argent Boulevard

Table 16 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Argent Boulevard.

As shown in **Table 16**, the intersection of SC 170 at Argent Boulevard currently operates at LOS D during the AM and PM peak hours. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and to operate at LOS D during the PM peak hour in the 2021 Phase 2 No Build conditions. With signal optimization of the intersection, the intersection is projected to operate at LOS D during the AM and PM peak hours in the 2021 Phase 2 Build conditions.

Table 16:
2021 Phase 2 Analysis Summary
SC 170 at Argent Boulevard

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB	B (12.5) D (46.8) F (149.6)	D (45.7)	B (15.8) C (22.3) F (168.1)	D (38.2)
2021 Phase 2 No Build	NB SB EB	B (14.2) F (94.1) F (179.2)	E (72.0)	C (20.8) C (27.6) F (231.8)	D (51.0)
2021 Phase 2 Build	NB SB EB	C (21.6) E (64.6) F (110.5)	D (52.2)	D (40.9) D (41.9) F (80.5)	D (46.3)

1. Delay = average seconds of delay

8.2.2 Argent Boulevard at Jasper Station Road/Short Cut Drive

Table 17 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive.

As shown in **Table 17**, the intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive currently operates at LOS D (eastbound and westbound approaches) during the AM peak hour and experiences elevated delay, operating at LOS E (westbound approach) during the PM peak hour. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM and PM peak hours for the 2021 Phase 2 No Build conditions for the eastbound and westbound approaches. As stated previously, the addition of a northbound right-turn lane was included in the 2019 Phase 1 Build conditions. In addition, the installation of a westbound left-turn lane was included in the 2021 Phase 2 Build conditions. With these improvements the intersection is projected to operate at LOS D during the AM peak hour (eastbound and westbound approaches) and to experience elevated delay, operating at LOS E

(westbound approach) in the PM peak hour during the 2021 Phase 2 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 17:
2021 Phase 2 Analysis Summary
Argent Boulevard at Jasper Station Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB	A (0.2)	A (0.3)
	SB	A (0.2)	A (0.2)
	EB	D (30.0)	D (32.6)
	WB	D (32.6)	E (36.4)
2021 Phase 2 No Build	NB	A (0.2)	A (0.3)
	SB	A (0.2)	A (0.2)
	EB	E (35.9)	E (39.2)
	WB	E (39.9)	E (45.6)
2021 Phase 2 Build with Improvements	NB	A (0.2)	A (0.3)
	SB	A (0.1)	A (0.2)
	EB	D (30.1)	E (38.8)
	WB	D (27.9)	D (34.6)

1. Delay = average seconds of delay

8.2.3 SC 170 at Pritcher Point Road/Short Cut Drive

Table 18 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the intersection of SC 170 at Pritcher Point Road/Short Cut Drive. The intersection is currently unsignalized. As discussed previously, construction associated with a nearby animal shelter, accessed via Pritcher Point Road, includes the following intersection improvements, included in the 2021 Phase 2 No Build and 2021 Phase 2 Build conditions:

- Northbound right-turn lane on SC 170
- Southbound left-turn lane on SC 170
- Westbound through/left-turn lane and right-turn lane on Pritcher Point Road

The intersection was assumed to be signalized in the 2021 Phase 2 conditions.

Table 18:
2021 Phase 2 Analysis Summary
SC 170 at Pritcher Point Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1,2])	Approach LOS (Delay[1,2])	Overall LOS (Delay[1,2])
Existing	NB SB EB WB	A (1.7) A (0.0) E (48.3) F (*)[2]	N/A[3]	A (0.6) A (0.0) E (36.7) A (0.0)	N/A[3]
2021 Phase 2 No Build	NB SB EB WB	A (2.4) A (0.0) F (101.6) F (107.6)	N/A[3]	A (0.7) A (0.0) F (78.2) A (0.0)	N/A[3]
2021 Phase 2 Build with Improvements	NB SB EB WB	C (26.3) E (56.7) E (56.1) F (163.4)	D (49.7)	C (27.1) C (20.4) D (37.6) D (37.1)	C (25.1)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds
3. Overall intersection delay not calculated for two-way stop controlled intersections

As shown in **Table 18**, the intersection of SC 170 at Jasper Station Road/Short Cut Drive currently experiences elevated delay, operating at LOS F (westbound approach), during the AM peak hour and operates at LOS E during the PM peak hour (eastbound approach). The current westbound approach traffic volume is very low in the morning (two vehicles) however, those vehicles do experience delay. As discussed previously, construction associated with a nearby animal shelter on Pritcher Point Road, includes installation of a northbound right-turn lane, a southbound left-turn lane, and configuration of the westbound approach to include a right-turn lane and a through-left lane. With these improvements, based on the projected traffic growth the intersection is projected to experience elevated delays, operating at LOS F (westbound and eastbound approaches) during the AM peak hour and to operate at LOS F during the PM peak hour (eastbound approach) in the 2021 Phase 2 No Build conditions. The intersection is planned to be signalized in the 2021 Phase 2 Build conditions. With signalization the intersection is projected to operate at LOS D and LOS C during the AM and PM peak hours, respectively, in the 2021 Phase 2 Build conditions.

8.2.4 SC 170 at Pearlstine Road/Cherry Point Road

Table 19 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Pearlstine Road/Cherry Point Road.

Table 19: 2021 Phase 2 Analysis Summary SC 170 at Pearlstine Road/Cherry Point Road					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	C (22.5) D (39.5) D (40.6) F (*)[2]	E (72.8)	B (18.0) B (13.8) D (37.2) D (35.7)	B (16.7)
2021 Phase 2 No Build	NB SB EB WB	C (26.2) F (70.3) D (44.2) F (*)[2]	F (99.2)	C (30.1) B (16.9) D (37.6) D (35.8)	C (24.6)
2021 Phase 2 Build with Improvements	NB SB EB WB	B (19.9) C (34.5) D (48.9) F (88.9)	D (35.8)	B (15.8) B (14.4) D (37.7) D (36.4)	B (16.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 19**, the intersection of SC 170 at Pearlstine Road/Cherry Point Road currently experiences elevated delay in the AM peak hour and operates at LOS B during the PM peak hour. The AM peak hour delay is elevated on the westbound approach primarily due to the impacts of the Okatie Elementary School (intersection is the only access to the school from SC 170). Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour and to operate at LOS C during the PM peak hour in the 2021 Phase 2 No Build conditions. The installation of a second westbound left-turn lane with restriping of the westbound approach to dual left-turn lanes with a shared through right lane, and signal optimization were applied in the 2021 Phase 2 Build conditions. With these improvements the intersection is projected to operate at LOS D and LOS B during the AM and PM peak hours, respectively, in the 2021 Phase 2 Build conditions.

The Cherry Point Road improvements were assumed to be complete as part of Phase 1.

8.2.5 SC 170 at Red Oaks Drive/Site Access #2

Table 20 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Red Oaks Drive/Site Access #2.

Table 20: 2021 Phase 2 Analysis Summary SC 170 at Red Oaks Drive/Site Access #2			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (0.4) A (0.0) F (279.1)	A (0.4) A (0.0) F (*)[2]
2021 Phase 2 No Build	NB SB EB	A (0.5) A (0.0) F (56.6)	A (0.4) A (0.0) F (87.2)
2021 Phase 2 Build with Improvements	NB SB EB WB	A (0.6) A (0.0) F (86.8) F (70.1)	A (0.4) A (0.0) F (159.7) F (91.4)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 20**, the intersection of SC 170 at Red Oaks Drive currently experiences elevated delays during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 No Build conditions. As stated previously, the addition of an eastbound right-turn lane and northbound right-turn lane were included in the 2019 Phase 1 Build conditions. In addition, the installation of an exclusive westbound right-turn lane with a shared through left lane exiting the site were applied in the 2021 Phase 2 Build conditions. With these improvements the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 Build conditions (eastbound and westbound approaches). It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.2.6 SC 170 at Schinger Avenue

Table 21 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Schinger Avenue.

As shown in **Table 21**, the intersection of SC 170 at Schinger Avenue currently operates acceptably at LOS D and LOS C during the AM and PM peak hours, respectively. Based on the projected traffic growth the intersection is expected to experience elevated delays during the AM peak hour and to operate at LOS D during PM peak hour in the 2023 No Build conditions. The intersection is projected to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 Build conditions. It is typical for minor stop-

controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

Table 21:
2021 Phase 2 Analysis Summary
SC 170 at Schinger Avenue

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
Existing	NB SB EB	A (0.0) A (0.0) D (32.2)	A (0.0) A (0.0) C (22.7)
2021 Phase 2 No Build	NB SB EB	A (0.0) A (0.0) E (46.7)	A (0.0) A (0.0) D (30.4)
2021 Phase 2 Build	NB SB EB	A (0.0) A (0.0) F (69.2)	A (0.0) A (0.0) E (38.8)

1. Delay = average seconds of delay

8.2.7 SC 170 at Riverwalk Boulevard

Table 22 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Riverwalk Boulevard.

As shown in **Table 22**, the intersection of SC 170 at Riverwalk Boulevard currently experiences elevated delay during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2021 Phase 2 No Build and 2021 Phase 2 Build conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

As stated in Phase 1, it is recommended based on the results of the No Build and Build conditions that consideration of extending the eastbound turn-lane to accommodate the project queue from the left-turn. This would allow right-turning vehicles to not be delayed by the left-turns.

Table 22: 2021 Phase 2 Analysis Summary SC 170 at Riverwalk Boulevard			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (4.4) A (0.0) F (*)[2]	A (0.9) A (0.0) F (*)[2]
2021 Phase 2 No Build	NB SB EB	A (9.8) A (0.0) F (117.4)	A (1.2) A (0.0) F (*)[2]
2021 Phase 2 Build	NB SB EB	D (19.4) A (0.0) F (75.9)	A (1.2) A (0.0) F (192.1)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.2.8 SC 170 at Tidewatch Drive

Table 23 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2021 Phase 2 No Build, and 2021 Phase 2 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Tidewatch Drive.

Table 23: 2021 Phase 2 Analysis Summary SC 170 at Tidewatch Drive					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	A (7.9) A (9.6) D (44.5) D (44.2)	B (10.0)	A (8.4) A (8.0) D (44.2) D (45.9)	A (9.8)
2021 Phase 2 No Build	NB SB EB WB	A (9.6) B (12.6) D (44.7) D (44.3)	B (12.3)	B (10.2) A (9.6) D (44.3) D (46.4)	B (11.4)
2021 Phase 2 Build	NB SB EB WB	A (8.9) B (13.8) E (57.8) E (57.2)	B (13.1)	B (14.8) B (12.2) D (42.0) D (43.4)	B (14.8)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 23**, the intersection of SC 170 at Tidewatch Drive currently operates acceptably at LOS B and LOS A during the AM and PM peak hours. Based on the projected traffic growth the intersection is projected to operate at LOS B during the AM and PM peak hours in the 2021 Phase 2 No Build conditions. In the 2021 Phase 2 Build conditions, signal optimization was applied to the signalized intersection. With this improvement the intersection is projected to continue to operate similarly, operating at LOS B, during the AM and PM peak hours in the 2021 Phase 2 Build conditions.

8.2.9 2021 Phase 2 Capacity Analysis Summary

Based on the projected 2021 Phase 2 Build year future conditions, the following transportation improvements are recommended as a part of this project, in addition to the recommendations for the projected 2019 Phase 1 Build year future conditions:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

8.3 2023 Capacity Analysis

Capacity analyses were performed for the Existing, 2023 No Build, and 2023 Build AM and PM peak hour traffic conditions. The 2023 Build year conditions include the following land uses:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 396 single-family detached units
- River Oaks PUD – 315 single-family detached units

8.3.1 SC 170 at Argent Boulevard

Table 24 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Argent Boulevard.

Table 24: 2023 Analysis Summary SC 170 at Argent Boulevard					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB	B (12.5) D (46.8) F (149.6)	D (45.7)	B (15.8) C (22.3) F (168.1)	D (38.2)
2023 No Build	NB SB EB	B (15.4) F (123.7) F (196.1)	F (88.3)	C (26.4) C (33.1) F (267.0)	E (60.5)
2023 Build with Improvements	NB SB EB	B (11.3) D (36.1) F (84.5)	C (31.2)	C (21.8) D (35.6) D (51.2)	C (30.7)

1. Delay = average seconds of delay

As shown in **Table 24**, the intersection of SC 170 at Argent Boulevard currently operates acceptably at LOS D during the AM and PM peak hours. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2023 No Build conditions. With the current intersection configuration, the intersection was projected to continue to experience elevated delay during the Build conditions. It is recommended that the eastbound approach movements be reconfigured, to provide dual left-turn lanes along with a right-turn lane. Based on the geometrics of this intersection the eastbound approach may be able to be restriped or the intersection approach may need to be redesigned. This would be determined as part of the design of the improvements by the project team in coordination with the County staff. With this improvement and signal optimization, the intersection is projected to operate acceptably at LOS C during the AM and PM peak hours in the 2023 Build conditions.

8.3.2 Argent Boulevard at Jasper Station Road/Short Cut Drive

Table 25 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive.

Table 25: 2023 Analysis Summary Argent Boulevard at Jasper Station Road/Short Cut Drive			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB WB	A (0.2) A (0.2) D (30.0) D (32.6)	A (0.3) A (0.2) D (32.6) E (36.4)
2023 No Build	NB SB EB WB	A (0.2) A (0.2) E (40.2) E (45.5)	A (0.3) A (0.2) E (45.1) F (50.9)
2023 Build with Improvements	NB SB EB WB	A (0.2) A (0.2) D (34.2) D (31.9)	A (0.3) A (0.2) E (47.1) E (45.5)

1. Delay = average seconds of delay

As shown in **Table 25**, the intersection of Argent Boulevard at Jasper Station Road/Short Cut Drive currently operates at LOS D during the AM peak hour and experiences elevated delay, operating at LOS E, during the PM peak hour (westbound approach). Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM and PM peak hours for the 2023 No Build conditions. As stated previously, the addition of a northbound right-turn lane and a westbound left-turn lane were included in the 2021 Phase 2 Build conditions and were also applied in the 2023 Build conditions. With these improvements the intersection is projected to operate acceptably at LOS D during the AM peak hour and to experience elevated delay, operating at LOS E, in the PM peak hour during the 2023 Build conditions (eastbound and westbound approaches). It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.3.3 SC 170 at Pritcher Point Road/Short Cut Drive

Table 26 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the intersection of SC 170 at Pritcher Point Road/Short Cut Drive. The intersection is currently unsignalized. As discussed previously, construction associated with a nearby animal shelter, accessed via Pritcher Point Road, includes the following intersection improvements, included in the 2023 No Build and 2023 Build conditions:

- Northbound right-turn lane on SC 170
- Southbound left-turn lane on SC 170
- Westbound through/left-turn lane and right-turn lane on Pritcher Point Road

The intersection was assumed to be signalized in the 2023 conditions. A second westbound left-turn lane installed in Phase 2 was also included in the 2023 analysis.

Table 26:
2023 Analysis Summary
SC 170 at Pritcher Point Road/Short Cut Drive

Analysis Scenario	Approach	AM Peak Hour		PM Peak Hour	
		Approach LOS (Delay[1])	Overall LOS (Delay[1])	Approach LOS (Delay[1])	Overall LOS (Delay[1])
Existing	NB SB EB WB	A (1.7) A (0.0) E (48.3) F (*)[2]	N/A[3]	A (0.6) A (0.0) C (19.7) A (0.0)	N/A[3]
2023 No Build	NB SB EB WB	A (3.0) A (0.0) F (154.1) F (*)[2]	N/A[3]	A (0.7) A (0.0) D (30.9) A (0.0)	N/A[3]
2023 Build with Improvements	NB SB EB WB	C (23.2) E (56.3) F (86.8) F (135.5)	D (47.4)	C (34.6) C (28.2) E (72.3) F (110.4)	D (37.4)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds
3. Overall intersection delay not calculated for two-way stop controlled intersections

As shown in **Table 26**, the intersection of SC 170 at Jasper Station Road/Short Cut Drive currently experiences elevated delay, operating at LOS F (westbound approach), during the AM peak hour and operates at LOS E during the PM peak hour (eastbound approach). The current westbound approach traffic volume is very low in the morning (two vehicles) however, those vehicles do experience delay. Based on the projected traffic growth the intersection is projected to continue to experience elevated delays during the AM peak hour, operating at LOS F (eastbound and westbound approaches), and to operate at LOS D during the PM peak hour in the 2023 conditions. With the improvements discussed above, the intersection is projected to operate acceptably at LOS D in the AM and PM peak hours during the 2023 Build conditions.

8.3.4 SC 170 at Pearlstine Road/Cherry Point Road

Table 27 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the signalized intersection of SC 170 at Pearlstine Road/Cherry Point Road.

Table 27: 2023 Analysis Summary SC 170 at Pearlstine Road/Cherry Point Road					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	C (22.5) D (39.5) D (40.6) F (*)[2]	E (72.8)	B (18.0) B (13.8) D (37.2) D (35.7)	B (16.7)
2023 No Build	NB SB EB WB	C (29.4) F (94.3) D (44.5) F (*)[2]	F (118.8)	D (46.0) B (19.3) D (37.8) D (35.9)	C (34.1)
2023 Build with Improvements	NB SB EB WB	C (34.1) D (46.7) E (75.5) F (109.7)	D (48.9)	C (27.4) B (15.3) E (67.6) F (96.8)	C (25.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 27**, the intersection of SC 170 at Pearlstine Road/Cherry Point Road currently experiences elevated delay in the AM peak hour (westbound approach) and operates at LOS B during the PM peak hour. The AM peak hour delay is elevated on the westbound approach due to the impacts of the Okatie Elementary School using this intersection as the primary access to the school. Based on the projected traffic growth, the intersection is projected to experience elevated delays during the AM peak hour (westbound approach) and to operate at LOS C during the PM peak hour in the 2023 No Build conditions. As stated in Phase 2, the installation of a second westbound left-turn lane, and signal optimization were applied in the 2021 Phase 2 Build conditions and were applied in the 2023 Build conditions analysis. In addition, the installation of an eastbound left-turn lane was applied in the 2023 Build conditions. With these improvements the intersection is projected to operate at LOS D and LOS C during the AM and PM peak hours, respectively, in the 2023 Build conditions.

The Cherry Point Road improvements were assumed to be complete as part of Phase 1.

8.3.5 SC 170 at Red Oaks Drive/Site Access #2

Table 28 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Red Oaks Drive/Site Access #2.

Table 28: 2023 Analysis Summary SC 170 at Red Oaks Drive/Site Access #2			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (0.4) A (0.0) F (279.1)	A (0.4) A (0.0) F (*)[2]
2023 No Build	NB SB EB	A (0.5) A (0.0) F (75.6)	A (0.4) A (0.0) F (124)
2023 Build with Improvements	NB SB EB WB	A (0.6) A (0.0) F (189.5) F (268.4)	A (0.5) A (0.1) F (*) F (188.2)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 28**, the intersection of SC 170 at Red Oaks Drive currently experiences elevated delays during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2023 No Build conditions. As stated previously, the installation of an eastbound right-turn lane, a northbound right-turn lane, and a westbound right-turn lane and a through-left lane exiting the site to help facilitate traffic flow out of the site were applied in the 2021 Phase 2 Build conditions. These improvements were also applied in the 2023 Build conditions. With these improvements the intersection is projected to experience elevated delays during the AM and PM peak hours in the 2023 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay. As the development builds out and as back access is established on both sides of SC 170, this location may be considered for right-in, right-out operations.

8.3.6 SC 170 at Schinger Avenue

Table 29 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Schinger Avenue.

Table 29: 2023 Analysis Summary SC 170 at Schinger Avenue			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (0.0) A (0.0) D (32.2)	A (0.0) A (0.0) C (22.7)
2023 No Build	NB SB EB	A (0.0) A (0.0) F (59.6)	A (0.0) A (0.0) E (37.0)
2023 Build	NB SB EB	A (0.0) A (0.0) F (113.4)	A (0.0) A (0.0) F (70.8)

1. Delay = average seconds of delay

As shown in **Table 29**, the intersection of SC 170 at Schinger Avenue currently operates acceptably at LOS D and LOS C during the AM and PM peak hours, respectively. Based on the projected traffic growth the intersection is expected to experience elevated delays during the AM and PM peak hours during the 2023 No Build and 2023 Build conditions. It is typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.3.7 SC 170 at Riverwalk Boulevard

Table 30 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Riverwalk Boulevard.

As shown in **Table 30**, the intersection of SC 170 at Riverwalk Boulevard currently experiences elevated delay during the AM and PM peak hours. The intersection is projected to continue to experience elevated delays during the AM and PM peak hours in the 2023 No Build and 2023 Build conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay. It is recommended based on the results of the No Build and Build conditions that consideration of extending the eastbound turn-lane to accommodate the project queue from the left-turn. This would allow right-turning vehicles to not be delayed by the left-turns.

Table 30: 2023 Analysis Summary SC 170 at Riverwalk Boulevard			
Analysis Scenario	**Approach**	**AM Peak Hour**	**PM Peak Hour**
		Approach LOS (Delay[1])	**Approach LOS (Delay[1])**
Existing	NB SB EB	A (4.4) A (0.0) F (*)[2]	A (0.9) A (0.0) F (*)[2]
2023 No Build	NB SB EB	C (15.3) A (0.0) F (66.6)	A (1.3) A (0.0) F (136.5)
2023 Build	NB SB EB	D (32.8) A (0.0) F (196.5)	A (1.8) A (0.0) F (*)[2]

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

8.3.8 SC 170 at Tidewatch Drive

Table 31 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected Existing, 2023 No Build, and 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Tidewatch Drive.

Table 31: 2023 Analysis Summary SC 170 at Tidewatch Drive					
Analysis Scenario	**Approach**	**AM Peak Hour**		**PM Peak Hour**	
		Approach LOS (Delay[1])	**Overall LOS (Delay[1])**	**Approach LOS (Delay[1])**	**Overall LOS (Delay[1])**
Existing	NB SB EB WB	A (7.9) A (9.6) D (44.5) D (44.2)	B (10.0)	A (8.4) A (8.0) D (44.2) D (45.9)	A (9.8)
2023 No Build	NB SB EB WB	B (10.9) B (15.3) D (44.8) D (44.4)	B (14.3)	B (11.5) B (10.8) D (44.4) D (46.6)	B (12.6)
2023 Build	NB SB EB WB	B (12.0) C (22.0) E (58.3) E (57.4)	B (18.8)	B (14.9) B (13.0) E (57.8) E (60.0)	B (15.9)

1. Delay = average seconds of delay
2. * Delay exceeds 300 seconds

As shown in **Table 31**, the intersection of SC 170 at Tidewatch Drive currently operates acceptably at LOS B and LOS A during the AM and PM peak hours. Based on the projected traffic growth the intersection is projected to operate acceptably at LOS B during the AM and PM peak hours in the 2023 No Build conditions. In the 2023 Build conditions, signal optimization was applied to the signalized intersection. With this improvement the intersection is projected to continue to operate acceptably, operating at LOS B, during the AM and PM peak hours in the 2023 Build conditions.

8.3.9 SC 170 at Site Access #1

Table 32 summarizes LOS and control delay (average seconds of delay per vehicle) for the projected 2023 Build AM and PM peak hour conditions for the unsignalized intersection of SC 170 at Site Access #1.

This location has been shown in previous planning efforts for the PUDs but is not consistent with the SC 170 Access Management Plan as noted by Staff in their comments. Formal allowance of this access will need to be coordinated with the County. If this access point is not allowed, the trips assigned to this intersection would be redistributed to other access points.

Table 32:
2023 Analysis Summary
SC 170 at Site Access #1

Analysis Scenario	Approach	AM Peak Hour	PM Peak Hour
		Approach LOS (Delay[1])	Approach LOS (Delay[1])
2023 Build	NB	A (0.0)	A (0.0)
	SB	A (0.0)	A (0.0)
	WB	C (21.7)	E (48.0)

1. Delay = average seconds of delay

The RIRO intersection of SC 170 at Site Access #1 was reviewed for consideration of the installation of an exclusive northbound right-turn lane on SC 170 based on SCDOT Design Manual guidelines and projected intersection volumes. The AM and PM peak hour conditions meet the guidelines for installation of an exclusive northbound right-turn lane. As shown in **Table 32**, with this improvement the intersection is projected to operate acceptably at LOS C during the AM peak hour and to experience elevated delays during the PM peak hour in the 2023 Build conditions. The westbound approach queuing is projected to be approximately one vehicle in the AM peak hour conditions and two vehicles in the PM peak hour conditions. These operations are typical for minor stop-controlled side streets and driveways on major streets to experience longer delays at LOS E and LOS F during peak hours while the majority of the traffic moving through the corridor typically experiences little or no delay.

8.3.10 2023 Capacity Analysis Summary

Based on the projected 2023 Build future conditions, the following transportation improvements are recommended as a part of this project:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

8.4 Year 2023 - SC 170 Arterial Analysis

Arterial analysis was performed for the SC 170 in the study area for the AM, Midday and PM peak hour conditions. The arterial level of service reviews the travel speed on a corridor. Travel speed considers intersection delay and travel time along the segments. The SC 170 corridor from Argent Boulevard to Tidewatch Drive was reviewed. **Table 33** provides a comparison of the arterial level of service between the Existing, 2023 No Build and 2023 Build conditions during the AM and PM peak hours.

In the Existing and 2023 No Build conditions, the intersection of Pritcher Point Road is not included because it is unsignalized in those conditions. During the morning and evening peak hour conditions, the arterial is operating at LOS D or better in the northbound direction (to Beaufort area) for all scenarios. In the southbound direction (to Bluffton area) in the morning peak, the arterial is operating at LOS D in the Existing conditions and LOS E in the 2023 No Build and Build conditions with 0.1 mph difference in overall travel speed between No Build and Build. In the southbound direction (to Bluffton area) in the evening peak, the arterial is operating at LOS C in the Existing conditions and 2023 No Build conditions and LOS D in the 2023 Build conditions.

Table 33: Arterial Level of Service – SC 170 LOS (Speed in mph)						
	Existing Conditions		**2023 No Build Conditions**		**2023 Build Conditions**	
Cross Street	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**	**AM Peak Hour**	**PM Peak Hour**
NB SC 170						
Tidewatch Drive	D (26.6)	D (25.7)	D (24.5)	D (22.9)	D (23.7)	E (20.3)
Cherry Point Road	D (26.7)	B (34.2)	D (23.2)	D (29.6)	D (22.4)	D (25.4)
Pritcher Point Road	n/a	n/a	n/a	n/a	D (23.1)	E (16.9)
Argent Boulevard	B (36.5)	B (34.6)	B (34.8)	C (29.8)	C (27.9)	D (22.0)
Total	**C (31.0)**	**C (32.9)**	**C (38.2)**	**C (28.6)**	**D (24.0)**	**D (21.1)**
SB SC 170						
Argent Boulevard	F (6.2)	F (8.0)	F (2.9)	F (6.5)	F (6.8)	F (7.3)
Pritcher Point Road	n/a	n/a	n/a	n/a	F (14.0)	E (20.5)
Cherry Point Road	C (30.8)	B (39.1)	E (19.0)	B (36.8)	F (16.0)	D (26.4)
Tidewatch Drive	B (35.9)	B (36.8)	C (32.7)	B (34.7)	C (30.0)	C (32.9)
Total	**D (27.0)**	**C (32.1)**	**E (17.1)**	**C (29.2)**	**E (17.2)**	**D (23.2)**

1. n/a = not signalized

8.5 Analysis Summary

Based on the analysis the following Phase 1 (2019) transportation improvements are recommended:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.

- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following Phase 2 (2021) transportation improvements are recommended:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following ultimate (2023) transportation improvements are recommended:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

Results in this report are based solely on traffic studies and are considered input into final design considerations. The final design will be determined by the project engineer after other design elements (such as, but not limited to, utilities, stormwater, etc.) are taken into consideration.

9.0 Conclusion

The Okatie Village is located in Beaufort County, SC on the east side of SC 170, near Pritcher Point Road and Cherry Point Road. Okatie Village includes two development areas being studied, Osprey Point PUD

and River Oaks PUD. The development will be accessed via three full access points along SC 170 and a RIRO access point. For the purposes of this TIA, the proposed development is assumed to be complete by 2023, constructed in three phases. Land uses listed are cumulative.

The Phase 1 2019 Phase 1 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 102 single-family detached units
- River Oaks PUD – 101 single-family detached units

The Phase 2 2021 Phase 2 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 331 single-family detached units
- River Oaks PUD – 315 single-family detached units

The Buildout 2023 Build conditions for this study and includes the following land uses:

- Osprey Point PUD – 159,525 sf of retail, 53,175 sf of office space, and 370 single-family detached units
- River Oaks PUD – 315 single-family detached units

Based on the analysis the following Phase 1 (2019) transportation improvements are recommended:

- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a northbound right-turn lane on Argent Boulevard
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of a traffic signal, when warranted. Performance of a traffic signal warrant analysis at completion of phase.
- SC 170 at Red Oaks Drive/Site Access #2 – Installation of a northbound right-turn lane on SC 170, southbound left-turn lane on SC 170, and shared westbound left-turn lane, through lane, and right-turn lane on Site Access #2. Installation of an exclusive eastbound right-turn lane on Red Oaks Drive.
- Improvements to Cherry Point Road (to be coordinated with County Staff) – Improvements to roadway conditions from site access point to SC 170, potential installation of left-turn lane into the School property, etc.
- Coordination with Beaufort County, Beaufort County School District Staff and Developer regarding school access
- SC 170 at Riverwalk Boulevard – Consideration of extension of the eastbound right-turn lane on Riverwalk Boulevard
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following Phase 2 (2021) transportation improvements are recommended:

- Improvements listed in Phase 1 above
- Argent Boulevard at Jasper Station Road/Short Cut Drive – Installation of a westbound left-turn lane on Short Cut Drive

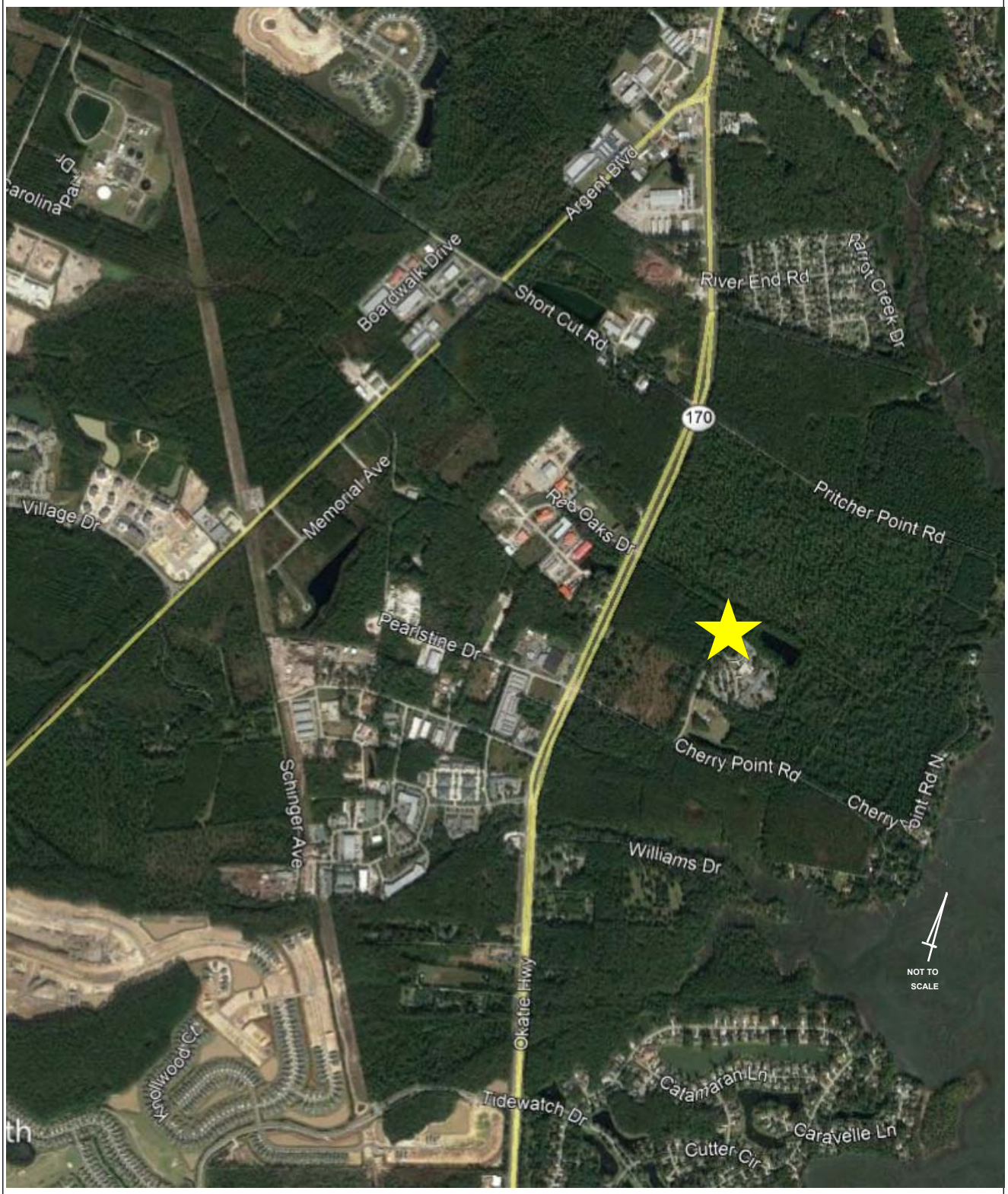
- SC 170 at Pritcher Point Road/Short Cut Drive – Installation of westbound left-turn lane on Pritcher Point Road
- SC 170 at Red Oaks Drive/Site Access #2 – Installation westbound right-turn lane on Site Access #2
- SC 170 at Pearlstine Drive/Cherry Point Road – Installation of an additional westbound left-turn lane on Cherry Point Road, and restriping of the westbound approach (Cherry Point Road) to dual left-turns with a shared through right lane
- Traffic signal timing optimization at signalized intersections

Based on the analysis the following ultimate (2023) transportation improvements are recommended:

- Improvements listed in Phase 1 and Phase 2 above
- SC 170 at Argent Boulevard – Signal optimization and reconfiguration of the eastbound approach to dual left-turn lanes with shared right-turn lane
- SC 170 at Pritcher Point Road/Short Cut Drive – Install westbound dual left-turn lanes on Pritcher Point Road
- SC 170 at Site Access #1 – Installation of a northbound right-turn lane on SC 170
- Traffic signal timing optimization at signalized intersections

Results in this report are based solely on traffic studies and are considered input into final design considerations. The final design will be determined by the project engineer after other design elements (such as, but not limited to, utilities, stormwater, etc.) are taken into consideration.

Appendix



LEGEND
Project Site

BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**Site Location**	**Figure 1**

EXHIBIT B

LOT YEILD: 315

30' X 110'

40' X 110'

Total Acres: +/-61.21

Residential Density: 5.14 DU/AC

Open Space: 26.26 AC (42.90%)

GRAPHIC SCALE

NORTH 0 150' 300' 450'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4000 Fax 843.815.4002

RIVER OAKS (MALIND POINTE) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

OCTOBER 16, 2017

JKT Job Number: 201703-01

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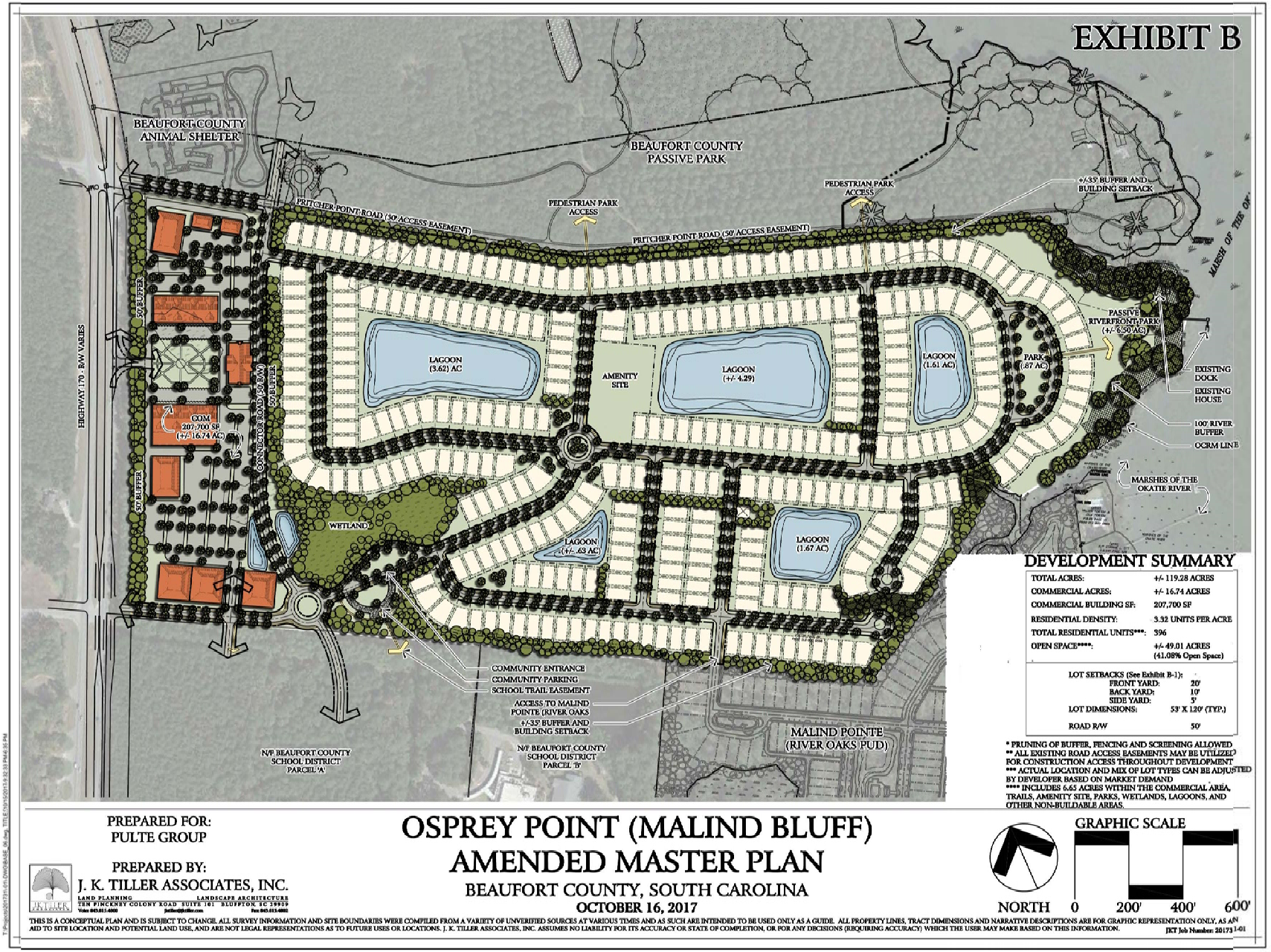
	Okatie Village Traffic Impact Analysis	**Conceptual Site Plan**	**Figure 2A**

Okatie Village
Traffic Impact Analysis

Conceptual
Site Plan

Figure 2B



DEVELOPMENT SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL BUILDING SF:	207,700 SF
RESIDENTIAL DENSITY:	5.32 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	596
OPEN SPACE****:	+/- 49.01 ACRES (41.08% Open Space)

LOT SETBACKS (See Exhibit B-1):	
FRONT YARD:	20'
BACK YARD:	10'
SIDE YARD:	5'
LOT DIMENSIONS:	53' X 120' (TYP.)
ROAD R/W	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, AMENITY SITE, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TEN PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909

OSPREY POINT (MALIND BLUFF) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

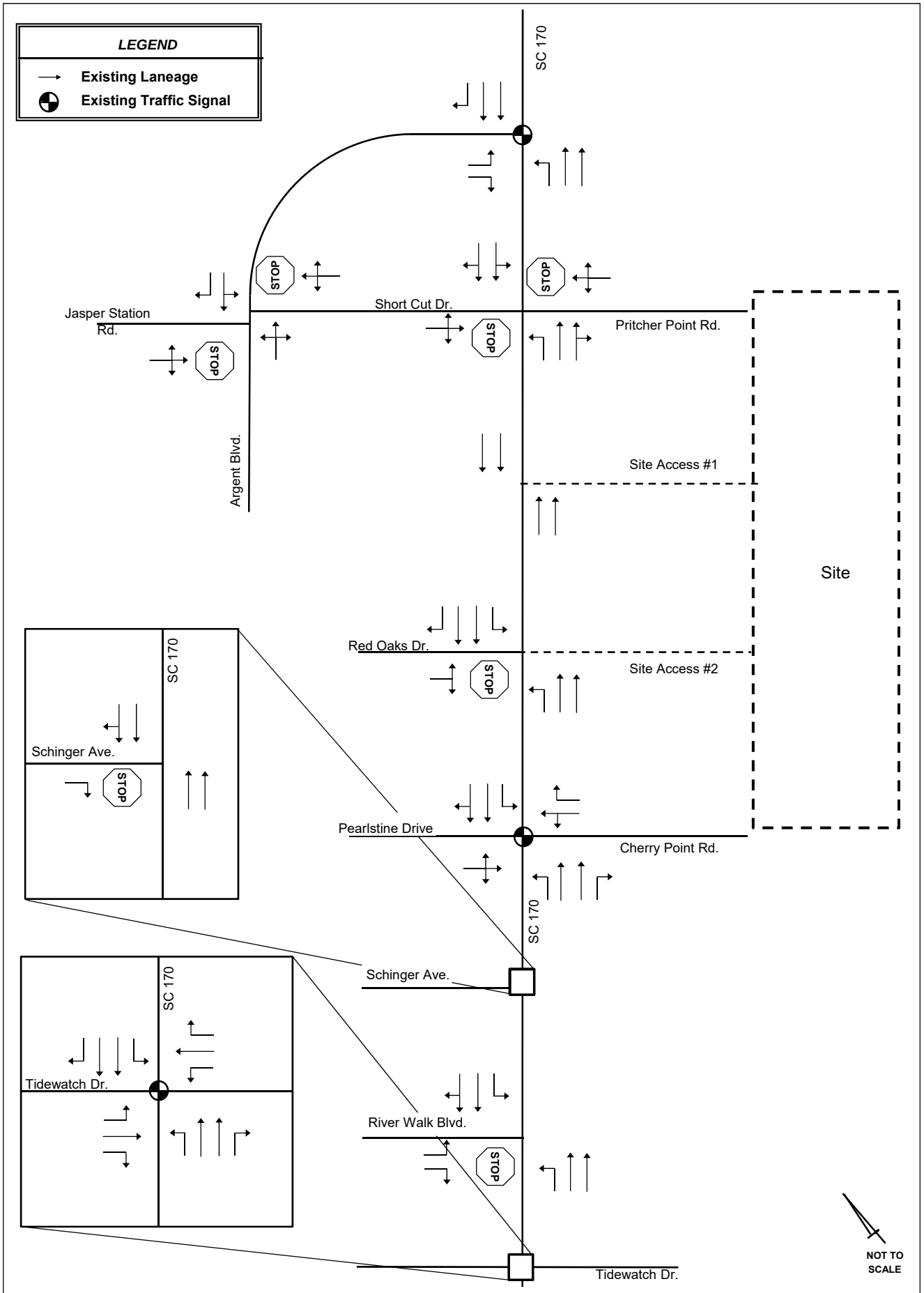
OCTOBER 16, 2017

GRAPHIC SCALE

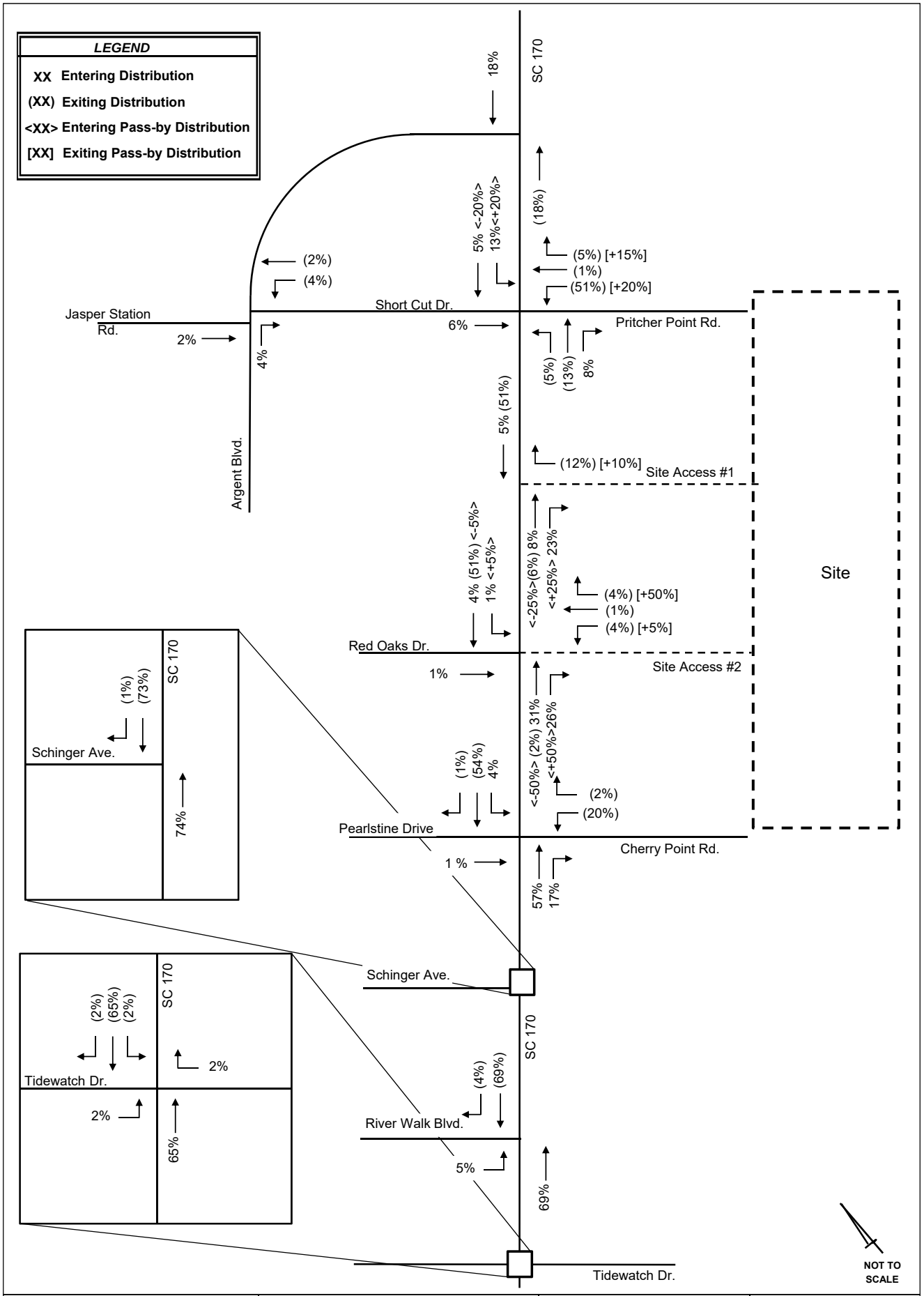
NORTH 0 200' 400' 600'

"THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

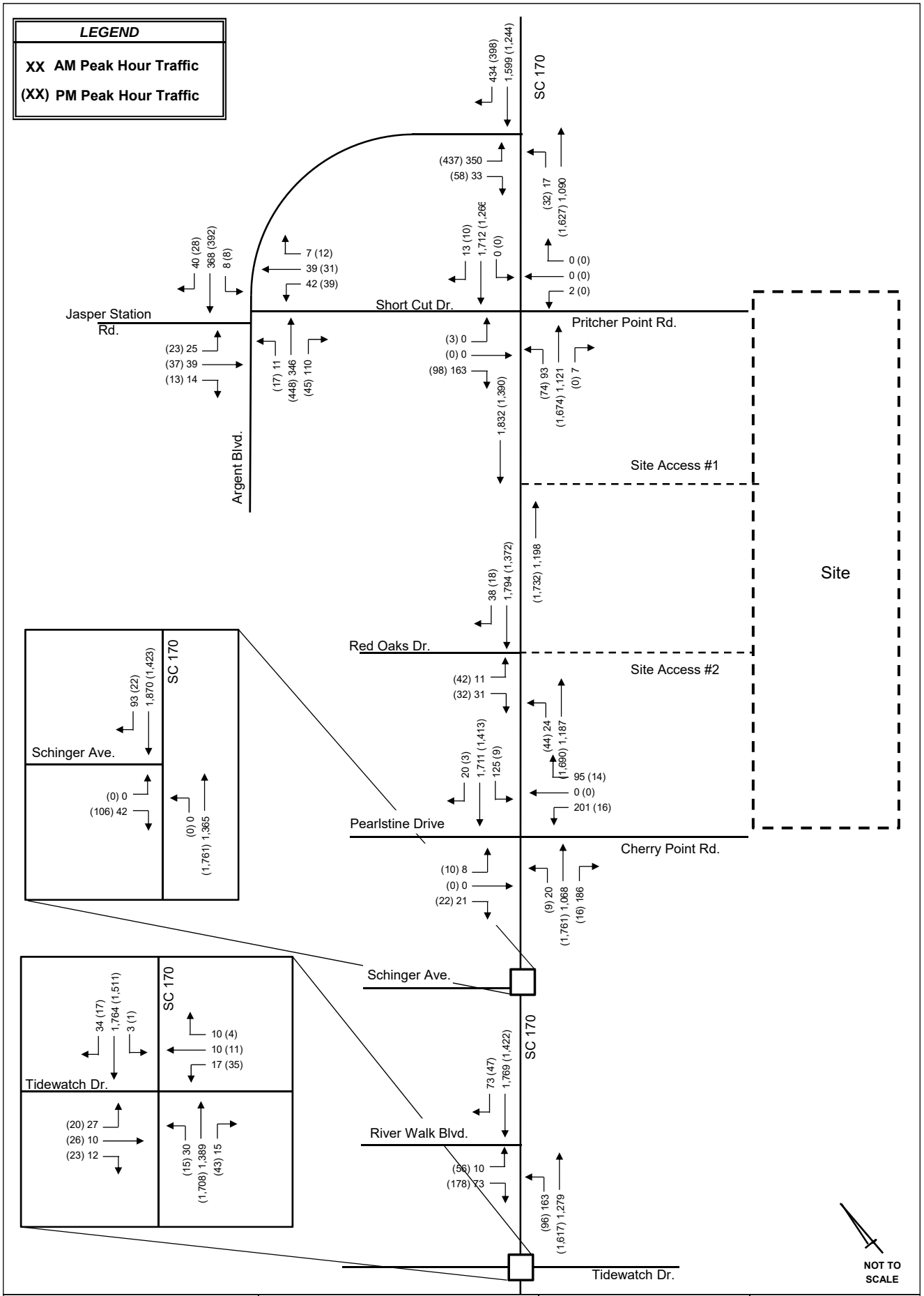
JKT Job Number: 20173 1-01



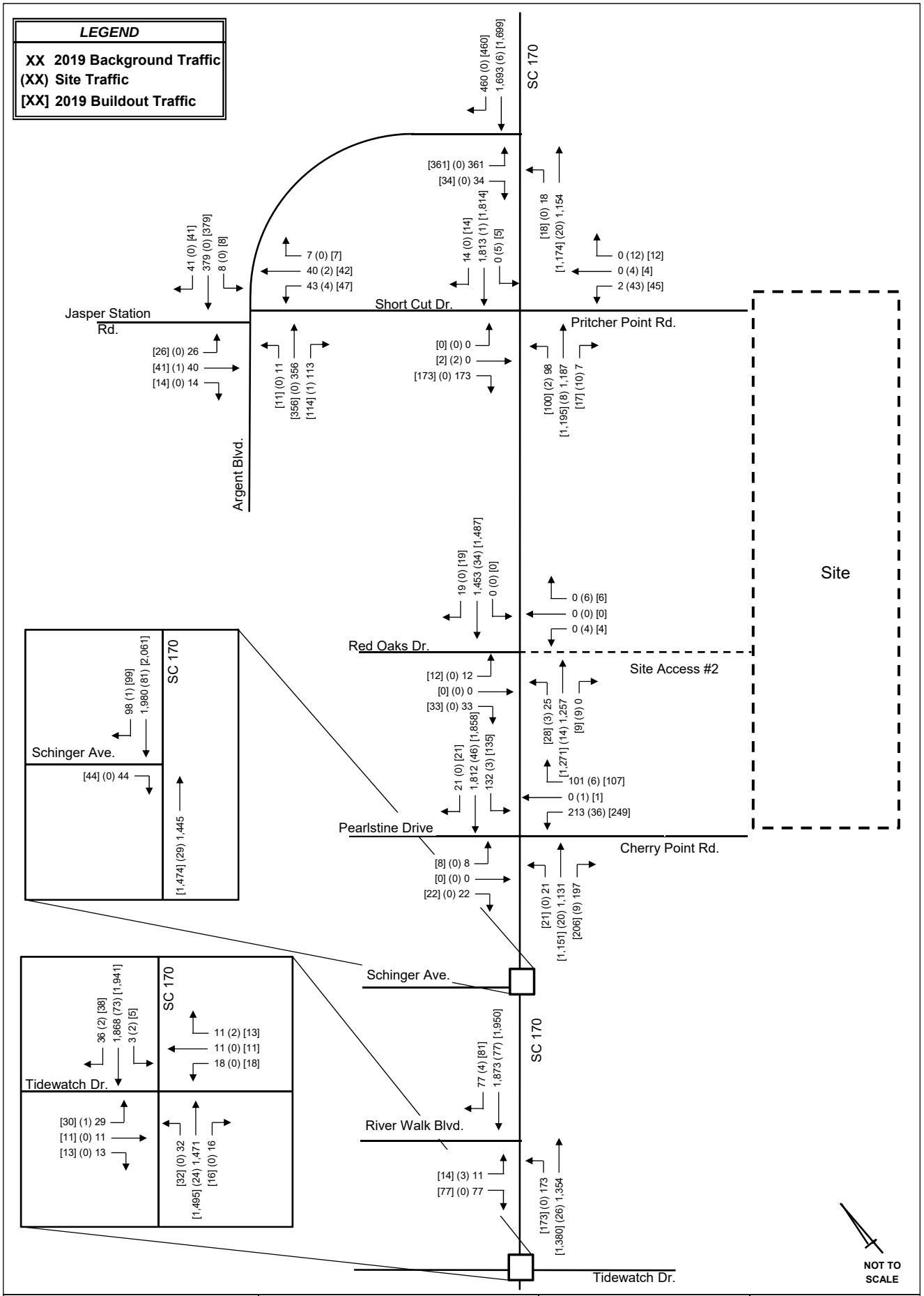
BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**Existing Laneage**	**Figure 3**



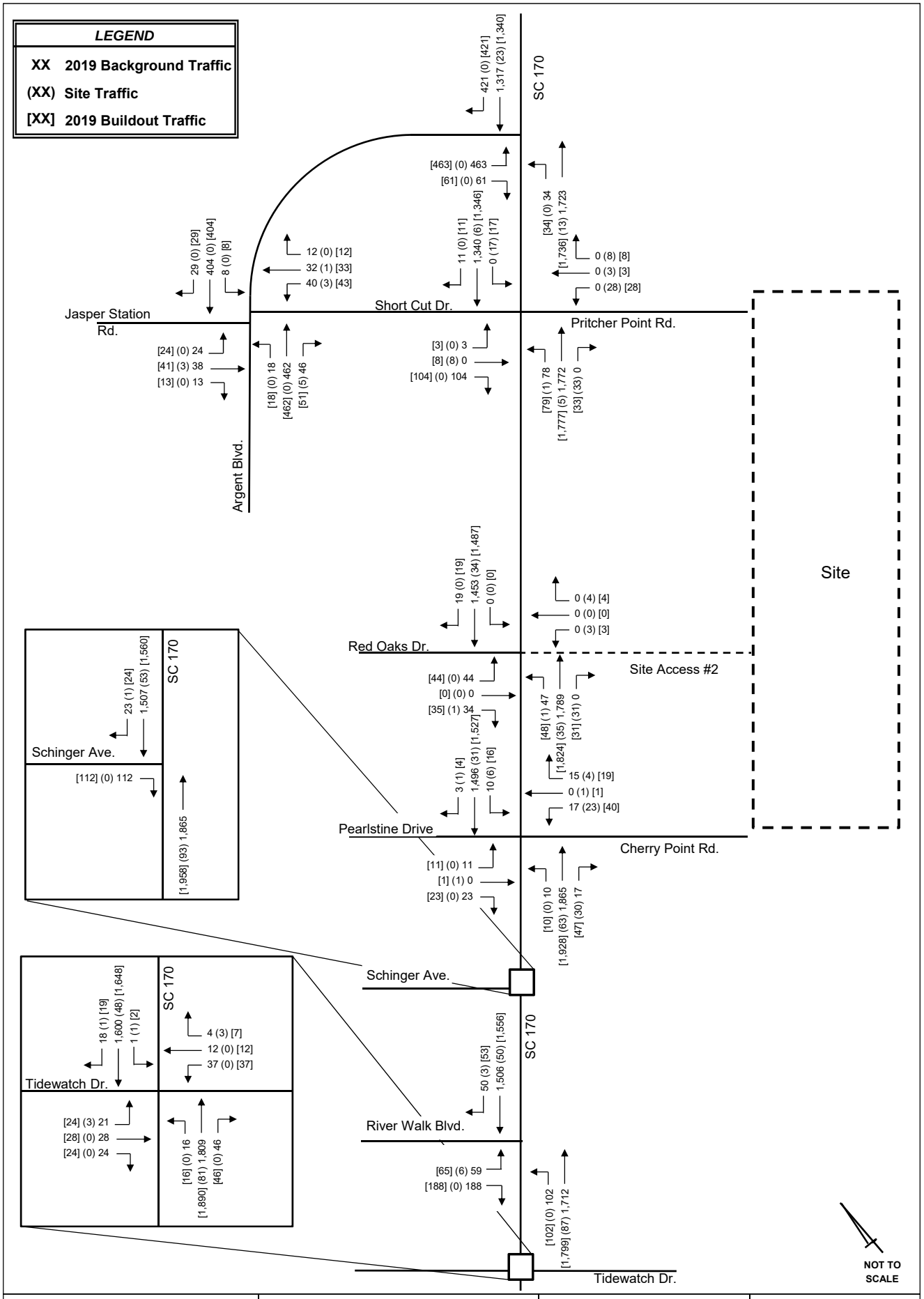
BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**Trip Distribution**	**Figure 4**



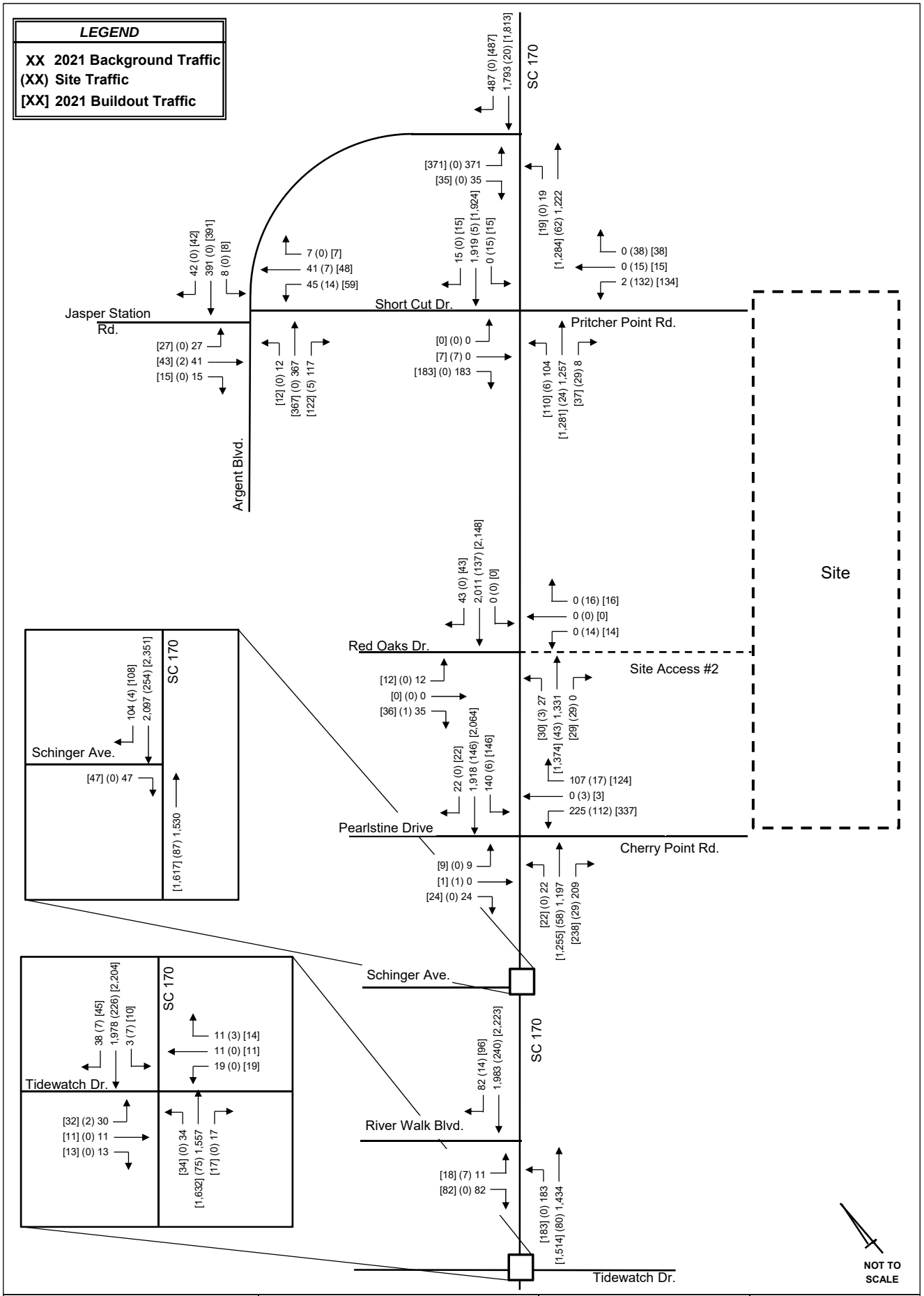
BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**Existing Traffic Volumes**	**Figure 5**



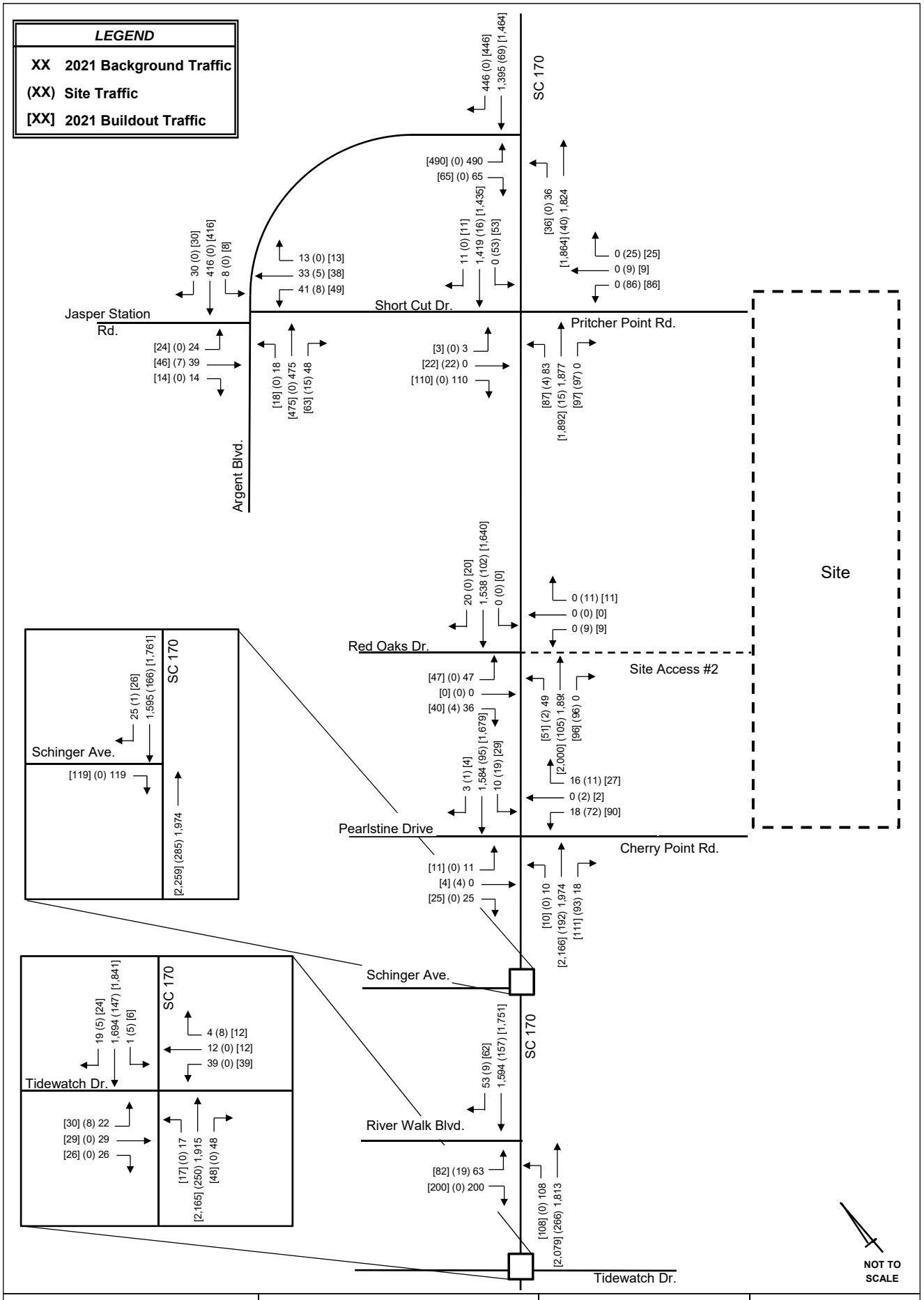
BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**2019 AM Peak Traffic Volumes**	**Figure 6**



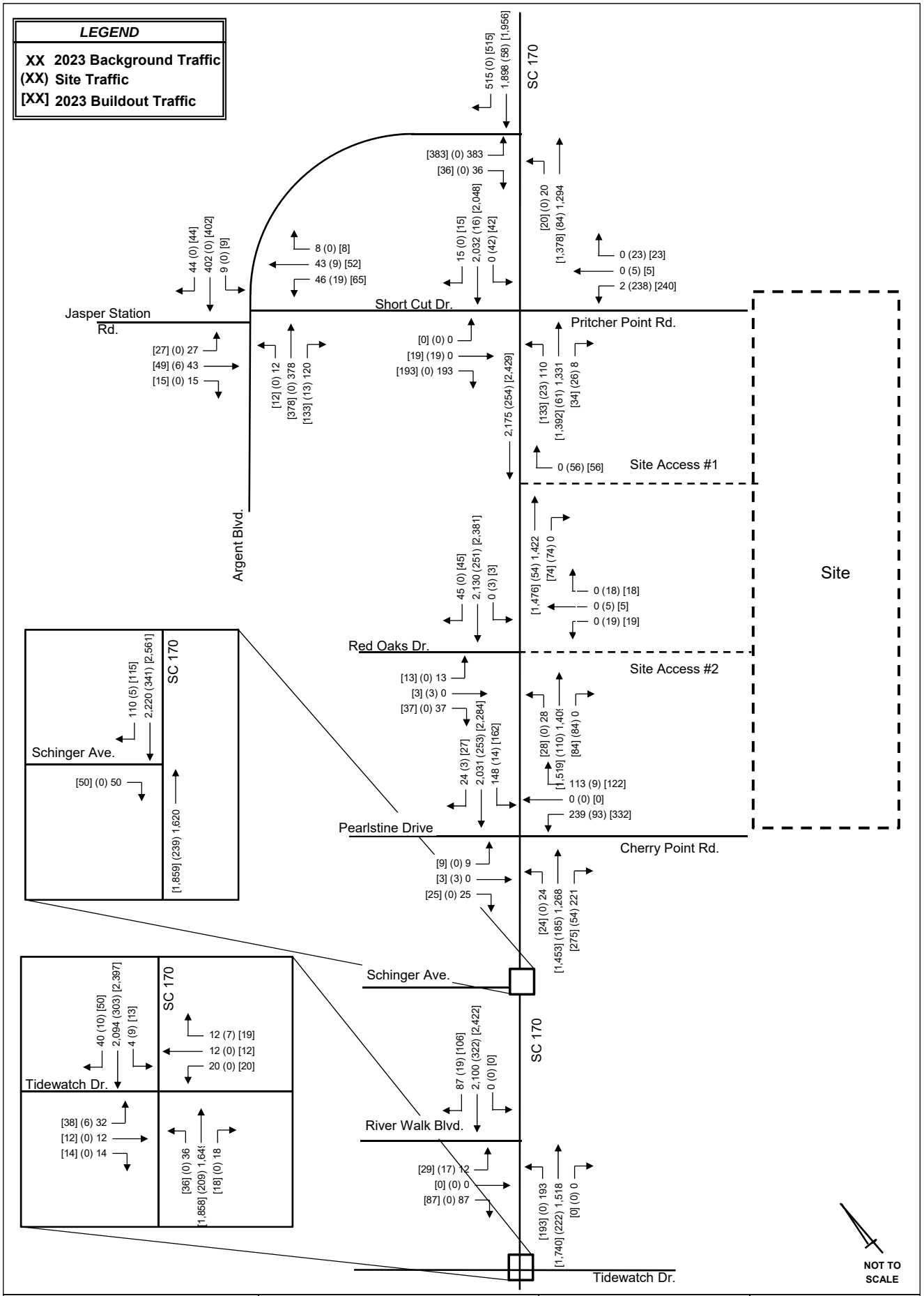
BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**2019 PM Peak Traffic Volumes**	**Figure 7**



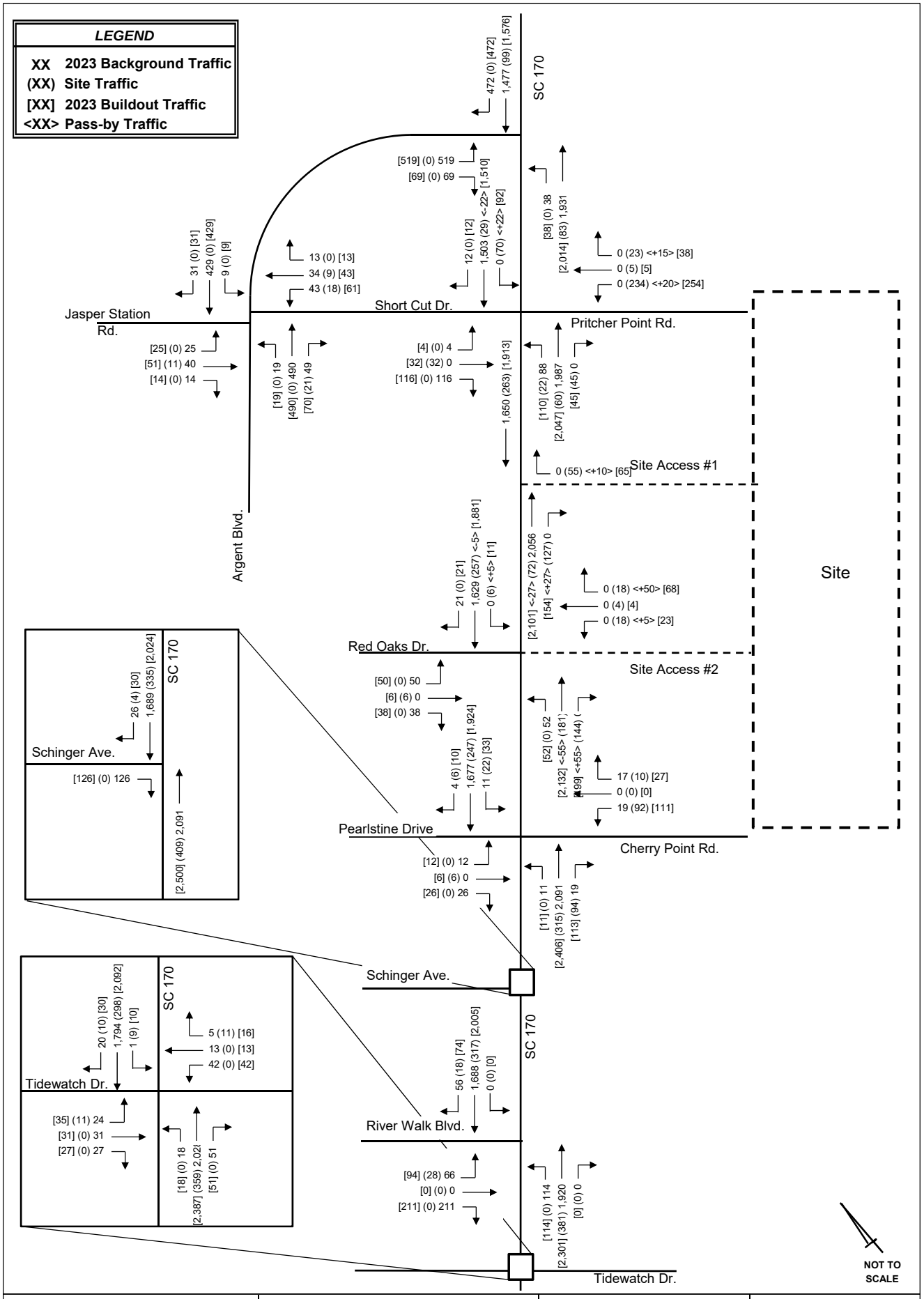
BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**2021 AM Peak Traffic Volumes**	**Figure 6**



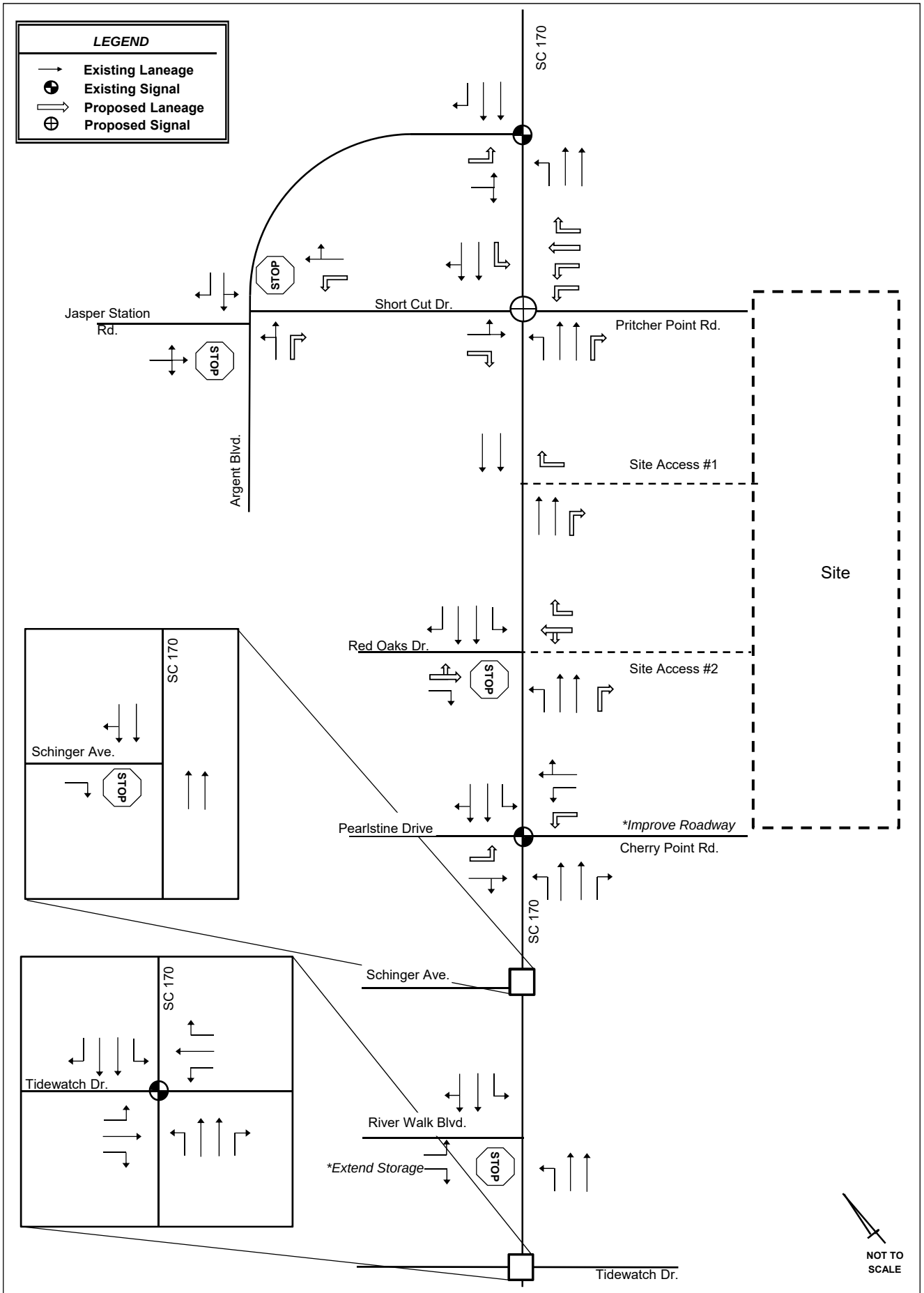
BIHL ENGINEERING	Okatie Village Traffic Impact Analysis	2021 PM Peak Traffic Volumes	Figure 7



BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**2023 AM Peak Traffic Volumes**	**Figure 10**



BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**2023 PM Peak Traffic Volumes**	**Figure 11**



BIHL ENGINEERING	**Okatie Village Traffic Impact Analysis**	**Proposed Lanage**	**Figure 12**

Short Counts

File Name : Argent Rd @ Short Cut Rd
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Argent Blvd From North				Short Cut Rd From East				Argent Blvd From South				Jasper Station Rd From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	1	61	9	0	10	10	4	0	2	80	28	0	6	9	1	0	221
07:15 AM	0	82	14	0	11	10	1	0	4	81	28	0	4	9	4	0	248
07:30 AM	3	97	10	0	13	8	2	0	3	84	30	0	6	18	4	0	278
07:45 AM	3	105	8	0	11	13	1	0	1	77	26	0	5	6	1	0	257
Total	7	345	41	0	45	41	8	0	10	322	112	0	21	42	10	0	1004
08:00 AM	2	84	8	0	7	8	3	0	3	104	26	0	10	6	5	0	266
08:15 AM	0	90	6	0	9	11	1	0	7	83	15	0	8	11	6	0	247
08:30 AM	0	97	7	0	1	9	1	0	2	80	11	0	9	4	2	0	223
08:45 AM	0	89	14	0	6	16	0	0	5	77	8	0	3	13	6	0	237
Total	2	360	35	0	23	44	5	0	17	344	60	0	30	34	19	0	973
02:00 PM	2	64	10	0	10	5	0	0	1	73	14	0	2	4	5	0	190
02:15 PM	1	76	6	0	5	8	4	0	4	69	13	0	5	8	1	0	200
02:30 PM	0	70	4	0	5	9	5	0	2	73	14	0	4	6	8	0	200
02:45 PM	0	89	4	0	10	11	1	0	4	62	12	0	3	6	4	0	206
Total	3	299	24	0	30	33	10	0	11	277	53	0	14	24	18	0	796
03:00 PM	1	79	5	0	12	10	1	0	5	84	10	0	5	5	2	0	219
03:15 PM	3	71	2	0	8	4	1	0	7	86	11	0	2	8	4	0	207
03:30 PM	1	85	4	0	8	8	1	0	4	83	16	0	2	7	1	0	220
03:45 PM	0	82	1	0	10	5	2	0	5	78	14	0	7	4	4	0	212
Total	5	317	12	0	38	27	5	0	21	331	51	0	16	24	11	0	858
04:00 PM	1	69	5	0	21	7	1	0	2	105	10	0	10	10	5	0	246
04:15 PM	0	94	3	0	15	8	0	0	5	96	13	0	2	3	3	0	242
04:30 PM	3	87	4	0	13	8	2	0	2	105	8	0	6	10	2	0	250
04:45 PM	1	87	9	0	6	9	2	0	1	111	15	0	7	7	3	0	258
Total	5	337	21	0	55	32	5	0	10	417	46	0	25	30	13	0	996
05:00 PM	1	108	8	0	9	6	8	0	3	122	15	0	8	12	4	0	304
05:15 PM	3	110	7	0	11	8	0	0	11	110	7	0	2	8	4	0	281
05:30 PM	2	84	12	0	5	9	2	0	7	96	14	0	5	10	1	0	247
05:45 PM	0	87	2	0	6	5	2	0	1	82	5	0	3	7	5	0	205
Total	6	389	29	0	31	28	12	0	22	410	41	0	18	37	14	0	1037
Grand Total	28	2047	162	0	222	205	45	0	91	2101	363	0	124	191	85	0	5664
Apprch %	1.3	91.5	7.2	0	47	43.4	9.5	0	3.6	82.2	14.2	0	31	47.8	21.2	0	
Total %	0.5	36.1	2.9	0	3.9	3.6	0.8	0	1.6	37.1	6.4	0	2.2	3.4	1.5	0	
Passenger Vehicles	28	1943	155	0	213	190	44	0	81	2001	350	0	112	175	82	0	5374
% Passenger Vehicles	100	94.9	95.7	0	95.9	92.7	97.8	0	89	95.2	96.4	0	90.3	91.6	96.5	0	94.9
Heavy Vehicles	0	84	7	0	4	15	1	0	8	90	11	0	12	16	3	0	251
% Heavy Vehicles	0	4.1	4.3	0	1.8	7.3	2.2	0	8.8	4.3	3	0	9.7	8.4	3.5	0	4.4
Buses	0	20	0	0	5	0	0	0	2	10	2	0	0	0	0	0	39
% Buses	0	1	0	0	2.3	0	0	0	2.2	0.5	0.6	0	0	0	0	0	0.7

Short Counts

File Name : Argent Rd @ Short Cut Rd
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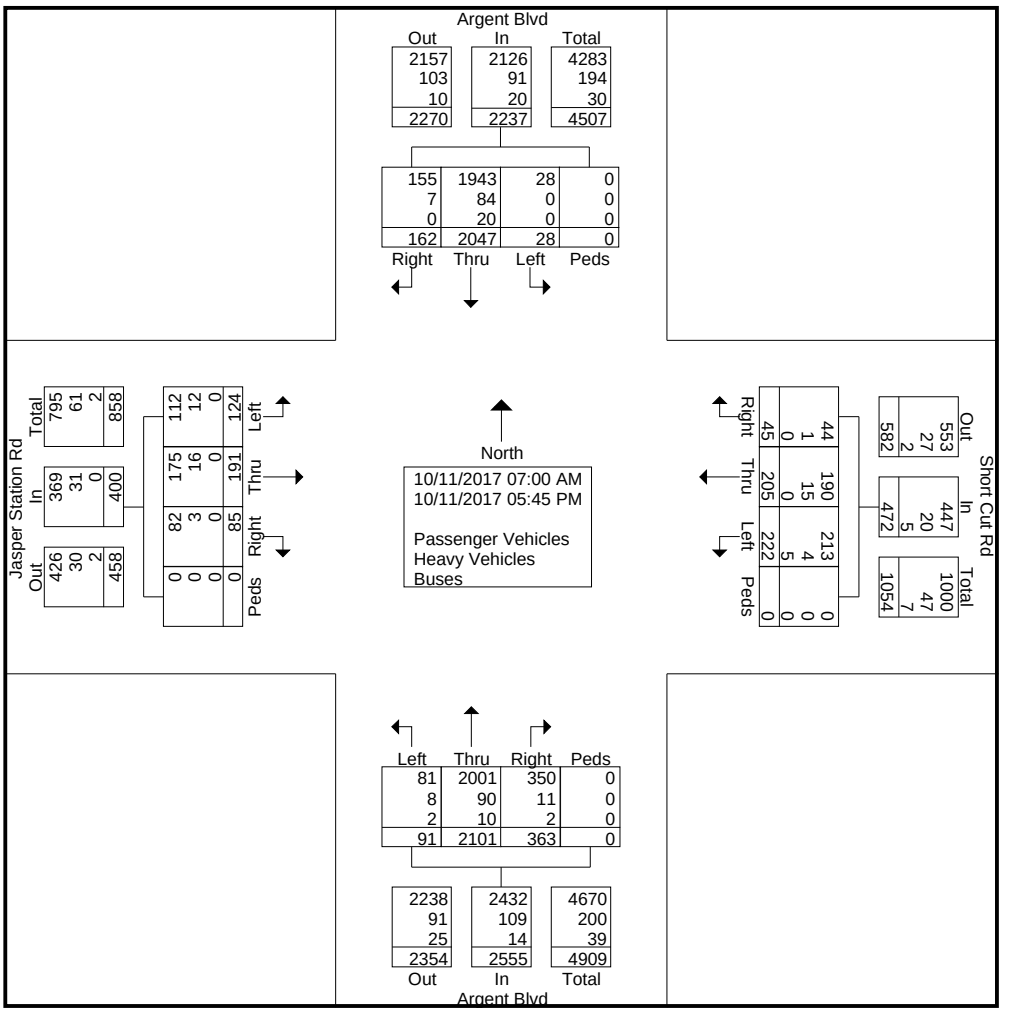
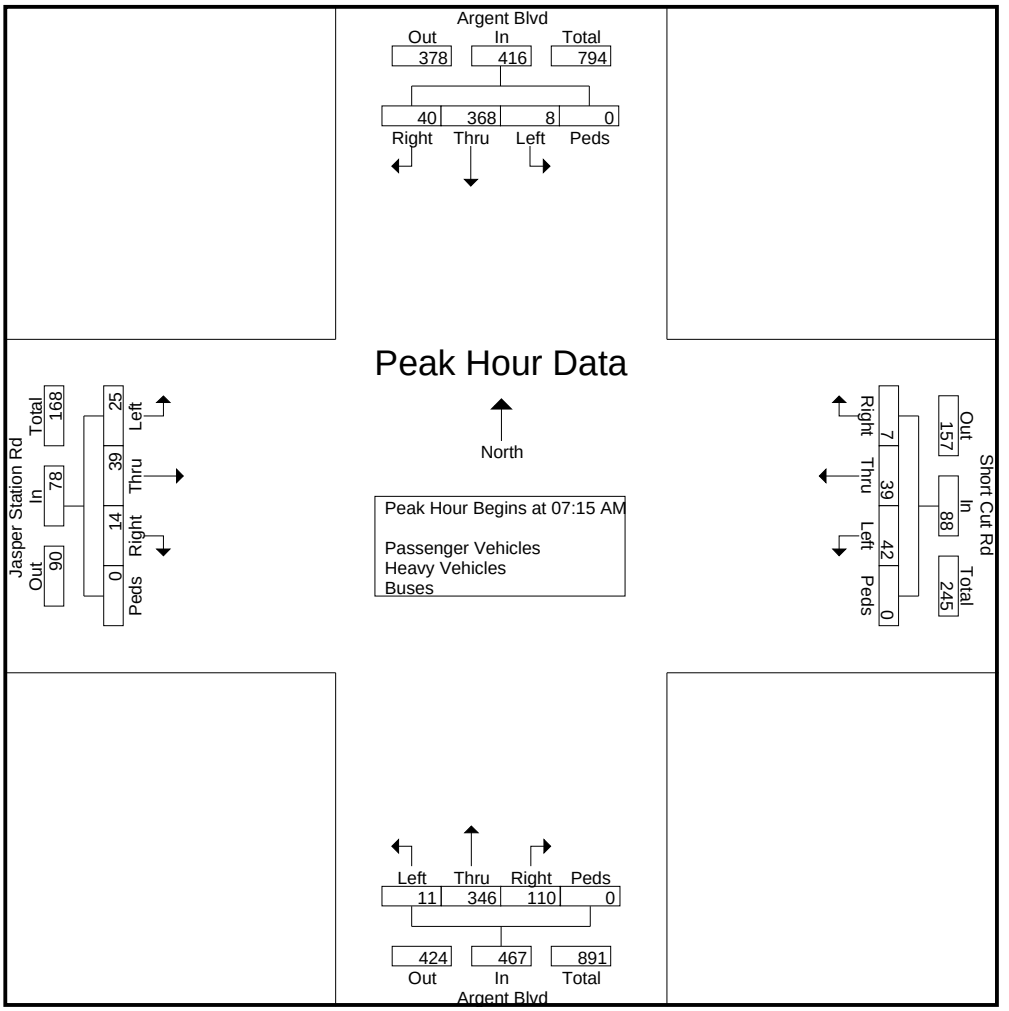


Short Counts

File Name : Argent Rd @ Short Cut Rd
Site Code :
Start Date : 10/11/2017
Page No : 3

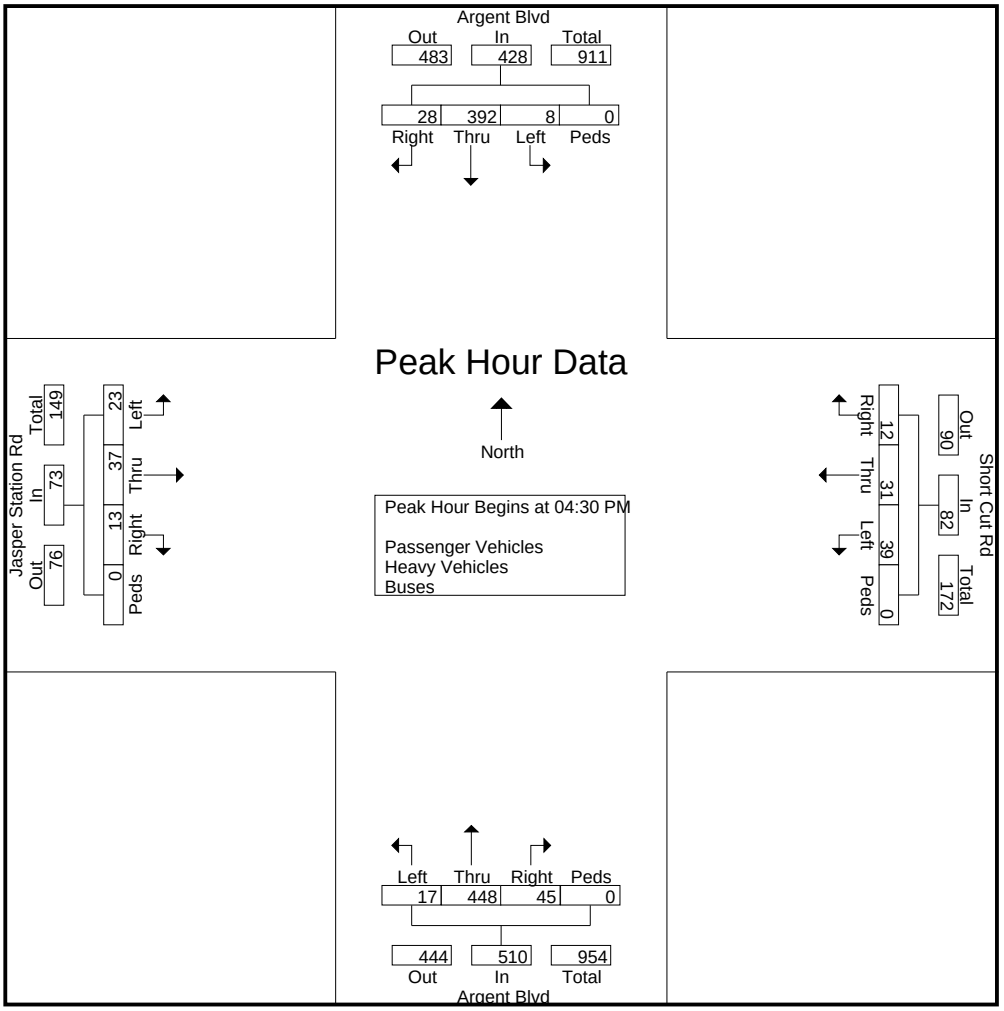
	Argent Blvd From North					Short Cut Rd From East					Argent Blvd From South					Jasper Station Rd From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	82	**14**	0	96	11	10	1	0	22	**4**	81	28	0	113	4	9	4	0	17	248
07:30 AM	**3**	97	10	0	110	**13**	8	2	0	23	3	84	**30**	0	117	6	**18**	4	0	**28**	**278**
07:45 AM	3	**105**	8	0	**116**	11	**13**	1	0	**25**	1	77	26	0	104	5	6	1	0	12	257
08:00 AM	2	84	8	0	94	7	8	**3**	0	18	3	**104**	26	0	**133**	**10**	6	**5**	0	21	266
Total Volume	8	368	40	0	416	42	39	7	0	88	11	346	110	0	467	25	39	14	0	78	1049
% App. Total	1.9	88.5	9.6	0		47.7	44.3	8	0		2.4	74.1	23.6	0		32.1	50	17.9	0		
PHF	.667	.876	.714	.000	.897	.808	.750	.583	.000	.880	.688	.832	.917	.000	.878	.625	.542	.700	.000	.696	.943



Short Counts

File Name : Argent Rd @ Short Cut Rd
Site Code :
Start Date : 10/11/2017
Page No : 4

	Argent Blvd From North					Short Cut Rd From East					Argent Blvd From South					Jasper Station Rd From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**3**	87	4	0	94	**13**	8	2	0	**23**	2	105	8	0	115	6	10	2	0	18	250
04:45 PM	1	87	**9**	0	97	6	**9**	2	0	17	1	111	**15**	0	127	7	7	3	0	17	258
05:00 PM	1	108	8	0	117	9	6	**8**	0	23	3	**122**	15	0	**140**	**8**	**12**	**4**	0	**24**	**304**
05:15 PM	3	**110**	7	0	**120**	11	8	0	0	19	**11**	110	7	0	128	2	8	4	0	14	281
Total Volume	8	392	28	0	428	39	31	12	0	82	17	448	45	0	510	23	37	13	0	73	1093
% App. Total	1.9	91.6	6.5	0		47.6	37.8	14.6	0		3.3	87.8	8.8	0		31.5	50.7	17.8	0		
PHF	.667	.891	.778	.000	.892	.750	.861	.375	.000	.891	.386	.918	.750	.000	.911	.719	.771	.813	.000	.760	.899



Short Counts

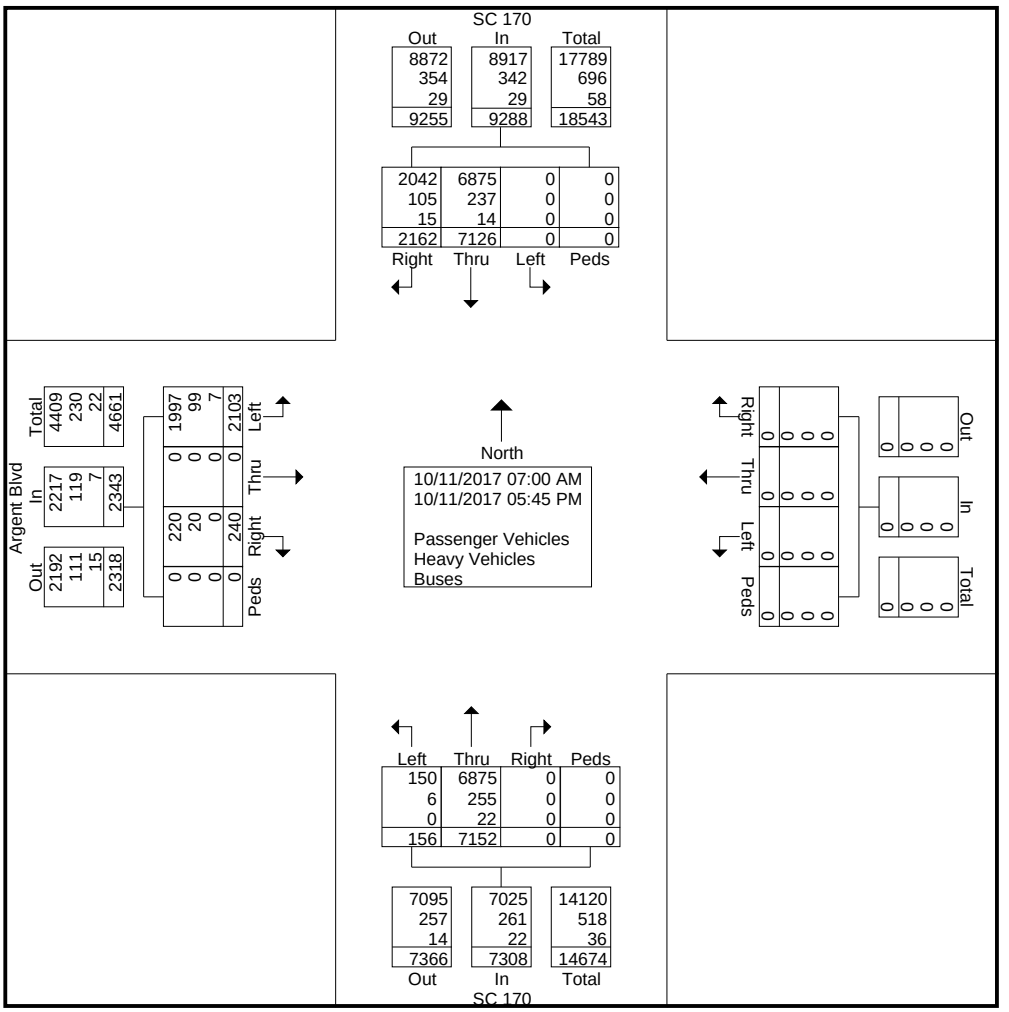
File Name : SC 170 @ Argent Blvd
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	SC 170 From North				From East				SC 170 From South				Argent Blvd From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	387	73	0	0	0	0	0	4	209	0	0	80	0	6	0	759
07:15 AM	0	383	113	0	0	0	0	0	2	231	0	0	83	0	12	0	824
07:30 AM	0	445	104	0	0	0	0	0	6	352	0	0	84	0	8	0	999
07:45 AM	0	389	124	0	0	0	0	0	4	271	0	0	72	0	3	0	863
Total	0	1604	414	0	0	0	0	0	16	1063	0	0	319	0	29	0	3445
08:00 AM	0	382	93	0	0	0	0	0	5	236	0	0	111	0	10	0	837
08:15 AM	0	301	87	0	0	0	0	0	7	272	0	0	73	0	8	0	748
08:30 AM	0	266	122	0	0	0	0	0	3	214	0	0	85	0	5	0	695
08:45 AM	0	236	96	0	0	0	0	0	2	195	0	0	73	0	5	0	607
Total	0	1185	398	0	0	0	0	0	17	917	0	0	342	0	28	0	2887
02:00 PM	0	244	69	0	0	0	0	0	8	233	0	0	74	0	18	0	646
02:15 PM	0	231	87	0	0	0	0	0	8	239	0	0	76	0	10	0	651
02:30 PM	0	258	63	0	0	0	0	0	5	233	0	0	71	0	7	0	637
02:45 PM	0	214	89	0	0	0	0	0	5	241	0	0	68	0	6	0	623
Total	0	947	308	0	0	0	0	0	26	946	0	0	289	0	41	0	2557
03:00 PM	0	226	78	0	0	0	0	0	9	298	0	0	71	0	11	0	693
03:15 PM	0	255	89	0	0	0	0	0	5	323	0	0	87	0	7	0	766
03:30 PM	0	301	69	0	0	0	0	0	6	283	0	0	84	0	12	0	755
03:45 PM	0	266	70	0	0	0	0	0	14	315	0	0	74	0	13	0	752
Total	0	1048	306	0	0	0	0	0	34	1219	0	0	316	0	43	0	2966
04:00 PM	0	274	86	0	0	0	0	0	4	333	0	0	126	0	12	0	835
04:15 PM	0	237	91	0	0	0	0	0	8	372	0	0	100	0	13	0	821
04:30 PM	0	310	74	0	0	0	0	0	12	327	0	0	97	0	11	0	831
04:45 PM	0	324	106	0	0	0	0	0	4	357	0	0	114	0	17	0	922
Total	0	1145	357	0	0	0	0	0	28	1389	0	0	437	0	53	0	3409
05:00 PM	0	322	105	0	0	0	0	0	15	417	0	0	114	0	12	0	985
05:15 PM	0	323	96	0	0	0	0	0	8	431	0	0	106	0	18	0	982
05:30 PM	0	275	91	0	0	0	0	0	5	422	0	0	103	0	11	0	907
05:45 PM	0	277	87	0	0	0	0	0	7	348	0	0	77	0	5	0	801
Total	0	1197	379	0	0	0	0	0	35	1618	0	0	400	0	46	0	3675
Grand Total	0	7126	2162	0	0	0	0	0	156	7152	0	0	2103	0	240	0	18939
Apprch %	0	76.7	23.3	0	0	0	0	0	2.1	97.9	0	0	89.8	0	10.2	0	
Total %	0	37.6	11.4	0	0	0	0	0	0.8	37.8	0	0	11.1	0	1.3	0	
Passenger Vehicles	0	6875	2042	0	0	0	0	0	150	6875	0	0	1997	0	220	0	18159
% Passenger Vehicles	0	96.5	94.4	0	0	0	0	0	96.2	96.1	0	0	95	0	91.7	0	95.9
Heavy Vehicles	0	237	105	0	0	0	0	0	6	255	0	0	99	0	20	0	722
% Heavy Vehicles	0	3.3	4.9	0	0	0	0	0	3.8	3.6	0	0	4.7	0	8.3	0	3.8
Buses	0	14	15	0	0	0	0	0	0	22	0	0	7	0	0	0	58
% Buses	0	0.2	0.7	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0.3

Short Counts

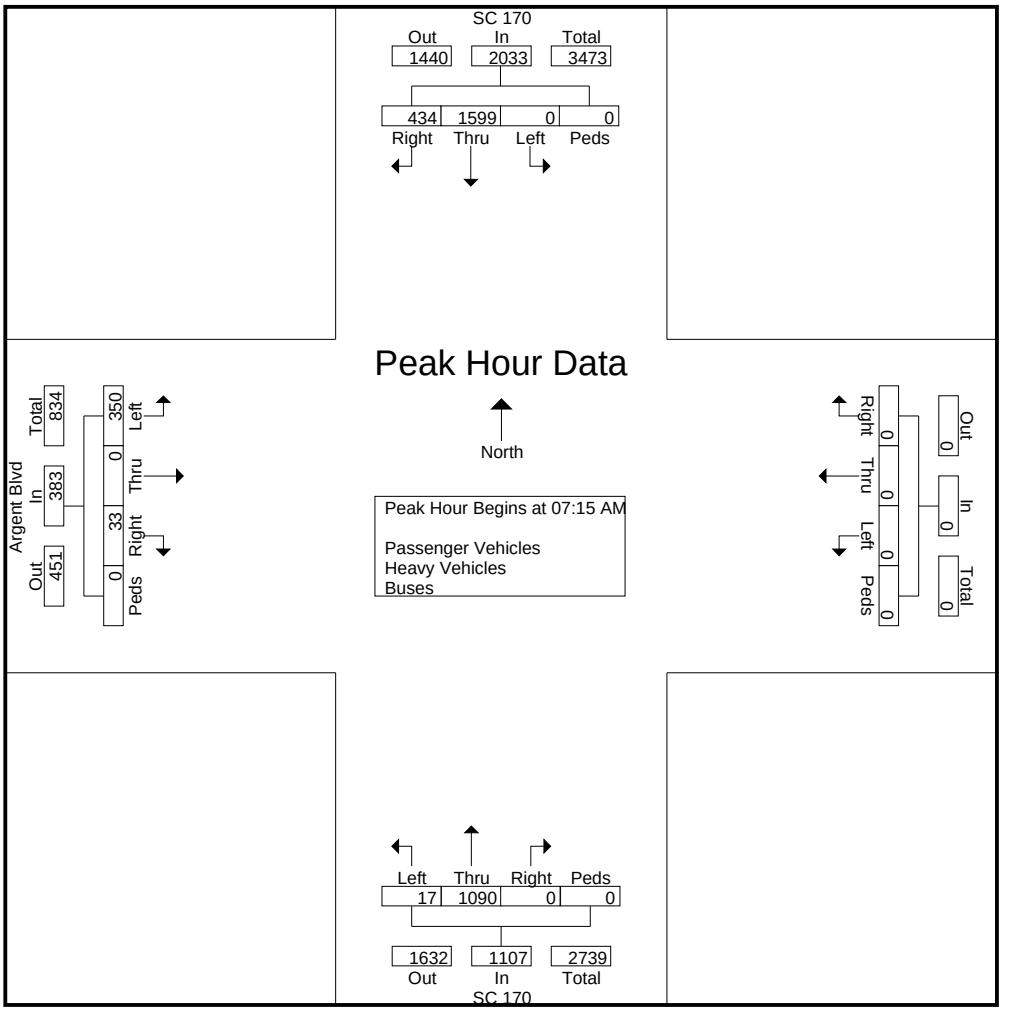
File Name : SC 170 @ Argent Blvd
Site Code :
Start Date : 10/11/2017
Page No : 2



Short Counts

File Name : SC 170 @ Argent Blvd
Site Code :
Start Date : 10/11/2017
Page No : 3

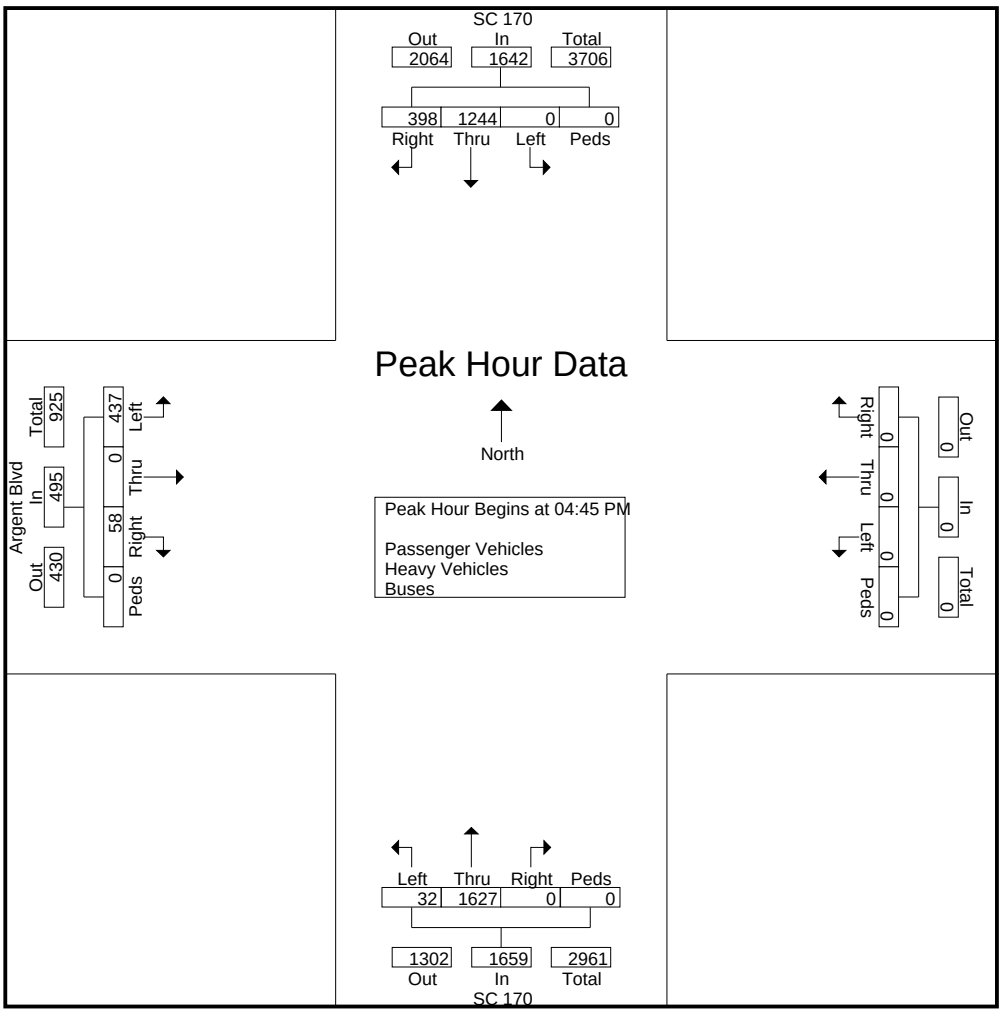
	SC 170 From North					From East					SC 170 From South					Argent Blvd From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	383	113	0	496	0	0	0	0	0	2	231	0	0	233	83	0	**12**	0	95	824
07:30 AM	0	**445**	104	0	**549**	0	0	0	0	0	**6**	**352**	0	0	**358**	84	0	8	0	92	**999**
07:45 AM	0	389	**124**	0	513	0	0	0	0	0	4	271	0	0	275	72	0	3	0	75	863
08:00 AM	0	382	93	0	475	0	0	0	0	0	5	236	0	0	241	**111**	0	10	0	**121**	837
Total Volume	0	1599	434	0	2033	0	0	0	0	0	17	1090	0	0	1107	350	0	33	0	383	3523
% App. Total	0	78.7	21.3	0		0	0	0	0		1.5	98.5	0	0		91.4	0	8.6	0		
PHF	.000	.898	.875	.000	.926	.000	.000	.000	.000	.000	.708	.774	.000	.000	.773	.788	.000	.688	.000	.791	.882



Short Counts

File Name : SC 170 @ Argent Blvd
Site Code :
Start Date : 10/11/2017
Page No : 4

	SC 170 From North					From East					SC 170 From South					Argent Blvd From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	**324**	**106**	0	**430**	0	0	0	0	0	4	357	0	0	361	**114**	0	17	0	**131**	922
05:00 PM	0	322	105	0	427	0	0	0	0	0	**15**	417	0	0	432	114	0	12	0	126	**985**
05:15 PM	0	323	96	0	419	0	0	0	0	0	8	**431**	0	0	**439**	106	0	**18**	0	124	982
05:30 PM	0	275	91	0	366	0	0	0	0	0	5	422	0	0	427	103	0	11	0	114	907
Total Volume	0	1244	398	0	1642	0	0	0	0	0	32	1627	0	0	1659	437	0	58	0	495	3796
% App. Total	0	75.8	24.2	0		0	0	0	0		1.9	98.1	0	0		88.3	0	11.7	0		
PHF	.000	.960	.939	.000	.955	.000	.000	.000	.000	.000	.533	.944	.000	.000	.945	.958	.000	.806	.000	.945	.963



Short Counts

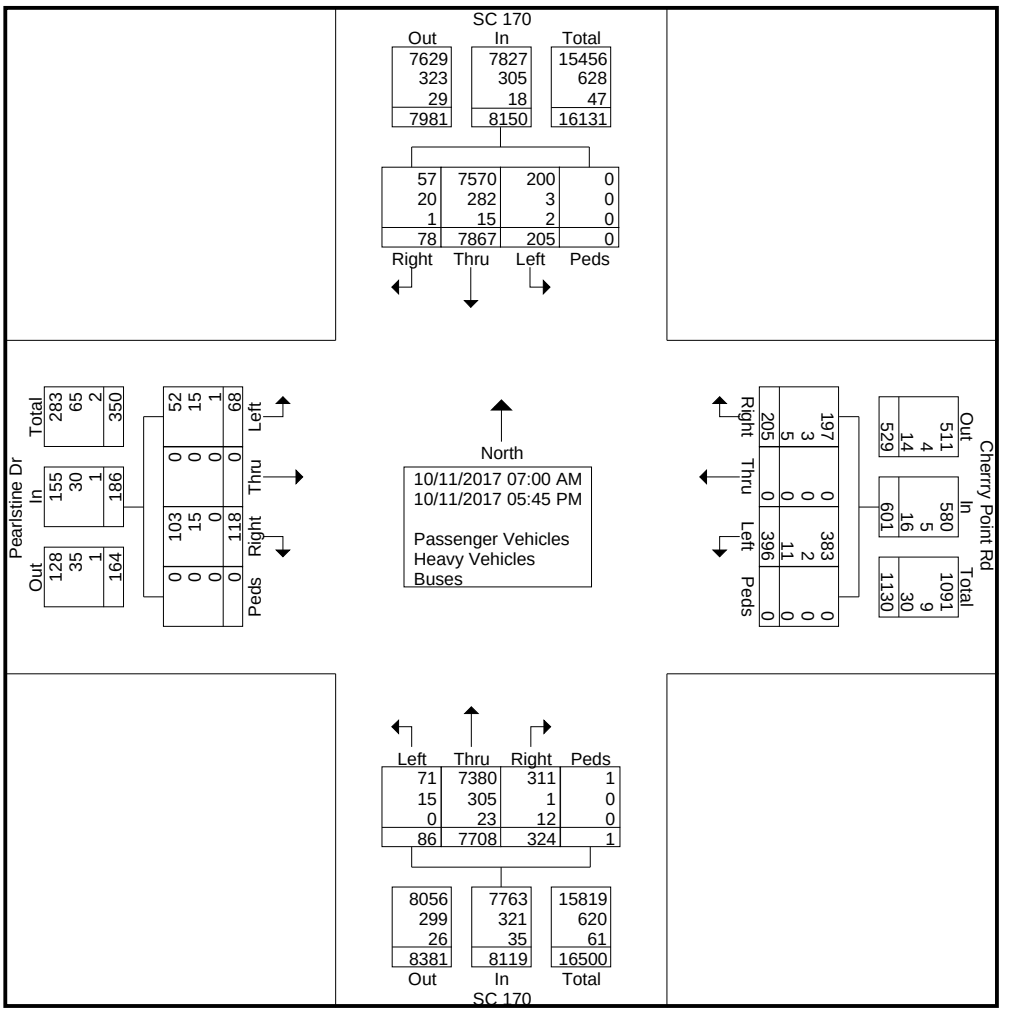
File Name : SC 170 @ Pearlstine-Cherry Point
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	SC 170 From North				Cherrry Point Rd From East				SC 170 From South				Pearlstine Dr From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	33	404	13	0	44	0	15	0	5	215	37	0	1	0	2	0	769
07:15 AM	47	405	2	0	46	0	20	0	4	252	69	0	3	0	1	0	849
07:30 AM	41	458	0	0	79	0	50	0	6	318	75	0	4	0	11	0	1042
07:45 AM	4	444	5	0	32	0	10	0	5	283	5	0	0	0	7	0	795
Total	125	1711	20	0	201	0	95	0	20	1068	186	0	8	0	21	0	3455
08:00 AM	0	430	4	0	5	0	4	0	3	276	2	0	2	0	5	0	731
08:15 AM	2	370	5	0	3	0	1	0	2	281	3	0	1	0	3	0	671
08:30 AM	2	275	7	0	3	0	0	0	5	247	1	0	2	0	3	0	545
08:45 AM	2	314	4	0	1	0	1	0	7	238	3	0	2	0	7	0	579
Total	6	1389	20	0	12	0	6	0	17	1042	9	0	7	0	18	0	2526
02:00 PM	9	255	3	0	1	0	4	0	7	275	12	1	3	0	5	0	575
02:15 PM	10	253	4	0	2	0	3	0	4	254	14	0	2	0	4	0	550
02:30 PM	11	272	7	0	2	0	4	0	5	263	21	0	6	0	8	0	599
02:45 PM	16	244	5	0	31	0	23	0	5	269	25	0	7	0	5	0	630
Total	46	1024	19	0	36	0	34	0	21	1061	72	1	18	0	22	0	2354
03:00 PM	3	236	3	0	68	0	25	0	4	292	8	0	11	0	5	0	655
03:15 PM	2	280	5	0	19	0	11	0	3	333	2	0	1	0	5	0	661
03:30 PM	1	308	3	0	7	0	3	0	6	304	2	0	2	0	9	0	645
03:45 PM	1	324	0	0	6	0	3	0	1	356	4	0	2	0	2	0	699
Total	7	1148	11	0	100	0	42	0	14	1285	16	0	16	0	21	0	2660
04:00 PM	6	292	1	0	14	0	4	0	3	381	11	0	6	0	4	0	722
04:15 PM	0	272	1	0	11	0	5	0	0	419	4	0	1	0	6	0	719
04:30 PM	3	323	3	0	3	0	5	0	2	346	8	0	1	0	3	0	697
04:45 PM	4	359	0	0	4	0	5	0	6	390	4	0	2	0	5	0	779
Total	13	1246	5	0	32	0	19	0	11	1536	27	0	10	0	18	0	2917
05:00 PM	2	371	3	0	3	0	3	0	2	461	5	0	4	0	9	0	863
05:15 PM	2	345	0	0	7	0	2	0	0	447	1	0	2	0	3	0	809
05:30 PM	1	338	0	0	2	0	4	0	1	463	6	0	2	0	5	0	822
05:45 PM	3	295	0	0	3	0	0	0	0	345	2	0	1	0	1	0	650
Total	8	1349	3	0	15	0	9	0	3	1716	14	0	9	0	18	0	3144
Grand Total	205	7867	78	0	396	0	205	0	86	7708	324	1	68	0	118	0	17056
Apprch %	2.5	96.5	1	0	65.9	0	34.1	0	1.1	94.9	4	0	36.6	0	63.4	0	
Total %	1.2	46.1	0.5	0	2.3	0	1.2	0	0.5	45.2	1.9	0	0.4	0	0.7	0	
Passenger Vehicles	200	7570	57	0	383	0	197	0	71	7380	311	1	52	0	103	0	16325
% Passenger Vehicles	97.6	96.2	73.1	0	96.7	0	96.1	0	82.6	95.7	96	100	76.5	0	87.3	0	95.7
Heavy Vehicles	3	282	20	0	2	0	3	0	15	305	1	0	15	0	15	0	661
% Heavy Vehicles	1.5	3.6	25.6	0	0.5	0	1.5	0	17.4	4	0.3	0	22.1	0	12.7	0	3.9
Buses	2	15	1	0	11	0	5	0	0	23	12	0	1	0	0	0	70
% Buses	1	0.2	1.3	0	2.8	0	2.4	0	0	0.3	3.7	0	1.5	0	0	0	0.4

Short Counts

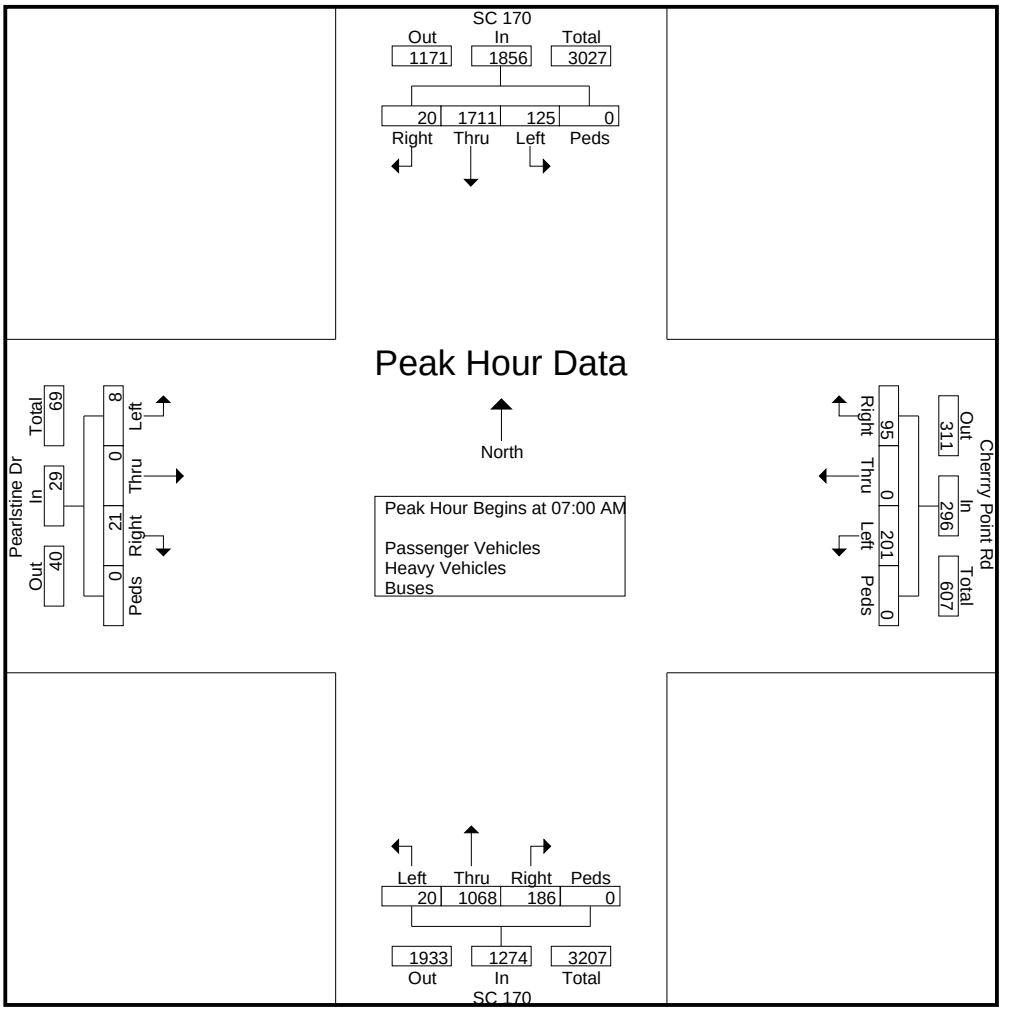
File Name : SC 170 @ Pearlstine-Cherry Point
Site Code :
Start Date : 10/11/2017
Page No : 2



Short Counts

File Name : SC 170 @ Pearlstine-Cherry Point
Site Code :
Start Date : 10/11/2017
Page No : 3

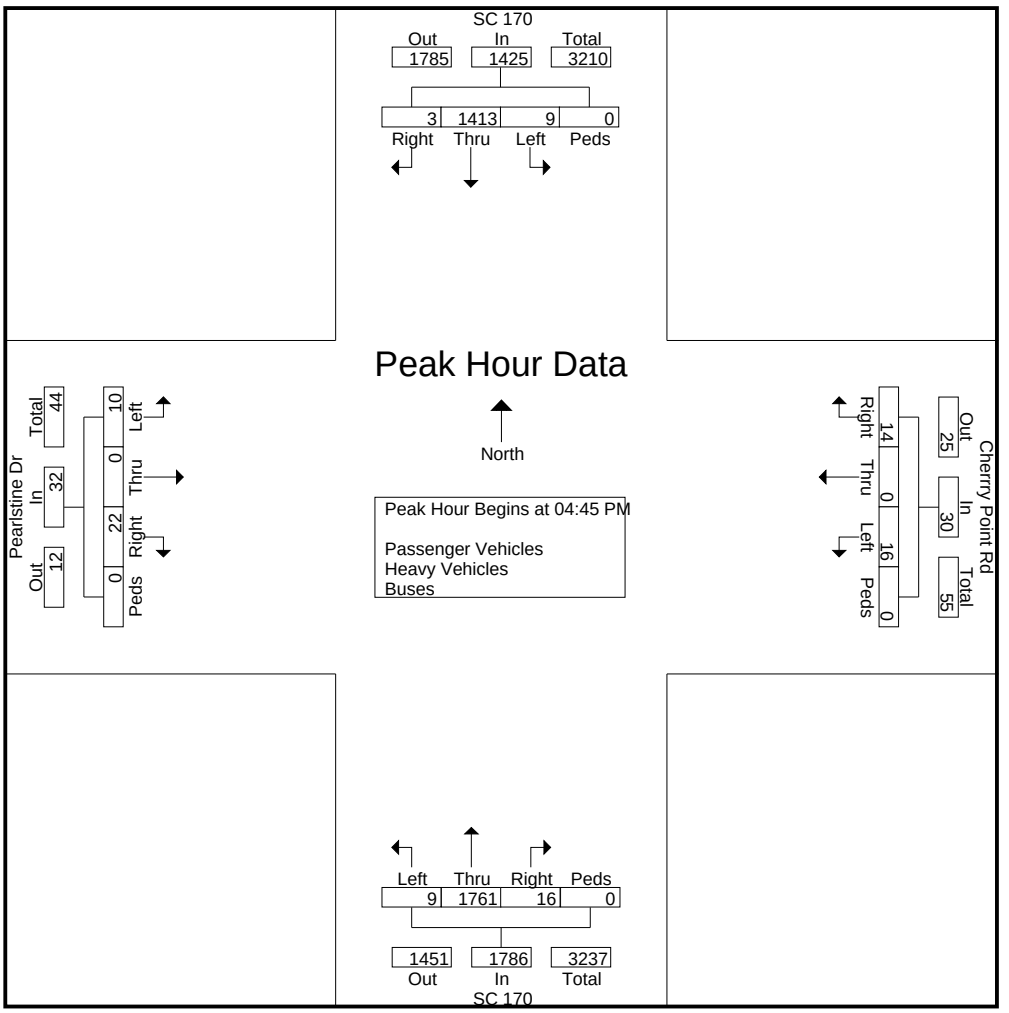
	SC 170 From North					Cherrry Point Rd From East					SC 170 From South					Pearlstine Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	33	404	**13**	0	450	44	0	15	0	59	5	215	37	0	257	1	0	2	0	3	769
07:15 AM	**47**	405	2	0	454	46	0	20	0	66	4	252	69	0	325	3	0	1	0	4	849
07:30 AM	41	**458**	0	0	**499**	**79**	0	**50**	0	**129**	**6**	**318**	**75**	0	**399**	**4**	0	**11**	0	**15**	**1042**
07:45 AM	4	444	5	0	453	32	0	10	0	42	5	283	5	0	293	0	0	7	0	7	795
Total Volume	125	1711	20	0	1856	201	0	95	0	296	20	1068	186	0	1274	8	0	21	0	29	3455
% App. Total	6.7	92.2	1.1	0		67.9	0	32.1	0		1.6	83.8	14.6	0		27.6	0	72.4	0		
PHF	.665	.934	.385	.000	.930	.636	.000	.475	.000	.574	.833	.840	.620	.000	.798	.500	.000	.477	.000	.483	.829



Short Counts

File Name : SC 170 @ Pearlstine-Cherry Point
Site Code :
Start Date : 10/11/2017
Page No : 4

	SC 170 From North					Cherrry Point Rd From East					SC 170 From South					Pearlstine Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**4**	359	0	0	363	4	0	**5**	0	**9**	**6**	390	4	0	400	2	0	5	0	7	779
05:00 PM	2	**371**	**3**	0	**376**	3	0	3	0	6	2	461	5	0	468	**4**	0	**9**	0	**13**	**863**
05:15 PM	2	345	0	0	347	**7**	0	2	0	9	0	447	1	0	448	2	0	3	0	5	809
05:30 PM	1	338	0	0	339	2	0	4	0	6	1	**463**	**6**	0	**470**	2	0	5	0	7	822
Total Volume	9	1413	3	0	1425	16	0	14	0	30	9	1761	16	0	1786	10	0	22	0	32	3273
% App. Total	0.6	99.2	0.2	0		53.3	0	46.7	0		0.5	98.6	0.9	0		31.2	0	68.8	0		
PHF	.563	.952	.250	.000	.947	.571	.000	.700	.000	.833	.375	.951	.667	.000	.950	.625	.000	.611	.000	.615	.948



Short Counts

File Name : SC 170 @ Tide Watch Dr
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	SC 170 From North				Tidewatch Dr From East				SC 170 From South				Tidewatch Dr From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	432	5	0	2	0	1	0	4	277	3	0	7	0	2	0	733
07:15 AM	0	436	6	0	4	2	1	0	4	346	1	0	3	2	0	0	805
07:30 AM	2	492	6	0	2	2	3	0	8	418	5	0	6	5	2	0	951
07:45 AM	0	439	10	0	4	1	2	0	10	322	4	0	8	1	6	0	807
Total	2	1799	27	0	12	5	7	0	26	1363	13	0	24	8	10	0	3296
08:00 AM	1	397	12	0	7	5	4	0	8	303	5	0	10	2	4	0	758
08:15 AM	0	359	18	0	7	6	0	0	9	301	1	0	3	3	9	0	716
08:30 AM	0	306	8	1	5	4	3	0	6	260	4	0	5	5	9	0	616
08:45 AM	0	309	12	0	9	7	3	0	14	245	4	0	11	6	7	0	627
Total	1	1371	50	1	28	22	10	0	37	1109	14	0	29	16	29	0	2717
02:00 PM	3	269	6	0	17	5	1	0	13	295	14	0	3	7	8	0	641
02:15 PM	1	279	11	1	7	6	2	0	8	277	11	0	3	5	6	0	617
02:30 PM	0	277	10	0	8	5	0	0	6	282	11	0	6	5	11	0	621
02:45 PM	2	274	4	0	6	4	0	0	10	314	10	0	5	5	12	0	646
Total	6	1099	31	1	38	20	3	0	37	1168	46	0	17	22	37	0	2525
03:00 PM	3	315	6	0	11	1	3	0	5	292	11	0	8	3	7	0	665
03:15 PM	3	293	3	0	9	1	0	0	4	335	14	0	8	4	7	0	681
03:30 PM	3	346	6	0	6	1	0	0	6	331	6	0	9	3	9	0	726
03:45 PM	2	320	9	0	12	4	3	0	6	360	10	0	5	9	4	0	744
Total	11	1274	24	0	38	7	6	0	21	1318	41	0	30	19	27	0	2816
04:00 PM	4	314	7	0	6	2	2	0	4	394	12	0	7	13	11	0	776
04:15 PM	0	312	6	0	5	4	0	0	9	401	11	0	9	5	5	0	767
04:30 PM	0	345	5	0	9	1	1	0	6	354	8	0	9	7	5	0	750
04:45 PM	0	347	1	0	6	3	0	0	4	394	11	0	2	11	7	0	786
Total	4	1318	19	0	26	10	3	0	23	1543	42	0	27	36	28	0	3079
05:00 PM	1	433	6	0	5	2	0	0	1	434	9	0	9	7	4	0	911
05:15 PM	0	366	6	0	10	4	1	0	7	446	8	0	7	4	6	0	865
05:30 PM	0	365	4	0	14	2	3	0	3	434	15	0	2	4	6	0	852
05:45 PM	1	303	6	0	8	3	1	0	1	353	13	0	3	5	7	0	704
Total	2	1467	22	0	37	11	5	0	12	1667	45	0	21	20	23	0	3332
Grand Total	26	8328	173	2	179	75	34	0	156	8168	201	0	148	121	154	0	17765
Apprch %	0.3	97.6	2	0	62.2	26	11.8	0	1.8	95.8	2.4	0	35	28.6	36.4	0	
Total %	0.1	46.9	1	0	1	0.4	0.2	0	0.9	46	1.1	0	0.8	0.7	0.9	0	
Passenger Vehicles	26	8025	164	2	179	65	34	0	139	7841	201	0	147	121	144	0	17088
% Passenger Vehicles	100	96.4	94.8	100	100	86.7	100	0	89.1	96	100	0	99.3	100	93.5	0	96.2
Heavy Vehicles	0	272	9	0	0	10	0	0	16	289	0	0	1	0	9	0	606
% Heavy Vehicles	0	3.3	5.2	0	0	13.3	0	0	10.3	3.5	0	0	0.7	0	5.8	0	3.4
Buses	0	31	0	0	0	0	0	0	1	38	0	0	0	0	1	0	71
% Buses	0	0.4	0	0	0	0	0	0	0.6	0.5	0	0	0	0	0.6	0	0.4

Short Counts

File Name : SC 170 @ Tide Watch Dr
Site Code :
Start Date : 10/11/2017
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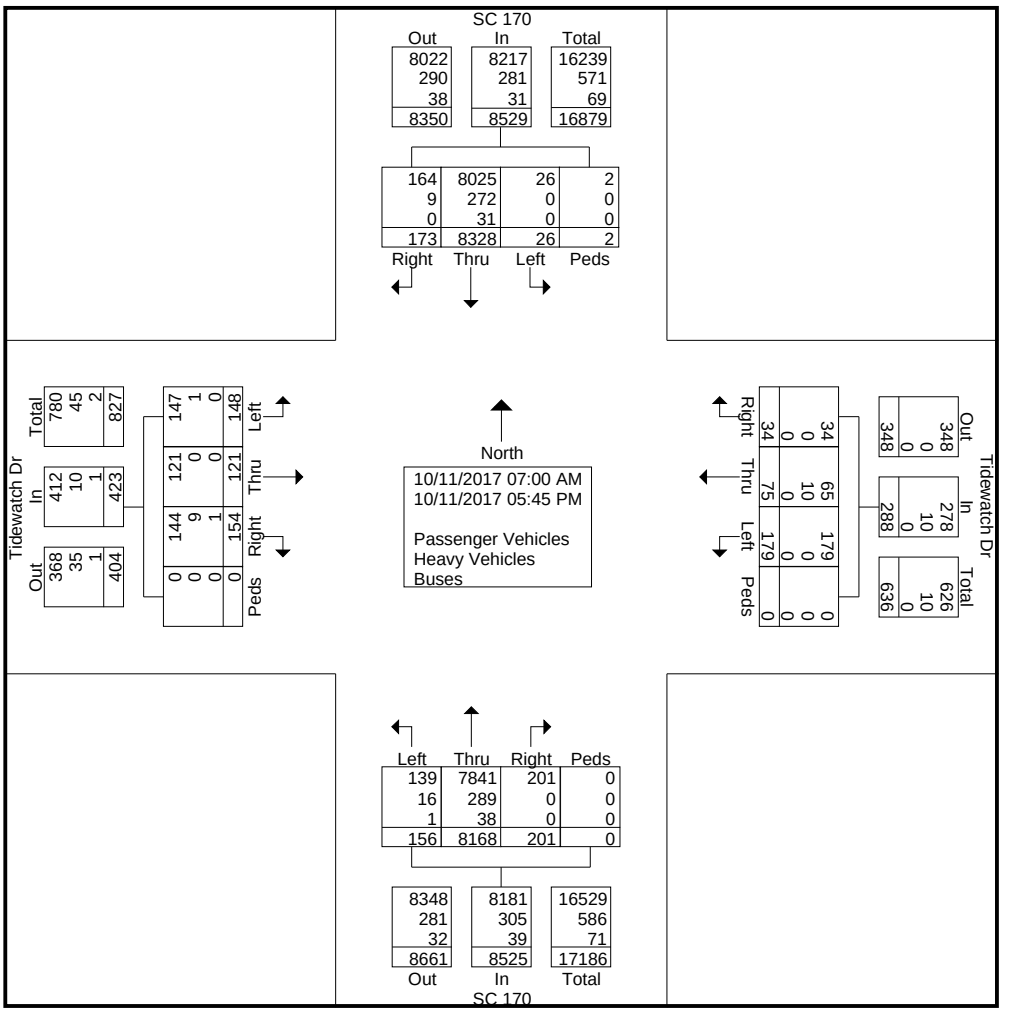
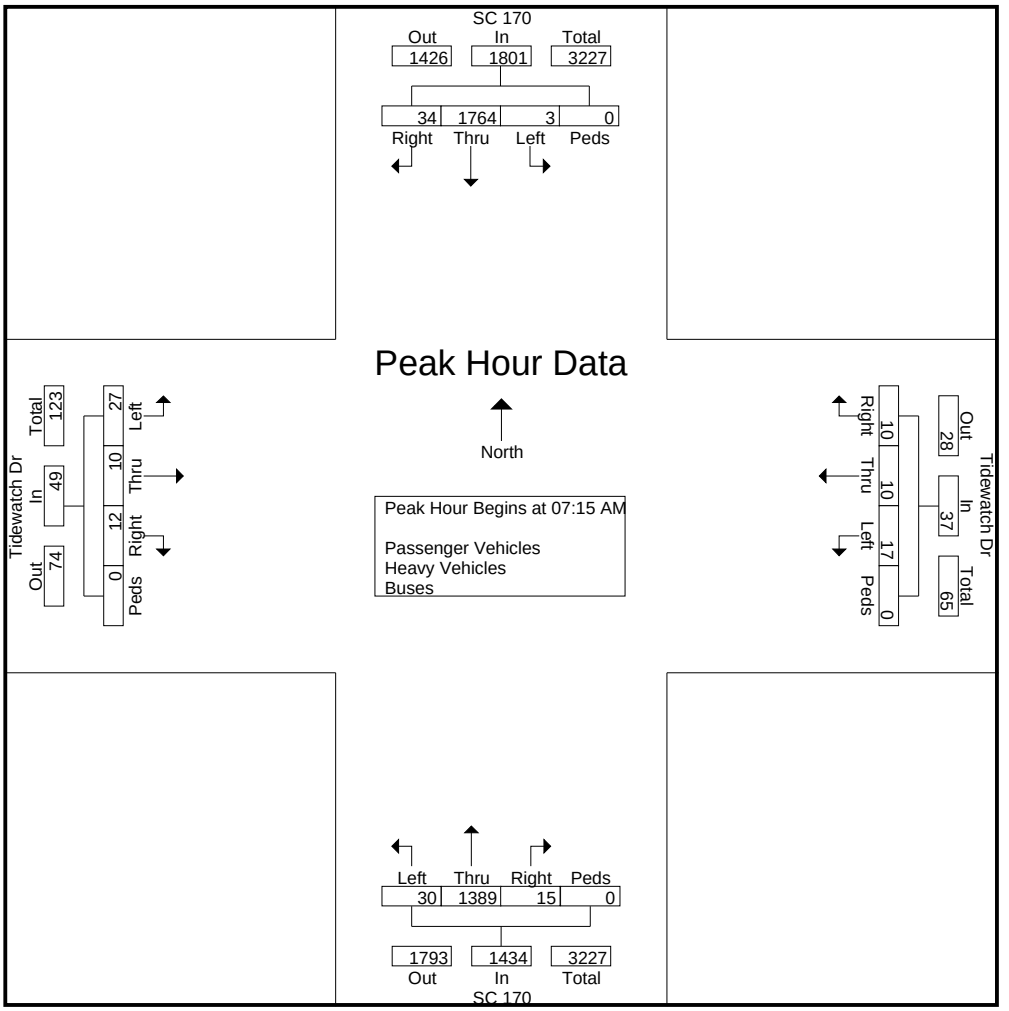


Short Counts

File Name : SC 170 @ Tide Watch Dr
Site Code :
Start Date : 10/11/2017
Page No : 3

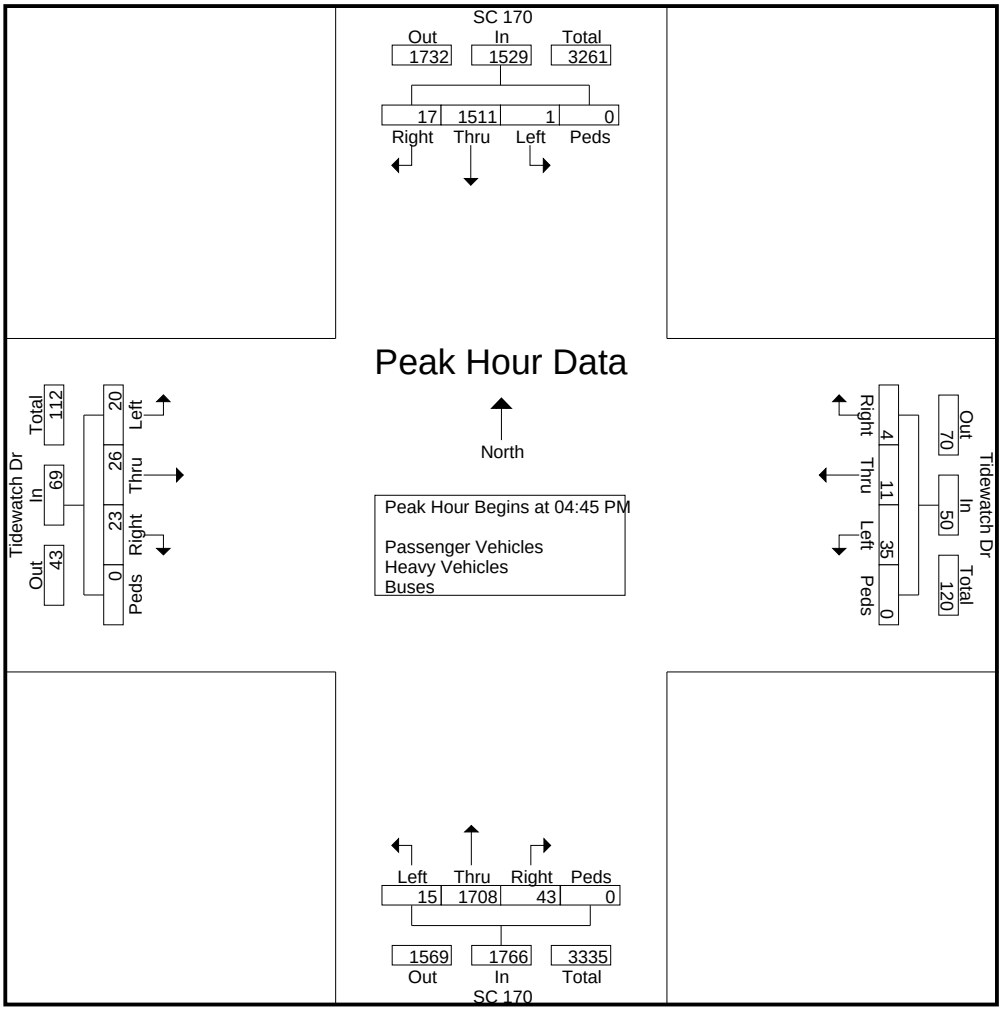
	SC 170 From North					Tidewatch Dr From East					SC 170 From South					Tidewatch Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	436	6	0	442	4	2	1	0	7	4	346	1	0	351	3	2	0	0	5	805
07:30 AM	**2**	**492**	6	0	**500**	2	2	3	0	7	8	**418**	**5**	0	**431**	6	**5**	2	0	13	**951**
07:45 AM	0	439	10	0	449	4	1	2	0	7	**10**	322	4	0	336	8	1	**6**	0	15	807
08:00 AM	1	397	**12**	0	410	**7**	**5**	**4**	0	**16**	8	303	5	0	316	**10**	2	4	0	**16**	758
Total Volume	3	1764	34	0	1801	17	10	10	0	37	30	1389	15	0	1434	27	10	12	0	49	3321
% App. Total	0.2	97.9	1.9	0		45.9	27	27	0		2.1	96.9	1	0		55.1	20.4	24.5	0		
PHF	.375	.896	.708	.000	.901	.607	.500	.625	.000	.578	.750	.831	.750	.000	.832	.675	.500	.500	.000	.766	.873



Short Counts

File Name : SC 170 @ Tide Watch Dr
Site Code :
Start Date : 10/11/2017
Page No : 4

	SC 170 From North					Tidewatch Dr From East					SC 170 From South					Tidewatch Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	347	1	0	348	6	3	0	0	9	4	394	11	0	409	2	**11**	**7**	0	**20**	786
05:00 PM	**1**	**433**	**6**	0	**440**	5	2	0	0	7	1	434	9	0	444	**9**	7	4	0	20	**911**
05:15 PM	0	366	6	0	372	10	**4**	1	0	15	**7**	**446**	8	0	**461**	7	4	6	0	17	865
05:30 PM	0	365	4	0	369	**14**	2	**3**	0	**19**	3	434	**15**	0	452	2	4	6	0	12	852
Total Volume	1	1511	17	0	1529	35	11	4	0	50	15	1708	43	0	1766	20	26	23	0	69	3414
% App. Total	0.1	98.8	1.1	0		70	22	8	0		0.8	96.7	2.4	0		29	37.7	33.3	0		
PHF	.250	.872	.708	.000	.869	.625	.688	.333	.000	.658	.536	.957	.717	.000	.958	.556	.591	.821	.000	.863	.937



Short Counts

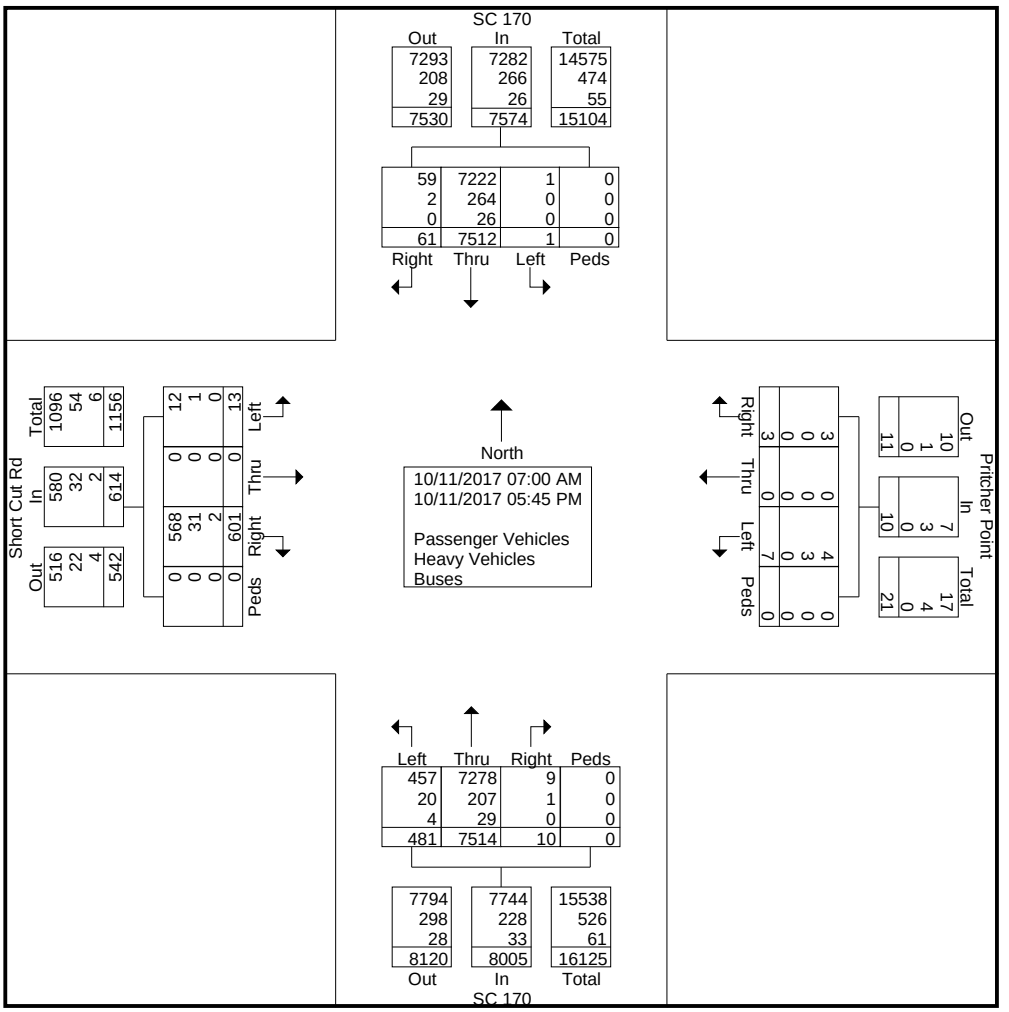
File Name : SC 170 @ Short Cut-Pritchers Point
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	SC 170 From North				Pritcher Point From East				SC 170 From South				Short Cut Rd From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	406	1	0	0	0	0	0	24	195	2	0	0	0	37	0	665
07:15 AM	0	423	0	0	0	0	0	0	25	259	0	0	0	0	41	0	748
07:30 AM	0	458	7	0	1	0	0	0	30	337	6	0	0	0	48	0	887
07:45 AM	0	405	2	0	0	0	0	0	20	273	0	0	0	0	39	0	739
Total	0	1692	10	0	1	0	0	0	99	1064	8	0	0	0	165	0	3039
08:00 AM	0	426	4	0	1	0	0	0	18	252	1	0	0	0	35	0	737
08:15 AM	0	357	3	0	1	0	0	0	16	277	0	0	0	0	27	0	681
08:30 AM	0	259	2	0	0	0	0	0	21	236	0	0	1	0	15	0	534
08:45 AM	0	301	1	0	0	0	0	0	25	221	0	0	0	0	24	0	572
Total	0	1343	10	0	2	0	0	0	80	986	1	0	1	0	101	0	2524
02:00 PM	0	233	0	0	0	0	0	0	16	261	0	0	1	0	23	0	534
02:15 PM	0	249	2	0	0	0	0	0	17	260	0	0	1	0	22	0	551
02:30 PM	0	281	5	0	0	0	0	0	18	230	1	0	0	0	25	0	560
02:45 PM	0	244	5	0	1	0	0	0	23	267	0	0	0	0	18	0	558
Total	0	1007	12	0	1	0	0	0	74	1018	1	0	2	0	88	0	2203
03:00 PM	0	258	3	0	0	0	1	0	18	318	0	0	1	0	16	0	615
03:15 PM	0	263	3	0	0	0	0	0	13	320	0	0	2	0	18	0	619
03:30 PM	0	291	2	0	0	0	0	0	20	305	0	0	1	0	25	0	644
03:45 PM	0	289	1	0	0	0	0	0	19	349	0	0	1	0	20	0	679
Total	0	1101	9	0	0	0	1	0	70	1292	0	0	5	0	79	0	2557
04:00 PM	1	271	3	0	1	0	0	0	30	362	0	0	1	0	23	0	692
04:15 PM	0	236	4	0	0	0	1	0	20	407	0	0	0	0	17	0	685
04:30 PM	0	310	2	0	2	0	1	0	19	340	0	0	0	0	20	0	694
04:45 PM	0	318	3	0	0	0	0	0	18	368	0	0	2	0	22	0	731
Total	1	1135	12	0	3	0	2	0	87	1477	0	0	3	0	82	0	2802
05:00 PM	0	338	0	0	0	0	0	0	25	427	0	0	0	0	28	0	818
05:15 PM	0	320	4	0	0	0	0	0	17	437	0	0	0	0	21	0	799
05:30 PM	0	290	3	0	0	0	0	0	14	442	0	0	1	0	27	0	777
05:45 PM	0	286	1	0	0	0	0	0	15	371	0	0	1	0	10	0	684
Total	0	1234	8	0	0	0	0	0	71	1677	0	0	2	0	86	0	3078
Grand Total	1	7512	61	0	7	0	3	0	481	7514	10	0	13	0	601	0	16203
Apprch %	0	99.2	0.8	0	70	0	30	0	6	93.9	0.1	0	2.1	0	97.9	0	
Total %	0	46.4	0.4	0	0	0	0	0	3	46.4	0.1	0	0.1	0	3.7	0	
Passenger Vehicles	1	7222	59	0	4	0	3	0	457	7278	9	0	12	0	568	0	15613
% Passenger Vehicles	100	96.1	96.7	0	57.1	0	100	0	95	96.9	90	0	92.3	0	94.5	0	96.4
Heavy Vehicles	0	264	2	0	3	0	0	0	20	207	1	0	1	0	31	0	529
% Heavy Vehicles	0	3.5	3.3	0	42.9	0	0	0	4.2	2.8	10	0	7.7	0	5.2	0	3.3
Buses	0	26	0	0	0	0	0	0	4	29	0	0	0	0	2	0	61
% Buses	0	0.3	0	0	0	0	0	0	0.8	0.4	0	0	0	0	0.3	0	0.4

Short Counts

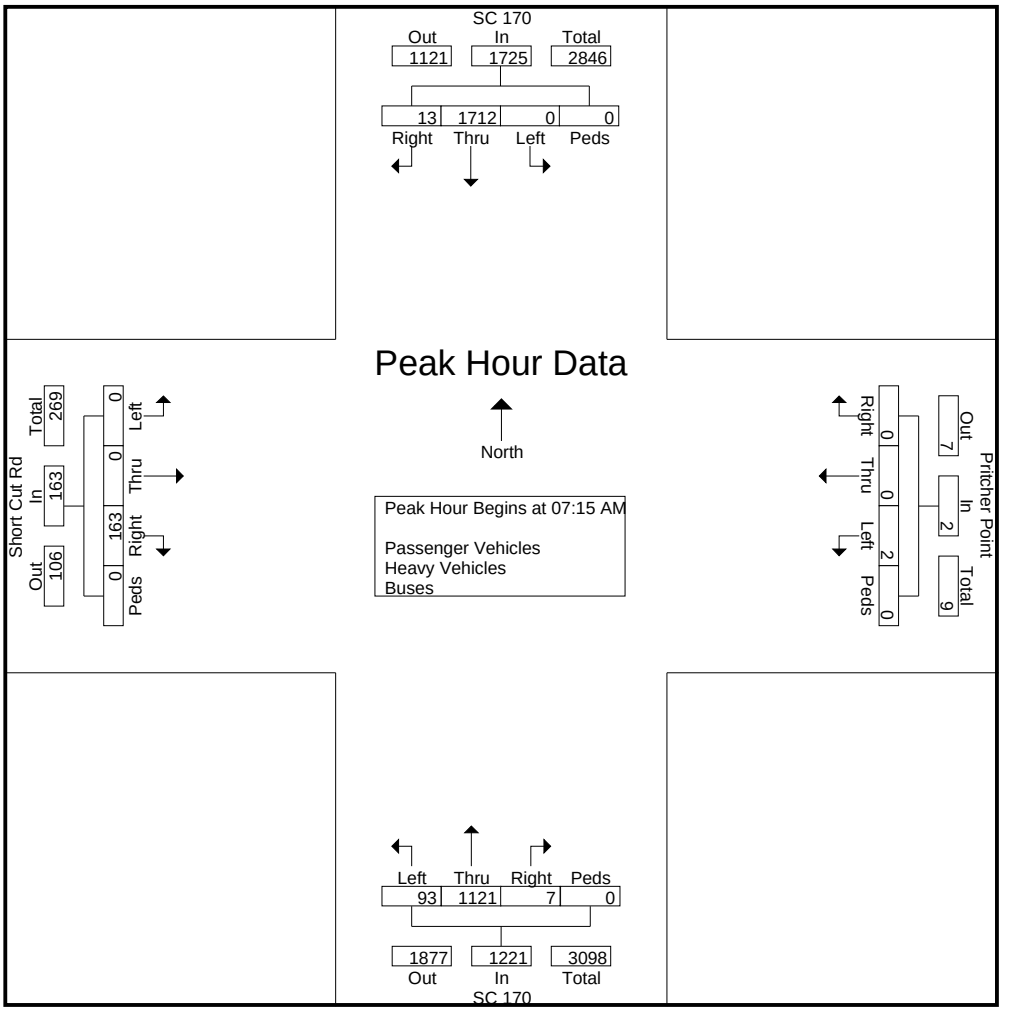
File Name : SC 170 @ Short Cut-Pritchers Point
Site Code :
Start Date : 10/11/2017
Page No : 2



Short Counts

File Name : SC 170 @ Short Cut-Pritchers Point
Site Code :
Start Date : 10/11/2017
Page No : 3

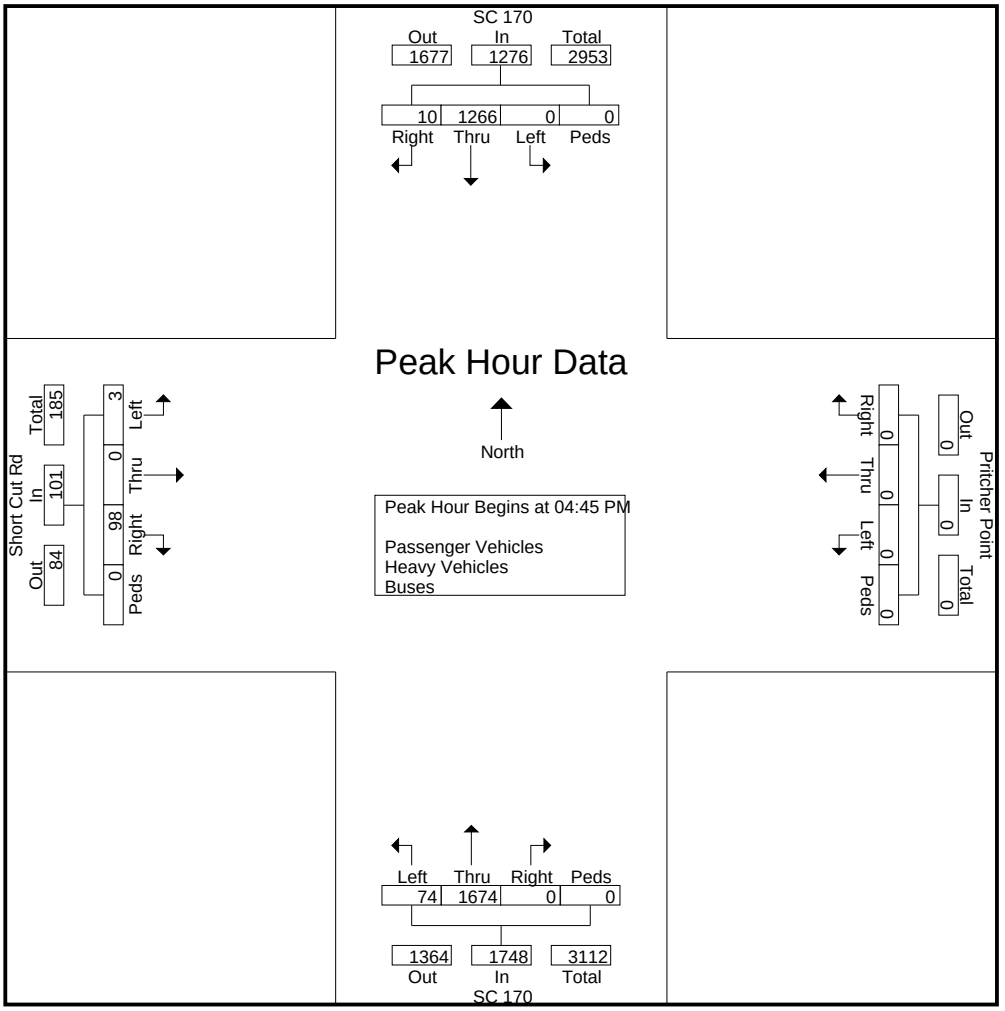
	SC 170 From North					Pritcher Point From East					SC 170 From South					Short Cut Rd From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 12:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	423	0	0	423	0	0	0	0	0	25	259	0	0	284	0	0	41	0	41	748
07:30 AM	0	**458**	**7**	0	**465**	**1**	0	0	0	**1**	**30**	**337**	**6**	0	**373**	0	0	**48**	0	**48**	**887**
07:45 AM	0	405	2	0	407	0	0	0	0	0	20	273	0	0	293	0	0	39	0	39	739
08:00 AM	0	426	4	0	430	1	0	0	0	1	18	252	1	0	271	0	0	35	0	35	737
Total Volume	0	1712	13	0	1725	2	0	0	0	2	93	1121	7	0	1221	0	0	163	0	163	3111
% App. Total	0	99.2	0.8	0		100	0	0	0		7.6	91.8	0.6	0		0	0	100	0		
PHF	.000	.934	.464	.000	.927	.500	.000	.000	.000	.500	.775	.832	.292	.000	.818	.000	.000	.849	.000	.849	.877



Short Counts

File Name : SC 170 @ Short Cut-Pritchers Point
Site Code :
Start Date : 10/11/2017
Page No : 4

	SC 170 From North					Pritcher Point From East					SC 170 From South					Short Cut Rd From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:45 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	318	3	0	321	0	0	0	0	0	18	368	0	0	386	**2**	0	22	0	24	731
05:00 PM	0	**338**	0	0	**338**	0	0	0	0	0	**25**	427	0	0	452	0	0	**28**	0	**28**	**818**
05:15 PM	0	320	**4**	0	324	0	0	0	0	0	17	437	0	0	454	0	0	21	0	21	799
05:30 PM	0	290	3	0	293	0	0	0	0	0	14	**442**	0	0	**456**	1	0	27	0	28	777
Total Volume	0	1266	10	0	1276	0	0	0	0	0	74	1674	0	0	1748	3	0	98	0	101	3125
% App. Total	0	99.2	0.8	0		0	0	0	0		4.2	95.8	0	0		3	0	97	0		
PHF	.000	.936	.625	.000	.944	.000	.000	.000	.000	.000	.740	.947	.000	.000	.958	.375	.000	.875	.000	.902	.955



Short Counts

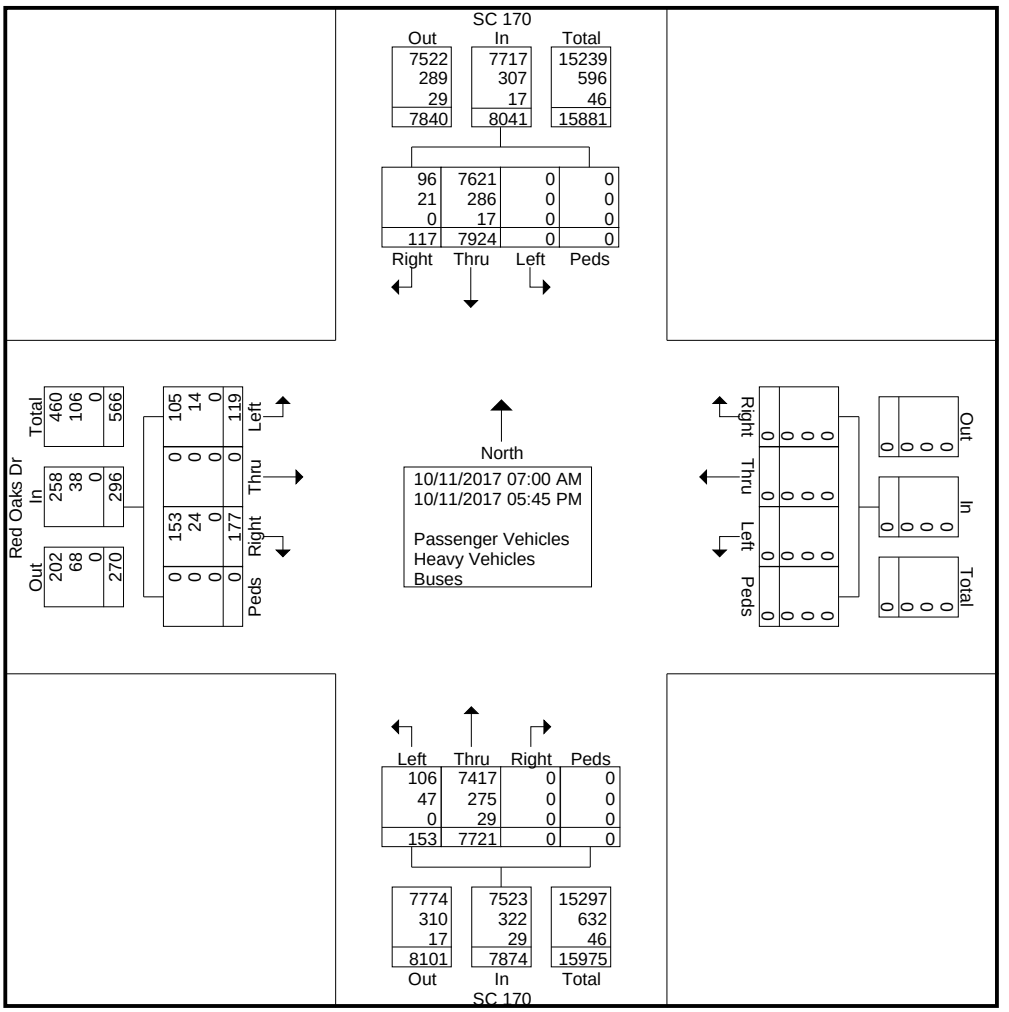
File Name : SC 170 @ Red Oaks Dr
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	SC 170 From North				From East				SC 170 From South				Red Oaks Dr From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	409	20	0	0	0	0	0	8	200	0	0	7	0	11	0	655
07:15 AM	0	446	15	0	0	0	0	0	7	262	0	0	1	0	9	0	740
07:30 AM	0	492	3	0	0	0	0	0	3	371	0	0	3	0	5	0	877
07:45 AM	0	430	10	0	0	0	0	0	5	284	0	0	2	0	9	0	740
Total	0	1777	48	0	0	0	0	0	23	1117	0	0	13	0	34	0	3012
08:00 AM	0	426	10	0	0	0	0	0	9	270	0	0	5	0	8	0	728
08:15 AM	0	382	2	0	0	0	0	0	3	277	0	0	3	0	7	0	674
08:30 AM	0	273	2	0	0	0	0	0	2	250	0	0	3	0	3	0	533
08:45 AM	0	323	3	0	0	0	0	0	2	242	0	0	2	0	5	0	577
Total	0	1404	17	0	0	0	0	0	16	1039	0	0	13	0	23	0	2512
02:00 PM	0	241	5	0	0	0	0	0	6	264	0	0	4	0	15	0	535
02:15 PM	0	263	1	0	0	0	0	0	4	278	0	0	2	0	11	0	559
02:30 PM	0	293	1	0	0	0	0	0	1	254	0	0	1	0	3	0	553
02:45 PM	0	259	2	0	0	0	0	0	7	269	0	0	1	0	8	0	546
Total	0	1056	9	0	0	0	0	0	18	1065	0	0	8	0	37	0	2193
03:00 PM	0	236	6	0	0	0	0	0	7	327	0	0	2	0	6	0	584
03:15 PM	0	265	7	0	0	0	0	0	3	336	0	0	1	0	4	0	616
03:30 PM	0	319	3	0	0	0	0	0	4	307	0	0	6	0	6	0	645
03:45 PM	0	310	4	0	0	0	0	0	10	348	0	0	2	0	7	0	681
Total	0	1130	20	0	0	0	0	0	24	1318	0	0	11	0	23	0	2526
04:00 PM	0	293	1	0	0	0	0	0	6	385	0	0	4	0	11	0	700
04:15 PM	0	258	3	0	0	0	0	0	7	399	0	0	10	0	6	0	683
04:30 PM	0	332	1	0	0	0	0	0	12	364	0	0	3	0	6	0	718
04:45 PM	0	343	6	0	0	0	0	0	11	377	0	0	7	0	6	0	750
Total	0	1226	11	0	0	0	0	0	36	1525	0	0	24	0	29	0	2851
05:00 PM	0	368	3	0	0	0	0	0	16	421	0	0	12	0	9	0	829
05:15 PM	0	345	4	0	0	0	0	0	9	444	0	0	13	0	6	0	821
05:30 PM	0	316	5	0	0	0	0	0	8	448	0	0	10	0	11	0	798
05:45 PM	0	302	0	0	0	0	0	0	3	344	0	0	15	0	5	0	669
Total	0	1331	12	0	0	0	0	0	36	1657	0	0	50	0	31	0	3117
Grand Total	0	7924	117	0	0	0	0	0	153	7721	0	0	119	0	177	0	16211
Apprch %	0	98.5	1.5	0	0	0	0	0	1.9	98.1	0	0	40.2	0	59.8	0	
Total %	0	48.9	0.7	0	0	0	0	0	0.9	47.6	0	0	0.7	0	1.1	0	
Passenger Vehicles	0	7621	96	0	0	0	0	0	106	7417	0	0	105	0	153	0	15498
% Passenger Vehicles	0	96.2	82.1	0	0	0	0	0	69.3	96.1	0	0	88.2	0	86.4	0	95.6
Heavy Vehicles	0	286	21	0	0	0	0	0	47	275	0	0	14	0	24	0	667
% Heavy Vehicles	0	3.6	17.9	0	0	0	0	0	30.7	3.6	0	0	11.8	0	13.6	0	4.1
Buses	0	17	0	0	0	0	0	0	0	29	0	0	0	0	0	0	46
% Buses	0	0.2	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0.3

Short Counts

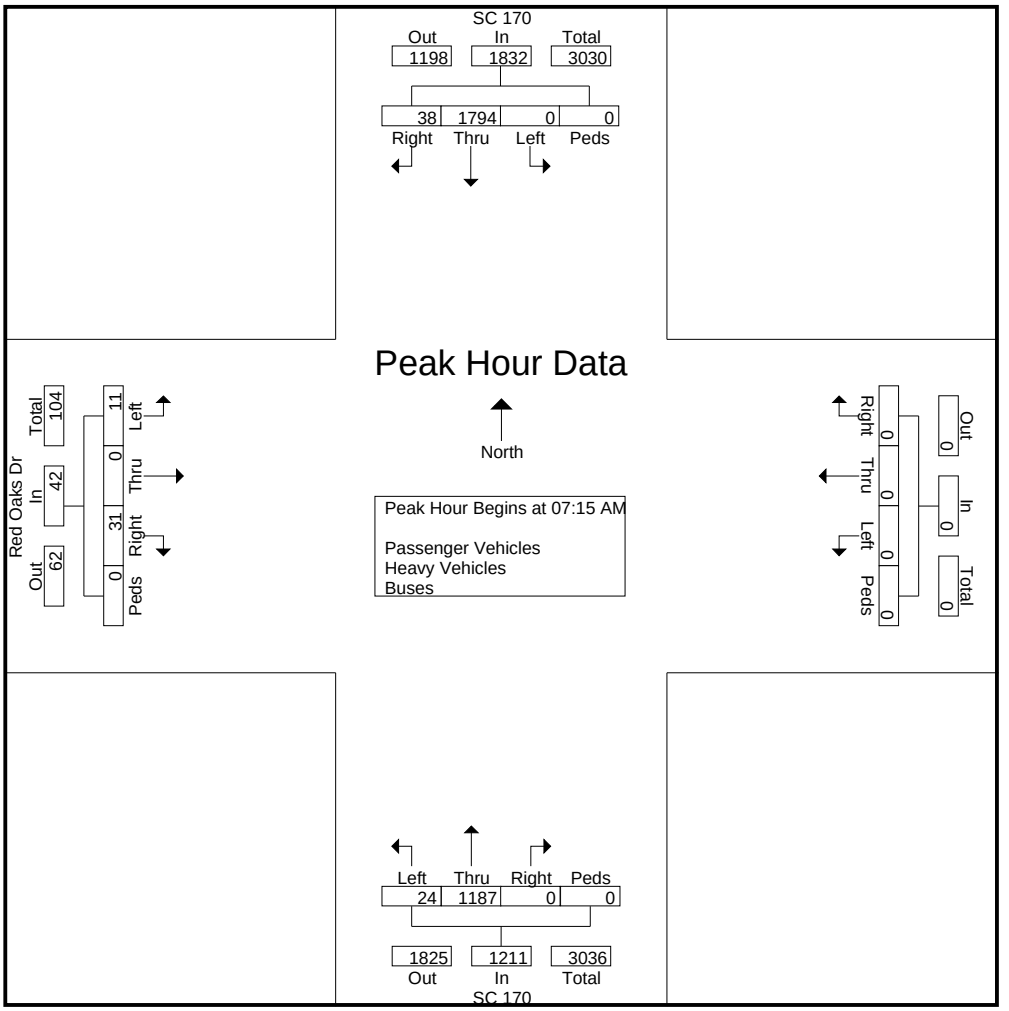
File Name : SC 170 @ Red Oaks Dr
Site Code :
Start Date : 10/11/2017
Page No : 2



Short Counts

File Name : SC 170 @ Red Oaks Dr
Site Code :
Start Date : 10/11/2017
Page No : 3

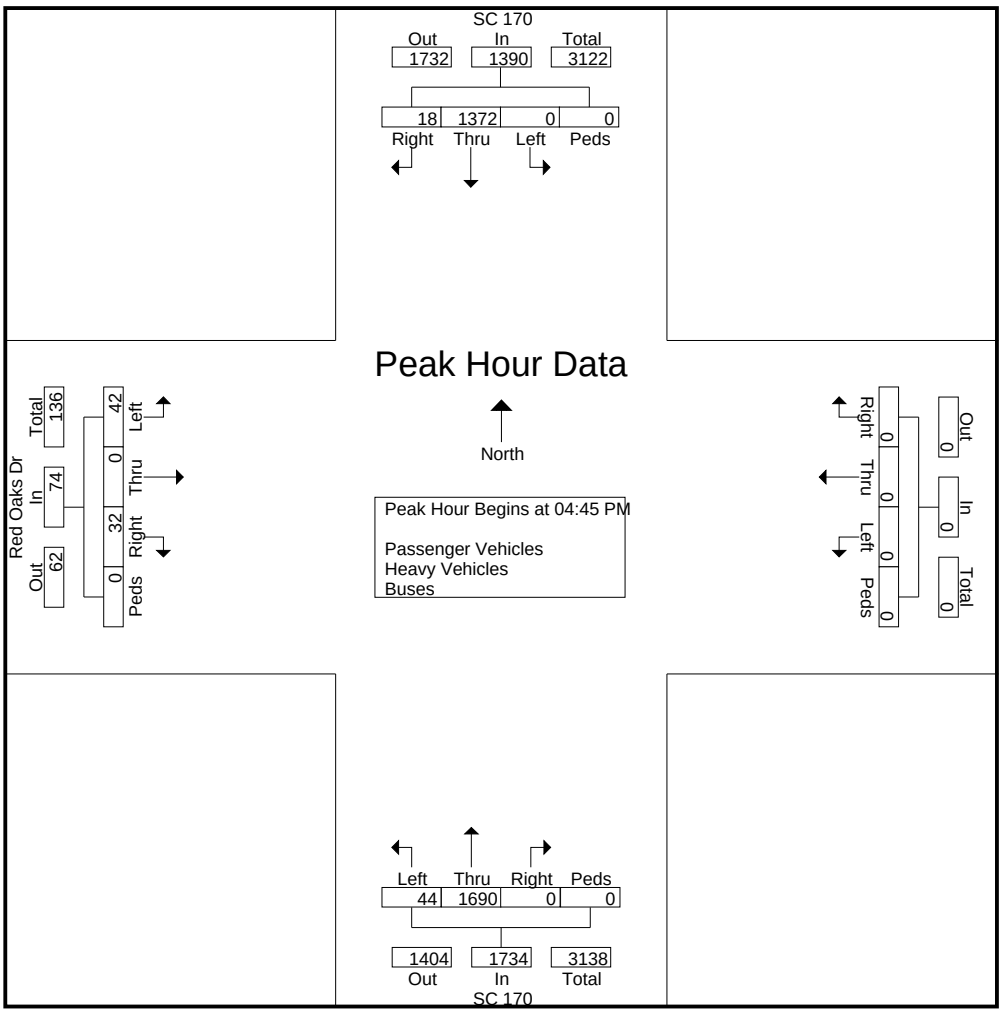
	SC 170 From North					From East					SC 170 From South					Red Oaks Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	446	**15**	0	461	0	0	0	0	0	7	262	0	0	269	1	0	**9**	0	10	740
07:30 AM	0	**492**	3	0	**495**	0	0	0	0	0	3	**371**	0	0	**374**	3	0	5	0	8	**877**
07:45 AM	0	430	10	0	440	0	0	0	0	0	5	284	0	0	289	2	0	9	0	11	740
08:00 AM	0	426	10	0	436	0	0	0	0	0	**9**	270	0	0	279	**5**	0	8	0	**13**	728
Total Volume	0	1794	38	0	1832	0	0	0	0	0	24	1187	0	0	1211	11	0	31	0	42	3085
% App. Total	0	97.9	2.1	0		0	0	0	0		2	98	0	0		26.2	0	73.8	0		
PHF	.000	.912	.633	.000	.925	.000	.000	.000	.000	.000	.667	.800	.000	.000	.809	.550	.000	.861	.000	.808	.879



Short Counts

File Name : SC 170 @ Red Oaks Dr
Site Code :
Start Date : 10/11/2017
Page No : 4

	SC 170 From North					From East					SC 170 From South					Red Oaks Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	343	**6**	0	349	0	0	0	0	0	11	377	0	0	388	7	0	6	0	13	750
05:00 PM	0	**368**	3	0	**371**	0	0	0	0	0	**16**	421	0	0	437	12	0	9	0	**21**	**829**
05:15 PM	0	345	4	0	349	0	0	0	0	0	9	444	0	0	453	**13**	0	6	0	19	821
05:30 PM	0	316	5	0	321	0	0	0	0	0	8	**448**	0	0	**456**	10	0	**11**	0	21	798
Total Volume	0	1372	18	0	1390	0	0	0	0	0	44	1690	0	0	1734	42	0	32	0	74	3198
% App. Total	0	98.7	1.3	0		0	0	0	0		2.5	97.5	0	0		56.8	0	43.2	0		
PHF	.000	.932	.750	.000	.937	.000	.000	.000	.000	.000	.688	.943	.000	.000	.951	.808	.000	.727	.000	.881	.964



Short Counts

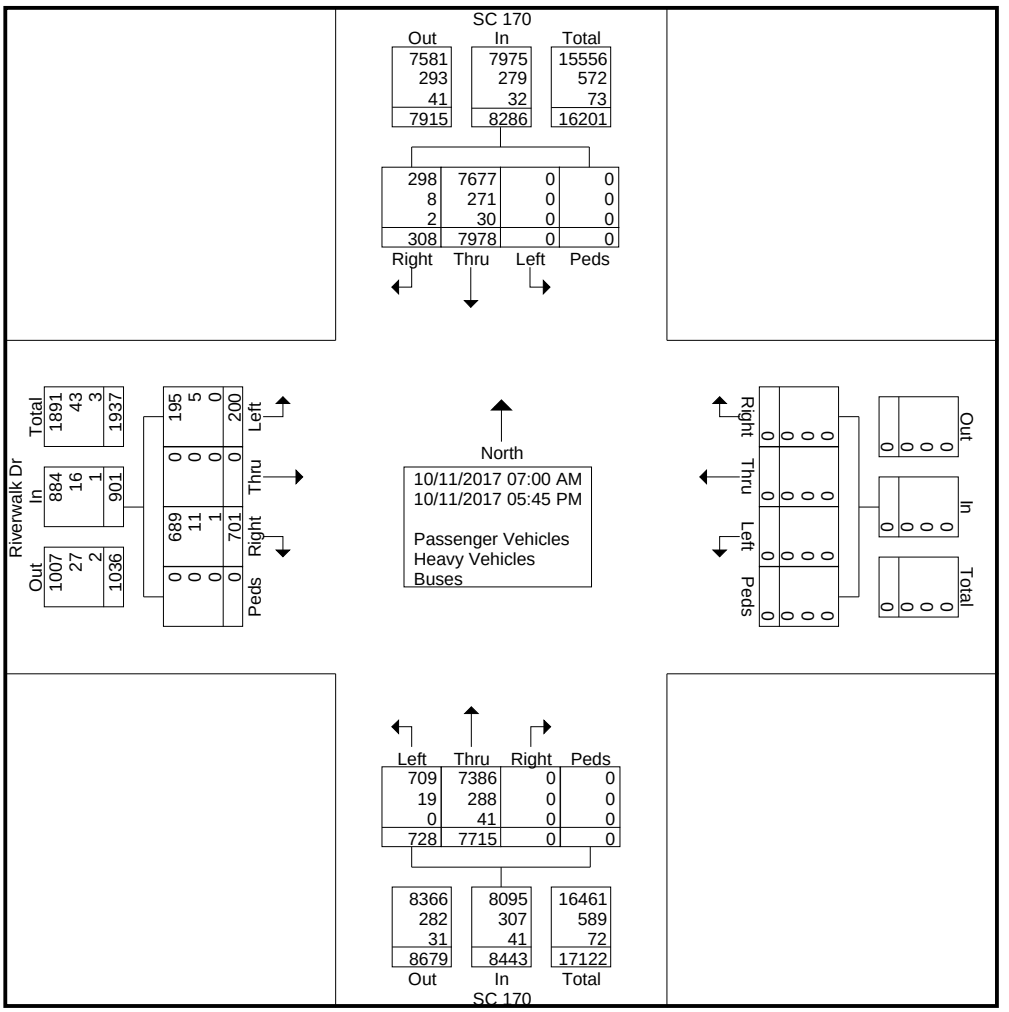
File Name : SC 170 @ Riverwalk Blvd
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	SC 170 From North				From East				SC 170 From South				Riverwalk Dr From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	418	23	0	0	0	0	0	29	249	0	0	1	0	14	0	734
07:15 AM	0	447	12	0	0	0	0	0	27	325	0	0	4	0	17	0	832
07:30 AM	0	478	13	0	0	0	0	0	28	393	0	0	0	0	10	0	922
07:45 AM	0	440	22	0	0	0	0	0	63	295	0	0	1	0	18	0	839
Total	0	1783	70	0	0	0	0	0	147	1262	0	0	6	0	59	0	3327
08:00 AM	0	404	26	0	0	0	0	0	45	266	0	0	5	0	28	0	774
08:15 AM	0	365	16	0	0	0	0	0	31	298	0	0	2	0	19	0	731
08:30 AM	0	288	7	0	0	0	0	0	36	244	0	0	3	0	23	0	601
08:45 AM	0	317	14	0	0	0	0	0	28	235	0	0	5	0	20	0	619
Total	0	1374	63	0	0	0	0	0	140	1043	0	0	15	0	90	0	2725
02:00 PM	0	251	10	0	0	0	0	0	21	275	0	0	8	0	30	0	595
02:15 PM	0	253	8	0	0	0	0	0	18	269	0	0	12	0	35	0	595
02:30 PM	0	271	11	0	0	0	0	0	21	281	0	0	7	0	32	0	623
02:45 PM	0	252	8	0	0	0	0	0	20	281	0	0	8	0	19	0	588
Total	0	1027	37	0	0	0	0	0	80	1106	0	0	35	0	116	0	2401
03:00 PM	0	305	10	0	0	0	0	0	33	292	0	0	9	0	22	0	671
03:15 PM	0	280	11	0	0	0	0	0	28	327	0	0	6	0	27	0	679
03:30 PM	0	333	9	0	0	0	0	0	27	287	0	0	9	0	25	0	690
03:45 PM	0	285	15	0	0	0	0	0	30	344	0	0	13	0	23	0	710
Total	0	1203	45	0	0	0	0	0	118	1250	0	0	37	0	97	0	2750
04:00 PM	0	299	8	0	0	0	0	0	31	370	0	0	15	0	37	0	760
04:15 PM	0	275	16	0	0	0	0	0	44	387	0	0	16	0	51	0	789
04:30 PM	0	314	15	0	0	0	0	0	41	344	0	0	11	0	50	0	775
04:45 PM	0	348	12	0	0	0	0	0	24	353	0	0	14	0	43	0	794
Total	0	1236	51	0	0	0	0	0	140	1454	0	0	56	0	181	0	3118
05:00 PM	0	356	7	0	0	0	0	0	24	425	0	0	22	0	57	0	891
05:15 PM	0	376	15	0	0	0	0	0	30	411	0	0	8	0	33	0	873
05:30 PM	0	342	13	0	0	0	0	0	18	428	0	0	12	0	45	0	858
05:45 PM	0	281	7	0	0	0	0	0	31	336	0	0	9	0	23	0	687
Total	0	1355	42	0	0	0	0	0	103	1600	0	0	51	0	158	0	3309
Grand Total	0	7978	308	0	0	0	0	0	728	7715	0	0	200	0	701	0	17630
Apprch %	0	96.3	3.7	0	0	0	0	0	8.6	91.4	0	0	22.2	0	77.8	0	
Total %	0	45.3	1.7	0	0	0	0	0	4.1	43.8	0	0	1.1	0	4	0	
Passenger Vehicles	0	7677	298	0	0	0	0	0	709	7386	0	0	195	0	689	0	16954
% Passenger Vehicles	0	96.2	96.8	0	0	0	0	0	97.4	95.7	0	0	97.5	0	98.3	0	96.2
Heavy Vehicles	0	271	8	0	0	0	0	0	19	288	0	0	5	0	11	0	602
% Heavy Vehicles	0	3.4	2.6	0	0	0	0	0	2.6	3.7	0	0	2.5	0	1.6	0	3.4
Buses	0	30	2	0	0	0	0	0	0	41	0	0	0	0	1	0	74
% Buses	0	0.4	0.6	0	0	0	0	0	0	0.5	0	0	0	0	0.1	0	0.4

Short Counts

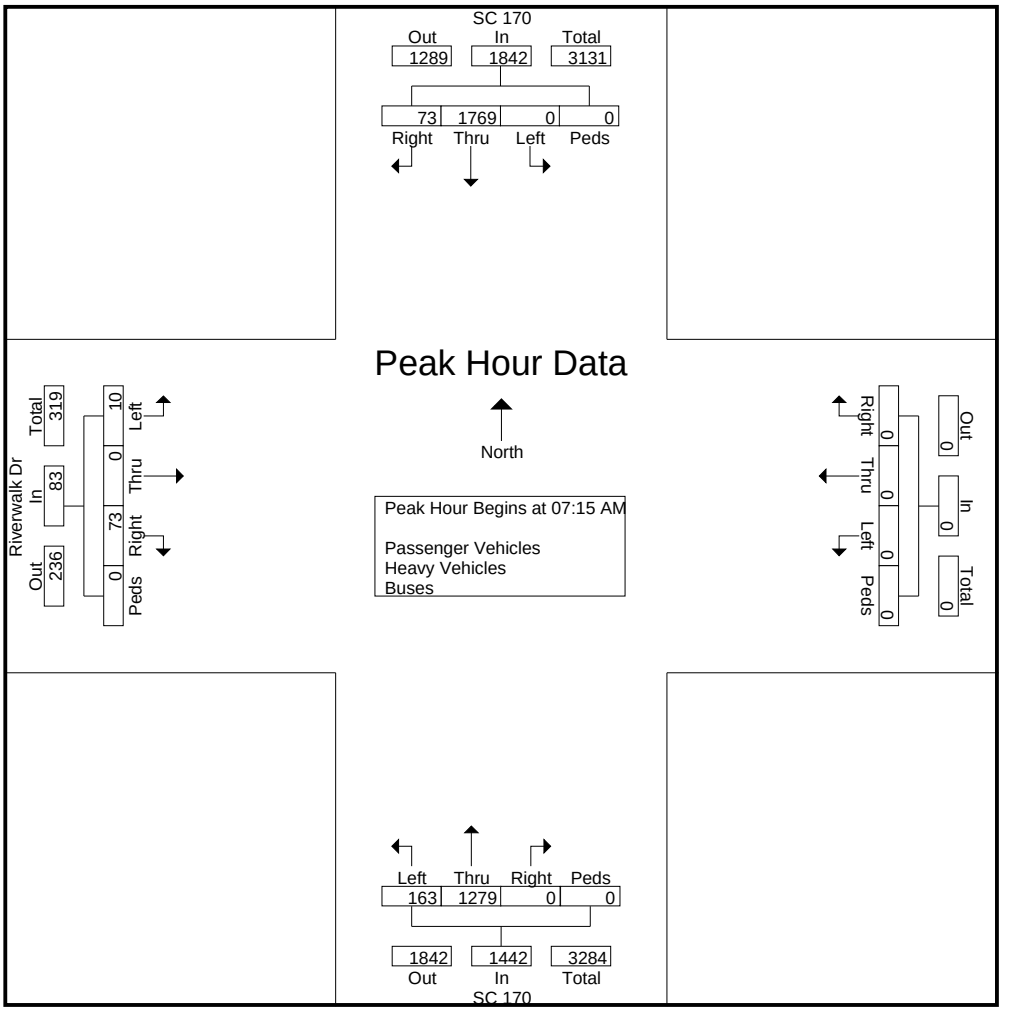
File Name : SC 170 @ Riverwalk Blvd
Site Code :
Start Date : 10/11/2017
Page No : 2



Short Counts

File Name : SC 170 @ Riverwalk Blvd
Site Code :
Start Date : 10/11/2017
Page No : 3

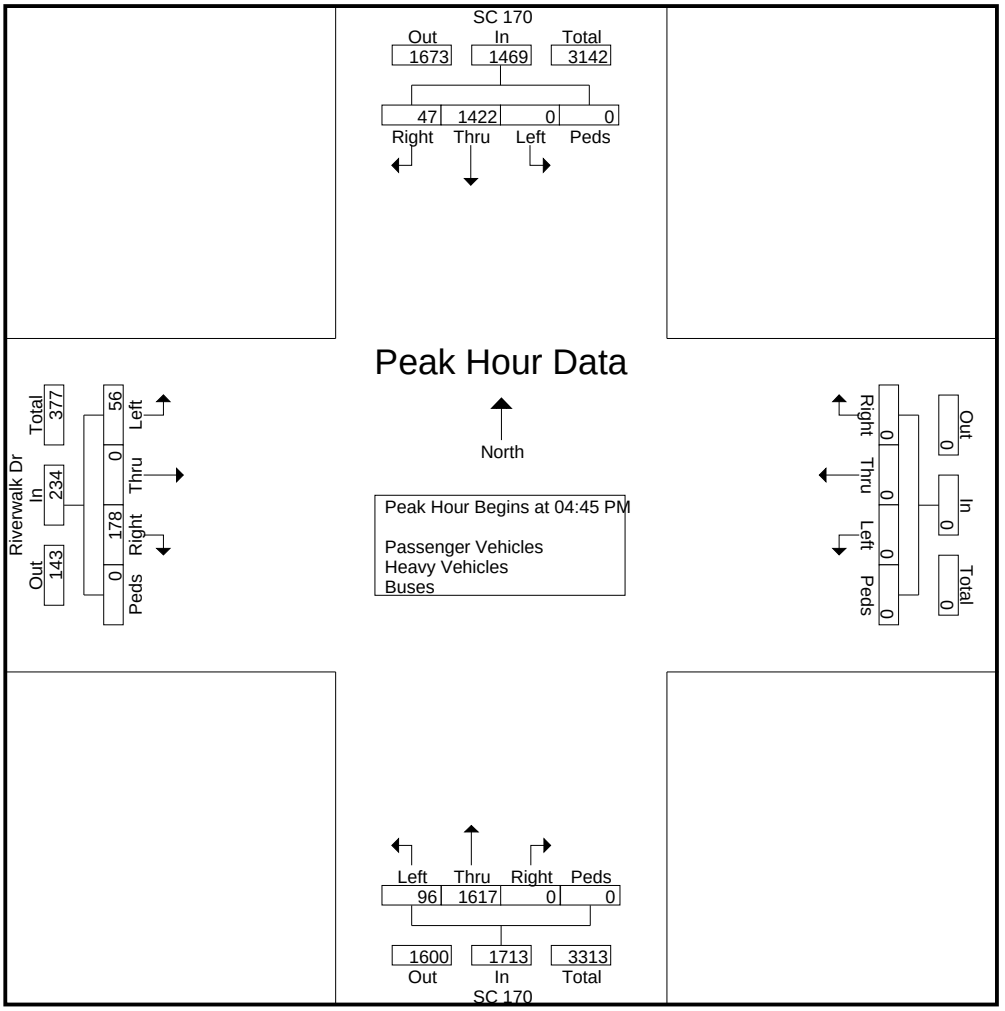
	SC 170 From North					From East					SC 170 From South					Riverwalk Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	447	12	0	459	0	0	0	0	0	27	325	0	0	352	4	0	17	0	21	832
07:30 AM	0	**478**	13	0	**491**	0	0	0	0	0	28	**393**	0	0	**421**	0	0	10	0	10	**922**
07:45 AM	0	440	22	0	462	0	0	0	0	0	**63**	295	0	0	358	1	0	18	0	19	839
08:00 AM	0	404	**26**	0	430	0	0	0	0	0	45	266	0	0	311	**5**	0	**28**	0	**33**	774
Total Volume	0	1769	73	0	1842	0	0	0	0	0	163	1279	0	0	1442	10	0	73	0	83	3367
% App. Total	0	96	4	0		0	0	0	0		11.3	88.7	0	0		12	0	88	0		
PHF	.000	.925	.702	.000	.938	.000	.000	.000	.000	.000	.647	.814	.000	.000	.856	.500	.000	.652	.000	.629	.913



Short Counts

File Name : SC 170 @ Riverwalk Blvd
Site Code :
Start Date : 10/11/2017
Page No : 4

	SC 170 From North					From East					SC 170 From South					Riverwalk Dr From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	348	12	0	360	0	0	0	0	0	24	353	0	0	377	14	0	43	0	57	794
05:00 PM	0	356	7	0	363	0	0	0	0	0	24	425	0	0	**449**	**22**	0	**57**	0	**79**	**891**
05:15 PM	0	**376**	**15**	0	**391**	0	0	0	0	0	**30**	411	0	0	441	8	0	33	0	41	873
05:30 PM	0	342	13	0	355	0	0	0	0	0	18	**428**	0	0	446	12	0	45	0	57	858
Total Volume	0	1422	47	0	1469	0	0	0	0	0	96	1617	0	0	1713	56	0	178	0	234	3416
% App. Total	0	96.8	3.2	0		0	0	0	0		5.6	94.4	0	0		23.9	0	76.1	0		
PHF	.000	.945	.783	.000	.939	.000	.000	.000	.000	.000	.800	.945	.000	.000	.954	.636	.000	.781	.000	.741	.958



Short Counts

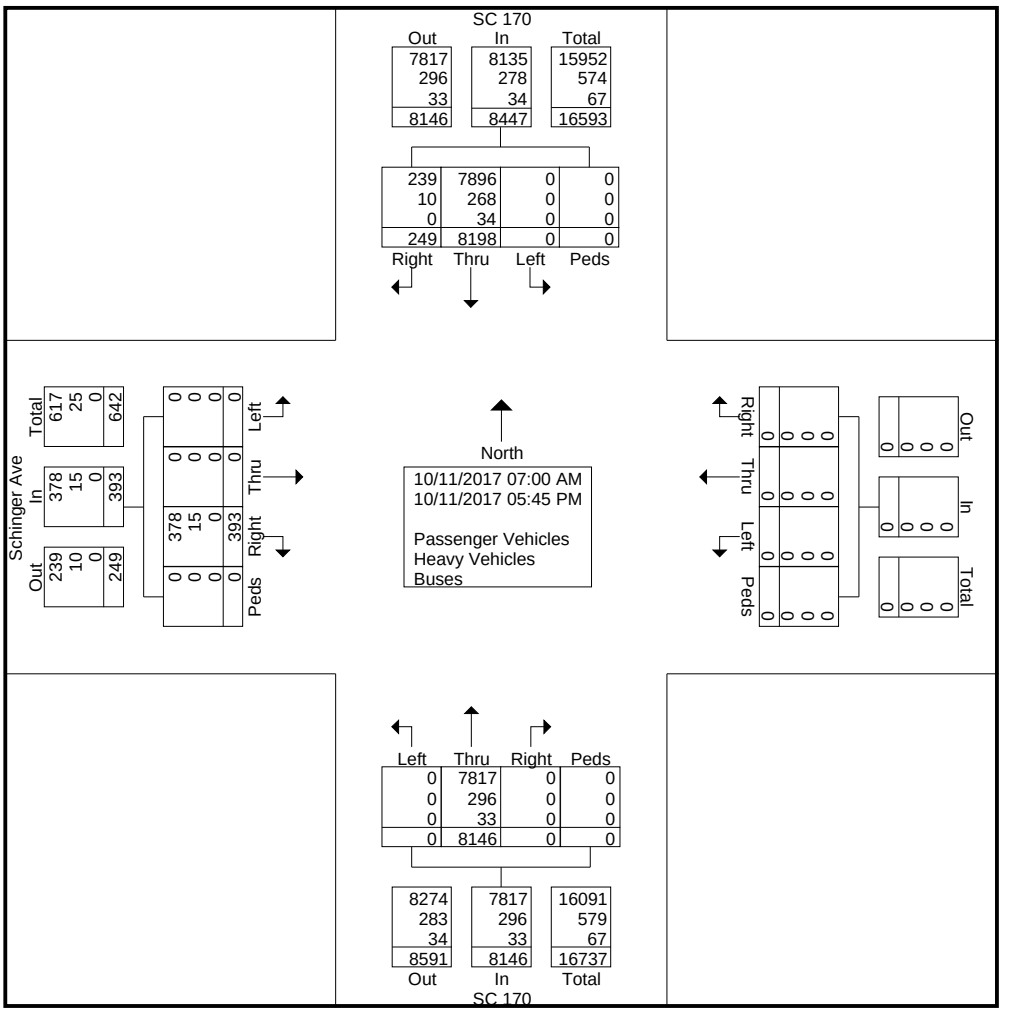
File Name : SC 170 @ Schinger Ave
Site Code :
Start Date : 10/11/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	SC 170 From North				From East				SC 170 From South				Schinger Ave From West				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	447	10	0	0	0	0	0	0	203	0	0	0	0	13	0	673
07:15 AM	0	444	11	0	0	0	0	0	0	379	0	0	0	0	19	0	853
07:30 AM	0	525	23	0	0	0	0	0	0	386	0	0	0	0	7	0	941
07:45 AM	0	463	41	0	0	0	0	0	0	300	0	0	0	0	3	0	807
Total	0	1879	85	0	0	0	0	0	0	1268	0	0	0	0	42	0	3274
08:00 AM	0	438	18	0	0	0	0	0	0	300	0	0	0	0	13	0	769
08:15 AM	0	354	13	0	0	0	0	0	0	273	0	0	0	0	18	0	658
08:30 AM	0	278	7	0	0	0	0	0	0	283	0	0	0	0	24	0	592
08:45 AM	0	318	10	0	0	0	0	0	0	282	0	0	0	0	26	0	636
Total	0	1388	48	0	0	0	0	0	0	1138	0	0	0	0	81	0	2655
02:00 PM	0	256	5	0	0	0	0	0	0	285	0	0	0	0	12	0	558
02:15 PM	0	252	11	0	0	0	0	0	0	309	0	0	0	0	13	0	585
02:30 PM	0	277	8	0	0	0	0	0	0	283	0	0	0	0	10	0	578
02:45 PM	0	279	5	0	0	0	0	0	0	280	0	0	0	0	9	0	573
Total	0	1064	29	0	0	0	0	0	0	1157	0	0	0	0	44	0	2294
03:00 PM	0	313	5	0	0	0	0	0	0	287	0	0	0	0	13	0	618
03:15 PM	0	298	9	0	0	0	0	0	0	362	0	0	0	0	11	0	680
03:30 PM	0	311	15	0	0	0	0	0	0	329	0	0	0	0	17	0	672
03:45 PM	0	327	6	0	0	0	0	0	0	358	0	0	0	0	8	0	699
Total	0	1249	35	0	0	0	0	0	0	1336	0	0	0	0	49	0	2669
04:00 PM	0	300	10	0	0	0	0	0	0	395	0	0	0	0	13	0	718
04:15 PM	0	288	7	0	0	0	0	0	0	415	0	0	0	0	27	0	737
04:30 PM	0	315	7	0	0	0	0	0	0	310	0	0	0	0	16	0	648
04:45 PM	0	362	5	0	0	0	0	0	0	414	0	0	0	0	12	0	793
Total	0	1265	29	0	0	0	0	0	0	1534	0	0	0	0	68	0	2896
05:00 PM	0	366	7	0	0	0	0	0	0	434	0	0	0	0	38	0	845
05:15 PM	0	351	7	0	0	0	0	0	0	456	0	0	0	0	36	0	850
05:30 PM	0	344	3	0	0	0	0	0	0	457	0	0	0	0	20	0	824
05:45 PM	0	292	6	0	0	0	0	0	0	366	0	0	0	0	15	0	679
Total	0	1353	23	0	0	0	0	0	0	1713	0	0	0	0	109	0	3198
Grand Total	0	8198	249	0	0	0	0	0	0	8146	0	0	0	0	393	0	16986
Apprch %	0	97.1	2.9	0	0	0	0	0	0	100	0	0	0	0	100	0	
Total %	0	48.3	1.5	0	0	0	0	0	0	48	0	0	0	0	2.3	0	
Passenger Vehicles	0	7896	239	0	0	0	0	0	0	7817	0	0	0	0	378	0	16330
% Passenger Vehicles	0	96.3	96	0	0	0	0	0	0	96	0	0	0	0	96.2	0	96.1
Heavy Vehicles	0	268	10	0	0	0	0	0	0	296	0	0	0	0	15	0	589
% Heavy Vehicles	0	3.3	4	0	0	0	0	0	0	3.6	0	0	0	0	3.8	0	3.5
Buses	0	34	0	0	0	0	0	0	0	33	0	0	0	0	0	0	67
% Buses	0	0.4	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0.4

Short Counts

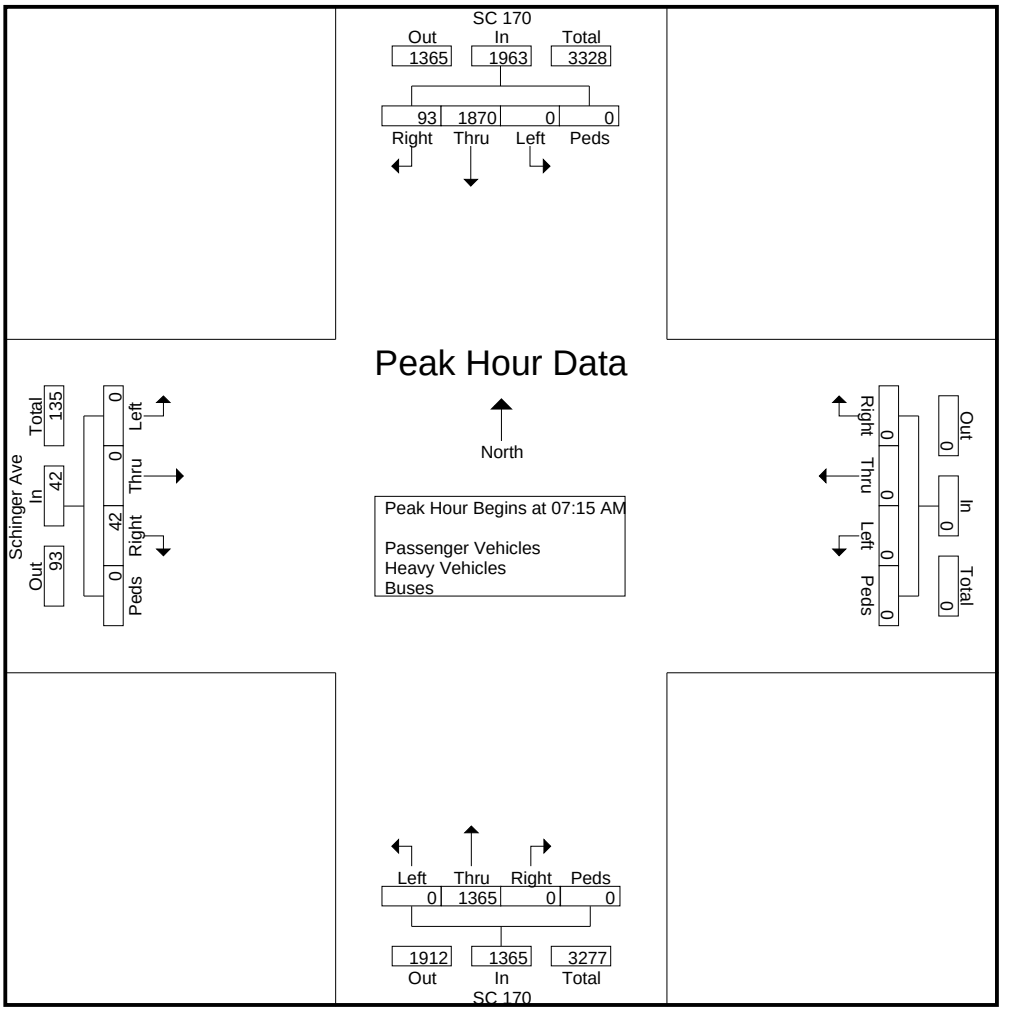
File Name : SC 170 @ Schinger Ave
Site Code :
Start Date : 10/11/2017
Page No : 2



Short Counts

File Name : SC 170 @ Schinger Ave
Site Code :
Start Date : 10/11/2017
Page No : 3

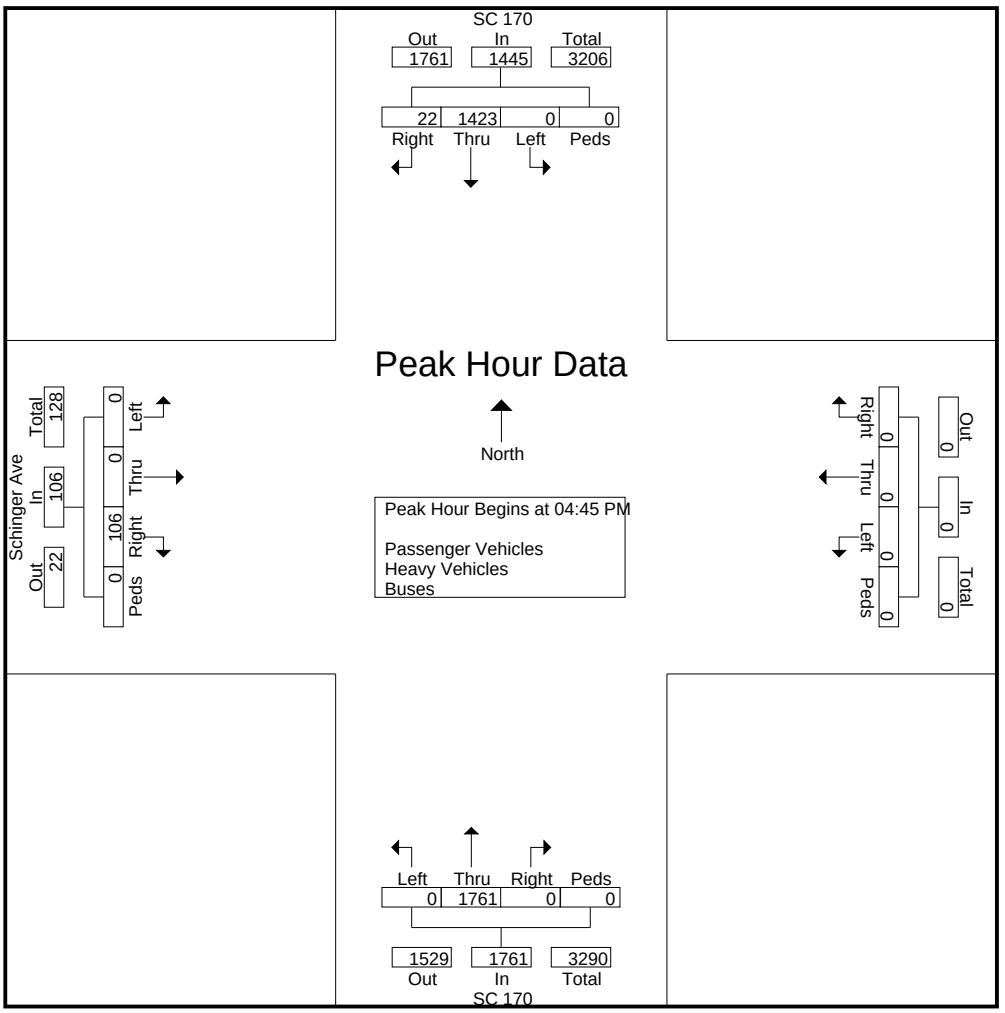
	SC 170 From North					From East					SC 170 From South					Schinger Ave From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	444	11	0	455	0	0	0	0	0	0	379	0	0	379	0	0	**19**	0	**19**	853
07:30 AM	0	**525**	23	0	**548**	0	0	0	0	0	0	**386**	0	0	**386**	0	0	7	0	7	**941**
07:45 AM	0	463	**41**	0	504	0	0	0	0	0	0	300	0	0	300	0	0	3	0	3	807
08:00 AM	0	438	18	0	456	0	0	0	0	0	0	300	0	0	300	0	0	13	0	13	769
Total Volume	0	1870	93	0	1963	0	0	0	0	0	0	1365	0	0	1365	0	0	42	0	42	3370
% App. Total	0	95.3	4.7	0		0	0	0	0		0	100	0	0		0	0	100	0		
PHF	.000	.890	.567	.000	.896	.000	.000	.000	.000	.000	.000	.884	.000	.000	.884	.000	.000	.553	.000	.553	.895



Short Counts

File Name : SC 170 @ Schinger Ave
Site Code :
Start Date : 10/11/2017
Page No : 4

	SC 170 From North					From East					SC 170 From South					Schinger Ave From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	362	5	0	367	0	0	0	0	0	0	414	0	0	414	0	0	12	0	12	793
05:00 PM	0	**366**	**7**	0	**373**	0	0	0	0	0	0	434	0	0	434	0	0	**38**	0	**38**	845
05:15 PM	0	351	7	0	358	0	0	0	0	0	0	456	0	0	456	0	0	36	0	36	**850**
05:30 PM	0	344	3	0	347	0	0	0	0	0	0	**457**	0	0	**457**	0	0	20	0	20	824
Total Volume	0	1423	22	0	1445	0	0	0	0	0	0	1761	0	0	1761	0	0	106	0	106	3312
% App. Total	0	98.5	1.5	0		0	0	0	0		0	100	0	0		0	0	100	0		
PHF	.000	.972	.786	.000	.968	.000	.000	.000	.000	.000	.000	.963	.000	.000	.963	.000	.000	.697	.000	.697	.974



INTERSECTION VOLUME DEVELOPMENT

Phase 1
SC 170 at Argent Boulevard
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Argent Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	17	1,090	0	0	1,599	434	350	0	33			
Pedestrians		0			0			0				
Heavy Vehicle %		3.9%			4.0%			5.4%				
Peak Hour Factor		0.77			0.93			0.79				
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	1.50%	1.50%	1.50%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.030	1.030	1.030	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	18	1,154	0	0	1,693	460	361	0	34	0	0	0
New Project Trips												
Trip Distribution IN					18%							
Trip Distribution OUT		18%										
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	20	0	0	6	0	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	20	0	0	6	0	0	0	0	0	0	0
2019 Buildout Total	**18**	**1,174**	**0**	**0**	**1,699**	**460**	**361**	**0**	**34**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Argent Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	32	1,627		0	1,244	398	437	0	58			
Pedestrians		0			0			0				
Heavy Vehicle %		3.9%			4.0%			5.4%			0.0%	
Peak Hour Factor		0.95			0.96			0.95				
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	34	1,723	0	0	1,317	421	463	0	61	0	0	0
New Project Trips												
Trip Distribution IN					18%							
Trip Distribution OUT		18%										
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	13	0	0	23	0	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	13	0	0	23	0	0	0	0	0	0	0
2019 Buildout Total	**34**	**1,736**	**0**	**0**	**1,340**	**421**	**463**	**0**	**61**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

Phase 1
Argent Boulevard at Jasper Station Road/Short Cut Drive
AM PEAK HOUR

Description	Argent Boulevard Northbound			Argent Boulevard Southbound			Jasper Station Road Eastbound			Short Cut Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	11	346	110	8	368	40	25	39	14	42	39	7
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.8%			5.0%			7.8%			5.3%	
Peak Hour Factor		0.88			0.90			0.70			0.88	
Annual Growth Rate	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Growth Factor	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030
Approved Development Traffic												
2019 Background Traffic	11	356	113	8	379	41	26	40	14	43	40	7
New Project Trips												
Trip Distribution IN			4%					2%				
Trip Distribution OUT										4%	2%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	1	0	0	0	0	1	0	4	2	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	1	0	0	0	0	1	0	4	2	0
2019 Buildout Total	**11**	**356**	**114**	**8**	**379**	**41**	**26**	**41**	**14**	**47**	**42**	**7**

PM PEAK HOUR

Description	Argent Boulevard Northbound			Argent Boulevard Southbound			Jasper Station Road Eastbound			Short Cut Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	17	448	45	8	392	28	23	37	13	39	31	12
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.8%			5.0%			7.8%			5.3%	
Peak Hour Factor		0.91			0.89			0.76			0.89	
Annual Growth Rate	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Growth Factor	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030	1.030
Approved Development Traffic												
2019 Background Traffic	18	462	46	8	404	29	24	38	13	40	32	12
New Project Trips												
Trip Distribution IN			4%					2%				
Trip Distribution OUT										4%	2%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	5	0	0	0	0	3	0	3	1	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	5	0	0	0	0	3	0	3	1	0
2019 Buildout Total	**18**	**462**	**51**	**8**	**404**	**29**	**24**	**41**	**13**	**43**	**33**	**12**

INTERSECTION VOLUME DEVELOPMENT

Phase 1
SC 170 at Short Cut Drive/Pritcher Point Road
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Short Cut Drive Eastbound			Pritcher Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	93	1,121	7	0	1,712	13	0	0	163	2	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		3.3%			3.9%			5.5%			30.0%	
Peak Hour Factor		0.82			0.93			0.85			0.50	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	98	1,187	7	0	1,813	14	0	0	173	2	0	0
New Project Trips												
Trip Distribution IN			25%	14%	4%			6%				
Trip Distribution OUT	2%	7%								38%	4%	11%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	2	8	10	5	1	0	0	2	0	43	4	12
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	2	8	10	5	1	0	0	2	0	43	4	12
2019 Buildout Total	**100**	**1,195**	**17**	**5**	**1,814**	**14**	**0**	**2**	**173**	**45**	**4**	**12**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Short Cut Drive Eastbound			Pritcher Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	74	1,674	0	0	1,266	10	3	0	98	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		3.3%			3.9%			5.5%			30.0%	
Peak Hour Factor		0.96			0.94			0.90			0.00	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	78	1,772	0	0	1,340	11	3	0	104	0	0	0
New Project Trips												
Trip Distribution IN			25%	14%	4%			6%				
Trip Distribution OUT	2%	7%								38%	4%	11%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	1	5	33	17	6	0	0	8	0	28	3	8
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	1	5	33	17	6	0	0	8	0	28	3	8
2019 Buildout Total	**79**	**1,777**	**33**	**17**	**1,346**	**11**	**3**	**8**	**104**	**28**	**3**	**8**

INTERSECTION VOLUME DEVELOPMENT

Phase 1
SC 170 at Red Oaks Drive/Site Access #2
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Red Oaks Drive Eastbound			Site Access #2 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	24	1,187	0	0	1,794	38	11	0	31	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.5%			4.0%			12.8%			2.0%	
Peak Hour Factor		0.81			0.93			0.81			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	25	1,257	0	0	1,900	40	12	0	33	0	0	0
New Project Trips												
Trip Distribution IN		25%	25%		4%				1%			
Trip Distribution OUT	1%	4%			38%					4%		5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	3	14	9	0	44	0	0	0	0	4	0	6
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	3	14	9	0	44	0	0	0	0	4	0	6
2019 Buildout Total	**28**	**1,271**	**9**	**0**	**1,944**	**40**	**12**	**0**	**33**	**4**	**0**	**6**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Red Oaks Drive Eastbound			Site Access #2 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	44	1,690	0	0	1,372	18	42	0	32	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.5%			4.0%			12.8%			2.0%	
Peak Hour Factor		0.95			0.94			0.88			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	47	1,789	0	0	1,453	19	44	0	34	0	0	0
New Project Trips												
Trip Distribution IN		25%	25%		4%				1%			
Trip Distribution OUT	1%	4%			38%					4%		5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	1	35	31	0	34	0	0	0	1	3	0	4
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	1	35	31	0	34	0	0	0	1	3	0	4
2019 Buildout Total	**48**	**1,824**	**31**	**0**	**1,487**	**19**	**44**	**0**	**35**	**3**	**0**	**4**

INTERSECTION VOLUME DEVELOPMENT

Phase 1
SC 170 at Cherry Point Road/Pearlstine Drive
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Pearlstine Drive Eastbound			Cherry Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	20	1,068	186	125	1,711	20	8	0	21	201	0	95
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.4%			4.0%			17.0%			3.5%	
Peak Hour Factor		0.80			0.93			0.48			0.57	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
2019 Background Traffic	21	1,131	197	132	1,812	21	8	0	22	213	0	101
New Project Trips												
Trip Distribution IN		50%	24%	5%				1%				
Trip Distribution OUT					42%					32%	1%	5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	20	9	3	46	0	0	0	0	36	1	6
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	20	9	3	46	0	0	0	0	36	1	6
2019 Buildout Total	**21**	**1,151**	**206**	**135**	**1,858**	**21**	**8**	**0**	**22**	**249**	**1**	**107**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Pearlstine Drive Eastbound			Cherry Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	9	1,761	16	9	1,413	3	10	0	22	16	0	14
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.4%			4.0%			17.0%			3.5%	
Peak Hour Factor		0.95			0.95			0.62			0.83	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
2019 Background Traffic	10	1,865	17	10	1,496	3	11	0	23	17	0	15
New Project Trips												
Trip Distribution IN		50%	24%	5%				1%				
Trip Distribution OUT					42%					32%	1%	5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	63	30	6	31	1	0	1	0	23	1	4
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	63	30	6	31	1	0	1	0	23	1	4
2019 Buildout Total	**10**	**1,928**	**47**	**16**	**1,527**	**4**	**11**	**1**	**23**	**40**	**1**	**19**

INTERSECTION VOLUME DEVELOPMENT

Phase 1
SC 170 at Schinger Avenue
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Schinger Avenue. Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	0	1,365	0	0	1,870	93	0	0	42	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			3.8%			2.0%	
Peak Hour Factor		0.88			0.90			0.55			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	0	1,445	0	0	1,980	98	0	0	44	0	0	0
New Project Trips												
Trip Distribution IN		74%										
Trip Distribution OUT					73%	1%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	29	0	0	81	1	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	29	0	0	81	1	0	0	0	0	0	0
2019 Buildout Total	**0**	**1,474**	**0**	**0**	**2,061**	**99**	**0**	**0**	**44**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Schinger Avenue. Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	0	1,761	0	0	1,423	22	0	0	106	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			3.8%			2.0%	
Peak Hour Factor		0.96			0.97			0.70			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	0	1,865	0	0	1,507	23	0	0	112	0	0	0
New Project Trips												
Trip Distribution IN		74%										
Trip Distribution OUT					73%	1%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	93	0	0	53	1	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	93	0	0	53	1	0	0	0	0	0	0
2019 Buildout Total	**0**	**1,958**	**0**	**0**	**1,560**	**24**	**0**	**0**	**112**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

Phase 1
SC 170 at River Walk Boulevard
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			River Walk Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	163	1,279	0	0	1,769	73	10	0	73	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.1%			3.8%			2.0%			2.0%	
Peak Hour Factor		0.86			0.94			0.63			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	173	1,354	0	0	1,873	77	11	0	77	0	0	0
New Project Trips												
Trip Distribution IN		69%					5%					
Trip Distribution OUT					69%	4%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	26	0	0	77	4	3	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	26	0	0	77	4	3	0	0	0	0	0
2019 Buildout Total	**173**	**1,380**	**0**	**0**	**1,950**	**81**	**14**	**0**	**77**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			River Walk Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	96	1,617	0	0	1,422	47	56	0	178	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.1%			3.8%			2.0%			2.0%	
Peak Hour Factor		0.95			0.94			0.74			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	102	1,712	0	0	1,506	50	59	0	188	0	0	0
New Project Trips												
Trip Distribution IN		69%					5%					
Trip Distribution OUT					69%	4%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	87	0	0	50	3	6	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	87	0	0	50	3	6	0	0	0	0	0
2019 Buildout Total	**102**	**1,799**	**0**	**0**	**1,556**	**53**	**65**	**0**	**188**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

Phase 1
SC 170 at Tidewatch Drive
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Tidewatch Drive Eastbound			Tidewatch Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	30	1,389	15	3	1,764	34	27	10	12	17	10	10
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			2.6%			3.5%	
Peak Hour Factor		0.83			0.90			0.77			0.58	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	32	1,471	16	3	1,868	36	29	11	13	18	11	11
New Project Trips												
Trip Distribution IN		65%					2%					2%
Trip Distribution OUT				2%	65%	2%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	24	0	2	73	2	1	0	0	0	0	2
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	24	0	2	73	2	1	0	0	0	0	2
2019 Buildout Total	**32**	**1,495**	**16**	**5**	**1,941**	**38**	**30**	**11**	**13**	**18**	**11**	**13**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Tidewatch Drive Eastbound			Tidewatch Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	15	1,708	43	1	1,511	17	20	26	23	35	11	4
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			2.6%			3.5%	
Peak Hour Factor		0.96			0.87			0.86			0.66	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059	1.059
Approved Development Traffic												
2019 Background Traffic	16	1,809	46	1	1,600	18	21	28	24	37	12	4
New Project Trips												
Trip Distribution IN		65%					2%					2%
Trip Distribution OUT				2%	65%	2%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	81	0	1	48	1	3	0	0	0	0	3
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	81	0	1	48	1	3	0	0	0	0	3
2019 Buildout Total	**16**	**1,890**	**46**	**2**	**1,648**	**19**	**24**	**28**	**24**	**37**	**12**	**7**

INTERSECTION VOLUME DEVELOPMENT

Phase 2
SC 170 at Argent Boulevard
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Argent Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	17	1,090	0	0	1,599	434	350	0	33			
Pedestrians		0			0			0				
Heavy Vehicle %		3.9%			4.0%			5.4%				
Peak Hour Factor		0.77			0.93			0.79				
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	1.50%	1.50%	1.50%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.061	1.061	1.061	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	19	1,222	0	0	1,793	487	371	0	35	0	0	0
New Project Trips												
Trip Distribution IN					18%							
Trip Distribution OUT		18%										
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	62	0	0	20	0	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	62	0	0	20	0	0	0	0	0	0	0
2021 Buildout Total	**19**	**1,284**	**0**	**0**	**1,813**	**487**	**371**	**0**	**35**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Argent Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	32	1,627		0	1,244	398	437	0	58			
Pedestrians		0			0			0				
Heavy Vehicle %		3.9%			4.0%			5.4%			0.0%	
Peak Hour Factor		0.95			0.96			0.95				
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	36	1,824	0	0	1,395	446	490	0	65	0	0	0
New Project Trips												
Trip Distribution IN					18%							
Trip Distribution OUT		18%										
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	40	0	0	69	0	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	40	0	0	69	0	0	0	0	0	0	0
2021 Buildout Total	**36**	**1,864**	**0**	**0**	**1,464**	**446**	**490**	**0**	**65**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

Phase 2

Argent Boulevard at Jasper Station Road/Short Cut Drive

AM PEAK HOUR

Description	Argent Boulevard Northbound			Argent Boulevard Southbound			Jasper Station Road Eastbound			Short Cut Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	11	346	110	8	368	40	25	39	14	42	39	7
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.8%			5.0%			7.8%			5.3%	
Peak Hour Factor		0.88			0.90			0.70			0.88	
Annual Growth Rate	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
Approved Development Traffic												
2021 Background Traffic	12	367	117	8	391	42	27	41	15	45	41	7
New Project Trips												
Trip Distribution IN			4%					2%				
Trip Distribution OUT										4%	2%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	5	0	0	0	0	2	0	14	7	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	5	0	0	0	0	2	0	14	7	0
2021 Buildout Total	**12**	**367**	**122**	**8**	**391**	**42**	**27**	**43**	**15**	**59**	**48**	**7**

PM PEAK HOUR

Description	Argent Boulevard Northbound			Argent Boulevard Southbound			Jasper Station Road Eastbound			Short Cut Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	17	448	45	8	392	28	23	37	13	39	31	12
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.8%			5.0%			7.8%			5.3%	
Peak Hour Factor		0.91			0.89			0.76			0.89	
Annual Growth Rate	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Growth Factor	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061	1.061
Approved Development Traffic												
2021 Background Traffic	18	475	48	8	416	30	24	39	14	41	33	13
New Project Trips												
Trip Distribution IN			4%					2%				
Trip Distribution OUT										4%	2%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	15	0	0	0	0	7	0	8	5	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	15	0	0	0	0	7	0	8	5	0
2021 Buildout Total	**18**	**475**	**63**	**8**	**416**	**30**	**24**	**46**	**14**	**49**	**38**	**13**

INTERSECTION VOLUME DEVELOPMENT

Phase 2
SC 170 at Short Cut Drive/Pritcher Point Road
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Short Cut Drive Eastbound			Pritcher Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	93	1,121	7	0	1,712	13	0	0	163	2	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		3.3%			3.9%			5.5%			30.0%	
Peak Hour Factor		0.82			0.93			0.85			0.50	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	104	1,257	8	0	1,919	15	0	0	183	2	0	0
New Project Trips												
Trip Distribution IN			25%	14%	4%			6%				
Trip Distribution OUT	2%	7%								38%	4%	11%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	6	24	29	15	5	0	0	7	0	132	15	38
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	6	24	29	15	5	0	0	7	0	132	15	38
2021 Buildout Total	**110**	**1,281**	**37**	**15**	**1,924**	**15**	**0**	**7**	**183**	**134**	**15**	**38**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Short Cut Drive Eastbound			Pritcher Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	74	1,674	0	0	1,266	10	3	0	98	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		3.3%			3.9%			5.5%			30.0%	
Peak Hour Factor		0.96			0.94			0.90			0.00	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	83	1,877	0	0	1,419	11	3	0	110	0	0	0
New Project Trips												
Trip Distribution IN			25%	14%	4%			6%				
Trip Distribution OUT	2%	7%								38%	4%	11%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	4	15	97	53	16	0	0	22	0	86	9	25
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	4	15	97	53	16	0	0	22	0	86	9	25
2021 Buildout Total	**87**	**1,892**	**97**	**53**	**1,435**	**11**	**3**	**22**	**110**	**86**	**9**	**25**

INTERSECTION VOLUME DEVELOPMENT

Phase 2
SC 170 at Red Oaks Drive/Site Access #2
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Red Oaks Drive Eastbound			Site Access #2 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	24	1,187	0	0	1,794	38	11	0	31	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.5%			4.0%			12.8%			2.0%	
Peak Hour Factor		0.81			0.93			0.81			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	27	1,331	0	0	2,011	43	12	0	35	0	0	0
New Project Trips												
Trip Distribution IN		25%	25%		4%				1%			
Trip Distribution OUT	1%	4%			38%					4%		5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	3	43	29	0	137	0	0	0	1	14	0	16
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	3	43	29	0	137	0	0	0	1	14	0	16
2021 Buildout Total	**30**	**1,374**	**29**	**0**	**2,148**	**43**	**12**	**0**	**36**	**14**	**0**	**16**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Red Oaks Drive Eastbound			Site Access #2 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	44	1,690	0	0	1,372	18	42	0	32	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.5%			4.0%			12.8%			2.0%	
Peak Hour Factor		0.95			0.94			0.88			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	49	1,895	0	0	1,538	20	47	0	36	0	0	0
New Project Trips												
Trip Distribution IN		25%	25%		4%				1%			
Trip Distribution OUT	1%	4%			38%					4%		5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	2	105	96	0	102	0	0	0	4	9	0	11
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	2	105	96	0	102	0	0	0	4	9	0	11
2021 Buildout Total	**51**	**2,000**	**96**	**0**	**1,640**	**20**	**47**	**0**	**40**	**9**	**0**	**11**

INTERSECTION VOLUME DEVELOPMENT

Phase 2
SC 170 at Cherry Point Road/Pearlstine Drive
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Pearlstine Drive Eastbound			Cherry Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	20	1,068	186	125	1,711	20	8	0	21	201	0	95
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.4%			4.0%			17.0%			3.5%	
Peak Hour Factor		0.80			0.93			0.48			0.57	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
2021 Background Traffic	22	1,197	209	140	1,918	22	9	0	24	225	0	107
New Project Trips												
Trip Distribution IN		50%	24%	5%				1%				
Trip Distribution OUT					42%					32%	1%	5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	58	29	6	146	0	0	1	0	112	3	17
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	58	29	6	146	0	0	1	0	112	3	17
2021 Buildout Total	**22**	**1,255**	**238**	**146**	**2,064**	**22**	**9**	**1**	**24**	**337**	**3**	**124**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Pearlstine Drive Eastbound			Cherry Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	9	1,761	16	9	1,413	3	10	0	22	16	0	14
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.4%			4.0%			17.0%			3.5%	
Peak Hour Factor		0.95			0.95			0.62			0.83	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
2021 Background Traffic	10	1,974	18	10	1,584	3	11	0	25	18	0	16
New Project Trips												
Trip Distribution IN		50%	24%	5%				1%				
Trip Distribution OUT					42%					32%	1%	5%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	192	93	19	95	1	0	4	0	72	2	11
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	192	93	19	95	1	0	4	0	72	2	11
2021 Buildout Total	**10**	**2,166**	**111**	**29**	**1,679**	**4**	**11**	**4**	**25**	**90**	**2**	**27**

INTERSECTION VOLUME DEVELOPMENT

Phase 2
SC 170 at Schinger Avenue
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Schinger Avenue. Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	0	1,365	0	0	1,870	93	0	0	42	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			3.8%			2.0%	
Peak Hour Factor		0.88			0.90			0.55			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	0	1,530	0	0	2,097	104	0	0	47	0	0	0
New Project Trips												
Trip Distribution IN		74%										
Trip Distribution OUT					73%	1%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	87	0	0	254	4	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	87	0	0	254	4	0	0	0	0	0	0
2021 Buildout Total	**0**	**1,617**	**0**	**0**	**2,351**	**108**	**0**	**0**	**47**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Schinger Avenue. Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	0	1,761	0	0	1,423	22	0	0	106	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			3.8%			2.0%	
Peak Hour Factor		0.96			0.97			0.70			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	0	1,974	0	0	1,595	25	0	0	119	0	0	0
New Project Trips												
Trip Distribution IN		74%										
Trip Distribution OUT					73%	1%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	285	0	0	166	1	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	285	0	0	166	1	0	0	0	0	0	0
2021 Buildout Total	**0**	**2,259**	**0**	**0**	**1,761**	**26**	**0**	**0**	**119**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

Phase 2
SC 170 at River Walk Boulevard
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			River Walk Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	163	1,279	0	0	1,769	73	10	0	73	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.1%			3.8%			2.0%			2.0%	
Peak Hour Factor		0.86			0.94			0.63			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	183	1,434	0	0	1,983	82	11	0	82	0	0	0
New Project Trips												
Trip Distribution IN		69%					5%					
Trip Distribution OUT					69%	4%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	80	0	0	240	14	7	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	80	0	0	240	14	7	0	0	0	0	0
2021 Buildout Total	**183**	**1,514**	**0**	**0**	**2,223**	**96**	**18**	**0**	**82**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			River Walk Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	96	1,617	0	0	1,422	47	56	0	178	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.1%			3.8%			2.0%			2.0%	
Peak Hour Factor		0.95			0.94			0.74			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	108	1,813	0	0	1,594	53	63	0	200	0	0	0
New Project Trips												
Trip Distribution IN		69%					5%					
Trip Distribution OUT					69%	4%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	266	0	0	157	9	19	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	266	0	0	157	9	19	0	0	0	0	0
2021 Buildout Total	**108**	**2,079**	**0**	**0**	**1,751**	**62**	**82**	**0**	**200**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

Phase 2
SC 170 at Tidewatch Drive
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Tidewatch Drive Eastbound			Tidewatch Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	30	1,389	15	3	1,764	34	27	10	12	17	10	10
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			2.6%			3.5%	
Peak Hour Factor		0.83			0.90			0.77			0.58	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	34	1,557	17	3	1,978	38	30	11	13	19	11	11
New Project Trips												
Trip Distribution IN		65%					2%					2%
Trip Distribution OUT				2%	65%	2%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	75	0	7	226	7	2	0	0	0	0	3
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	75	0	7	226	7	2	0	0	0	0	3
2021 Buildout Total	**34**	**1,632**	**17**	**10**	**2,204**	**45**	**32**	**11**	**13**	**19**	**11**	**14**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Tidewatch Drive Eastbound			Tidewatch Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	15	1,708	43	1	1,511	17	20	26	23	35	11	4
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			2.6%			3.5%	
Peak Hour Factor		0.96			0.87			0.86			0.66	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121	1.121
Approved Development Traffic												
2021 Background Traffic	17	1,915	48	1	1,694	19	22	29	26	39	12	4
New Project Trips												
Trip Distribution IN		65%					2%					2%
Trip Distribution OUT				2%	65%	2%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	250	0	5	147	5	8	0	0	0	0	8
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	250	0	5	147	5	8	0	0	0	0	8
2021 Buildout Total	**17**	**2,165**	**48**	**6**	**1,841**	**24**	**30**	**29**	**26**	**39**	**12**	**12**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at Argent Boulevard
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Argent Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	17	1,090	0	0	1,599	434	350	0	33			
Pedestrians		0			0			0				
Heavy Vehicle %		3.9%			4.0%			5.4%				
Peak Hour Factor		0.77			0.93			0.79				
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	1.50%	1.50%	1.50%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.093	1.093	1.093	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	20	1,294	0	0	1,898	515	383	0	36	0	0	0
New Project Trips												
Trip Distribution IN					18%							
Trip Distribution OUT		18%										
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	84	0	0	58	0	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	84	0	0	58	0	0	0	0	0	0	0
2023 Buildout Total	**20**	**1,378**	**0**	**0**	**1,956**	**515**	**383**	**0**	**36**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Argent Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	32	1,627		0	1,244	398	437	0	58			
Pedestrians		0			0			0				
Heavy Vehicle %		3.9%			4.0%			5.4%			0.0%	
Peak Hour Factor		0.95			0.96			0.95				
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	38	1,931	0	0	1,477	472	519	0	69	0	0	0
New Project Trips												
Trip Distribution IN					18%							
Trip Distribution OUT		18%										
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	83	0	0	99	0	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	83	0	0	99	0	0	0	0	0	0	0
2023 Buildout Total	**38**	**2,014**	**0**	**0**	**1,576**	**472**	**519**	**0**	**69**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

Argent Boulevard at Jasper Station Road/Short Cut Drive
AM PEAK HOUR

Description	Argent Boulevard Northbound			Argent Boulevard Southbound			Jasper Station Road Eastbound			Short Cut Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	11	346	110	8	368	40	25	39	14	42	39	7
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.8%			5.0%			7.8%			5.3%	
Peak Hour Factor		0.88			0.90			0.70			0.88	
Annual Growth Rate	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093
Approved Development Traffic												
2023 Background Traffic	12	378	120	9	402	44	27	43	15	46	43	8
New Project Trips												
Trip Distribution IN			4%					2%				
Trip Distribution OUT										4%	2%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	13	0	0	0	0	6	0	19	9	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	13	0	0	0	0	6	0	19	9	0
2023 Buildout Total	**12**	**378**	**133**	**9**	**402**	**44**	**27**	**49**	**15**	**65**	**52**	**8**

PM PEAK HOUR

Description	Argent Boulevard Northbound			Argent Boulevard Southbound			Jasper Station Road Eastbound			Short Cut Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	17	448	45	8	392	28	23	37	13	39	31	12
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.8%			5.0%			7.8%			5.3%	
Peak Hour Factor		0.91			0.89			0.76			0.89	
Annual Growth Rate	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093
Approved Development Traffic												
2023 Background Traffic	19	490	49	9	429	31	25	40	14	43	34	13
New Project Trips												
Trip Distribution IN			4%					2%				
Trip Distribution OUT										4%	2%	
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	0	21	0	0	0	0	11	0	18	9	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	0	21	0	0	0	0	11	0	18	9	0
2023 Buildout Total	**19**	**490**	**70**	**9**	**429**	**31**	**25**	**51**	**14**	**61**	**43**	**13**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at Short Cut Drive/Pritcher Point Road
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Short Cut Drive Eastbound			Pritcher Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	93	1,121	7	0	1,712	13	0	0	163	2	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		3.3%			3.9%			5.5%			30.0%	
Peak Hour Factor		0.82			0.93			0.85			0.50	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	110	1,331	8	0	2,032	15	0	0	193	2	0	0
New Project Trips												
Trip Distribution IN			8%	13%	5%			6%				
Trip Distribution OUT	5%	13%								51%	1%	5%
Pass-by Project Trips												
Trip Distribution IN				20%	-20%							
Trip Distribution OUT										20%		15%
New Trips	23	61	26	42	16	0	0	19	0	238	5	23
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	23	61	26	42	16	0	0	19	0	238	5	23
2023 Buildout Total	**133**	**1,392**	**34**	**42**	**2,048**	**15**	**0**	**19**	**193**	**240**	**5**	**23**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Short Cut Drive Eastbound			Pritcher Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	74	1,674	0	0	1,266	10	3	0	98	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		3.3%			3.9%			5.5%			30.0%	
Peak Hour Factor		0.96			0.94			0.90			0.00	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	88	1,987	0	0	1,503	12	4	0	116	0	0	0
New Project Trips												
Trip Distribution IN			8%	13%	5%			6%				
Trip Distribution OUT	5%	13%								51%	1%	5%
Pass-by Project Trips												
Trip Distribution IN				20%	-20%							
Trip Distribution OUT										20%		15%
New Trips	22	60	45	70	29	0	0	32	0	234	5	23
Pass-By Trips	0	0	0	22	-22	0	0	0	0	20	0	15
Total Project Trips	22	60	45	92	7	0	0	32	0	254	5	38
2023 Buildout Total	**110**	**2,047**	**45**	**92**	**1,510**	**12**	**4**	**32**	**116**	**254**	**5**	**38**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at Site Access #1
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			- Eastbound			Site Access #1 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	0	1,198	0	0	1,832	0				0	0	0
Pedestrians		0			0						0	
Heavy Vehicle %		4.5%			4.0%						2.0%	
Peak Hour Factor		0.81			0.93						0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	0	1,422	0	0	2,175	0	0	0	0	0	0	0
New Project Trips												
Trip Distribution IN		8%	23%		5%							
Trip Distribution OUT		6%			51%							12%
Pass-by Project Trips												
Trip Distribution IN		-25%	25%									
Trip Distribution OUT												10%
New Trips	0	54	74	0	254	0	0	0	0	0	0	56
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	54	74	0	254	0	0	0	0	0	0	56
2023 Buildout Total	**0**	**1,476**	**74**	**0**	**2,429**	**0**	**0**	**0**	**0**	**0**	**0**	**56**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			- Eastbound			Site Access #1 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	0	1,732	0	0	1,390	0				0	0	0
Pedestrians		0			0						0	
Heavy Vehicle %		4.5%			4.0%						2.0%	
Peak Hour Factor		0.95			0.94						0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	0	2,056	0	0	1,650	0	0	0	0	0	0	0
New Project Trips												
Trip Distribution IN		8%	23%		5%							
Trip Distribution OUT		6%			51%							12%
Pass-by Project Trips												
Trip Distribution IN		-25%	25%									
Trip Distribution OUT												10%
New Trips	0	72	127	0	263	0	0	0	0	0	0	55
Pass-By Trips	0	-27	27	0	0	0	0	0	0	0	0	10
Total Project Trips	0	45	154	0	263	0	0	0	0	0	0	65
2023 Buildout Total	**0**	**2,101**	**154**	**0**	**1,913**	**0**	**0**	**0**	**0**	**0**	**0**	**65**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at Red Oaks Drive/Site Access #2
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Red Oaks Drive Eastbound			Site Access #2 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	24	1,187	0	0	1,794	38	11	0	31	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.5%			4.0%			12.8%			2.0%	
Peak Hour Factor		0.81			0.93			0.81			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	28	1,409	0	0	2,130	45	13	0	37	0	0	0
New Project Trips												
Trip Distribution IN		31%	26%	1%	4%			1%				
Trip Distribution OUT		2%			51%					4%	1%	4%
Pass-by Project Trips												
Trip Distribution IN		-50%	50%	5%	-5%							
Trip Distribution OUT										5%		50%
New Trips	0	110	84	3	251	0	0	3	0	19	5	18
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	110	84	3	251	0	0	3	0	19	5	18
2023 Buildout Total	**28**	**1,519**	**84**	**3**	**2,381**	**45**	**13**	**3**	**37**	**19**	**5**	**18**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Red Oaks Drive Eastbound			Site Access #2 Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	44	1,690	0	0	1,372	18	42	0	32	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.5%			4.0%			12.8%			2.0%	
Peak Hour Factor		0.95			0.94			0.88			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	52	2,006	0	0	1,629	21	50	0	38	0	0	0
New Project Trips												
Trip Distribution IN		31%	26%	1%	4%			1%				
Trip Distribution OUT		2%			51%					4%	1%	4%
Pass-by Project Trips												
Trip Distribution IN		-50%	50%	5%	-5%							
Trip Distribution OUT										5%		50%
New Trips	0	181	144	6	257	0	0	6	0	18	4	18
Pass-By Trips	0	-55	55	5	-5	0	0	0	0	5	0	50
Total Project Trips	0	126	199	11	252	0	0	6	0	23	4	68
2023 Buildout Total	**52**	**2,132**	**199**	**11**	**1,881**	**21**	**50**	**6**	**38**	**23**	**4**	**68**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at Cherry Point Road/Pearlstine Drive
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Pearlstine Drive Eastbound			Cherry Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	20	1,068	186	125	1,711	20	8	0	21	201	0	95
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.4%			4.0%			17.0%			3.5%	
Peak Hour Factor		0.80			0.93			0.48			0.57	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
2023 Background Traffic	24	1,268	221	148	2,031	24	9	0	25	239	0	113
New Project Trips												
Trip Distribution IN		57%	17%	4%				1%				
Trip Distribution OUT					54%	1%				20%		2%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	185	54	14	253	3	0	3	0	93	0	9
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	185	54	14	253	3	0	3	0	93	0	9
2023 Buildout Total	**24**	**1,453**	**275**	**162**	**2,284**	**27**	**9**	**3**	**25**	**332**	**0**	**122**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Pearlstine Drive Eastbound			Cherry Point Road Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	9	1,761	16	9	1,413	3	10	0	22	16	0	14
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.4%			4.0%			17.0%			3.5%	
Peak Hour Factor		0.95			0.95			0.62			0.83	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
2023 Background Traffic	11	2,091	19	11	1,677	4	12	0	26	19	0	17
New Project Trips												
Trip Distribution IN		57%	17%	4%				1%				
Trip Distribution OUT					54%	1%				20%		2%
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	315	94	22	247	6	0	6	0	92	0	10
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	315	94	22	247	6	0	6	0	92	0	10
2023 Buildout Total	**11**	**2,406**	**113**	**33**	**1,924**	**10**	**12**	**6**	**26**	**111**	**0**	**27**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at Schinger Avenue
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Schinger Avenue. Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	0	1,365	0	0	1,870	93	0	0	42	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			3.8%			2.0%	
Peak Hour Factor		0.88			0.90			0.55			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	0	1,620	0	0	2,220	110	0	0	50	0	0	0
New Project Trips												
Trip Distribution IN		74%										
Trip Distribution OUT					73%	1%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	239	0	0	341	5	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	239	0	0	341	5	0	0	0	0	0	0
2023 Buildout Total	**0**	**1,859**	**0**	**0**	**2,561**	**115**	**0**	**0**	**50**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Schinger Avenue. Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	0	1,761	0	0	1,423	22	0	0	106	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			3.8%			2.0%	
Peak Hour Factor		0.96			0.97			0.70			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	0	2,091	0	0	1,689	26	0	0	126	0	0	0
New Project Trips												
Trip Distribution IN		74%										
Trip Distribution OUT					73%	1%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	409	0	0	335	4	0	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	409	0	0	335	4	0	0	0	0	0	0
2023 Buildout Total	**0**	**2,500**	**0**	**0**	**2,024**	**30**	**0**	**0**	**126**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at River Walk Boulevard
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			River Walk Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	163	1,279	0	0	1,769	73	10	0	73	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.1%			3.8%			2.0%			2.0%	
Peak Hour Factor		0.86			0.94			0.63			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	193	1,518	0	0	2,100	87	12	0	87	0	0	0
New Project Trips												
Trip Distribution IN		69%					5%					
Trip Distribution OUT					69%	4%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	222	0	0	322	19	17	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	222	0	0	322	19	17	0	0	0	0	0
2023 Buildout Total	**193**	**1,740**	**0**	**0**	**2,422**	**106**	**29**	**0**	**87**	**0**	**0**	**0**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			River Walk Boulevard Eastbound			- Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	96	1,617	0	0	1,422	47	56	0	178	0	0	0
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.1%			3.8%			2.0%			2.0%	
Peak Hour Factor		0.95			0.94			0.74			0.90	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	114	1,920	0	0	1,688	56	66	0	211	0	0	0
New Project Trips												
Trip Distribution IN		69%					5%					
Trip Distribution OUT					69%	4%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	381	0	0	317	18	28	0	0	0	0	0
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	381	0	0	317	18	28	0	0	0	0	0
2023 Buildout Total	**114**	**2,301**	**0**	**0**	**2,005**	**74**	**94**	**0**	**211**	**0**	**0**	**0**

INTERSECTION VOLUME DEVELOPMENT

SC 170 at Tidewatch Drive
AM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Tidewatch Drive Eastbound			Tidewatch Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 AM Volumes	30	1,389	15	3	1,764	34	27	10	12	17	10	10
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			2.6%			3.5%	
Peak Hour Factor		0.83			0.90			0.77			0.58	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	36	1,649	18	4	2,094	40	32	12	14	20	12	12
New Project Trips												
Trip Distribution IN		65%					2%					2%
Trip Distribution OUT				2%	65%	2%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	209	0	9	303	10	6	0	0	0	0	7
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	209	0	9	303	10	6	0	0	0	0	7
2023 Buildout Total	**36**	**1,858**	**18**	**13**	**2,397**	**50**	**38**	**12**	**14**	**20**	**12**	**19**

PM PEAK HOUR

Description	SC 170 Northbound			SC 170 Southbound			Tidewatch Drive Eastbound			Tidewatch Drive Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing 2017 PM Volumes	15	1,708	43	1	1,511	17	20	26	23	35	11	4
Pedestrians		0			0			0			0	
Heavy Vehicle %		4.0%			3.7%			2.6%			3.5%	
Peak Hour Factor		0.96			0.87			0.86			0.66	
Annual Growth Rate	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%	2.90%
Growth Factor	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187	1.187
Approved Development Traffic												
2023 Background Traffic	18	2,028	51	1	1,794	20	24	31	27	42	13	5
New Project Trips												
Trip Distribution IN		65%					2%					2%
Trip Distribution OUT				2%	65%	2%						
Pass-by Project Trips												
Trip Distribution IN												
Trip Distribution OUT												
New Trips	0	359	0	9	298	10	11	0	0	0	0	11
Pass-By Trips	0	0	0	0	0	0	0	0	0	0	0	0
Total Project Trips	0	359	0	9	298	10	11	0	0	0	0	11
2023 Buildout Total	**18**	**2,387**	**51**	**10**	**2,092**	**30**	**35**	**31**	**27**	**42**	**13**	**16**

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	163	2	0	0	93	1121	7	0	1712	13
Future Vol, veh/h	0	0	163	2	0	0	93	1121	7	0	1712	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	175	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	50	50	50	82	82	82	93	93	93
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	0	0	192	4	0	0	113	1367	9	0	1841	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2758	3450	927	2518	3453	688	1855	0	0	1376	0	0
Stage 1	1848	1848	-	1598	1598	-	-	-	-	-	-	-
Stage 2	910	1602	-	920	1855	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	9	6	263	9	4	330	318	-	-	484	-	-
Stage 1	74	118	-	84	125	-	-	-	-	-	-	-
Stage 2	288	157	-	241	90	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	7	4	263	~ 2	3	330	318	-	-	484	-	-
Mov Cap-2 Maneuver	7	4	-	~ 2	3	-	-	-	-	-	-	-
Stage 1	48	118	-	54	81	-	-	-	-	-	-	-
Stage 2	186	101	-	65	90	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	48.3	$ 3322.5	1.7	0
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	318	-	-	263	2	484	-	-
HCM Lane V/C Ratio	0.357	-	-	0.729	2	-	-	-
HCM Control Delay (s)	22.5	-	-	48.3	$ 3322.5	0	-	-
HCM Lane LOS	C	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	1.6	-	-	5.1	1.4	0	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	21	201	0	95	20	1068	186	125	1711	20
Future Volume (veh/h)	8	0	21	201	0	95	20	1068	186	125	1711	20
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	17	0	44	353	0	167	25	1335	0	134	1840	22
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.48	0.48	0.48	0.57	0.57	0.57	0.80	0.80	0.80	0.93	0.93	0.93
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	46	20	51	185	0	277	154	1775	794	289	1929	23
Arrive On Green	0.18	0.00	0.18	0.18	0.00	0.18	0.04	0.51	0.00	0.08	0.55	0.55
Sat Flow, veh/h	0	110	284	634	0	1553	1740	3471	1553	1740	3513	42
Grp Volume(v), veh/h	61	0	0	353	0	167	25	1335	0	134	907	955
Grp Sat Flow(s),veh/h/ln	394	0	0	634	0	1553	1740	1736	1553	1740	1736	1820
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	10.0	0.7	30.7	0.0	3.4	49.7	50.0
Cycle Q Clear(g_c), s	17.9	0.0	0.0	17.9	0.0	10.0	0.7	30.7	0.0	3.4	49.7	50.0
Prop In Lane	0.28		0.72	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	116	0	0	185	0	277	154	1775	794	289	953	999
V/C Ratio(X)	0.53	0.00	0.00	1.91	0.00	0.60	0.16	0.75	0.00	0.46	0.95	0.96
Avail Cap(c_a), veh/h	116	0	0	185	0	277	297	1775	794	367	953	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	0.0	44.8	0.0	38.0	22.1	19.5	0.0	16.2	21.4	21.5
Incr Delay (d2), s/veh	4.3	0.0	0.0	430.2	0.0	3.7	0.5	3.0	0.0	1.2	19.7	19.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	27.1	0.0	4.5	0.4	15.4	0.0	1.8	28.9	30.4
LnGrp Delay(d),s/veh	40.6	0.0	0.0	475.0	0.0	41.7	22.6	22.5	0.0	17.4	41.1	41.0
LnGrp LOS	D			F		D	C	C		B	D	D
Approach Vol, veh/h		61			520			1360			1996	
Approach Delay, s/veh		40.6			335.8			22.5			39.5	
Approach LOS		D			F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.7	63.8		25.0	15.5	60.0		25.0
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.7	52.0		19.9	5.4	32.7		19.9
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	17.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	72.8
HCM 2010 LOS	E

Notes

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	42	0	1365	1870	93
Future Vol, veh/h	0	42	0	1365	1870	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	88	88	90	90
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	76	0	1551	2078	103

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1091	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	207	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	207	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32.2	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	207	-	-
HCM Lane V/C Ratio	-	0.369	-	-
HCM Control Delay (s)	-	32.2	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1.6	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	10	12	17	10	10	30	1389	15	3	1764	34
Future Volume (veh/h)	27	10	12	17	10	10	30	1389	15	3	1764	34
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	35	13	16	29	17	17	36	1673	0	3	1960	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.58	0.58	0.58	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	202	200	170	204	198	169	161	2613	1169	218	2613	1169
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1356	1845	1568	1349	1827	1553	219	3471	1553	289	3471	1553
Grp Volume(v), veh/h	35	13	16	29	17	17	36	1673	0	3	1960	0
Grp Sat Flow(s),veh/h/ln	1356	1845	1568	1349	1827	1553	219	1736	1553	289	1736	1553
Q Serve(g_s), s	2.6	0.7	1.0	2.1	0.9	1.1	12.1	24.9	0.0	0.5	34.7	0.0
Cycle Q Clear(g_c), s	3.5	0.7	1.0	2.8	0.9	1.1	46.8	24.9	0.0	25.4	34.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	200	170	204	198	169	161	2613	1169	218	2613	1169
V/C Ratio(X)	0.17	0.06	0.09	0.14	0.09	0.10	0.22	0.64	0.00	0.01	0.75	0.00
Avail Cap(c_a), veh/h	414	488	415	415	483	411	161	2613	1169	218	2613	1169
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.9	43.3	43.4	44.5	43.4	43.4	20.9	6.4	0.0	12.4	7.6	0.0
Incr Delay (d2), s/veh	0.4	0.1	0.2	0.3	0.2	0.3	3.2	1.2	0.0	0.1	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	0.4	0.8	0.5	0.5	0.9	12.1	0.0	0.1	17.1	0.0
LnGrp Delay(d),s/veh	45.3	43.4	43.6	44.9	43.6	43.7	24.1	7.6	0.0	12.6	9.6	0.0
LnGrp LOS	D	D	D	D	D	D	C	A		B	A	
Approach Vol, veh/h		64			63			1709			1963	
Approach Delay, s/veh		44.5			44.2			7.9			9.6	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.1		90.0		18.1
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		36.7		4.8		48.8		5.5
Green Ext Time (p_c), s		40.5		0.4		30.3		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.0
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	20.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	73	163	1279	1769	73
Future Vol, veh/h	10	73	163	1279	1769	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	86	86	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	16	116	190	1487	1882	78

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3044	980	1960	0	-	0
Stage 1	1921	-	-	-	-	-
Stage 2	1123	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 10	249	286	-	-	-
Stage 1	101	-	-	-	-	-
Stage 2	273	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 3	249	286	-	-	-
Mov Cap-2 Maneuver	~ 3	-	-	-	-	-
Stage 1	101	-	-	-	-	-
Stage 2	92	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 523.7	4.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	286	-	3	249	-	-
HCM Lane V/C Ratio	0.663	-	5.291	0.465	-	-
HCM Control Delay (s)	39.2	$	4117.1	31.4	-	-
HCM Lane LOS	E	-	F	D	-	-
HCM 95th %tile Q(veh)	4.3	-	3.4	2.3	-	-

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

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	31	24	1187	1794	38
Future Vol, veh/h	11	31	24	1187	1794	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	93	93
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	14	38	30	1465	1929	41

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2721	965	1929	0	-	0
Stage 1	1929	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	17	255	290	-	-	-
Stage 1	99	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	15	255	290	-	-	-
Mov Cap-2 Maneuver	15	-	-	-	-	-
Stage 1	99	-	-	-	-	-
Stage 2	365	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	279.1	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	290	-	49	-	-
HCM Lane V/C Ratio	0.102	-	1.058	-	-
HCM Control Delay (s)	18.8	-	279.1	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	4.6	-	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	350	33	17	1090	1599	434
Future Volume (veh/h)	350	33	17	1090	1599	434
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	443	0	22	1416	1719	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.79	0.79	0.77	0.77	0.93	0.93
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	143	2132	1697	759
Arrive On Green	0.21	0.00	0.03	0.61	0.49	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	443	0	22	1416	1719	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.5	22.6	41.6	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.5	22.6	41.6	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	143	2132	1697	759
V/C Ratio(X)	1.21	0.00	0.15	0.66	1.01	0.00
Avail Cap(c_a), veh/h	367	328	232	2132	1697	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	20.0	10.7	21.7	0.0
Incr Delay (d2), s/veh	116.2	0.0	0.5	1.7	25.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.4	0.0	0.3	11.1	25.7	0.0
LnGrp Delay(d),s/veh	149.6	0.0	20.5	12.3	46.8	0.0
LnGrp LOS	F		C	B	F	
Approach Vol, veh/h	443			1438	1719	
Approach Delay, s/veh	149.6			12.5	46.8	
Approach LOS	F			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.6	49.4				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.5	43.6				24.6		20.1
Green Ext Time (p_c), s	0.0	0.0				23.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	45.7
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↰	↱
Traffic Vol, veh/h	25	39	14	42	39	7	11	346	110	8	368	40
Future Vol, veh/h	25	39	14	42	39	7	11	346	110	8	368	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	88	88	88	88	88	88	90	90	90
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	36	56	20	48	44	8	13	393	125	9	409	44

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	934	970	409	946	908	456	409	0	0	518	0	0
Stage 1	427	427	-	481	481	-	-	-	-	-	-	-
Stage 2	507	543	-	465	427	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	240	247	630	238	272	598	1134	-	-	1033	-	-
Stage 1	594	575	-	561	549	-	-	-	-	-	-	-
Stage 2	537	510	-	572	580	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	202	240	630	185	264	598	1134	-	-	1033	-	-
Mov Cap-2 Maneuver	202	240	-	185	264	-	-	-	-	-	-	-
Stage 1	584	568	-	552	540	-	-	-	-	-	-	-
Stage 2	479	502	-	494	573	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	30	32.6	0.2	0.2
HCM LOS	D	D		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1134	-	-	253	228	1033	-	-
HCM Lane V/C Ratio	0.011	-	-	0.44	0.439	0.009	-	-
HCM Control Delay (s)	8.2	0	-	30	32.6	8.5	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.1	2.1	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	98	0	0	0	74	1674	0	0	1266	10
Future Vol, veh/h	3	0	98	0	0	0	74	1674	0	0	1266	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	175	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	25	25	25	96	96	96	94	94	94
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	3	0	109	0	0	0	77	1744	0	0	1347	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2378	3250	679	2571	3255	872	1357	0	0	1744	0	0
Stage 1	1352	1352	-	1898	1898	-	-	-	-	-	-	-
Stage 2	1026	1898	-	673	1357	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	17	8	385	8	5	244	498	-	-	348	-	-
Stage 1	153	209	-	52	85	-	-	-	-	-	-	-
Stage 2	244	111	-	351	170	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	15	7	385	5	4	244	498	-	-	348	-	-
Mov Cap-2 Maneuver	15	7	-	5	4	-	-	-	-	-	-	-
Stage 1	129	209	-	44	72	-	-	-	-	-	-	-
Stage 2	206	94	-	252	170	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	36.7	0	0.6	0
HCM LOS	E	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	498	-	-	222	-	348	-	-
HCM Lane V/C Ratio	0.155	-	-	0.506	-	-	-	-
HCM Control Delay (s)	13.5	-	-	36.7	0	0	-	-
HCM Lane LOS	B	-	-	E	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	2.6	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	22	16	0	14	9	1761	16	9	1413	3
Future Volume (veh/h)	10	0	22	16	0	14	9	1761	16	9	1413	3
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	16	0	35	19	0	17	9	1854	0	9	1487	3
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	80	13	78	212	0	129	236	2144	959	161	2195	4
Arrive On Green	0.08	0.00	0.08	0.08	0.00	0.08	0.02	0.62	0.00	0.02	0.62	0.62
Sat Flow, veh/h	273	156	937	1504	0	1553	1740	3471	1553	1740	3554	7
Grp Volume(v), veh/h	51	0	0	19	0	17	9	1854	0	9	726	764
Grp Sat Flow(s),veh/h/ln	1366	0	0	1504	0	1553	1740	1736	1553	1740	1736	1826
Q Serve(g_s), s	0.5	0.0	0.0	0.0	0.0	0.8	0.2	36.5	0.0	0.2	22.9	22.9
Cycle Q Clear(g_c), s	2.8	0.0	0.0	0.8	0.0	0.8	0.2	36.5	0.0	0.2	22.9	22.9
Prop In Lane	0.31		0.69	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	171	0	0	212	0	129	236	2144	959	161	1072	1127
V/C Ratio(X)	0.30	0.00	0.00	0.09	0.00	0.13	0.04	0.86	0.00	0.06	0.68	0.68
Avail Cap(c_a), veh/h	345	0	0	389	0	334	462	2144	959	387	1072	1127
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	0.0	35.4	0.0	35.4	8.8	13.1	0.0	13.9	10.5	10.5
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.2	0.0	0.5	0.1	5.0	0.0	0.1	3.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	0.4	0.0	0.4	0.1	18.7	0.0	0.1	11.9	12.5
LnGrp Delay(d),s/veh	37.2	0.0	0.0	35.5	0.0	35.8	8.9	18.0	0.0	14.0	13.9	13.7
LnGrp LOS	D			D		D	A	B		B	B	B
Approach Vol, veh/h		51			36			1863			1499	
Approach Delay, s/veh		37.2			35.7			18.0			13.8	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	60.0		14.0	9.2	60.0		14.0
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.2	24.9		2.8	2.2	38.5		4.8
Green Ext Time (p_c), s	0.0	23.9		0.3	0.0	12.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	106	0	1761	1423	22
Future Vol, veh/h	0	106	0	1761	1423	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	96	96	97	97
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	151	0	1834	1467	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	745	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	352	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	352	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	352	-	-
HCM Lane V/C Ratio	-	0.43	-	-
HCM Control Delay (s)	-	22.7	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	2.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	26	23	35	11	4	15	1708	43	1	1511	17
Future Volume (veh/h)	20	26	23	35	11	4	15	1708	43	1	1511	17
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	23	30	27	53	17	6	16	1779	0	1	1737	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.66	0.66	0.66	0.96	0.96	0.96	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	205	203	172	192	201	171	203	2609	1167	195	2609	1167
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1369	1845	1568	1315	1827	1553	272	3471	1553	261	3471	1553
Grp Volume(v), veh/h	23	30	27	53	17	6	16	1779	0	1	1737	0
Grp Sat Flow(s),veh/h/ln	1369	1845	1568	1315	1827	1553	272	1736	1553	261	1736	1553
Q Serve(g_s), s	1.7	1.6	1.7	4.1	0.9	0.4	3.4	28.3	0.0	0.2	26.9	0.0
Cycle Q Clear(g_c), s	2.6	1.6	1.7	5.7	0.9	0.4	30.3	28.3	0.0	28.5	26.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	203	172	192	201	171	203	2609	1167	195	2609	1167
V/C Ratio(X)	0.11	0.15	0.16	0.28	0.08	0.04	0.08	0.68	0.00	0.01	0.67	0.00
Avail Cap(c_a), veh/h	417	487	414	394	483	410	203	2609	1167	195	2609	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.5	43.6	43.7	46.2	43.3	43.1	14.2	6.8	0.0	14.1	6.7	0.0
Incr Delay (d2), s/veh	0.2	0.3	0.4	0.8	0.2	0.1	0.8	1.5	0.0	0.0	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.8	1.5	0.5	0.2	0.3	13.9	0.0	0.0	13.0	0.0
LnGrp Delay(d),s/veh	44.7	44.0	44.1	47.0	43.5	43.2	15.0	8.3	0.0	14.2	8.0	0.0
LnGrp LOS	D	D	D	D	D	D	B	A		B	A	
Approach Vol, veh/h		80			76			1795			1738	
Approach Delay, s/veh		44.2			45.9			8.4			8.0	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.3		90.0		18.3
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		30.5		7.7		32.3		4.6
Green Ext Time (p_c), s		43.8		0.5		42.5		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	9.8
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	50.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	178	96	1617	1422	47
Future Vol, veh/h	56	178	96	1617	1422	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	95	95	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	76	241	101	1702	1513	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2591	781	1563	0	-	0
Stage 1	1538	-	-	-	-	-
Stage 2	1053	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 20	338	409	-	-	-
Stage 1	163	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 15	338	409	-	-	-
Mov Cap-2 Maneuver	~ 15	-	-	-	-	-
Stage 1	163	-	-	-	-	-
Stage 2	224	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 585.9	0.9	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	409	-	15	338	-	-
HCM Lane V/C Ratio	0.247	-	5.045	0.712	-	-
HCM Control Delay (s)	16.7	-	$ 2327	38.1	-	-
HCM Lane LOS	C	-	F	E	-	-
HCM 95th %tile Q(veh)	1	-	10.3	5.2	-	-

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

Intersection	
Int Delay, s/veh	18.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	32	44	1690	1372	18
Future Vol, veh/h	42	32	44	1690	1372	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	95	95	94	94
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	48	36	46	1779	1460	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2442	730	1460	0	-	0
Stage 1	1460	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	~ 26	365	444	-	-	-
Stage 1	180	-	-	-	-	-
Stage 2	323	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 23	365	444	-	-	-
Mov Cap-2 Maneuver	~ 23	-	-	-	-	-
Stage 1	180	-	-	-	-	-
Stage 2	290	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 754	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	444	-	39	-	-
HCM Lane V/C Ratio	0.104	-	2.156	-	-
HCM Control Delay (s)	14.1	-	$ 754	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	9.1	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	437	58	32	1627	1244	398
Future Volume (veh/h)	437	58	32	1627	1244	398
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	460	0	34	1713	1296	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.96	0.96
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	232	2132	1655	741
Arrive On Green	0.21	0.00	0.05	0.61	0.48	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	460	0	34	1713	1296	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.8	32.0	26.5	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.8	32.0	26.5	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	232	2132	1655	741
V/C Ratio(X)	1.25	0.00	0.15	0.80	0.78	0.00
Avail Cap(c_a), veh/h	367	328	301	2132	1655	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	14.1	12.5	18.6	0.0
Incr Delay (d2), s/veh	134.6	0.0	0.3	3.3	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.3	0.0	0.4	16.0	13.5	0.0
LnGrp Delay(d),s/veh	168.1	0.0	14.4	15.8	22.3	0.0
LnGrp LOS	F		B	B	C	
Approach Vol, veh/h	460			1747	1296	
Approach Delay, s/veh	168.1			15.8	22.3	
Approach LOS	F			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.7	48.3				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.8	28.5				34.0		20.1
Green Ext Time (p_c), s	0.0	8.1				16.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.2
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		⇕			⇕			⇕			↰	↱
Traffic Vol, veh/h	23	37	13	39	31	12	17	448	45	8	392	28
Future Vol, veh/h	23	37	13	39	31	12	17	448	45	8	392	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	89	89	89	91	91	91	89	89	89
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	30	49	17	44	35	13	19	492	49	9	440	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1037	1037	440	1045	1012	517	440	0	0	542	0	0
Stage 1	458	458	-	554	554	-	-	-	-	-	-	-
Stage 2	579	579	-	491	458	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	204	226	605	204	236	552	1104	-	-	1012	-	-
Stage 1	571	557	-	511	509	-	-	-	-	-	-	-
Stage 2	490	491	-	554	562	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	171	218	605	160	227	552	1104	-	-	1012	-	-
Mov Cap-2 Maneuver	171	218	-	160	227	-	-	-	-	-	-	-
Stage 1	557	550	-	498	496	-	-	-	-	-	-	-
Stage 2	433	479	-	485	555	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	32.6	36.4	0.3	0.2
HCM LOS	D	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1104	-	-	224	204	1012	-	-
HCM Lane V/C Ratio	0.017	-	-	0.429	0.452	0.009	-	-
HCM Control Delay (s)	8.3	0	-	32.6	36.4	8.6	0	-
HCM Lane LOS	A	A	-	D	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2	2.1	0	-	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	173	2	0	0	98	1187	7	0	1813	14
Future Vol, veh/h	0	0	173	2	0	0	98	1187	7	0	1813	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	150	175	-	250	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	50	50	50	82	82	82	93	93	93
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	0	0	204	4	0	0	120	1448	9	0	1949	15

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2920	3644	982	2662	3652	724	1965	0	0	1448	0	0
Stage 1	1957	1957	-	1687	1687	-	-	-	-	-	-	-
Stage 2	963	1687	-	975	1965	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	6	5	241	7	3	311	288	-	-	454	-	-
Stage 1	63	104	-	73	112	-	-	-	-	-	-	-
Stage 2	267	142	-	222	78	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	4	3	241	~ 1	2	311	288	-	-	454	-	-
Mov Cap-2 Maneuver	28	43	-	76	~ -131	-	-	-	-	-	-	-
Stage 1	37	104	-	43	65	-	-	-	-	-	-	-
Stage 2	156	83	-	35	78	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	68	55	2	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	288	-	-	241	76	-	454	-	-
HCM Lane V/C Ratio	0.415	-	-	0.845	0.053	-	-	-	-
HCM Control Delay (s)	26.1	-	-	68	55	0	0	-	-
HCM Lane LOS	D	-	-	F	F	A	A	-	-
HCM 95th %tile Q(veh)	1.9	-	-	6.7	0.2	-	0	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	22	213	0	101	21	1131	197	132	1812	21
Future Volume (veh/h)	8	0	22	213	0	101	21	1131	197	132	1812	21
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	17	0	46	374	0	177	26	1414	0	142	1948	23
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.48	0.48	0.48	0.57	0.57	0.57	0.80	0.80	0.80	0.93	0.93	0.93
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	45	20	53	183	0	276	143	1774	794	272	1926	23
Arrive On Green	0.18	0.00	0.18	0.18	0.00	0.18	0.04	0.51	0.00	0.08	0.55	0.55
Sat Flow, veh/h	0	110	299	624	0	1553	1740	3471	1553	1740	3514	41
Grp Volume(v), veh/h	63	0	0	374	0	177	26	1414	0	142	960	1011
Grp Sat Flow(s),veh/h/ln	409	0	0	624	0	1553	1740	1736	1553	1740	1736	1820
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	10.6	0.7	33.8	0.0	3.7	55.1	55.1
Cycle Q Clear(g_c), s	17.9	0.0	0.0	17.9	0.0	10.6	0.7	33.8	0.0	3.7	55.1	55.1
Prop In Lane	0.27		0.73	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	118	0	0	183	0	276	143	1774	794	272	951	997
V/C Ratio(X)	0.53	0.00	0.00	2.05	0.00	0.64	0.18	0.80	0.00	0.52	1.01	1.01
Avail Cap(c_a), veh/h	118	0	0	183	0	276	284	1774	794	349	951	997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	0.0	44.8	0.0	38.3	23.4	20.3	0.0	18.3	22.7	22.7
Incr Delay (d2), s/veh	4.5	0.0	0.0	490.2	0.0	4.9	0.6	3.8	0.0	1.5	31.5	31.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	29.9	0.0	4.9	0.4	17.0	0.0	2.1	34.5	36.3
LnGrp Delay(d),s/veh	40.9	0.0	0.0	535.0	0.0	43.2	24.0	24.1	0.0	19.9	54.2	54.6
LnGrp LOS	D			F		D	C	C		B	F	F
Approach Vol, veh/h		63			551			1440			2113	
Approach Delay, s/veh		40.9			377.0			24.1			52.1	
Approach LOS		D			F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	63.7		25.0	15.5	60.0		25.0
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.7	57.1		19.9	5.7	35.8		19.9
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	14.7		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		85.2
HCM 2010 LOS		F

Notes

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	0	1445	1980	98
Future Vol, veh/h	0	44	0	1445	1980	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	88	88	90	90
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	80	0	1642	2200	109

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1154	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	187	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	187	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.9	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	187	-	-
HCM Lane V/C Ratio	-	0.428	-	-
HCM Control Delay (s)	-	37.9	-	-
HCM Lane LOS	-	E	-	-
HCM 95th %tile Q(veh)	-	2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	11	13	18	11	11	32	1471	16	3	1868	36
Future Volume (veh/h)	29	11	13	18	11	11	32	1471	16	3	1868	36
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	38	14	17	31	19	19	39	1772	0	3	2076	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.58	0.58	0.58	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	201	201	171	204	199	169	141	2611	1168	196	2611	1168
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1351	1845	1568	1346	1827	1553	195	3471	1553	263	3471	1553
Grp Volume(v), veh/h	38	14	17	31	19	19	39	1772	0	3	2076	0
Grp Sat Flow(s),veh/h/ln	1351	1845	1568	1346	1827	1553	195	1736	1553	263	1736	1553
Q Serve(g_s), s	2.8	0.7	1.1	2.3	1.0	1.2	16.7	28.0	0.0	0.6	39.9	0.0
Cycle Q Clear(g_c), s	3.8	0.7	1.1	3.0	1.0	1.2	56.6	28.0	0.0	28.6	39.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	201	171	204	199	169	141	2611	1168	196	2611	1168
V/C Ratio(X)	0.19	0.07	0.10	0.15	0.10	0.11	0.28	0.68	0.00	0.02	0.80	0.00
Avail Cap(c_a), veh/h	411	488	414	413	483	410	141	2611	1168	196	2611	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.1	43.3	43.4	44.6	43.4	43.5	25.7	6.8	0.0	14.0	8.3	0.0
Incr Delay (d2), s/veh	0.4	0.1	0.3	0.3	0.2	0.3	4.8	1.4	0.0	0.1	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.4	0.5	0.9	0.5	0.5	1.1	13.6	0.0	0.1	19.7	0.0
LnGrp Delay(d),s/veh	45.6	43.4	43.7	45.0	43.6	43.8	30.5	8.2	0.0	14.2	10.9	0.0
LnGrp LOS	D	D	D	D	D	D	C	A		B	B	
Approach Vol, veh/h		69			69			1811			2079	
Approach Delay, s/veh		44.7			44.3			8.7			10.9	
Approach LOS		D			D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.2		90.0		18.2
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		41.9		5.0		58.6		5.8
Green Ext Time (p_c), s		37.1		0.4		22.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	77	173	1354	1873	77
Future Vol, veh/h	11	77	173	1354	1873	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	86	86	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	17	122	201	1574	1993	82

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3224	1037	2074	0	-	0
Stage 1	2034	-	-	-	-	-
Stage 2	1190	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 7	228	257	-	-	-
Stage 1	87	-	-	-	-	-
Stage 2	251	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 2	228	257	-	-	-
Mov Cap-2 Maneuver	42	-	-	-	-	-
Stage 1	87	-	-	-	-	-
Stage 2	55	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	50.7	6.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	257	-	42	228	-	-
HCM Lane V/C Ratio	0.783	-	0.416	0.536	-	-
HCM Control Delay (s)	55.7	-	141.8	37.7	-	-
HCM Lane LOS	F	-	F	E	-	-
HCM 95th %tile Q(veh)	5.9	-	1.4	2.9	-	-

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	33	25	1257	1900	40
Future Vol, veh/h	12	33	25	1257	1900	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	93	93
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	15	41	31	1552	2043	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2881	1022	2043	0	-	0
Stage 1	2043	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	~ 13	233	261	-	-	-
Stage 1	86	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 11	233	261	-	-	-
Mov Cap-2 Maneuver	66	-	-	-	-	-
Stage 1	86	-	-	-	-	-
Stage 2	339	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	47.2	0.4	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	261	-	139	-	-
HCM Lane V/C Ratio	0.118	-	0.4	-	-
HCM Control Delay (s)	20.6	-	47.2	-	-
HCM Lane LOS	C	-	E	-	-
HCM 95th %tile Q(veh)	0.4	-	1.7	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	361	34	18	1154	1693	460
Future Volume (veh/h)	361	34	18	1154	1693	460
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	457	0	23	1499	1820	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.79	0.79	0.77	0.77	0.93	0.93
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	145	2132	1693	758
Arrive On Green	0.21	0.00	0.03	0.61	0.49	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	457	0	23	1499	1820	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.5	24.9	41.5	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.5	24.9	41.5	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	145	2132	1693	758
V/C Ratio(X)	1.25	0.00	0.16	0.70	1.07	0.00
Avail Cap(c_a), veh/h	367	328	232	2132	1693	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	20.0	11.1	21.8	0.0
Incr Delay (d2), s/veh	131.3	0.0	0.5	2.0	45.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.9	0.0	0.3	12.2	30.4	0.0
LnGrp Delay(d),s/veh	164.8	0.0	20.5	13.1	66.8	0.0
LnGrp LOS	F		C	B	F	
Approach Vol, veh/h	457			1522	1820	
Approach Delay, s/veh	164.8			13.2	66.8	
Approach LOS	F			B	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.7	49.3				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.5	43.5				26.9		20.1
Green Ext Time (p_c), s	0.0	0.0				22.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	57.1
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↰	↱
Traffic Vol, veh/h	26	40	14	43	40	7	11	356	113	8	356	41
Future Vol, veh/h	26	40	14	43	40	7	11	356	113	8	356	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	88	88	88	88	88	88	90	90	90
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	37	57	20	49	45	8	13	405	128	9	396	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	933	971	396	946	907	469	396	0	0	533	0	0
Stage 1	413	413	-	494	494	-	-	-	-	-	-	-
Stage 2	520	558	-	452	413	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	240	247	640	238	272	588	1146	-	-	1020	-	-
Stage 1	605	583	-	551	542	-	-	-	-	-	-	-
Stage 2	528	502	-	581	588	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	201	240	640	184	264	588	1146	-	-	1020	-	-
Mov Cap-2 Maneuver	201	240	-	184	264	-	-	-	-	-	-	-
Stage 1	595	576	-	542	533	-	-	-	-	-	-	-
Stage 2	469	494	-	501	581	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	30.6	33.2	0.2	0.2
HCM LOS	D	D		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1146	-	-	252	227	1020	-	-
HCM Lane V/C Ratio	0.011	-	-	0.454	0.451	0.009	-	-
HCM Control Delay (s)	8.2	0	-	30.6	33.2	8.6	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.2	2.2	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	104	0	0	0	78	1772	0	0	1340	11
Future Vol, veh/h	3	0	104	0	0	0	78	1772	0	0	1340	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	150	175	-	250	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	25	25	25	96	96	96	94	94	94
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	3	0	116	0	0	0	81	1846	0	0	1426	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2516	3439	719	2721	3445	923	1437	0	0	1846	0	0
Stage 1	1431	1431	-	2008	2008	-	-	-	-	-	-	-
Stage 2	1085	2008	-	713	1437	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	13	6	362	6	4	224	463	-	-	317	-	-
Stage 1	136	191	-	43	74	-	-	-	-	-	-	-
Stage 2	224	98	-	330	153	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	11	5	362	4	3	224	463	-	-	317	-	-
Mov Cap-2 Maneuver	68	54	-	27	32	-	-	-	-	-	-	-
Stage 1	112	191	-	35	61	-	-	-	-	-	-	-
Stage 2	185	81	-	225	153	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.5	0	0.6	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	463	-	-	323	-	-	317	-	-
HCM Lane V/C Ratio	0.175	-	-	0.368	-	-	-	-	-
HCM Control Delay (s)	14.4	-	-	22.5	0	0	0	-	-
HCM Lane LOS	B	-	-	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	1.6	-	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	23	17	0	15	10	1865	17	10	1496	3
Future Volume (veh/h)	11	0	23	17	0	15	10	1865	17	10	1496	3
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	18	0	37	20	0	18	11	1963	0	11	1575	3
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	82	13	78	214	0	131	221	2132	954	148	2183	4
Arrive On Green	0.08	0.00	0.08	0.08	0.00	0.08	0.02	0.61	0.00	0.02	0.61	0.61
Sat Flow, veh/h	291	155	917	1514	0	1553	1740	3471	1553	1740	3555	7
Grp Volume(v), veh/h	55	0	0	20	0	18	11	1963	0	11	769	809
Grp Sat Flow(s),veh/h/ln	1363	0	0	1514	0	1553	1740	1736	1553	1740	1736	1826
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	0.9	0.2	42.0	0.0	0.2	25.7	25.7
Cycle Q Clear(g_c), s	3.1	0.0	0.0	0.9	0.0	0.9	0.2	42.0	0.0	0.2	25.7	25.7
Prop In Lane	0.33		0.67	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	172	0	0	214	0	131	221	2132	954	148	1066	1121
V/C Ratio(X)	0.32	0.00	0.00	0.09	0.00	0.14	0.05	0.92	0.00	0.07	0.72	0.72
Avail Cap(c_a), veh/h	343	0	0	387	0	332	439	2132	954	366	1066	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	0.0	35.5	0.0	35.5	9.7	14.3	0.0	16.7	11.2	11.2
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.2	0.0	0.5	0.1	8.0	0.0	0.2	4.2	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.4	0.0	0.4	0.1	22.3	0.0	0.1	13.4	14.1
LnGrp Delay(d),s/veh	37.5	0.0	0.0	35.7	0.0	35.9	9.8	22.3	0.0	16.9	15.4	15.2
LnGrp LOS	D			D		D	A	C		B	B	B
Approach Vol, veh/h		55			38			1974			1589	
Approach Delay, s/veh		37.5			35.8			22.3			15.3	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	60.0		14.2	9.5	60.0		14.2
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.2	27.7		2.9	2.2	44.0		5.1
Green Ext Time (p_c), s	0.0	22.1		0.3	0.0	7.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	112	0	1865	1507	23
Future Vol, veh/h	0	112	0	1865	1507	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	96	96	97	97
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	160	0	1943	1554	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	789	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	329	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	329	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	329	-	-
HCM Lane V/C Ratio	-	0.486	-	-
HCM Control Delay (s)	-	25.9	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	2.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	28	24	37	12	4	16	1809	46	1	1600	18
Future Volume (veh/h)	21	28	24	37	12	4	16	1809	46	1	1600	18
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	24	33	28	56	18	6	17	1884	0	1	1839	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.66	0.66	0.66	0.96	0.96	0.96	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	205	203	172	189	201	171	183	2609	1167	174	2609	1167
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1368	1845	1568	1310	1827	1553	246	3471	1553	236	3471	1553
Grp Volume(v), veh/h	24	33	28	56	18	6	17	1884	0	1	1839	0
Grp Sat Flow(s),veh/h/ln	1368	1845	1568	1310	1827	1553	246	1736	1553	236	1736	1553
Q Serve(g_s), s	1.7	1.8	1.8	4.4	1.0	0.4	4.2	32.0	0.0	0.3	30.3	0.0
Cycle Q Clear(g_c), s	2.7	1.8	1.8	6.1	1.0	0.4	34.6	32.0	0.0	32.2	30.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	203	172	189	201	171	183	2609	1167	174	2609	1167
V/C Ratio(X)	0.12	0.16	0.16	0.30	0.09	0.04	0.09	0.72	0.00	0.01	0.70	0.00
Avail Cap(c_a), veh/h	416	487	414	391	482	410	183	2609	1167	174	2609	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.5	43.7	43.7	46.5	43.3	43.1	16.2	7.3	0.0	16.1	7.1	0.0
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.9	0.2	0.1	1.0	1.8	0.0	0.1	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.9	0.8	1.6	0.5	0.2	0.3	15.6	0.0	0.0	14.9	0.0
LnGrp Delay(d),s/veh	44.8	44.1	44.1	47.3	43.5	43.1	17.3	9.1	0.0	16.1	8.7	0.0
LnGrp LOS	D	D	D	D	D	D	B	A		B	A	
Approach Vol, veh/h		85			80			1901			1840	
Approach Delay, s/veh		44.3			46.2			9.2			8.7	
Approach LOS		D			D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.3		90.0		18.3
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		34.2		8.1		36.6		4.7
Green Ext Time (p_c), s		42.6		0.5		40.7		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	75

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	59	188	102	1712	1506	50
Future Vol, veh/h	59	188	102	1712	1506	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	95	95	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	80	254	107	1802	1602	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2745	828	1655	0	-	0
Stage 1	1629	-	-	-	-	-
Stage 2	1116	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 16	314	377	-	-	-
Stage 1	146	-	-	-	-	-
Stage 2	275	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 11	314	377	-	-	-
Mov Cap-2 Maneuver	~ 11	-	-	-	-	-
Stage 1	146	-	-	-	-	-
Stage 2	197	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 870.8	1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	377	-	11	314	-	-
HCM Lane V/C Ratio	0.285	-	7.248	0.809	-	-
HCM Control Delay (s)	18.3	-	$ 3482.8	51.1	-	-
HCM Lane LOS	C	-	F	F	-	-
HCM 95th %tile Q(veh)	1.2	-	11.2	6.7	-	-

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

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	34	47	1789	1453	19
Future Vol, veh/h	44	34	47	1789	1453	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	95	95	94	94
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	50	39	49	1883	1546	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2587	773	1546	0	-	0
Stage 1	1546	-	-	-	-	-
Stage 2	1041	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	~ 21	342	411	-	-	-
Stage 1	162	-	-	-	-	-
Stage 2	301	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 18	342	411	-	-	-
Mov Cap-2 Maneuver	99	-	-	-	-	-
Stage 1	162	-	-	-	-	-
Stage 2	265	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	64.4	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	411	-	143	-	-
HCM Lane V/C Ratio	0.12	-	0.62	-	-
HCM Control Delay (s)	15	-	64.4	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.4	-	3.3	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	463	61	34	1723	1317	421
Future Volume (veh/h)	463	61	34	1723	1317	421
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	487	0	36	1814	1372	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.96	0.96
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	218	2132	1649	738
Arrive On Green	0.21	0.00	0.05	0.61	0.48	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	487	0	36	1814	1372	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.8	35.9	29.2	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.8	35.9	29.2	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	218	2132	1649	738
V/C Ratio(X)	1.33	0.00	0.17	0.85	0.83	0.00
Avail Cap(c_a), veh/h	367	328	283	2132	1649	738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	15.2	13.3	19.4	0.0
Incr Delay (d2), s/veh	164.9	0.0	0.4	4.5	5.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.4	0.0	0.4	18.2	15.1	0.0
LnGrp Delay(d),s/veh	198.4	0.0	15.6	17.8	24.4	0.0
LnGrp LOS	F		B	B	C	
Approach Vol, veh/h	487			1850	1372	
Approach Delay, s/veh	198.4			17.7	24.4	
Approach LOS	F			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.8	48.2				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.8	31.2				37.9		20.1
Green Ext Time (p_c), s	0.0	5.8				13.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	43.9
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	24	38	13	40	32	12	18	462	46	8	404	29
Future Vol, veh/h	24	38	13	40	32	12	18	462	46	8	404	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	89	89	89	91	91	91	89	89	89
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	32	50	17	45	36	13	20	508	51	9	454	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1069	1070	454	1078	1045	533	454	0	0	558	0	0
Stage 1	472	472	-	573	573	-	-	-	-	-	-	-
Stage 2	597	598	-	505	472	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	194	216	594	194	226	541	1091	-	-	998	-	-
Stage 1	561	549	-	499	499	-	-	-	-	-	-	-
Stage 2	479	481	-	544	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	160	208	594	149	217	541	1091	-	-	998	-	-
Mov Cap-2 Maneuver	160	208	-	149	217	-	-	-	-	-	-	-
Stage 1	546	542	-	486	486	-	-	-	-	-	-	-
Stage 2	421	468	-	474	547	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	36	40.6	0.3	0.2
HCM LOS	E	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1091	-	-	212	192	998	-	-
HCM Lane V/C Ratio	0.018	-	-	0.465	0.492	0.009	-	-
HCM Control Delay (s)	8.4	0	-	36	40.6	8.6	0	-
HCM Lane LOS	A	A	-	E	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.3	2.4	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2	173	45	4	12	100	1195	17	5	1814	14
Future Volume (veh/h)	0	2	173	45	4	12	100	1195	17	5	1814	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1900	1900	1462	1462	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	0	2	204	50	4	13	122	1457	0	5	1951	15
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.82	0.82	0.82	0.93	0.93	0.93
Percent Heavy Veh, %	6	6	6	30	30	30	3	3	3	4	4	4
Cap, veh/h	0	3	300	123	7	253	152	2162	967	193	2038	16
Arrive On Green	0.00	0.20	0.20	0.20	0.20	0.20	0.04	0.62	0.00	0.01	0.58	0.58
Sat Flow, veh/h	0	15	1511	323	36	1242	1757	3505	1568	1740	3531	27
Grp Volume(v), veh/h	0	0	206	54	0	13	122	1457	0	5	958	1008
Grp Sat Flow(s),veh/h/ln	0	0	1526	359	0	1242	1757	1752	1568	1740	1736	1822
Q Serve(g_s), s	0.0	0.0	14.6	6.3	0.0	1.0	3.3	31.9	0.0	0.1	60.9	61.2
Cycle Q Clear(g_c), s	0.0	0.0	14.6	20.9	0.0	1.0	3.3	31.9	0.0	0.1	60.9	61.2
Prop In Lane	0.00		0.99	0.93		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	303	131	0	253	152	2162	967	193	1002	1052
V/C Ratio(X)	0.00	0.00	0.68	0.41	0.00	0.05	0.80	0.67	0.00	0.03	0.96	0.96
Avail Cap(c_a), veh/h	0	0	303	210	0	357	164	2162	967	296	1039	1091
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	43.4	52.5	0.0	37.5	28.2	14.7	0.0	13.4	23.3	23.4
Incr Delay (d2), s/veh	0.0	0.0	6.1	2.1	0.0	0.1	23.2	0.8	0.0	0.1	17.9	17.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	6.7	1.8	0.0	0.3	3.2	15.6	0.0	0.1	34.0	35.7
LnGrp Delay(d),s/veh	0.0	0.0	49.5	54.5	0.0	37.6	51.4	15.5	0.0	13.5	41.2	41.2
LnGrp LOS			D	D		D	D	B		B	D	D
Approach Vol, veh/h		206			67			1579			1971	
Approach Delay, s/veh		49.5			51.3			18.3			41.1	
Approach LOS		D			D			B			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.6	79.1		30.2	12.2	74.5		30.2
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	7.5	68.5		13.0	6.0	70.0		33.0
Max Q Clear Time (g_c+I1), s	2.1	33.9		16.6	5.3	63.2		22.9
Green Ext Time (p_c), s	0.0	31.0		0.0	0.0	4.3		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	22	249	1	107	21	1151	206	134	1858	21
Future Volume (veh/h)	8	0	22	249	1	107	21	1151	206	134	1858	21
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	17	0	46	277	1	119	26	1439	0	144	1998	23
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.48	0.48	0.48	0.90	0.90	0.90	0.80	0.80	0.80	0.93	0.93	0.93
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	39	17	47	181	0	340	107	1794	802	241	2093	24
Arrive On Green	0.22	0.00	0.22	0.22	0.22	0.22	0.02	0.52	0.00	0.07	0.60	0.60
Sat Flow, veh/h	0	80	216	550	2	1553	1740	3471	1553	1740	3515	40
Grp Volume(v), veh/h	63	0	0	278	0	119	26	1439	0	144	985	1036
Grp Sat Flow(s),veh/h/ln	295	0	0	552	0	1553	1740	1736	1553	1740	1736	1820
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	7.7	0.8	40.5	0.0	4.3	62.8	63.4
Cycle Q Clear(g_c), s	25.9	0.0	0.0	25.9	0.0	7.7	0.8	40.5	0.0	4.3	62.8	63.4
Prop In Lane	0.27		0.73	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	103	0	0	181	0	340	107	1794	802	241	1034	1084
V/C Ratio(X)	0.61	0.00	0.00	1.53	0.00	0.35	0.24	0.80	0.00	0.60	0.95	0.96
Avail Cap(c_a), veh/h	103	0	0	181	0	340	132	1794	802	264	1034	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	0.0	50.6	0.0	39.1	27.0	23.6	0.0	22.6	22.4	22.5
Incr Delay (d2), s/veh	10.1	0.0	0.0	265.7	0.0	0.6	1.2	3.9	0.0	3.2	18.7	18.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	19.3	0.0	3.3	0.5	20.4	0.0	2.7	35.2	37.0
LnGrp Delay(d),s/veh	49.6	0.0	0.0	316.3	0.0	39.8	28.2	27.5	0.0	25.8	41.0	41.2
LnGrp LOS	D			F		D	C	C		C	D	D
Approach Vol, veh/h		63			397			1465			2165	
Approach Delay, s/veh		49.6			233.4			27.5			40.1	
Approach LOS		D			F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	79.1		33.0	15.6	69.8		33.0
Change Period (Y+Rc), s	4.0	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	4.3	* 70		25.9	9.5	* 61		25.9
Max Q Clear Time (g_c+I1), s	2.8	65.4		27.9	6.3	42.5		27.9
Green Ext Time (p_c), s	0.0	4.9		0.0	0.1	17.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.5
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	0	1474	2061	99
Future Vol, veh/h	0	44	0	1474	2061	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	88	88	90	90
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	80	0	1675	2290	110

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1200	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	174	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	174	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	42.2	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	174	-	-
HCM Lane V/C Ratio	-	0.46	-	-
HCM Control Delay (s)	-	42.2	-	-
HCM Lane LOS	-	E	-	-
HCM 95th %tile Q(veh)	-	2.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	11	13	18	11	12	32	1495	16	5	1941	38
Future Volume (veh/h)	30	11	13	18	11	12	32	1495	16	5	1941	38
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	39	14	17	31	19	21	39	1801	0	6	2157	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.58	0.58	0.58	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	234	232	197	237	229	195	121	2476	1108	181	2476	1108
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.71	0.71	0.00	0.71	0.71	0.00
Sat Flow, veh/h	1348	1845	1568	1346	1827	1553	180	3471	1553	255	3471	1553
Grp Volume(v), veh/h	39	14	17	31	19	21	39	1801	0	6	2157	0
Grp Sat Flow(s),veh/h/ln	1348	1845	1568	1346	1827	1553	180	1736	1553	255	1736	1553
Q Serve(g_s), s	2.4	0.6	0.9	1.9	0.9	1.1	19.5	28.8	0.0	1.3	43.8	0.0
Cycle Q Clear(g_c), s	3.3	0.6	0.9	2.6	0.9	1.1	63.3	28.8	0.0	30.1	43.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	234	232	197	237	229	195	121	2476	1108	181	2476	1108
V/C Ratio(X)	0.17	0.06	0.09	0.13	0.08	0.11	0.32	0.73	0.00	0.03	0.87	0.00
Avail Cap(c_a), veh/h	479	567	482	482	561	477	121	2476	1108	181	2476	1108
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.4	35.9	36.0	37.0	36.0	36.1	34.1	8.0	0.0	16.9	10.1	0.0
Incr Delay (d2), s/veh	0.3	0.1	0.2	0.2	0.2	0.2	6.9	1.9	0.0	0.3	4.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.3	0.4	0.7	0.4	0.5	1.2	14.2	0.0	0.1	21.9	0.0
LnGrp Delay(d),s/veh	37.8	36.0	36.2	37.2	36.1	36.3	41.0	9.9	0.0	17.3	14.7	0.0
LnGrp LOS	D	D	D	D	D	D	D	A		B	B	
Approach Vol, veh/h		70			71			1840			2163	
Approach Delay, s/veh		37.0			36.7			10.5			14.7	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		75.0		18.1		75.0		18.1
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 66		28.6		* 66		28.6
Max Q Clear Time (g_c+I1), s		45.8		4.6		65.3		5.3
Green Ext Time (p_c), s		20.0		0.4		1.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.6
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	77	173	1380	1950	81
Future Vol, veh/h	14	77	173	1380	1950	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	86	86	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	22	122	201	1605	2074	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3323	1080	2161	0	-	0
Stage 1	2118	-	-	-	-	-
Stage 2	1205	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 6	214	238	-	-	-
Stage 1	78	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 1	214	238	-	-	-
Mov Cap-2 Maneuver	31	-	-	-	-	-
Stage 1	78	-	-	-	-	-
Stage 2	38	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	75.8	7.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	238	-	31	214	-	-
HCM Lane V/C Ratio	0.845	-	0.717	0.571	-	-
HCM Control Delay (s)	68.8	-	261.2	42.1	-	-
HCM Lane LOS	F	-	F	E	-	-
HCM 95th %tile Q(veh)	6.7	-	2.4	3.1	-	-

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

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	33	4	0	6	28	1271	9	0	1944	40
Future Vol, veh/h	12	0	33	4	0	6	28	1271	9	0	1944	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	250	-	150	150	-	225
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	90	90	90	81	81	81	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	4	4	4
Mvmt Flow	15	0	41	4	0	7	35	1569	11	0	2090	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2944	3728	1045	2683	3728	785	2090	0	0	1569	0	0
Stage 1	2090	2090	-	1638	1638	-	-	-	-	-	-	-
Stage 2	854	1638	-	1045	2090	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.2	-	-	4.18	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.25	-	-	2.24	-	-
Pot Cap-1 Maneuver	~ 7	4	225	10	4	336	250	-	-	407	-	-
Stage 1	54	93	-	105	157	-	-	-	-	-	-	-
Stage 2	320	157	-	245	93	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 6	3	225	7	3	336	250	-	-	407	-	-
Mov Cap-2 Maneuver	37	52	-	56	38	-	-	-	-	-	-	-
Stage 1	46	93	-	90	135	-	-	-	-	-	-	-
Stage 2	270	135	-	201	93	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	59.7	40.7	0.5	0
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	250	-	-	37	225	112	407	-	-
HCM Lane V/C Ratio	0.138	-	-	0.4	0.181	0.099	-	-	-
HCM Control Delay (s)	21.7	-	-	156.4	24.5	40.7	0	-	-
HCM Lane LOS	C	-	-	F	C	E	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.3	0.6	0.3	0	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	361	34	18	1174	1699	460
Future Volume (veh/h)	361	34	18	1174	1699	460
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	457	0	23	1525	1827	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.79	0.79	0.77	0.77	0.93	0.93
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	444	397	138	2212	1845	825
Arrive On Green	0.26	0.00	0.05	0.64	0.53	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	457	0	23	1525	1827	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	36.1	0.0	0.0	39.8	72.9	0.0
Cycle Q Clear(g_c), s	36.1	0.0	0.0	39.8	72.9	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	444	397	138	2212	1845	825
V/C Ratio(X)	1.03	0.00	0.17	0.69	0.99	0.00
Avail Cap(c_a), veh/h	444	397	138	2212	1845	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.0	0.0	63.2	16.4	32.4	0.0
Incr Delay (d2), s/veh	50.2	0.0	0.6	1.8	18.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.3	0.0	0.9	19.6	39.6	0.0
LnGrp Delay(d),s/veh	102.1	0.0	63.7	18.2	51.3	0.0
LnGrp LOS	F		E	B	D	
Approach Vol, veh/h	457			1548	1827	
Approach Delay, s/veh	102.1			18.9	51.3	
Approach LOS	F			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	82.2				97.0		43.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.0	74.4				89.2		36.1
Max Q Clear Time (g_c+I1), s	2.0	74.9				41.8		38.1
Green Ext Time (p_c), s	3.8	0.0				15.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	44.2
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	26	41	14	47	42	7	11	356	114	8	379	41
Future Vol, veh/h	26	41	14	47	42	7	11	356	114	8	379	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	88	88	88	88	88	88	90	90	90
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	37	59	20	53	48	8	13	405	130	9	421	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	896	869	421	908	869	405	421	0	0	405	0	0
Stage 1	439	439	-	430	430	-	-	-	-	-	-	-
Stage 2	457	430	-	478	439	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	255	284	620	253	287	639	1122	-	-	1138	-	-
Stage 1	585	568	-	598	578	-	-	-	-	-	-	-
Stage 2	572	573	-	563	573	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	214	276	620	201	279	639	1122	-	-	1138	-	-
Mov Cap-2 Maneuver	214	276	-	201	279	-	-	-	-	-	-	-
Stage 1	575	562	-	588	568	-	-	-	-	-	-	-
Stage 2	509	563	-	483	567	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	27	31.3	0.2	0.2
HCM LOS	D	D		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1122	-	-	277	243	1138	-	-
HCM Lane V/C Ratio	0.011	-	-	0.418	0.449	0.008	-	-
HCM Control Delay (s)	8.2	0	-	27	31.3	8.2	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2	2.2	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	7	104	28	3	8	78	1777	33	17	1346	11
Future Volume (veh/h)	3	7	104	28	3	8	78	1777	33	17	1346	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1900	1900	1462	1462	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	3	8	116	31	3	9	81	1851	0	18	1432	12
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	6	30	30	30	3	3	3	4	4	4
Cap, veh/h	51	13	153	186	13	135	221	1981	886	186	1994	17
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.04	0.57	0.00	0.04	0.57	0.57
Sat Flow, veh/h	14	119	1406	863	119	1242	1757	3505	1568	1740	3528	30
Grp Volume(v), veh/h	127	0	0	34	0	9	81	1851	0	18	704	740
Grp Sat Flow(s),veh/h/ln	1540	0	0	982	0	1242	1757	1752	1568	1740	1736	1822
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.5	1.8	36.2	0.0	0.0	22.1	22.1
Cycle Q Clear(g_c), s	5.9	0.0	0.0	2.3	0.0	0.5	1.8	36.2	0.0	0.0	22.1	22.1
Prop In Lane	0.02		0.91	0.91		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	217	0	0	199	0	135	221	1981	886	186	981	1030
V/C Ratio(X)	0.59	0.00	0.00	0.17	0.00	0.07	0.37	0.93	0.00	0.10	0.72	0.72
Avail Cap(c_a), veh/h	319	0	0	267	0	217	239	1981	886	203	981	1030
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	0.0	30.5	0.0	29.7	14.8	14.9	0.0	32.6	11.8	11.8
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.4	0.0	0.2	1.0	9.7	0.0	0.2	4.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	0.7	0.0	0.2	0.9	19.9	0.0	0.4	11.6	12.1
LnGrp Delay(d),s/veh	34.7	0.0	0.0	30.9	0.0	30.0	15.9	24.6	0.0	32.9	16.3	16.1
LnGrp LOS	C			C		C	B	C		C	B	B
Approach Vol, veh/h		127			43			1932			1462	
Approach Delay, s/veh		34.7			30.7			24.3			16.4	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.2	49.0		15.1	10.2	49.0		15.1
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	4.0	42.0		13.0	4.0	42.0		13.0
Max Q Clear Time (g_c+I1), s	2.0	38.2		7.9	3.8	24.1		4.3
Green Ext Time (p_c), s	1.5	3.3		0.4	0.0	8.9		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1	23	40	1	19	10	1928	47	16	1527	4
Future Volume (veh/h)	11	1	23	40	1	19	10	1928	47	16	1527	4
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	18	2	37	48	1	23	11	2029	0	17	1607	4
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	90	21	89	240	4	155	212	2393	1071	148	2220	6
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.01	0.69	0.00	0.62	0.62	0.62
Sat Flow, veh/h	267	214	892	1450	40	1553	1740	3471	1553	204	3552	9
Grp Volume(v), veh/h	57	0	0	49	0	23	11	2029	0	17	785	826
Grp Sat Flow(s),veh/h/ln	1373	0	0	1491	0	1553	1740	1736	1553	204	1736	1825
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.0	0.2	32.6	0.0	5.1	23.1	23.1
Cycle Q Clear(g_c), s	2.7	0.0	0.0	1.9	0.0	1.0	0.2	32.6	0.0	32.8	23.1	23.1
Prop In Lane	0.32		0.65	0.98		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	201	0	0	244	0	155	212	2393	1071	148	1085	1141
V/C Ratio(X)	0.28	0.00	0.00	0.20	0.00	0.15	0.05	0.85	0.00	0.11	0.72	0.72
Avail Cap(c_a), veh/h	298	0	0	343	0	269	287	2393	1071	148	1085	1141
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	0.0	0.0	31.1	0.0	30.7	8.7	8.6	0.0	22.7	9.6	9.6
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.4	0.0	0.4	0.1	4.0	0.0	1.6	4.2	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	1.0	0.0	0.5	0.1	16.5	0.0	0.3	12.2	12.7
LnGrp Delay(d),s/veh	32.2	0.0	0.0	31.5	0.0	31.1	8.8	12.6	0.0	24.3	13.8	13.6
LnGrp LOS	C			C		C	A	B		C	B	B
Approach Vol, veh/h		57			72			2040			1628	
Approach Delay, s/veh		32.2			31.3			12.6			13.8	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	4.8	55.2		14.5		60.0		14.5
Change Period (Y+Rc), s	4.0	* 8.6		7.1		* 8.6		7.1
Max Green Setting (Gmax), s	4.8	* 43		12.9		* 51		12.9
Max Q Clear Time (g_c+I1), s	2.2	34.8		3.9		34.6		4.7
Green Ext Time (p_c), s	0.0	8.4		0.3		16.2		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	112	0	1958	1560	24
Future Vol, veh/h	0	112	0	1958	1560	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	96	96	97	97
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	160	0	2040	1608	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	816	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	316	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	316	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	316	-	-
HCM Lane V/C Ratio	-	0.506	-	-
HCM Control Delay (s)	-	27.5	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	2.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	28	24	37	12	7	16	1890	46	2	1648	19
Future Volume (veh/h)	24	28	24	37	12	7	16	1890	46	2	1648	19
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	28	33	28	56	18	11	17	1969	0	2	1894	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.66	0.66	0.66	0.96	0.96	0.96	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	268	261	222	252	259	220	155	2353	1053	142	2353	1053
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.68	0.68	0.00	0.68	0.68	0.00
Sat Flow, veh/h	1362	1845	1568	1310	1827	1553	233	3471	1553	217	3471	1553
Grp Volume(v), veh/h	28	33	28	56	18	11	17	1969	0	2	1894	0
Grp Sat Flow(s),veh/h/ln	1362	1845	1568	1310	1827	1553	233	1736	1553	217	1736	1553
Q Serve(g_s), s	1.5	1.3	1.3	3.2	0.7	0.5	4.6	35.1	0.0	0.6	32.2	0.0
Cycle Q Clear(g_c), s	2.2	1.3	1.3	4.5	0.7	0.5	36.8	35.1	0.0	35.7	32.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	261	222	252	259	220	155	2353	1053	142	2353	1053
V/C Ratio(X)	0.10	0.13	0.13	0.22	0.07	0.05	0.11	0.84	0.00	0.01	0.80	0.00
Avail Cap(c_a), veh/h	543	634	539	517	628	534	155	2353	1053	142	2353	1053
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.9	31.2	31.2	33.2	30.9	30.9	22.5	10.0	0.0	23.2	9.5	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.3	0.4	0.1	0.1	1.4	3.7	0.0	0.2	3.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.7	0.6	1.2	0.4	0.2	0.4	17.6	0.0	0.0	16.0	0.0
LnGrp Delay(d),s/veh	32.1	31.4	31.5	33.6	31.1	31.0	24.0	13.7	0.0	23.4	12.5	0.0
LnGrp LOS	C	C	C	C	C	C	C	B		C	B	
Approach Vol, veh/h		89			85			1986			1896	
Approach Delay, s/veh		31.6			32.7			13.8			12.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		65.0		18.2		65.0		18.2
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 56		28.6		* 56		28.6
Max Q Clear Time (g_c+I1), s		37.7		6.5		38.8		4.2
Green Ext Time (p_c), s		18.1		0.6		17.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	14.0
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	188	102	1799	1556	53
Future Vol, veh/h	65	188	102	1799	1556	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	95	95	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	88	254	107	1894	1655	56

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2846	856	1712	0	-	0
Stage 1	1684	-	-	-	-	-
Stage 2	1162	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 14	301	358	-	-	-
Stage 1	136	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 10	301	358	-	-	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	136	-	-	-	-	-
Stage 2	182	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	77.2	1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	358	-	101	301	-	-
HCM Lane V/C Ratio	0.3	-	0.87	0.844	-	-
HCM Control Delay (s)	19.3	-	133	57.9	-	-
HCM Lane LOS	C	-	F	F	-	-
HCM 95th %tile Q(veh)	1.2	-	5	7.3	-	-

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

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	44	0	35	3	0	4	48	1824	31	0	1487	19
Future Vol, veh/h	44	0	35	3	0	4	48	1824	31	0	1487	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	250	-	150	150	-	225
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	95	95	95	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	4	4	4
Mvmt Flow	50	0	40	3	0	4	51	1920	33	0	1582	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2643	3603	791	2812	3603	960	1582	0	0	1920	0	0
Stage 1	1582	1582	-	2021	2021	-	-	-	-	-	-	-
Stage 2	1061	2021	-	791	1582	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.2	-	-	4.18	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.25	-	-	2.24	-	-
Pot Cap-1 Maneuver	~ 11	5	332	8	5	257	398	-	-	296	-	-
Stage 1	114	167	-	60	101	-	-	-	-	-	-	-
Stage 2	239	101	-	349	167	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 10	4	332	6	4	257	398	-	-	296	-	-
Mov Cap-2 Maneuver	65	54	-	41	47	-	-	-	-	-	-	-
Stage 1	99	167	-	52	88	-	-	-	-	-	-	-
Stage 2	205	88	-	307	167	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	94.7	55.5	0.4	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	398	-	-	65	332	79	296	-	-
HCM Lane V/C Ratio	0.127	-	-	0.769	0.12	0.098	-	-	-
HCM Control Delay (s)	15.4	-	-	156.3	17.3	55.5	0	-	-
HCM Lane LOS	C	-	-	F	C	F	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	3.5	0.4	0.3	0	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	463	61	34	1736	1340	421
Future Volume (veh/h)	463	61	34	1736	1340	421
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	487	0	36	1827	1396	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.96	0.96
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	481	429	215	1936	1365	611
Arrive On Green	0.28	0.00	0.08	0.56	0.39	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	487	0	36	1827	1396	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	25.1	0.0	0.0	44.2	35.4	0.0
Cycle Q Clear(g_c), s	25.1	0.0	0.0	44.2	35.4	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	481	429	215	1936	1365	611
V/C Ratio(X)	1.01	0.00	0.17	0.94	1.02	0.00
Avail Cap(c_a), veh/h	481	429	215	1936	1365	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.5	0.0	38.3	18.6	27.3	0.0
Incr Delay (d2), s/veh	44.4	0.0	0.4	10.9	30.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	0.0	0.9	23.7	22.6	0.0
LnGrp Delay(d),s/veh	76.9	0.0	38.6	29.5	57.5	0.0
LnGrp LOS	F		D	C	F	
Approach Vol, veh/h	487			1863	1396	
Approach Delay, s/veh	76.9			29.6	57.5	
Approach LOS	E			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	43.2				58.0		32.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.0	35.4				50.2		25.1
Max Q Clear Time (g_c+I1), s	2.0	37.4				46.2		27.1
Green Ext Time (p_c), s	4.2	0.0				3.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	46.2
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	24	41	13	43	33	12	18	462	51	8	404	29
Future Vol, veh/h	24	41	13	43	33	12	18	462	51	8	404	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	89	89	89	91	91	91	89	89	89
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	32	54	17	48	37	13	20	508	56	9	454	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1045	1019	454	1054	1019	508	454	0	0	508	0	0
Stage 1	472	472	-	547	547	-	-	-	-	-	-	-
Stage 2	573	547	-	507	472	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	201	231	594	201	234	559	1091	-	-	1042	-	-
Stage 1	561	549	-	516	513	-	-	-	-	-	-	-
Stage 2	494	508	-	543	554	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	166	222	594	154	225	559	1091	-	-	1042	-	-
Mov Cap-2 Maneuver	166	222	-	154	225	-	-	-	-	-	-	-
Stage 1	546	542	-	502	499	-	-	-	-	-	-	-
Stage 2	434	494	-	469	547	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	34.4	40.4	0.3	0.2
HCM LOS	D	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1091	-	-	222	197	1042	-	-
HCM Lane V/C Ratio	0.018	-	-	0.462	0.502	0.009	-	-
HCM Control Delay (s)	8.4	0	-	34.4	40.4	8.5	0	-
HCM Lane LOS	A	A	-	D	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.2	2.5	0	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	183	2	0	0	104	1257	8	0	1919	15
Future Vol, veh/h	0	0	183	2	0	0	104	1257	8	0	1919	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	150	175	-	250	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	50	50	50	82	82	82	93	93	93
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	0	0	215	4	0	0	127	1533	10	0	2063	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3092	3859	1040	2819	3867	766	2080	0	0	1533	0	0
Stage 1	2072	2072	-	1787	1787	-	-	-	-	-	-	-
Stage 2	1020	1787	-	1032	2080	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	5	3	220	5	2	290	260	-	-	421	-	-
Stage 1	53	90	-	62	98	-	-	-	-	-	-	-
Stage 2	246	127	-	203	67	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	3	2	220	0	1	290	260	-	-	421	-	-
Mov Cap-2 Maneuver	21	35	-	39	228	-	-	-	-	-	-	-
Stage 1	27	90	-	32	50	-	-	-	-	-	-	-
Stage 2	126	65	-	4	67	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	101.6	107.6	2.4	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	260	-	-	220	39	-	421	-	-
HCM Lane V/C Ratio	0.488	-	-	0.979	0.103	-	-	-	-
HCM Control Delay (s)	31.4	-	-	101.6	107.6	0	0	-	-
HCM Lane LOS	D	-	-	F	F	A	A	-	-
HCM 95th %tile Q(veh)	2.5	-	-	8.7	0.3	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	24	225	0	107	22	1197	209	140	1918	22
Future Volume (veh/h)	9	0	24	225	0	107	22	1197	209	140	1918	22
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	19	0	50	395	0	188	28	1496	0	151	2062	24
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.48	0.48	0.48	0.57	0.57	0.57	0.80	0.80	0.80	0.93	0.93	0.93
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	46	20	52	184	0	276	147	1774	794	256	1920	22
Arrive On Green	0.18	0.00	0.18	0.18	0.00	0.18	0.04	0.51	0.00	0.08	0.55	0.55
Sat Flow, veh/h	0	110	290	630	0	1553	1740	3471	1553	1740	3514	41
Grp Volume(v), veh/h	69	0	0	395	0	188	28	1496	0	151	1016	1070
Grp Sat Flow(s),veh/h/ln	400	0	0	630	0	1553	1740	1736	1553	1740	1736	1820
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	11.4	0.7	37.3	0.0	3.9	54.9	54.9
Cycle Q Clear(g_c), s	17.9	0.0	0.0	17.9	0.0	11.4	0.7	37.3	0.0	3.9	54.9	54.9
Prop In Lane	0.28		0.72	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	117	0	0	184	0	276	147	1774	794	256	948	994
V/C Ratio(X)	0.59	0.00	0.00	2.15	0.00	0.68	0.19	0.84	0.00	0.59	1.07	1.08
Avail Cap(c_a), veh/h	117	0	0	184	0	276	284	1774	794	333	948	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	0.0	44.8	0.0	38.7	23.3	21.1	0.0	20.2	22.8	22.8
Incr Delay (d2), s/veh	7.7	0.0	0.0	535.2	0.0	6.6	0.6	5.1	0.0	2.2	50.5	51.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	32.4	0.0	5.4	0.4	18.9	0.0	2.3	39.4	41.5
LnGrp Delay(d),s/veh	44.2	0.0	0.0	580.1	0.0	45.3	23.9	26.2	0.0	22.3	73.3	74.2
LnGrp LOS	D			F		D	C	C		C	F	F
Approach Vol, veh/h		69			583			1524			2237	
Approach Delay, s/veh		44.2			407.6			26.2			70.3	
Approach LOS		D			F			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	63.5		25.0	15.6	60.0		25.0
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.7	56.9		19.9	5.9	39.3		19.9
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	11.7		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		99.2
HCM 2010 LOS		F

Notes

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	47	0	1530	2097	104
Future Vol, veh/h	0	47	0	1530	2097	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	88	88	90	90
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	85	0	1739	2330	116

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1223	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	168	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	168	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	46.7	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	168	-	-
HCM Lane V/C Ratio	-	0.509	-	-
HCM Control Delay (s)	-	46.7	-	-
HCM Lane LOS	-	E	-	-
HCM 95th %tile Q(veh)	-	2.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	11	13	19	11	11	34	1557	17	3	1978	38
Future Volume (veh/h)	30	11	13	19	11	11	34	1557	17	3	1978	38
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	39	14	17	33	19	19	41	1876	0	3	2198	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.58	0.58	0.58	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	202	202	171	204	200	170	123	2611	1168	176	2611	1168
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1351	1845	1568	1346	1827	1553	173	3471	1553	237	3471	1553
Grp Volume(v), veh/h	39	14	17	33	19	19	41	1876	0	3	2198	0
Grp Sat Flow(s),veh/h/ln	1351	1845	1568	1346	1827	1553	173	1736	1553	237	1736	1553
Q Serve(g_s), s	2.9	0.7	1.1	2.4	1.0	1.2	22.7	31.6	0.0	0.7	46.3	0.0
Cycle Q Clear(g_c), s	3.9	0.7	1.1	3.2	1.0	1.2	69.0	31.6	0.0	32.3	46.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	202	171	204	200	170	123	2611	1168	176	2611	1168
V/C Ratio(X)	0.19	0.07	0.10	0.16	0.10	0.11	0.33	0.72	0.00	0.02	0.84	0.00
Avail Cap(c_a), veh/h	411	487	414	413	483	410	123	2611	1168	176	2611	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.1	43.3	43.4	44.7	43.4	43.5	32.4	7.2	0.0	15.9	9.1	0.0
Incr Delay (d2), s/veh	0.5	0.1	0.2	0.4	0.2	0.3	7.2	1.7	0.0	0.2	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.4	0.5	0.9	0.5	0.5	1.3	15.5	0.0	0.1	22.9	0.0
LnGrp Delay(d),s/veh	45.6	43.4	43.7	45.1	43.6	43.8	39.6	9.0	0.0	16.1	12.6	0.0
LnGrp LOS	D	D	D	D	D	D	D	A		B	B	
Approach Vol, veh/h		70			71			1917			2201	
Approach Delay, s/veh		44.7			44.3			9.6			12.6	
Approach LOS		D			D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.2		90.0		18.2
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		48.3		5.2		71.0		5.9
Green Ext Time (p_c), s		31.9		0.4		10.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	82	183	1434	1983	82
Future Vol, veh/h	11	82	183	1434	1983	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	86	86	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	17	130	213	1667	2110	87

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3412	1098	2197	0	-	0
Stage 1	2153	-	-	-	-	-
Stage 2	1259	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 5	208	230	-	-	-
Stage 1	75	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	208	230	-	-	-
Mov Cap-2 Maneuver	~ 15	-	-	-	-	-
Stage 1	75	-	-	-	-	-
Stage 2	~ 17	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	117.4	9.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	230	-	15	208	-	-
HCM Lane V/C Ratio	0.925	-	1.164	0.626	-	-
HCM Control Delay (s)	86.3	-	$ 638.4	47.5	-	-
HCM Lane LOS	F	-	F	E	-	-
HCM 95th %tile Q(veh)	7.9	-	2.7	3.6	-	-

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

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	35	27	1331	2011	43
Future Vol, veh/h	12	35	27	1331	2011	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	93	93
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	15	43	33	1643	2162	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3050	1081	2162	0	-	0
Stage 1	2162	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	~ 10	213	234	-	-	-
Stage 1	74	-	-	-	-	-
Stage 2	362	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 9	213	234	-	-	-
Mov Cap-2 Maneuver	57	-	-	-	-	-
Stage 1	74	-	-	-	-	-
Stage 2	311	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	56.6	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	234	-	125	-	-
HCM Lane V/C Ratio	0.142	-	0.464	-	-
HCM Control Delay (s)	22.9	-	56.6	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.5	-	2.1	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	371	35	19	1222	1793	487
Future Volume (veh/h)	371	35	19	1222	1793	487
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	470	0	25	1587	1928	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.79	0.79	0.77	0.77	0.93	0.93
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	149	2132	1686	754
Arrive On Green	0.21	0.00	0.04	0.61	0.49	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	470	0	25	1587	1928	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.6	27.6	41.3	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.6	27.6	41.3	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	149	2132	1686	754
V/C Ratio(X)	1.28	0.00	0.17	0.74	1.14	0.00
Avail Cap(c_a), veh/h	367	328	232	2132	1686	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	19.9	11.7	21.9	0.0
Incr Delay (d2), s/veh	145.7	0.0	0.5	2.4	72.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.4	0.0	0.3	13.7	36.6	0.0
LnGrp Delay(d),s/veh	179.2	0.0	20.4	14.1	94.1	0.0
LnGrp LOS	F		C	B	F	
Approach Vol, veh/h	470			1612	1928	
Approach Delay, s/veh	179.2			14.2	94.1	
Approach LOS	F			B	F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	10.9	49.1				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.6	43.3				29.6		20.1
Green Ext Time (p_c), s	0.0	0.0				21.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	72.0
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	27	41	15	45	41	7	12	367	117	8	391	42
Future Vol, veh/h	27	41	15	45	41	7	12	367	117	8	391	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	88	88	88	88	88	88	90	90	90
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	39	59	21	51	47	8	14	417	133	9	434	47

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	990	1029	434	1003	963	484	434	0	0	550	0	0
Stage 1	452	452	-	511	511	-	-	-	-	-	-	-
Stage 2	538	577	-	492	452	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	220	228	609	218	253	577	1110	-	-	1005	-	-
Stage 1	576	560	-	540	532	-	-	-	-	-	-	-
Stage 2	516	492	-	553	565	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	181	221	609	164	245	577	1110	-	-	1005	-	-
Mov Cap-2 Maneuver	181	221	-	164	245	-	-	-	-	-	-	-
Stage 1	565	553	-	530	522	-	-	-	-	-	-	-
Stage 2	455	483	-	471	558	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	35.9	39.9	0.2	0.2
HCM LOS	E	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1110	-	-	231	205	1005	-	-
HCM Lane V/C Ratio	0.012	-	-	0.513	0.516	0.009	-	-
HCM Control Delay (s)	8.3	0	-	35.9	39.9	8.6	0	-
HCM Lane LOS	A	A	-	E	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.7	2.6	0	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	110	0	0	0	83	1877	0	0	1419	11
Future Vol, veh/h	3	0	110	0	0	0	83	1877	0	0	1419	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	150	175	-	250	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	25	25	25	96	96	96	94	94	94
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	3	0	122	0	0	0	86	1955	0	0	1510	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2666	3643	761	2883	3649	978	1521	0	0	1955	0	0
Stage 1	1515	1515	-	2128	2128	-	-	-	-	-	-	-
Stage 2	1151	2128	-	755	1521	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	10	5	339	5	3	204	430	-	-	287	-	-
Stage 1	120	174	-	36	63	-	-	-	-	-	-	-
Stage 2	204	84	-	310	138	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	8	4	339	3	2	204	430	-	-	287	-	-
Mov Cap-2 Maneuver	8	4	-	3	2	-	-	-	-	-	-	-
Stage 1	96	174	-	29	50	-	-	-	-	-	-	-
Stage 2	163	67	-	198	138	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	78.2	0	0.7	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	430	-	-	162	-	-	287	-	-
HCM Lane V/C Ratio	0.201	-	-	0.775	-	-	-	-	-
HCM Control Delay (s)	15.5	-	-	78.2	0	0	0	-	-
HCM Lane LOS	C	-	-	F	A	A	A	-	-
HCM 95th %tile Q(veh)	0.7	-	-	5	-	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	25	18	0	16	10	1974	18	10	1584	3
Future Volume (veh/h)	11	0	25	18	0	16	10	1974	18	10	1584	3
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	18	0	40	22	0	19	11	2078	0	11	1667	3
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	80	13	81	216	0	133	202	2129	952	131	2180	4
Arrive On Green	0.09	0.00	0.09	0.09	0.00	0.09	0.02	0.61	0.00	0.02	0.61	0.61
Sat Flow, veh/h	275	148	941	1520	0	1553	1740	3471	1553	1740	3555	6
Grp Volume(v), veh/h	58	0	0	22	0	19	11	2078	0	11	814	856
Grp Sat Flow(s),veh/h/ln	1364	0	0	1520	0	1553	1740	1736	1553	1740	1736	1826
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.9	0.2	48.3	0.0	0.2	28.6	28.6
Cycle Q Clear(g_c), s	3.3	0.0	0.0	1.0	0.0	0.9	0.2	48.3	0.0	0.2	28.6	28.6
Prop In Lane	0.31		0.69	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	173	0	0	216	0	133	202	2129	952	131	1064	1120
V/C Ratio(X)	0.33	0.00	0.00	0.10	0.00	0.14	0.05	0.98	0.00	0.08	0.76	0.76
Avail Cap(c_a), veh/h	342	0	0	387	0	332	420	2129	952	348	1064	1120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	0.0	0.0	35.5	0.0	35.4	10.7	15.6	0.0	20.4	11.8	11.8
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.2	0.0	0.5	0.1	14.6	0.0	0.3	5.2	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.5	0.0	0.4	0.1	27.1	0.0	0.2	15.1	15.8
LnGrp Delay(d),s/veh	37.6	0.0	0.0	35.7	0.0	35.9	10.8	30.2	0.0	20.7	17.0	16.8
LnGrp LOS	D			D		D	B	C		C	B	B
Approach Vol, veh/h		58			41			2089			1681	
Approach Delay, s/veh		37.6			35.8			30.1			16.9	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.5	60.0		14.3	9.5	60.0		14.3
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.2	30.6		3.0	2.2	50.3		5.3
Green Ext Time (p_c), s	0.0	19.9		0.3	0.0	1.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	119	0	1974	1595	25
Future Vol, veh/h	0	119	0	1974	1595	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	96	96	97	97
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	170	0	2056	1644	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	835	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	307	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	307	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	307	-	-
HCM Lane V/C Ratio	-	0.554	-	-
HCM Control Delay (s)	-	30.4	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	3.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	29	26	39	12	4	17	1915	48	1	1694	19
Future Volume (veh/h)	22	29	26	39	12	4	17	1915	48	1	1694	19
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	26	34	30	59	18	6	18	1995	0	1	1947	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.66	0.66	0.66	0.96	0.96	0.96	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	205	203	173	189	201	171	163	2608	1167	154	2608	1167
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1368	1845	1568	1307	1827	1553	222	3471	1553	211	3471	1553
Grp Volume(v), veh/h	26	34	30	59	18	6	18	1995	0	1	1947	0
Grp Sat Flow(s),veh/h/ln	1368	1845	1568	1307	1827	1553	222	1736	1553	211	1736	1553
Q Serve(g_s), s	1.9	1.8	1.9	4.6	1.0	0.4	5.4	36.4	0.0	0.3	34.4	0.0
Cycle Q Clear(g_c), s	2.8	1.8	1.9	6.5	1.0	0.4	39.8	36.4	0.0	36.7	34.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	205	203	173	189	201	171	163	2608	1167	154	2608	1167
V/C Ratio(X)	0.13	0.17	0.17	0.31	0.09	0.04	0.11	0.76	0.00	0.01	0.75	0.00
Avail Cap(c_a), veh/h	416	487	414	390	482	410	163	2608	1167	154	2608	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.6	43.7	43.7	46.6	43.3	43.1	18.9	7.9	0.0	18.6	7.6	0.0
Incr Delay (d2), s/veh	0.3	0.4	0.5	0.9	0.2	0.1	1.4	2.2	0.0	0.1	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.9	0.8	1.7	0.5	0.2	0.4	18.0	0.0	0.0	16.9	0.0
LnGrp Delay(d),s/veh	44.9	44.1	44.2	47.6	43.5	43.1	20.3	10.1	0.0	18.7	9.6	0.0
LnGrp LOS	D	D	D	D	D	D	C	B		B	A	
Approach Vol, veh/h		90			83			2013			1948	
Approach Delay, s/veh		44.3			46.4			10.2			9.6	
Approach LOS		D			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.3		90.0		18.3
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		38.7		8.5		41.8		4.8
Green Ext Time (p_c), s		40.0		0.6		37.2		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	113.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	200	108	1813	1594	53
Future Vol, veh/h	63	200	108	1813	1594	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	95	95	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	85	270	114	1908	1696	56

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2906	876	1752	0	-	0
Stage 1	1724	-	-	-	-	-
Stage 2	1182	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 12	292	345	-	-	-
Stage 1	129	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 8	292	345	-	-	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	129	-	-	-	-	-
Stage 2	170	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 1312.6	1.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	345	-	8	292	-	-
HCM Lane V/C Ratio	0.33	-	10.642	0.926	-	-
HCM Control Delay (s)	20.5	-	$ 5243.9	74.2	-	-
HCM Lane LOS	C	-	F	F	-	-
HCM 95th %tile Q(veh)	1.4	-	12.2	8.8	-	-

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

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	47	36	49	1895	1538	20
Future Vol, veh/h	47	36	49	1895	1538	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	95	95	94	94
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	53	41	52	1995	1636	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2737	818	1636	0	-	0
Stage 1	1636	-	-	-	-	-
Stage 2	1101	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	~ 16	319	379	-	-	-
Stage 1	144	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 14	319	379	-	-	-
Mov Cap-2 Maneuver	88	-	-	-	-	-
Stage 1	144	-	-	-	-	-
Stage 2	242	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	87.2	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	379	-	128	-	-
HCM Lane V/C Ratio	0.136	-	0.737	-	-
HCM Control Delay (s)	16	-	87.2	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.5	-	4.2	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	490	65	36	1824	1395	446
Future Volume (veh/h)	490	65	36	1824	1395	446
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	516	0	38	1920	1453	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.96	0.96
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	203	2132	1644	735
Arrive On Green	0.21	0.00	0.05	0.61	0.47	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	516	0	38	1920	1453	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.9	40.6	32.2	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.9	40.6	32.2	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	203	2132	1644	735
V/C Ratio(X)	1.41	0.00	0.19	0.90	0.88	0.00
Avail Cap(c_a), veh/h	367	328	266	2132	1644	735
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	16.7	14.2	20.3	0.0
Incr Delay (d2), s/veh	198.4	0.0	0.4	6.7	7.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.8	0.0	0.4	21.2	17.0	0.0
LnGrp Delay(d),s/veh	231.8	0.0	17.1	20.8	27.6	0.0
LnGrp LOS	F		B	C	C	
Approach Vol, veh/h	516			1958	1453	
Approach Delay, s/veh	231.8			20.8	27.6	
Approach LOS	F			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.9	48.1				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.9	34.2				42.6		20.1
Green Ext Time (p_c), s	0.0	2.9				9.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.0
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↰	↱
Traffic Vol, veh/h	24	39	14	41	33	13	18	475	48	8	416	30
Future Vol, veh/h	24	39	14	41	33	13	18	475	48	8	416	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	89	89	89	91	91	91	89	89	89
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	32	51	18	46	37	15	20	522	53	9	467	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1099	1099	467	1108	1073	548	467	0	0	575	0	0
Stage 1	485	485	-	588	588	-	-	-	-	-	-	-
Stage 2	614	614	-	520	485	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	185	207	584	185	217	530	1079	-	-	983	-	-
Stage 1	552	542	-	490	491	-	-	-	-	-	-	-
Stage 2	469	473	-	534	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	151	199	584	139	208	530	1079	-	-	983	-	-
Mov Cap-2 Maneuver	151	199	-	139	208	-	-	-	-	-	-	-
Stage 1	537	535	-	477	478	-	-	-	-	-	-	-
Stage 2	409	460	-	461	540	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	39.2	45.6	0.3	0.2
HCM LOS	E	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1079	-	-	203	182	983	-	-
HCM Lane V/C Ratio	0.018	-	-	0.499	0.537	0.009	-	-
HCM Control Delay (s)	8.4	0	-	39.2	45.6	8.7	0	-
HCM Lane LOS	A	A	-	E	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.5	2.8	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	7	183	134	15	38	110	1281	37	15	1924	15
Future Volume (veh/h)	0	7	183	134	15	38	110	1281	37	15	1924	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1900	1462	1462	1462	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	0	8	215	149	17	42	134	1562	0	16	2069	16
Adj No. of Lanes	0	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.82	0.82	0.82	0.93	0.93	0.93
Percent Heavy Veh, %	6	6	6	30	30	30	3	3	3	4	4	4
Cap, veh/h	0	12	316	124	313	283	139	2182	976	177	2068	16
Arrive On Green	0.00	0.21	0.21	0.21	0.21	0.21	0.05	0.62	0.00	0.01	0.59	0.59
Sat Flow, veh/h	0	55	1477	905	1462	1242	1757	3505	1568	1740	3530	27
Grp Volume(v), veh/h	0	0	223	149	17	42	134	1562	0	16	1016	1069
Grp Sat Flow(s),veh/h/ln	0	0	1532	905	1462	1242	1757	1752	1568	1740	1736	1822
Q Serve(g_s), s	0.0	0.0	18.7	11.3	1.3	3.8	6.5	42.5	0.0	0.5	81.8	82.0
Cycle Q Clear(g_c), s	0.0	0.0	18.7	30.0	1.3	3.8	6.5	42.5	0.0	0.5	81.8	82.0
Prop In Lane	0.00		0.96	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	328	124	313	283	139	2182	976	177	1017	1067
V/C Ratio(X)	0.00	0.00	0.68	1.20	0.05	0.15	0.96	0.72	0.00	0.09	1.00	1.00
Avail Cap(c_a), veh/h	0	0	328	124	313	283	139	2182	976	249	1017	1067
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	50.6	66.7	43.7	43.2	45.5	18.0	0.0	16.6	29.0	29.0
Incr Delay (d2), s/veh	0.0	0.0	5.6	144.2	0.1	0.2	64.5	1.1	0.0	0.2	28.0	28.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	8.4	9.8	0.5	1.3	7.7	20.7	0.0	0.3	46.9	49.2
LnGrp Delay(d),s/veh	0.0	0.0	56.1	210.9	43.8	43.5	110.0	19.1	0.0	16.8	57.0	57.0
LnGrp LOS			E	F	D	D	F	B		B	E	F
Approach Vol, veh/h		223			208			1696			2101	
Approach Delay, s/veh		56.1			163.4			26.3			56.7	
Approach LOS		E			F			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.9	94.1		37.0	14.0	89.0		37.0
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	7.6	81.4		30.0	7.0	82.0		30.0
Max Q Clear Time (g_c+I1), s	2.5	44.5		20.7	8.5	84.0		32.0
Green Ext Time (p_c), s	0.0	34.0		1.7	0.0	0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	49.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1	24	337	3	124	22	1255	238	146	2064	22
Future Volume (veh/h)	9	1	24	337	3	124	22	1255	238	146	2064	22
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1827	1827	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	19	2	50	374	3	138	28	1569	0	157	2219	24
Adj No. of Lanes	0	1	0	2	1	0	1	2	1	1	2	0
Peak Hour Factor	0.48	0.48	0.48	0.90	0.90	0.90	0.80	0.80	0.80	0.93	0.93	0.93
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	55	20	87	374	4	205	110	2086	933	265	2329	25
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.02	0.60	0.00	0.07	0.66	0.66
Sat Flow, veh/h	124	148	647	2563	33	1525	1740	3471	1553	1740	3518	38
Grp Volume(v), veh/h	71	0	0	374	0	141	28	1569	0	157	1093	1150
Grp Sat Flow(s),veh/h/ln	918	0	0	1281	0	1558	1740	1736	1553	1740	1736	1820
Q Serve(g_s), s	0.6	0.0	0.0	5.1	0.0	10.2	0.7	39.0	0.0	3.7	68.0	68.7
Cycle Q Clear(g_c), s	10.8	0.0	0.0	15.9	0.0	10.2	0.7	39.0	0.0	3.7	68.0	68.7
Prop In Lane	0.27		0.70	1.00		0.98	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	162	0	0	374	0	209	110	2086	933	265	1149	1205
V/C Ratio(X)	0.44	0.00	0.00	1.00	0.00	0.67	0.26	0.75	0.00	0.59	0.95	0.95
Avail Cap(c_a), veh/h	162	0	0	374	0	209	133	2086	933	317	1149	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	0.0	0.0	54.5	0.0	48.8	27.7	17.2	0.0	20.0	18.2	18.4
Incr Delay (d2), s/veh	1.9	0.0	0.0	46.5	0.0	8.2	1.2	2.6	0.0	2.1	17.1	17.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	8.5	0.0	4.9	0.6	19.3	0.0	3.3	37.6	39.9
LnGrp Delay(d),s/veh	48.9	0.0	0.0	100.9	0.0	57.0	28.9	19.8	0.0	22.1	35.3	35.4
LnGrp LOS	D			F		E	C	B		C	D	D
Approach Vol, veh/h		71			515			1597			2400	
Approach Delay, s/veh		48.9			88.9			19.9			34.5	
Approach LOS		D			F			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	87.0		23.0	15.7	79.8		23.0
Change Period (Y+Rc), s	6.0	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	4.6	* 78		15.9	11.5	* 69		15.9
Max Q Clear Time (g_c+I1), s	12.7	70.7		17.9	5.7	41.0		12.8
Green Ext Time (p_c), s	0.0	7.6		0.0	0.2	27.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	35.8
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	47	0	1617	2351	108
Future Vol, veh/h	0	47	0	1617	2351	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	88	88	90	90
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	85	0	1838	2612	120

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1366	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	135	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	135	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	69.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	135	-	-
HCM Lane V/C Ratio	-	0.633	-	-
HCM Control Delay (s)	-	69.2	-	-
HCM Lane LOS	-	F	-	-
HCM 95th %tile Q(veh)	-	3.4	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	11	13	19	11	14	34	1632	17	10	2204	45
Future Volume (veh/h)	32	11	13	19	11	14	34	1632	17	10	2204	45
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	42	14	17	33	19	24	41	1966	0	11	2449	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.58	0.58	0.58	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	162	165	141	165	164	139	96	2770	1239	170	2770	1239
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.80	0.80	0.00	0.80	0.80	0.00
Sat Flow, veh/h	1345	1845	1568	1346	1827	1553	135	3471	1553	217	3471	1553
Grp Volume(v), veh/h	42	14	17	33	19	24	41	1966	0	11	2449	0
Grp Sat Flow(s),veh/h/ln	1345	1845	1568	1346	1827	1553	135	1736	1553	217	1736	1553
Q Serve(g_s), s	4.0	0.9	1.3	3.1	1.3	1.9	40.0	35.2	0.0	3.3	64.6	0.0
Cycle Q Clear(g_c), s	5.2	0.9	1.3	4.0	1.3	1.9	104.5	35.2	0.0	38.5	64.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	165	141	165	164	139	96	2770	1239	170	2770	1239
V/C Ratio(X)	0.26	0.08	0.12	0.20	0.12	0.17	0.43	0.71	0.00	0.06	0.88	0.00
Avail Cap(c_a), veh/h	330	396	336	333	392	333	96	2770	1239	170	2770	1239
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.2	55.7	55.9	57.5	55.8	56.1	45.1	6.3	0.0	15.3	9.2	0.0
Incr Delay (d2), s/veh	0.8	0.2	0.4	0.6	0.3	0.6	13.2	1.6	0.0	0.7	4.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.5	0.6	1.2	0.7	0.8	1.8	17.0	0.0	0.2	32.0	0.0
LnGrp Delay(d),s/veh	59.1	55.9	56.2	58.1	56.2	56.7	58.3	7.9	0.0	16.0	13.8	0.0
LnGrp LOS	E	E	E	E	E	E	E	A		B	B	
Approach Vol, veh/h		73			76			2007			2460	
Approach Delay, s/veh		57.8			57.2			8.9			13.8	
Approach LOS		E			E			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		115.0		18.4		115.0		18.4
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 1.1E2		28.6		* 1.1E2		28.6
Max Q Clear Time (g_c+I1), s		66.6		6.0		106.5		7.2
Green Ext Time (p_c), s		39.0		0.5		0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	8.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	18	82	183	1514	2223	96
Future Vol, veh/h	18	82	183	1514	2223	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	86	86	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	29	130	213	1760	2365	102

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3722	1234	2467	0	-	0
Stage 1	2416	-	-	-	-	-
Stage 2	1306	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 3	168	~ 179	-	-	-
Stage 1	53	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	168	~ 179	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	53	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s		19.4	0
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 179	-	-	168	-	-
HCM Lane V/C Ratio	1.189	-	-	0.775	-	-
HCM Control Delay (s)	179.7	-	-	75.9	-	-
HCM Lane LOS	F	-	-	F	-	-
HCM 95th %tile Q(veh)	11.3	-	-	5	-	-

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

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	36	14	0	16	30	1374	29	0	2148	43
Future Vol, veh/h	12	0	36	14	0	16	30	1374	29	0	2148	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	250	-	150	150	-	225
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	90	90	90	81	81	81	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	4	4	4
Mvmt Flow	15	0	44	16	0	18	37	1696	36	0	2310	46

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3232	4080	1155	2925	4080	848	2310	0	0	1696	0	0
Stage 1	2310	2310	-	1770	1770	-	-	-	-	-	-	-
Stage 2	922	1770	-	1155	2310	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.2	-	-	4.18	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.25	-	-	2.24	-	-
Pot Cap-1 Maneuver	~ 4	2	190	~ 7	2	305	204	-	-	363	-	-
Stage 1	39	71	-	86	135	-	-	-	-	-	-	-
Stage 2	291	135	-	209	71	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 3	2	190	~ 5	2	305	204	-	-	363	-	-
Mov Cap-2 Maneuver	26	40	-	43	24	-	-	-	-	-	-	-
Stage 1	32	71	-	70	111	-	-	-	-	-	-	-
Stage 2	224	111	-	160	71	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	86.8	70.1	0.6	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	204	-	-	26	190	43	305	363	-	-
HCM Lane V/C Ratio	0.182	-	-	0.57	0.234	0.362	0.058	-	-	-
HCM Control Delay (s)	26.5	-	-	258.5	29.6	130.2	17.5	0	-	-
HCM Lane LOS	D	-	-	F	D	F	C	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	1.8	0.9	1.2	0.2	0	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	371	35	19	1284	1813	487
Future Volume (veh/h)	371	35	19	1284	1813	487
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	470	0	25	1668	1949	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.79	0.79	0.77	0.77	0.93	0.93
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	449	401	129	2226	1884	843
Arrive On Green	0.26	0.00	0.05	0.64	0.54	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	470	0	25	1668	1949	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	39.1	0.0	0.0	49.8	81.4	0.0
Cycle Q Clear(g_c), s	39.1	0.0	0.0	49.8	81.4	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	449	401	129	2226	1884	843
V/C Ratio(X)	1.05	0.00	0.19	0.75	1.03	0.00
Avail Cap(c_a), veh/h	449	401	129	2226	1884	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.5	0.0	68.2	18.6	34.3	0.0
Incr Delay (d2), s/veh	55.1	0.0	0.7	2.4	30.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.5	0.0	1.0	24.4	46.6	0.0
LnGrp Delay(d),s/veh	110.5	0.0	68.9	20.9	64.6	0.0
LnGrp LOS	F		E	C	F	
Approach Vol, veh/h	470			1693	1949	
Approach Delay, s/veh	110.5			21.6	64.6	
Approach LOS	F			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	89.2				104.0		46.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.0	81.4				96.2		39.1
Max Q Clear Time (g_c+I1), s	2.0	83.4				51.8		41.1
Green Ext Time (p_c), s	4.0	0.0				18.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.2
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	27	43	15	59	48	7	12	367	122	8	391	42
Future Vol, veh/h	27	43	15	59	48	7	12	367	122	8	391	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	200	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	88	88	88	88	88	88	90	90	90
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	39	61	21	67	55	8	14	417	139	9	434	47

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	928	896	434	938	896	417	434	0	0	417	0	0
Stage 1	452	452	-	444	444	-	-	-	-	-	-	-
Stage 2	476	444	-	494	452	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	242	273	609	241	277	629	1110	-	-	1126	-	-
Stage 1	576	560	-	587	570	-	-	-	-	-	-	-
Stage 2	559	565	-	551	565	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	197	265	609	187	269	629	1110	-	-	1126	-	-
Mov Cap-2 Maneuver	197	265	-	187	269	-	-	-	-	-	-	-
Stage 1	565	554	-	576	559	-	-	-	-	-	-	-
Stage 2	489	554	-	467	559	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	30.1	27.9	0.2	0.1
HCM LOS	D	D		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	WBLn2	SWL	SWT	SWR
Capacity (veh/h)	1110	-	-	262	187	290	1126	-	-
HCM Lane V/C Ratio	0.012	-	-	0.463	0.359	0.216	0.008	-	-
HCM Control Delay (s)	8.3	0	-	30.1	34.6	20.8	8.2	0	-
HCM Lane LOS	A	A	-	D	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.3	1.5	0.8	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	22	110	86	9	25	87	1892	97	53	1435	11
Future Volume (veh/h)	3	22	110	86	9	25	87	1892	97	53	1435	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1900	1462	1462	1462	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	3	24	122	96	10	28	91	1971	0	56	1527	12
Adj No. of Lanes	0	1	0	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	6	30	30	30	3	3	3	4	4	4
Cap, veh/h	43	40	188	198	214	182	205	2078	930	128	2014	16
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.04	0.59	0.00	0.02	0.57	0.57
Sat Flow, veh/h	10	274	1280	970	1462	1242	1757	3505	1568	1740	3530	28
Grp Volume(v), veh/h	149	0	0	96	10	28	91	1971	0	56	750	789
Grp Sat Flow(s),veh/h/ln	1563	0	0	970	1462	1242	1757	1752	1568	1740	1736	1822
Q Serve(g_s), s	0.0	0.0	0.0	3.0	0.5	1.7	2.2	45.9	0.0	0.0	28.7	28.7
Cycle Q Clear(g_c), s	7.9	0.0	0.0	10.9	0.5	1.7	2.2	45.9	0.0	0.0	28.7	28.7
Prop In Lane	0.02		0.82	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	271	0	0	198	214	182	205	2078	930	128	990	1040
V/C Ratio(X)	0.55	0.00	0.00	0.48	0.05	0.15	0.44	0.95	0.00	0.44	0.76	0.76
Avail Cap(c_a), veh/h	274	0	0	200	217	184	250	2078	930	172	990	1040
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	0.0	0.0	37.0	32.1	32.7	17.4	16.6	0.0	41.7	14.2	14.3
Incr Delay (d2), s/veh	2.3	0.0	0.0	1.8	0.1	0.4	1.5	10.8	0.0	2.3	5.4	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	0.0	2.4	0.2	0.6	1.1	25.0	0.0	1.4	15.0	15.7
LnGrp Delay(d),s/veh	37.6	0.0	0.0	38.8	32.2	33.0	18.9	27.4	0.0	44.0	19.7	19.4
LnGrp LOS	D			D	C	C	B	C		D	B	B
Approach Vol, veh/h		149			134			2062			1595	
Approach Delay, s/veh		37.6			37.1			27.1			20.4	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	59.0		19.9	10.8	57.0		19.9
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	4.0	52.0		13.0	6.0	50.0		13.0
Max Q Clear Time (g_c+I1), s	2.0	47.9		9.9	4.2	30.7		12.9
Green Ext Time (p_c), s	0.4	3.6		0.4	0.0	10.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	4	25	90	2	27	10	2166	111	29	1679	4
Future Volume (veh/h)	11	4	25	90	2	27	10	2166	111	29	1679	4
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1827	1827	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	18	6	40	108	2	33	11	2280	0	31	1767	4
Adj No. of Lanes	0	1	0	2	1	0	1	2	1	1	2	0
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	77	26	81	444	8	138	191	2506	1121	115	2360	5
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.72	0.00	0.66	0.66	0.66
Sat Flow, veh/h	244	275	864	2577	90	1477	1740	3471	1553	160	3553	8
Grp Volume(v), veh/h	64	0	0	108	0	35	11	2280	0	31	863	908
Grp Sat Flow(s),veh/h/ln	1383	0	0	1288	0	1566	1740	1736	1553	160	1736	1826
Q Serve(g_s), s	0.8	0.0	0.0	0.0	0.0	1.8	0.2	45.2	0.0	16.2	28.2	28.3
Cycle Q Clear(g_c), s	3.6	0.0	0.0	2.5	0.0	1.8	0.2	45.2	0.0	56.5	28.2	28.3
Prop In Lane	0.28		0.62	1.00		0.94	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	183	0	0	444	0	146	191	2506	1121	115	1153	1213
V/C Ratio(X)	0.35	0.00	0.00	0.24	0.00	0.24	0.06	0.91	0.00	0.27	0.75	0.75
Avail Cap(c_a), veh/h	262	0	0	594	0	238	254	2506	1121	115	1153	1213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	0.0	36.1	0.0	35.7	9.5	9.6	0.0	34.6	9.5	9.5
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.3	0.0	0.8	0.1	6.3	0.0	5.7	4.5	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.2	0.0	0.8	0.1	23.4	0.0	0.9	14.6	15.3
LnGrp Delay(d),s/veh	37.7	0.0	0.0	36.4	0.0	36.6	9.6	15.8	0.0	40.3	14.0	13.8
LnGrp LOS	D			D		D	A	B		D	B	B
Approach Vol, veh/h		64			143			2291			1802	
Approach Delay, s/veh		37.7			36.4			15.8			14.4	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	4.9	65.1		15.0		70.0		15.0
Change Period (Y+Rc), s	4.0	* 8.6		7.1		* 8.6		7.1
Max Green Setting (Gmax), s	4.6	* 53		12.9		* 61		12.9
Max Q Clear Time (g_c+I1), s	2.2	58.5		4.5		47.2		5.6
Green Ext Time (p_c), s	0.0	0.0		0.6		13.9		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.2
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	119	0	2259	1761	26
Future Vol, veh/h	0	119	0	2259	1761	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	96	96	97	97
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	170	0	2353	1815	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	921	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	269	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	269	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	38.8	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	269	-	-
HCM Lane V/C Ratio	-	0.632	-	-
HCM Control Delay (s)	-	38.8	-	-
HCM Lane LOS	-	E	-	-
HCM 95th %tile Q(veh)	-	3.9	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	29	26	39	12	12	17	2165	48	6	1841	24
Future Volume (veh/h)	30	29	26	39	12	12	17	2165	48	6	1841	24
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	35	34	30	59	18	18	18	2255	0	7	2116	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.66	0.66	0.66	0.96	0.96	0.96	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	214	213	181	199	211	180	132	2566	1148	111	2566	1148
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.74	0.74	0.00	0.74	0.74	0.00
Sat Flow, veh/h	1353	1845	1568	1307	1827	1553	188	3471	1553	164	3471	1553
Grp Volume(v), veh/h	35	34	30	59	18	18	18	2255	0	7	2116	0
Grp Sat Flow(s),veh/h/ln	1353	1845	1568	1307	1827	1553	188	1736	1553	164	1736	1553
Q Serve(g_s), s	2.5	1.7	1.8	4.4	0.9	1.1	7.3	50.0	0.0	3.4	42.1	0.0
Cycle Q Clear(g_c), s	3.4	1.7	1.8	6.1	0.9	1.1	49.4	50.0	0.0	53.4	42.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	213	181	199	211	180	132	2566	1148	111	2566	1148
V/C Ratio(X)	0.16	0.16	0.17	0.30	0.09	0.10	0.14	0.88	0.00	0.06	0.82	0.00
Avail Cap(c_a), veh/h	432	510	434	410	506	430	132	2566	1148	111	2566	1148
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.3	41.2	41.2	43.9	40.8	40.9	25.5	10.0	0.0	29.9	9.0	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.4	0.8	0.2	0.2	2.1	4.7	0.0	1.1	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.9	0.8	1.6	0.5	0.5	0.5	25.2	0.0	0.2	20.8	0.0
LnGrp Delay(d),s/veh	42.7	41.5	41.6	44.8	41.0	41.1	27.7	14.7	0.0	31.0	12.2	0.0
LnGrp LOS	D	D	D	D	D	D	C	B		C	B	
Approach Vol, veh/h		99			95			2273			2123	
Approach Delay, s/veh		42.0			43.4			14.8			12.2	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		85.0		18.4		85.0		18.4
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 76		28.6		* 76		28.6
Max Q Clear Time (g_c+I1), s		55.4		8.1		52.0		5.4
Green Ext Time (p_c), s		20.6		0.6		24.0		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	16.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	82	200	108	2079	1751	62
Future Vol, veh/h	82	200	108	2079	1751	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	95	95	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	111	270	114	2188	1863	66

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3218	964	1929	0	-	0
Stage 1	1896	-	-	-	-	-
Stage 2	1322	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 7	~ 255	294	-	-	-
Stage 1	~ 104	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 4	~ 255	294	-	-	-
Mov Cap-2 Maneuver	~ 74	-	-	-	-	-
Stage 1	~ 104	-	-	-	-	-
Stage 2	130	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	192.1	1.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	294	-	74	255	-	-
HCM Lane V/C Ratio	0.387	-	1.497	1.06	-	-
HCM Control Delay (s)	24.8	-	$ 378.4	115.7	-	-
HCM Lane LOS	C	-	F	F	-	-
HCM 95th %tile Q(veh)	1.8	-	9.1	11.1	-	-

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

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	0	40	9	0	11	51	2000	96	0	1640	20
Future Vol, veh/h	47	0	40	9	0	11	51	2000	96	0	1640	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	250	-	150	150	-	225
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	95	95	95	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	4	4	4
Mvmt Flow	53	0	45	10	0	12	54	2105	101	0	1745	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2905	3958	872	3085	3958	1053	1745	0	0	2105	0	0
Stage 1	1745	1745	-	2213	2213	-	-	-	-	-	-	-
Stage 2	1160	2213	-	872	1745	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.2	-	-	4.18	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.25	-	-	2.24	-	-
Pot Cap-1 Maneuver	~ 7	3	294	~ 5	3	223	343	-	-	250	-	-
Stage 1	90	139	-	45	80	-	-	-	-	-	-	-
Stage 2	208	80	-	312	139	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 6	3	294	~ 4	3	223	343	-	-	250	-	-
Mov Cap-2 Maneuver	~ 50	42	-	30	36	-	-	-	-	-	-	-
Stage 1	76	139	-	38	67	-	-	-	-	-	-	-
Stage 2	166	67	-	264	139	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	159.7	91.4	0.4	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	343	-	-	50	294	30	223	250	-	-
HCM Lane V/C Ratio	0.157	-	-	1.068	0.155	0.333	0.055	-	-	-
HCM Control Delay (s)	17.4	-	-	279	19.5	176.2	22.1	0	-	-
HCM Lane LOS	C	-	-	F	C	F	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	4.7	0.5	1.1	0.2	0	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	490	65	36	1864	1464	446
Future Volume (veh/h)	490	65	36	1864	1464	446
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	516	0	38	1962	1525	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.96	0.96
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	534	477	157	2053	1709	764
Arrive On Green	0.31	0.00	0.05	0.59	0.49	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	516	0	38	1962	1525	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	44.0	0.0	0.0	79.2	59.3	0.0
Cycle Q Clear(g_c), s	44.0	0.0	0.0	79.2	59.3	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	534	477	157	2053	1709	764
V/C Ratio(X)	0.97	0.00	0.24	0.96	0.89	0.00
Avail Cap(c_a), veh/h	544	486	157	2053	1709	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.7	0.0	63.4	28.6	34.3	0.0
Incr Delay (d2), s/veh	29.8	0.0	0.8	11.9	7.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.3	0.0	1.5	41.3	30.2	0.0
LnGrp Delay(d),s/veh	80.5	0.0	64.2	40.5	41.9	0.0
LnGrp LOS	F		E	D	D	
Approach Vol, veh/h	516			2000	1525	
Approach Delay, s/veh	80.5			40.9	41.9	
Approach LOS	F			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	81.2				96.0		53.1
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.0	73.4				88.2		47.1
Max Q Clear Time (g_c+I1), s	2.0	61.3				81.2		46.0
Green Ext Time (p_c), s	4.3	7.4				5.9		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	24	46	14	49	38	13	18	475	63	8	416	30
Future Vol, veh/h	24	46	14	49	38	13	18	475	63	8	416	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	200	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	89	89	89	91	91	91	89	89	89
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	32	61	18	55	43	15	20	522	69	9	467	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1075	1047	467	1087	1047	522	467	0	0	522	0	0
Stage 1	485	485	-	562	562	-	-	-	-	-	-	-
Stage 2	590	562	-	525	485	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	192	223	584	191	225	549	1079	-	-	1029	-	-
Stage 1	552	542	-	506	505	-	-	-	-	-	-	-
Stage 2	484	500	-	530	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	154	214	584	140	216	549	1079	-	-	1029	-	-
Mov Cap-2 Maneuver	154	214	-	140	216	-	-	-	-	-	-	-
Stage 1	537	535	-	492	491	-	-	-	-	-	-	-
Stage 2	418	486	-	450	540	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	38.8	34.6	0.3	0.2
HCM LOS	E	D		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	WBLn2	SWL	SWT	SWR
Capacity (veh/h)	1079	-	-	213	140	256	1029	-	-
HCM Lane V/C Ratio	0.018	-	-	0.519	0.393	0.224	0.009	-	-
HCM Control Delay (s)	8.4	0	-	38.8	46.5	23.1	8.5	0	-
HCM Lane LOS	A	A	-	E	E	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.7	1.7	0.8	0	-	-

Intersection	
Int Delay, s/veh	9.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	193	2	0	0	110	1331	8	0	2032	15
Future Vol, veh/h	0	0	193	2	0	0	110	1331	8	0	2032	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	175	-	150	0	-	-
Veh in Median Storage, #	-	2	-	-	2	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	50	50	50	82	82	82	93	93	93
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	0	0	227	4	0	0	134	1623	10	0	2185	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3273	4084	1101	2983	4092	812	2201	0	0	1623	0	0
Stage 1	2193	2193	-	1891	1891	-	-	-	-	-	-	-
Stage 2	1080	1891	-	1092	2201	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	3	2	~ 200	4	1	269	232	-	-	388	-	-
Stage 1	44	78	-	53	86	-	-	-	-	-	-	-
Stage 2	226	112	-	185	57	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	2	1	~ 200	-	0	269	232	-	-	388	-	-
Mov Cap-2 Maneuver	18	37	-	20	24	-	-	-	-	-	-	-
Stage 1	19	78	-	22	36	-	-	-	-	-	-	-
Stage 2	95	47	-	-	57	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	154.1		3	0
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	232	-	-	200	-	-	388	-	-
HCM Lane V/C Ratio	0.578	-	-	1.135	-	-	-	-	-
HCM Control Delay (s)	39.8	-	-	154.1	-	0	0	-	-
HCM Lane LOS	E	-	-	F	-	A	A	-	-
HCM 95th %tile Q(veh)	3.2	-	-	11.1	-	-	0	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	0	25	239	0	113	24	1268	221	148	2031	24
Future Volume (veh/h)	9	0	25	239	0	113	24	1268	221	148	2031	24
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	19	0	52	419	0	198	30	1585	0	159	2184	26
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.48	0.48	0.48	0.57	0.57	0.57	0.80	0.80	0.80	0.93	0.93	0.93
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	45	20	54	182	0	276	150	1773	793	240	1913	23
Arrive On Green	0.18	0.00	0.18	0.18	0.00	0.18	0.05	0.51	0.00	0.08	0.54	0.54
Sat Flow, veh/h	0	110	302	621	0	1553	1740	3471	1553	1740	3513	42
Grp Volume(v), veh/h	71	0	0	419	0	198	30	1585	0	159	1077	1133
Grp Sat Flow(s),veh/h/ln	413	0	0	621	0	1553	1740	1736	1553	1740	1736	1820
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	12.1	0.8	41.3	0.0	4.2	54.8	54.8
Cycle Q Clear(g_c), s	17.9	0.0	0.0	17.9	0.0	12.1	0.8	41.3	0.0	4.2	54.8	54.8
Prop In Lane	0.27		0.73	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	119	0	0	182	0	276	150	1773	793	240	945	990
V/C Ratio(X)	0.60	0.00	0.00	2.30	0.00	0.72	0.20	0.89	0.00	0.66	1.14	1.14
Avail Cap(c_a), veh/h	119	0	0	182	0	276	284	1773	793	316	945	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	0.0	44.9	0.0	39.0	23.2	22.1	0.0	21.5	22.9	22.9
Incr Delay (d2), s/veh	8.0	0.0	0.0	602.8	0.0	8.6	0.6	7.4	0.0	3.2	75.7	77.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	35.5	0.0	5.8	0.5	21.4	0.0	2.5	45.9	48.4
LnGrp Delay(d),s/veh	44.5	0.0	0.0	647.7	0.0	47.5	23.9	29.5	0.0	24.7	98.6	100.0
LnGrp LOS	D			F		D	C	C		C	F	F
Approach Vol, veh/h		71			617			1615			2369	
Approach Delay, s/veh		44.5			455.1			29.4			94.3	
Approach LOS		D			F			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	63.4		25.0	15.6	60.0		25.0
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.8	56.8		19.9	6.2	43.3		19.9
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	7.9		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		118.8
HCM 2010 LOS		F

Notes

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	50	0	1620	2220	110
Future Vol, veh/h	0	50	0	1620	2220	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	88	88	90	90
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	91	0	1841	2467	122

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1294	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	151	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	151	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	59.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	151	-	-
HCM Lane V/C Ratio	-	0.602	-	-
HCM Control Delay (s)	-	59.6	-	-
HCM Lane LOS	-	F	-	-
HCM 95th %tile Q(veh)	-	3.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	12	14	20	12	12	36	1649	18	4	2094	40
Future Volume (veh/h)	32	12	14	20	12	12	36	1649	18	4	2094	40
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	42	16	18	34	21	21	43	1987	0	4	2327	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.58	0.58	0.58	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	200	202	172	203	200	170	104	2610	1167	156	2610	1167
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1346	1845	1568	1343	1827	1553	152	3471	1553	213	3471	1553
Grp Volume(v), veh/h	42	16	18	34	21	21	43	1987	0	4	2327	0
Grp Sat Flow(s),veh/h/ln	1346	1845	1568	1343	1827	1553	152	1736	1553	213	1736	1553
Q Serve(g_s), s	3.1	0.8	1.1	2.5	1.1	1.3	26.7	36.0	0.0	1.2	54.7	0.0
Cycle Q Clear(g_c), s	4.3	0.8	1.1	3.4	1.1	1.3	81.4	36.0	0.0	37.2	54.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	200	202	172	203	200	170	104	2610	1167	156	2610	1167
V/C Ratio(X)	0.21	0.08	0.10	0.17	0.10	0.12	0.41	0.76	0.00	0.03	0.89	0.00
Avail Cap(c_a), veh/h	408	487	414	411	483	410	104	2610	1167	156	2610	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.3	43.3	43.4	44.8	43.4	43.5	42.4	7.8	0.0	18.6	10.1	0.0
Incr Delay (d2), s/veh	0.5	0.2	0.3	0.4	0.2	0.3	11.7	2.2	0.0	0.3	5.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.4	0.5	1.0	0.6	0.6	1.6	17.6	0.0	0.1	27.4	0.0
LnGrp Delay(d),s/veh	45.8	43.5	43.7	45.2	43.6	43.8	54.1	10.0	0.0	18.9	15.3	0.0
LnGrp LOS	D	D	D	D	D	D	D	A		B	B	
Approach Vol, veh/h		76			76			2030			2331	
Approach Delay, s/veh		44.8			44.4			10.9			15.3	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.3		90.0		18.3
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		56.7		5.4		83.4		6.3
Green Ext Time (p_c), s		24.3		0.5		0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	87	193	1518	2100	73
Future Vol, veh/h	12	87	193	1518	2100	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	86	86	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	19	138	224	1765	2234	78

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3604	1156	2312	0	-	0
Stage 1	2273	-	-	-	-	-
Stage 2	1331	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 4	190	~ 207	-	-	-
Stage 1	64	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	190	~ 207	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	64	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s		15.3	0
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 207	-	-	190	-	-
HCM Lane V/C Ratio	1.084	-	-	0.727	-	-
HCM Control Delay (s)	135.4	-	-	62.4	-	-
HCM Lane LOS	F	-	-	F	-	-
HCM 95th %tile Q(veh)	10.3	-	-	4.7	-	-

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

Intersection	
Int Delay, s/veh	18.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	37	28	1409	2130	45
Future Vol, veh/h	13	37	28	1409	2130	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	93	93
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	16	46	35	1740	2290	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3229	1145	2290	0	-	0
Stage 1	2290	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	~ 7	193	208	-	-	-
Stage 1	62	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 6	193	208	-	-	-
Mov Cap-2 Maneuver	~ 6	-	-	-	-	-
Stage 1	62	-	-	-	-	-
Stage 2	284	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 1258.7	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	208	-	21	-	-
HCM Lane V/C Ratio	0.166	-	2.939	-	-
HCM Control Delay (s)	25.7	-	$ 1258.7	-	-
HCM Lane LOS	D	-	F	-	-
HCM 95th %tile Q(veh)	0.6	-	8	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	383	36	20	1294	1898	515
Future Volume (veh/h)	383	36	20	1294	1898	515
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	485	0	26	1681	2041	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.79	0.79	0.77	0.77	0.93	0.93
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	150	2132	1682	752
Arrive On Green	0.21	0.00	0.04	0.61	0.48	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	485	0	26	1681	2041	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.6	30.8	41.2	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.6	30.8	41.2	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	150	2132	1682	752
V/C Ratio(X)	1.32	0.00	0.17	0.79	1.21	0.00
Avail Cap(c_a), veh/h	367	328	232	2132	1682	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	19.9	12.3	21.9	0.0
Incr Delay (d2), s/veh	162.7	0.0	0.5	3.1	101.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.1	0.0	0.3	15.4	43.4	0.0
LnGrp Delay(d),s/veh	196.1	0.0	20.4	15.3	123.7	0.0
LnGrp LOS	F		C	B	F	
Approach Vol, veh/h	485			1707	2041	
Approach Delay, s/veh	196.1			15.4	123.7	
Approach LOS	F			B	F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.0	49.0				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.6	43.2				32.8		20.1
Green Ext Time (p_c), s	0.0	0.0				18.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	88.3
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	27	43	15	46	43	8	12	378	120	9	402	44
Future Vol, veh/h	27	43	15	46	43	8	12	378	120	9	402	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	88	88	88	88	88	88	90	90	90
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	39	61	21	52	49	9	14	430	136	10	447	49

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1021	1060	447	1033	992	498	447	0	0	566	0	0
Stage 1	467	467	-	525	525	-	-	-	-	-	-	-
Stage 2	554	593	-	508	467	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	209	219	599	208	243	566	1098	-	-	991	-	-
Stage 1	565	552	-	530	524	-	-	-	-	-	-	-
Stage 2	506	484	-	542	557	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	169	212	599	152	235	566	1098	-	-	991	-	-
Mov Cap-2 Maneuver	169	212	-	152	235	-	-	-	-	-	-	-
Stage 1	554	544	-	520	514	-	-	-	-	-	-	-
Stage 2	442	475	-	457	549	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	40.2	45.5	0.2	0.2
HCM LOS	E	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1098	-	-	219	194	991	-	-
HCM Lane V/C Ratio	0.012	-	-	0.554	0.568	0.01	-	-
HCM Control Delay (s)	8.3	0	-	40.2	45.5	8.7	0	-
HCM Lane LOS	A	A	-	E	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	3	3.1	0	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	116	0	0	0	88	1987	0	0	1503	12
Future Vol, veh/h	4	0	116	0	0	0	88	1987	0	0	1503	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	150	175	-	150	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	25	25	25	96	96	96	94	94	94
Heavy Vehicles, %	6	6	6	30	30	30	3	3	3	4	4	4
Mvmt Flow	4	0	129	0	0	0	92	2070	0	0	1599	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2823	3858	806	3052	3865	1035	1612	0	0	2070	0	0
Stage 1	1605	1605	-	2253	2253	-	-	-	-	-	-	-
Stage 2	1218	2253	-	799	1612	-	-	-	-	-	-	-
Critical Hdwy	7.62	6.62	7.02	8.1	7.1	7.5	4.16	-	-	4.18	-	-
Critical Hdwy Stg 1	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.62	5.62	-	7.1	6.1	-	-	-	-	-	-	-
Follow-up Hdwy	3.56	4.06	3.36	3.8	4.3	3.6	2.23	-	-	2.24	-	-
Pot Cap-1 Maneuver	8	3	317	3	2	186	396	-	-	258	-	-
Stage 1	105	157	-	29	53	-	-	-	-	-	-	-
Stage 2	185	73	-	290	123	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	7	2	317	1	2	186	396	-	-	258	-	-
Mov Cap-2 Maneuver	7	2	-	1	2	-	-	-	-	-	-	-
Stage 1	81	157	-	22	41	-	-	-	-	-	-	-
Stage 2	142	56	-	172	123	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	157.7	0	0.7	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	396	-	-	128	-	-	258	-	-
HCM Lane V/C Ratio	0.231	-	-	1.042	-	-	-	-	-
HCM Control Delay (s)	16.8	-	-	157.7	0	0	0	-	-
HCM Lane LOS	C	-	-	F	A	A	A	-	-
HCM 95th %tile Q(veh)	0.9	-	-	7.4	-	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	26	19	0	17	11	2091	19	11	1677	4
Future Volume (veh/h)	12	0	26	19	0	17	11	2091	19	11	1677	4
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1624	1900	1900	1827	1827	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	19	0	42	23	0	20	12	2201	0	12	1765	4
Adj No. of Lanes	0	1	0	0	1	1	1	2	1	1	2	0
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	80	13	81	218	0	135	186	2123	950	126	2173	5
Arrive On Green	0.09	0.00	0.09	0.09	0.00	0.09	0.02	0.61	0.00	0.02	0.61	0.61
Sat Flow, veh/h	279	146	938	1527	0	1553	1740	3471	1553	1740	3553	8
Grp Volume(v), veh/h	61	0	0	23	0	20	12	2201	0	12	862	907
Grp Sat Flow(s),veh/h/ln	1363	0	0	1527	0	1553	1740	1736	1553	1740	1736	1826
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	1.0	0.2	51.4	0.0	0.2	32.2	32.2
Cycle Q Clear(g_c), s	3.5	0.0	0.0	1.0	0.0	1.0	0.2	51.4	0.0	0.2	32.2	32.2
Prop In Lane	0.31		0.69	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	174	0	0	218	0	135	186	2123	950	126	1061	1116
V/C Ratio(X)	0.35	0.00	0.00	0.11	0.00	0.15	0.06	1.04	0.00	0.10	0.81	0.81
Avail Cap(c_a), veh/h	341	0	0	386	0	331	400	2123	950	340	1061	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	0.0	35.5	0.0	35.5	12.1	16.3	0.0	21.4	12.6	12.6
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.2	0.0	0.5	0.1	29.8	0.0	0.3	6.8	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	0.5	0.0	0.4	0.1	33.0	0.0	0.2	17.1	18.1
LnGrp Delay(d),s/veh	37.8	0.0	0.0	35.7	0.0	36.0	12.3	46.2	0.0	21.7	19.4	19.1
LnGrp LOS	D			D		D	B	F		C	B	B
Approach Vol, veh/h		61			43			2213			1781	
Approach Delay, s/veh		37.8			35.9			46.0			19.3	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	60.0		14.4	9.7	60.0		14.4
Change Period (Y+Rc), s	7.7	* 8.6		7.1	7.7	* 8.6		7.1
Max Green Setting (Gmax), s	12.3	* 51		17.9	12.3	* 51		17.9
Max Q Clear Time (g_c+I1), s	2.2	34.2		3.0	2.2	53.4		5.5
Green Ext Time (p_c), s	0.0	16.7		0.4	0.0	0.0		0.3

Intersection Summary		
HCM 2010 Ctrl Delay		34.1
HCM 2010 LOS		C

Notes

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	126	0	2091	1689	26
Future Vol, veh/h	0	126	0	2091	1689	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	96	96	97	97
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	180	0	2178	1741	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	884	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.98	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.34	-	-	-	-
Pot Cap-1 Maneuver	0	285	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	285	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	285	-	-
HCM Lane V/C Ratio	-	0.632	-	-
HCM Control Delay (s)	-	37	-	-
HCM Lane LOS	-	E	-	-
HCM 95th %tile Q(veh)	-	4	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	31	27	42	13	5	18	2028	51	1	1794	20
Future Volume (veh/h)	24	31	27	42	13	5	18	2028	51	1	1794	20
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	28	36	31	64	20	8	19	2112	0	1	2062	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.66	0.66	0.66	0.96	0.96	0.96	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	203	204	173	187	202	171	143	2608	1167	135	2608	1167
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.75	0.75	0.00	0.75	0.75	0.00
Sat Flow, veh/h	1363	1845	1568	1303	1827	1553	198	3471	1553	188	3471	1553
Grp Volume(v), veh/h	28	36	31	64	20	8	19	2112	0	1	2062	0
Grp Sat Flow(s),veh/h/ln	1363	1845	1568	1303	1827	1553	198	1736	1553	188	1736	1553
Q Serve(g_s), s	2.0	1.9	1.9	5.1	1.1	0.5	7.1	41.9	0.0	0.4	39.4	0.0
Cycle Q Clear(g_c), s	3.1	1.9	1.9	7.0	1.1	0.5	46.5	41.9	0.0	42.3	39.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	204	173	187	202	171	143	2608	1167	135	2608	1167
V/C Ratio(X)	0.14	0.18	0.18	0.34	0.10	0.05	0.13	0.81	0.00	0.01	0.79	0.00
Avail Cap(c_a), veh/h	413	487	414	387	482	410	143	2608	1167	135	2608	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.8	43.7	43.7	46.9	43.4	43.1	22.5	8.6	0.0	22.0	8.3	0.0
Incr Delay (d2), s/veh	0.3	0.4	0.5	1.1	0.2	0.1	1.9	2.8	0.0	0.1	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.0	0.9	1.9	0.6	0.2	0.5	20.7	0.0	0.0	19.5	0.0
LnGrp Delay(d),s/veh	45.1	44.1	44.2	48.0	43.6	43.2	24.4	11.4	0.0	22.1	10.8	0.0
LnGrp LOS	D	D	D	D	D	D	C	B		C	B	
Approach Vol, veh/h		95			92			2131			2063	
Approach Delay, s/veh		44.4			46.6			11.5			10.8	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		90.0		18.4		90.0		18.4
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 81		28.6		* 81		28.6
Max Q Clear Time (g_c+I1), s		44.3		9.0		48.5		5.1
Green Ext Time (p_c), s		35.7		0.6		31.8		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	12.6
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	159.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	211	114	1920	1688	56
Future Vol, veh/h	66	211	114	1920	1688	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	95	95	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	89	285	120	2021	1796	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3077	928	1855	0	-	0
Stage 1	1826	-	-	-	-	-
Stage 2	1251	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 9	~ 270	314	-	-	-
Stage 1	113	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 6	~ 270	314	-	-	-
Mov Cap-2 Maneuver	~ 6	-	-	-	-	-
Stage 1	113	-	-	-	-	-
Stage 2	144	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 1855.8	1.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	314	-	6	270	-	-
HCM Lane V/C Ratio	0.382	-	14.865	1.056	-	-
HCM Control Delay (s)	23.4	-	$ 7432.1	111.5	-	-
HCM Lane LOS	C	-	F	F	-	-
HCM 95th %tile Q(veh)	1.7	-	13	11.3	-	-

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

Intersection	
Int Delay, s/veh	58

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	38	52	2006	1629	21
Future Vol, veh/h	50	38	52	2006	1629	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	225
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	95	95	94	94
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	57	43	55	2112	1733	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2898	866	1733	0	-	0
Stage 1	1733	-	-	-	-	-
Stage 2	1165	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.2	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.25	-	-	-
Pot Cap-1 Maneuver	~ 13	297	347	-	-	-
Stage 1	128	-	-	-	-	-
Stage 2	259	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 11	297	347	-	-	-
Mov Cap-2 Maneuver	~ 11	-	-	-	-	-
Stage 1	128	-	-	-	-	-
Stage 2	218	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 2323.7	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	347	-	19	-	-
HCM Lane V/C Ratio	0.158	-	5.263	-	-
HCM Control Delay (s)	17.3	-	$ 2323.7	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.6	-	13	-	-

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	519	69	38	1931	1477	472
Future Volume (veh/h)	519	69	38	1931	1477	472
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1827	1827	1827	1827
Adj Flow Rate, veh/h	546	0	40	2033	1539	0
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.96	0.96
Percent Heavy Veh, %	5	5	4	4	4	4
Cap, veh/h	367	328	189	2132	1638	733
Arrive On Green	0.21	0.00	0.05	0.61	0.47	0.00
Sat Flow, veh/h	1723	1538	1740	3563	3563	1553
Grp Volume(v), veh/h	546	0	40	2033	1539	0
Grp Sat Flow(s),veh/h/ln	1723	1538	1740	1736	1736	1553
Q Serve(g_s), s	18.1	0.0	0.9	46.4	35.7	0.0
Cycle Q Clear(g_c), s	18.1	0.0	0.9	46.4	35.7	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	367	328	189	2132	1638	733
V/C Ratio(X)	1.49	0.00	0.21	0.95	0.94	0.00
Avail Cap(c_a), veh/h	367	328	249	2132	1638	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.5	0.0	18.5	15.3	21.3	0.0
Incr Delay (d2), s/veh	233.6	0.0	0.6	11.3	11.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.4	0.0	0.5	25.1	19.6	0.0
LnGrp Delay(d),s/veh	267.0	0.0	19.0	26.6	33.1	0.0
LnGrp LOS	F		B	C	C	
Approach Vol, veh/h	546			2073	1539	
Approach Delay, s/veh	267.0			26.4	33.1	
Approach LOS	F			C	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.1	47.9				60.0		25.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.2	37.2				52.2		18.1
Max Q Clear Time (g_c+I1), s	2.9	37.7				48.4		20.1
Green Ext Time (p_c), s	0.0	0.0				3.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	60.5
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↰	↱
Traffic Vol, veh/h	25	40	14	40	34	13	19	490	49	9	429	31
Future Vol, veh/h	25	40	14	40	34	13	19	490	49	9	429	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	89	89	89	91	91	91	89	89	89
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	33	53	18	45	38	15	21	538	54	10	482	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1136	1136	482	1145	1109	565	482	0	0	592	0	0
Stage 1	502	502	-	607	607	-	-	-	-	-	-	-
Stage 2	634	634	-	538	502	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	174	197	572	174	207	519	1065	-	-	969	-	-
Stage 1	541	532	-	478	482	-	-	-	-	-	-	-
Stage 2	457	464	-	522	537	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	139	188	572	128	198	519	1065	-	-	969	-	-
Mov Cap-2 Maneuver	139	188	-	128	198	-	-	-	-	-	-	-
Stage 1	525	524	-	464	468	-	-	-	-	-	-	-
Stage 2	396	450	-	448	529	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	45.1	50.9	0.3	0.2
HCM LOS	E	F		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	SWL	SWT	SWR
Capacity (veh/h)	1065	-	-	189	171	969	-	-
HCM Lane V/C Ratio	0.02	-	-	0.55	0.572	0.01	-	-
HCM Control Delay (s)	8.4	0	-	45.1	50.9	8.8	0	-
HCM Lane LOS	A	A	-	E	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.9	3	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	19	193	240	5	23	133	1392	34	42	2048	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1792	1462	1462	1462	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	0	22	0	267	6	0	162	1698	0	45	2202	16
Adj No. of Lanes	0	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.82	0.82	0.82	0.93	0.93	0.93
Percent Heavy Veh, %	6	6	6	30	30	30	3	3	3	4	4	4
Cap, veh/h	0	34	138	251	237	231	177	2326	1187	191	2175	16
Arrive On Green	0.00	0.02	0.00	0.09	0.16	0.00	0.07	0.66	0.00	0.02	0.62	0.62
Sat Flow, veh/h	0	1792	1524	2700	1462	1242	1757	3505	1568	1740	3532	26
Grp Volume(v), veh/h	0	22	0	267	6	0	162	1698	0	45	1081	1137
Grp Sat Flow(s),veh/h/ln	0	1792	1524	1350	1462	1242	1757	1752	1568	1740	1736	1822
Q Serve(g_s), s	0.0	1.7	0.0	13.0	0.5	0.0	8.7	44.1	0.0	1.3	86.0	86.0
Cycle Q Clear(g_c), s	0.0	1.7	0.0	13.0	0.5	0.0	8.7	44.1	0.0	1.3	86.0	86.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	0	34	138	251	237	231	177	2326	1187	191	1069	1122
V/C Ratio(X)	0.00	0.65	0.00	1.06	0.03	0.00	0.91	0.73	0.00	0.24	1.01	1.01
Avail Cap(c_a), veh/h	0	167	251	251	345	323	177	2326	1187	243	1069	1122
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	68.0	0.0	63.3	49.2	0.0	49.5	15.3	0.0	15.3	26.8	26.8
Incr Delay (d2), s/veh	0.0	18.7	0.0	74.1	0.0	0.0	43.6	1.2	0.0	0.6	30.3	30.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	0.0	7.4	0.2	0.0	8.4	21.6	0.0	0.7	50.0	52.5
LnGrp Delay(d),s/veh	0.0	86.8	0.0	137.5	49.3	0.0	93.1	16.5	0.0	15.9	57.1	57.1
LnGrp LOS		F		F	D		F	B		B	F	F
Approach Vol, veh/h		22			273			1860			2263	
Approach Delay, s/veh		86.8			135.5			23.2			56.3	
Approach LOS		F			F			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	99.7	20.0	9.6	17.0	93.0		29.6
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	7.5	88.5	13.0	13.0	10.0	86.0		33.0
Max Q Clear Time (g_c+I1), s	3.3	46.1	15.0	3.7	10.7	88.0		2.5
Green Ext Time (p_c), s	0.0	40.0	0.0	0.0	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	47.4
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	3	25	332	0	122	24	1453	275	162	2284	27
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1624	1624	1900	1827	1827	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	19	6	52	369	0	136	30	1816	0	174	2456	29
Adj No. of Lanes	1	1	0	2	1	0	1	2	1	1	2	0
Peak Hour Factor	0.48	0.48	0.48	0.90	0.90	0.90	0.80	0.80	0.80	0.93	0.93	0.93
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	112	8	73	348	0	292	51	2031	909	196	2473	29
Arrive On Green	0.06	0.06	0.06	0.10	0.00	0.19	0.59	0.59	0.00	0.07	0.70	0.70
Sat Flow, veh/h	1088	145	1257	3375	0	1553	130	3471	1553	1740	3514	41
Grp Volume(v), veh/h	19	0	58	369	0	136	30	1816	0	174	1211	1274
Grp Sat Flow(s),veh/h/ln	1088	0	1402	1688	0	1553	130	1736	1553	1740	1736	1820
Q Serve(g_s), s	2.4	0.0	5.9	15.0	0.0	11.3	1.7	66.2	0.0	7.5	99.4	100.7
Cycle Q Clear(g_c), s	2.4	0.0	5.9	15.0	0.0	11.3	85.2	66.2	0.0	7.5	99.4	100.7
Prop In Lane	1.00		0.90	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	112	0	81	348	0	292	51	2031	909	196	1221	1281
V/C Ratio(X)	0.17	0.00	0.72	1.06	0.00	0.47	0.59	0.89	0.00	0.89	0.99	1.00
Avail Cap(c_a), veh/h	146	0	124	348	0	340	51	2031	909	221	1221	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.7	0.0	67.4	65.3	0.0	52.5	72.7	26.2	0.0	40.4	21.1	21.3
Incr Delay (d2), s/veh	0.7	0.0	11.1	65.1	0.0	1.2	41.3	6.6	0.0	30.0	23.7	24.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.5	10.1	0.0	5.0	1.8	33.4	0.0	8.5	55.1	58.5
LnGrp Delay(d),s/veh	66.4	0.0	78.5	130.4	0.0	53.7	114.0	32.8	0.0	70.4	44.8	45.3
LnGrp LOS	E		E	F		D	F	C		E	D	D
Approach Vol, veh/h		77			505			1846			2659	
Approach Delay, s/veh		75.5			109.7			34.1			46.7	
Approach LOS		E			F			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6	7	8
Phs Duration (G+Y+Rc), s		111.0		34.5	17.2	93.8	19.0	15.5
Change Period (Y+Rc), s		* 8.6		7.1	7.7	* 8.6	4.0	7.1
Max Green Setting (Gmax), s		* 1E2		31.9	11.6	* 83	15.0	12.9
Max Q Clear Time (g_c+I1), s		102.7		13.3	9.5	87.2	17.0	7.9
Green Ext Time (p_c), s		0.0		1.1	0.1	0.0	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	48.9
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	50	0	1859	2561	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	55	55	88	88	90	90
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	91	0	2112	2846	128

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3965	1487	2973	0	-	0
Stage 1	2909	-	-	-	-	-
Stage 2	1056	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.18	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	-
Pot Cap-1 Maneuver	2	111	112	-	-	-
Stage 1	27	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	2	111	112	-	-	-
Mov Cap-2 Maneuver	25	-	-	-	-	-
Stage 1	27	-	-	-	-	-
Stage 2	291	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	113.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	112	-	111	-	-
HCM Lane V/C Ratio	-	-	0.819	-	-
HCM Control Delay (s)	0	-	113.4	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	4.7	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	56	1476	74	0	2429
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	81	81	93	93
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	0	62	1822	91	0	2612

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3128	911	0	0	1822	0
Stage 1	1822	-	-	-	-	-
Stage 2	1306	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.18	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.24	-
Pot Cap-1 Maneuver	9	277	-	-	324	-
Stage 1	114	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	9	277	-	-	324	-
Mov Cap-2 Maneuver	9	-	-	-	-	-
Stage 1	114	-	-	-	-	-
Stage 2	218	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	277	324	-
HCM Lane V/C Ratio	-	-	0.225	-	-
HCM Control Delay (s)	-	-	21.7	0	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	38	12	14	20	12	19	36	1858	18	13	2397	50
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	49	16	18	34	21	33	43	2239	0	14	2663	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.58	0.58	0.58	0.83	0.83	0.83	0.90	0.90	0.90
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	159	166	141	164	164	139	68	2769	1239	125	2769	1239
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.80	0.80	0.00	0.80	0.80	0.00
Sat Flow, veh/h	1331	1845	1568	1343	1827	1553	109	3471	1553	166	3471	1553
Grp Volume(v), veh/h	49	16	18	34	21	33	43	2239	0	14	2663	0
Grp Sat Flow(s),veh/h/ln	1331	1845	1568	1343	1827	1553	109	1736	1553	166	1736	1553
Q Serve(g_s), s	4.7	1.1	1.4	3.2	1.4	2.6	17.5	49.0	0.0	7.0	88.9	0.0
Cycle Q Clear(g_c), s	6.1	1.1	1.4	4.2	1.4	2.6	106.4	49.0	0.0	56.0	88.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	166	141	164	164	139	68	2769	1239	125	2769	1239
V/C Ratio(X)	0.31	0.10	0.13	0.21	0.13	0.24	0.63	0.81	0.00	0.11	0.96	0.00
Avail Cap(c_a), veh/h	325	396	336	331	392	333	68	2769	1239	125	2769	1239
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.7	55.7	55.9	57.7	55.9	56.4	63.8	7.7	0.0	23.6	11.7	0.0
Incr Delay (d2), s/veh	1.1	0.3	0.4	0.6	0.3	0.9	36.8	2.7	0.0	1.8	10.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.6	0.6	1.2	0.7	1.2	2.3	24.0	0.0	0.4	45.4	0.0
LnGrp Delay(d),s/veh	59.8	56.0	56.3	58.3	56.2	57.3	100.5	10.4	0.0	25.4	22.0	0.0
LnGrp LOS	E	E	E	E	E	E	F	B		C	C	
Approach Vol, veh/h		83			88			2282			2677	
Approach Delay, s/veh		58.3			57.4			12.0			22.0	
Approach LOS		E			E			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		115.0		18.4		115.0		18.4
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 1.1E2		28.6		* 1.1E2		28.6
Max Q Clear Time (g_c+I1), s		90.9		6.2		108.4		8.1
Green Ext Time (p_c), s		15.5		0.5		0.0		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.8
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	21.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	29	87	193	1740	2422	106
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	86	86	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	46	138	224	2023	2577	113

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	4093	1345	2689	0	-	0
Stage 1	2633	-	-	-	-	-
Stage 2	1460	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 2	142	~ 146	-	-	-
Stage 1	~ 40	-	-	-	-	-
Stage 2	180	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 2	142	~ 146	-	-	-
Mov Cap-2 Maneuver	~ 37	-	-	-	-	-
Stage 1	~ 40	-	-	-	-	-
Stage 2	180	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	196.5	32.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	~ 146	-	37	142	-	-
HCM Lane V/C Ratio	1.537	-	1.244	0.973	-	-
HCM Control Delay (s)	$ 328.4	-	$ 397	129.7	-	-
HCM Lane LOS	F	-	F	F	-	-
HCM 95th %tile Q(veh)	15.3	-	4.8	7	-	-

Notes

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

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	3	37	19	5	18	28	1519	84	3	2381	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	250	-	150	150	-	225
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	90	90	90	81	81	81	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	4	4	4
Mvmt Flow	16	4	46	21	6	20	35	1875	104	3	2560	48

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3577	4511	1280	3232	4511	938	2560	0	0	1875	0	0
Stage 1	2567	2567	-	1944	1944	-	-	-	-	-	-	-
Stage 2	1010	1944	-	1288	2567	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.2	-	-	4.18	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.25	-	-	2.24	-	-
Pot Cap-1 Maneuver	~ 2	~ 1	157	~ 4	~ 1	266	162	-	-	309	-	-
Stage 1	26	52	-	67	110	-	-	-	-	-	-	-
Stage 2	257	110	-	173	52	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 1	~ 1	157	~ 2	~ 1	266	162	-	-	309	-	-
Mov Cap-2 Maneuver	17	29	-	30	13	-	-	-	-	-	-	-
Stage 1	20	51	-	53	86	-	-	-	-	-	-	-
Stage 2	174	86	-	113	51	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	189.5	268.4	0.6	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	162	-	-	18	157	24	266	309	-	-
HCM Lane V/C Ratio	0.213	-	-	1.097	0.291	1.111	0.075	0.01	-	-
HCM Control Delay (s)	33.2	-	-	$ 541.9	37.1	$ 455	19.6	16.8	-	-
HCM Lane LOS	D	-	-	F	E	F	C	C	-	-
HCM 95th %tile Q(veh)	0.8	-	-	2.8	1.1	3.3	0.2	0	-	-

Notes

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	383	36	20	1378	1956	515
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1900	1827	1827	1827	1827
Adj Flow Rate, veh/h	485	0	26	1790	2103	0
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.79	0.79	0.77	0.77	0.93	0.93
Percent Heavy Veh, %	5	0	4	4	4	4
Cap, veh/h	506	237	156	2569	2173	972
Arrive On Green	0.15	0.00	0.05	0.74	0.63	0.00
Sat Flow, veh/h	3447	1615	1740	3563	3563	1553
Grp Volume(v), veh/h	485	0	26	1790	2103	0
Grp Sat Flow(s),veh/h/ln	1723	1615	1740	1736	1736	1553
Q Serve(g_s), s	18.2	0.0	0.0	36.0	74.7	0.0
Cycle Q Clear(g_c), s	18.2	0.0	0.0	36.0	74.7	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	506	237	156	2569	2173	972
V/C Ratio(X)	0.96	0.00	0.17	0.70	0.97	0.00
Avail Cap(c_a), veh/h	506	237	156	2569	2173	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.0	0.0	57.6	9.1	23.0	0.0
Incr Delay (d2), s/veh	29.5	0.0	0.5	1.6	13.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	0.0	0.9	17.5	39.3	0.0
LnGrp Delay(d),s/veh	84.5	0.0	58.1	10.7	36.1	0.0
LnGrp LOS	F		E	B	D	
Approach Vol, veh/h	485			1816	2103	
Approach Delay, s/veh	84.5			11.3	36.1	
Approach LOS	F			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	89.2				104.0		26.0
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.0	81.4				96.2		19.1
Max Q Clear Time (g_c+I1), s	2.0	76.7				38.0		20.2
Green Ext Time (p_c), s	4.1	4.2				22.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.2
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	27	49	15	65	52	8	12	378	133	9	402	44
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	200	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	88	88	88	88	88	88	90	90	90
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	39	70	21	74	59	9	14	430	151	10	447	49

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	958	924	447	969	924	430	447	0	0	430	0	0
Stage 1	467	467	-	457	457	-	-	-	-	-	-	-
Stage 2	491	457	-	512	467	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	231	263	599	230	266	619	1098	-	-	1114	-	-
Stage 1	565	552	-	578	563	-	-	-	-	-	-	-
Stage 2	548	558	-	539	557	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	183	255	599	171	258	619	1098	-	-	1114	-	-
Mov Cap-2 Maneuver	183	255	-	171	258	-	-	-	-	-	-	-
Stage 1	554	545	-	567	552	-	-	-	-	-	-	-
Stage 2	473	547	-	448	550	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	34.2	31.9	0.2	0.2
HCM LOS	D	D		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	WBLn2	SWL	SWT	SWR
Capacity (veh/h)	1098	-	-	249	171	280	1114	-	-
HCM Lane V/C Ratio	0.012	-	-	0.522	0.432	0.244	0.009	-	-
HCM Control Delay (s)	8.3	0	-	34.2	41.2	21.9	8.3	0	-
HCM Lane LOS	A	A	-	D	E	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.8	2	0.9	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	32	116	254	5	38	110	2047	45	92	1510	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1792	1792	1462	1462	1462	1845	1845	1845	1827	1827	1900
Adj Flow Rate, veh/h	4	36	0	282	6	0	115	2132	0	98	1606	13
Adj No. of Lanes	0	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	6	6	6	30	30	30	3	3	3	4	4	4
Cap, veh/h	32	51	111	287	273	267	196	2231	1165	111	2197	18
Arrive On Green	0.03	0.03	0.00	0.11	0.19	0.00	0.04	0.64	0.00	0.03	0.62	0.62
Sat Flow, veh/h	116	1639	1524	2700	1462	1242	1757	3505	1568	1740	3529	29
Grp Volume(v), veh/h	40	0	0	282	6	0	115	2132	0	98	789	830
Grp Sat Flow(s),veh/h/ln	1755	0	1524	1350	1462	1242	1757	1752	1568	1740	1736	1822
Q Serve(g_s), s	1.7	0.0	0.0	14.7	0.5	0.0	3.9	79.8	0.0	2.9	44.5	44.6
Cycle Q Clear(g_c), s	3.2	0.0	0.0	14.7	0.5	0.0	3.9	79.8	0.0	2.9	44.5	44.6
Prop In Lane	0.10		1.00	1.00		1.00	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	82	0	111	287	273	267	196	2231	1165	111	1081	1134
V/C Ratio(X)	0.49	0.00	0.00	0.98	0.02	0.00	0.59	0.96	0.00	0.88	0.73	0.73
Avail Cap(c_a), veh/h	188	0	204	287	362	343	246	2231	1165	111	1081	1134
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.9	0.0	0.0	63.1	47.0	0.0	24.3	23.8	0.0	66.8	18.5	18.5
Incr Delay (d2), s/veh	4.4	0.0	0.0	48.7	0.0	0.0	2.8	11.1	0.0	51.1	4.4	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	7.4	0.2	0.0	2.5	41.7	0.0	5.4	22.6	23.7
LnGrp Delay(d),s/veh	72.3	0.0	0.0	111.8	47.0	0.0	27.1	35.0	0.0	117.9	22.8	22.7
LnGrp LOS	E			F	D		C	C		F	C	C
Approach Vol, veh/h		40			288			2247			1717	
Approach Delay, s/veh		72.3			110.4			34.6			28.2	
Approach LOS		E			F			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	97.0	22.0	11.4	13.0	95.0		33.4
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	4.0	90.0	15.0	13.0	10.0	84.0		35.0
Max Q Clear Time (g_c+I1), s	4.9	81.8	16.7	5.2	5.9	46.6		2.5
Green Ext Time (p_c), s	0.0	7.1	0.0	0.1	0.1	15.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	6	26	111	0	27	11	2406	113	33	1924	10
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1624	1624	1900	1827	1827	1900	1827	1827	1827	1827	1827	1900
Adj Flow Rate, veh/h	19	10	42	134	0	33	12	2533	0	35	2025	11
Adj No. of Lanes	1	1	0	2	1	0	1	2	1	1	2	0
Peak Hour Factor	0.62	0.62	0.62	0.83	0.83	0.83	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	4	4	4	4	4	4	4	4	4
Cap, veh/h	123	16	67	150	0	205	138	2608	1167	63	2660	14
Arrive On Green	0.06	0.06	0.06	0.04	0.00	0.13	0.75	0.75	0.00	0.75	0.75	0.75
Sat Flow, veh/h	1195	273	1148	3375	0	1553	203	3471	1553	124	3540	19
Grp Volume(v), veh/h	19	0	52	134	0	33	12	2533	0	35	992	1044
Grp Sat Flow(s),veh/h/ln	1195	0	1421	1688	0	1553	203	1736	1553	124	1736	1824
Q Serve(g_s), s	2.1	0.0	4.8	5.3	0.0	2.5	4.9	90.6	0.0	10.8	44.7	44.9
Cycle Q Clear(g_c), s	2.1	0.0	4.8	5.3	0.0	2.5	49.9	90.6	0.0	101.4	44.7	44.9
Prop In Lane	1.00		0.81	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	123	0	83	150	0	205	138	2608	1167	63	1304	1370
V/C Ratio(X)	0.15	0.00	0.63	0.89	0.00	0.16	0.09	0.97	0.00	0.55	0.76	0.76
Avail Cap(c_a), veh/h	168	0	136	150	0	264	138	2608	1167	63	1304	1370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.8	0.0	62.1	64.1	0.0	51.9	24.2	15.4	0.0	65.9	9.7	9.8
Incr Delay (d2), s/veh	0.6	0.0	7.7	43.6	0.0	0.4	1.2	12.0	0.0	30.5	4.2	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.1	3.4	0.0	1.1	0.3	46.9	0.0	1.8	22.7	23.9
LnGrp Delay(d),s/veh	61.4	0.0	69.8	107.8	0.0	52.3	25.5	27.5	0.0	96.4	13.9	13.8
LnGrp LOS	E		E	F		D	C	C		F	B	B
Approach Vol, veh/h		71			167			2545			2071	
Approach Delay, s/veh		67.6			96.8			27.4			15.3	
Approach LOS		E			F			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6	7	8
Phs Duration (G+Y+Rc), s		110.0		24.9		110.0	10.0	14.9
Change Period (Y+Rc), s		* 8.6		7.1		* 8.6	4.0	7.1
Max Green Setting (Gmax), s		* 1E2		22.9		* 1E2	6.0	12.9
Max Q Clear Time (g_c+I1), s		103.4		4.5		92.6	7.3	6.8
Green Ext Time (p_c), s		0.0		0.4		8.8	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	126	0	2500	2024	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	96	96	97	97
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	0	180	0	2604	2087	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3404	1059	2118	0	-	0
Stage 1	2102	-	-	-	-	-
Stage 2	1302	-	-	-	-	-
Critical Hdwy	6.88	6.98	4.18	-	-	-
Critical Hdwy Stg 1	5.88	-	-	-	-	-
Critical Hdwy Stg 2	5.88	-	-	-	-	-
Follow-up Hdwy	3.54	3.34	2.24	-	-	-
Pot Cap-1 Maneuver	5	217	247	-	-	-
Stage 1	78	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	5	217	247	-	-	-
Mov Cap-2 Maneuver	68	-	-	-	-	-
Stage 1	78	-	-	-	-	-
Stage 2	215	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	70.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	247	-	217	-	-
HCM Lane V/C Ratio	-	-	0.829	-	-
HCM Control Delay (s)	0	-	70.8	-	-
HCM Lane LOS	A	-	F	-	-
HCM 95th %tile Q(veh)	0	-	6.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	2101	154	0	1913
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	150	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	81	81	93	93
Heavy Vehicles, %	2	2	5	5	4	4
Mvmt Flow	0	72	2594	190	0	2057

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3622	1297	0	0	2594	0
Stage 1	2594	-	-	-	-	-
Stage 2	1028	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.18	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.24	-
Pot Cap-1 Maneuver	4	153	-	-	159	-
Stage 1	42	-	-	-	-	-
Stage 2	306	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	4	153	-	-	159	-
Mov Cap-2 Maneuver	4	-	-	-	-	-
Stage 1	42	-	-	-	-	-
Stage 2	306	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	48	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	153	159	-
HCM Lane V/C Ratio	-	-	0.472	-	-
HCM Control Delay (s)	-	-	48	0	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	2.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	31	27	42	13	16	18	2387	51	10	2092	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1827	1827	1827	1827	1827	1827	1827	1827	1827
Adj Flow Rate, veh/h	41	36	31	64	20	24	19	2486	0	11	2405	0
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Peak Hour Factor	0.86	0.86	0.86	0.66	0.66	0.66	0.96	0.96	0.96	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	4	4	4
Cap, veh/h	161	166	141	148	164	140	102	2769	1239	91	2769	1239
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.80	0.80	0.00	0.80	0.80	0.00
Sat Flow, veh/h	1344	1845	1568	1303	1827	1553	141	3471	1553	130	3471	1553
Grp Volume(v), veh/h	41	36	31	64	20	24	19	2486	0	11	2405	0
Grp Sat Flow(s),veh/h/ln	1344	1845	1568	1303	1827	1553	141	1736	1553	130	1736	1553
Q Serve(g_s), s	3.9	2.4	2.4	6.4	1.3	1.9	13.7	68.1	0.0	8.8	60.9	0.0
Cycle Q Clear(g_c), s	5.2	2.4	2.4	8.8	1.3	1.9	74.6	68.1	0.0	76.9	60.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	166	141	148	164	140	102	2769	1239	91	2769	1239
V/C Ratio(X)	0.25	0.22	0.22	0.43	0.12	0.17	0.19	0.90	0.00	0.12	0.87	0.00
Avail Cap(c_a), veh/h	328	395	336	310	392	333	102	2769	1239	91	2769	1239
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.2	56.3	56.4	60.4	55.9	56.1	33.5	9.6	0.0	37.0	8.9	0.0
Incr Delay (d2), s/veh	0.8	0.6	0.8	2.0	0.3	0.6	4.0	5.1	0.0	2.7	4.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.3	1.1	2.4	0.7	0.8	0.6	33.7	0.0	0.4	29.9	0.0
LnGrp Delay(d),s/veh	59.1	57.0	57.1	62.4	56.2	56.7	37.5	14.8	0.0	39.7	12.9	0.0
LnGrp LOS	E	E	E	E	E	E	D	B		D	B	
Approach Vol, veh/h		108			108			2505			2416	
Approach Delay, s/veh		57.8			60.0			14.9			13.0	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		115.0		18.4		115.0		18.4
Change Period (Y+Rc), s		* 8.6		6.4		* 8.6		6.4
Max Green Setting (Gmax), s		* 1.1E2		28.6		* 1.1E2		28.6
Max Q Clear Time (g_c+I1), s		78.9		10.8		76.6		7.2
Green Ext Time (p_c), s		27.3		0.7		29.6		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	36

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	94	211	114	2301	2005	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	300	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	95	95	94	94
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	127	285	120	2422	2133	79

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3623	1106	2212	0	-	0
Stage 1	2172	-	-	-	-	-
Stage 2	1451	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.18	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.24	-	-	-
Pot Cap-1 Maneuver	~ 4	~ 205	227	-	-	-
Stage 1	~ 73	-	-	-	-	-
Stage 2	182	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 2	~ 205	227	-	-	-
Mov Cap-2 Maneuver	~ 50	-	-	-	-	-
Stage 1	~ 73	-	-	-	-	-
Stage 2	~ 86	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 440.4	1.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	227	-	50	205	-	-
HCM Lane V/C Ratio	0.529	-	2.541	1.391	-	-
HCM Control Delay (s)	37.4	-	$ 873.6	247.4	-	-
HCM Lane LOS	E	-	F	F	-	-
HCM 95th %tile Q(veh)	2.8	-	13.2	16.5	-	-

Notes

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

Intersection	
Int Delay, s/veh	17.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	50	6	38	23	4	68	52	2132	199	11	1881	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	250	-	150	150	-	225
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	90	90	90	95	95	95	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	5	5	5	4	4	4
Mvmt Flow	57	7	43	26	4	76	55	2244	209	12	2001	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3258	4378	1001	3381	4378	1122	2001	0	0	2244	0	0
Stage 1	2024	2024	-	2354	2354	-	-	-	-	-	-	-
Stage 2	1234	2354	-	1027	2024	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.2	-	-	4.18	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.25	-	-	2.24	-	-
Pot Cap-1 Maneuver	~ 4	~ 2	241	~ 3	~ 2	200	272	-	-	220	-	-
Stage 1	59	100	-	36	68	-	-	-	-	-	-	-
Stage 2	187	68	-	251	100	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 2	~ 2	241	~ 2	~ 2	200	272	-	-	220	-	-
Mov Cap-2 Maneuver	~ 27	27	-	~ 22	22	-	-	-	-	-	-	-
Stage 1	~ 47	95	-	29	54	-	-	-	-	-	-	-
Stage 2	85	54	-	181	95	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 562.2	188.2	0.5	0.1
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	272	-	-	27	241	22	200	220	-	-
HCM Lane V/C Ratio	0.201	-	-	2.357	0.179	1.364	0.378	0.053	-	-
HCM Control Delay (s)	21.5	-	-	$ 928	23.2	$ 577.7	33.5	22.3	-	-
HCM Lane LOS	C	-	-	F	C	F	D	C	-	-
HCM 95th %tile Q(veh)	0.7	-	-	7.7	0.6	3.9	1.6	0.2	-	-

Notes

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	519	69	38	2014	1576	472
Number	3	18	1	6	2	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1900	1827	1827	1827	1827
Adj Flow Rate, veh/h	546	0	40	2120	1642	0
Adj No. of Lanes	2	1	1	2	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.96	0.96
Percent Heavy Veh, %	5	0	4	4	4	4
Cap, veh/h	612	287	221	2287	1715	767
Arrive On Green	0.18	0.00	0.08	0.66	0.49	0.00
Sat Flow, veh/h	3447	1615	1740	3563	3563	1553
Grp Volume(v), veh/h	546	0	40	2120	1642	0
Grp Sat Flow(s),veh/h/ln	1723	1615	1740	1736	1736	1553
Q Serve(g_s), s	13.9	0.0	0.0	48.1	40.8	0.0
Cycle Q Clear(g_c), s	13.9	0.0	0.0	48.1	40.8	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	612	287	221	2287	1715	767
V/C Ratio(X)	0.89	0.00	0.18	0.93	0.96	0.00
Avail Cap(c_a), veh/h	618	289	221	2287	1715	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.1	0.0	38.1	13.4	21.8	0.0
Incr Delay (d2), s/veh	15.1	0.0	0.4	8.0	13.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	0.0	0.9	25.2	22.7	0.0
LnGrp Delay(d),s/veh	51.2	0.0	38.5	21.5	35.6	0.0
LnGrp LOS	D		D	C	D	
Approach Vol, veh/h	546			2160	1642	
Approach Delay, s/veh	51.2			21.8	35.6	
Approach LOS	D			C	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.8	52.2				67.0		22.9
Change Period (Y+Rc), s	7.8	7.8				7.8		6.9
Max Green Setting (Gmax), s	7.0	44.4				59.2		16.1
Max Q Clear Time (g_c+I1), s	2.0	42.8				50.1		15.9
Green Ext Time (p_c), s	4.5	1.3				7.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	25	51	14	61	43	13	19	490	70	9	429	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	200	-	-	-	-	200	-	-	200
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	89	89	89	91	91	91	89	89	89
Heavy Vehicles, %	8	8	8	5	5	5	5	5	5	5	5	5
Mvmt Flow	33	67	18	69	48	15	21	538	77	10	482	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1114	1082	482	1125	1082	538	482	0	0	538	0	0
Stage 1	502	502	-	580	580	-	-	-	-	-	-	-
Stage 2	612	580	-	545	502	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.15	-	-	4.15	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.245	-	-	2.245	-	-
Pot Cap-1 Maneuver	181	212	572	180	215	537	1065	-	-	1015	-	-
Stage 1	541	532	-	495	495	-	-	-	-	-	-	-
Stage 2	470	491	-	517	537	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	140	203	572	125	206	537	1065	-	-	1015	-	-
Mov Cap-2 Maneuver	140	203	-	125	206	-	-	-	-	-	-	-
Stage 1	525	525	-	480	480	-	-	-	-	-	-	-
Stage 2	399	476	-	430	529	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	47.1	45.5	0.3	0.2
HCM LOS	E	E		

Minor Lane/Major Mvmt	NEL	NET	NER	EBLn1	WBLn1	WBLn2	SWL	SWT	SWR
Capacity (veh/h)	1065	-	-	198	125	240	1015	-	-
HCM Lane V/C Ratio	0.02	-	-	0.598	0.548	0.262	0.01	-	-
HCM Control Delay (s)	8.4	0	-	47.1	64.2	25.2	8.6	0	-
HCM Lane LOS	A	A	-	E	F	D	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.3	2.6	1	0	-	-

Arterial Level of Service: NB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tidewatch Drive	I	55	16.8	6.7	23.5	0.17	26.6	D
Cherry Point Rd.	I	52	37.8	24.4	62.2	0.46	26.7	D
Argent Blvd.	I	45	54.2	12.6	66.8	0.68	36.5	B
Total	I		108.8	43.7	152.5	1.31	31.0	C

Arterial Level of Service: SB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Argent Blvd.	I	55	5.8	28.9	34.7	0.06	6.2	F
Pearlstine Dr.	I	45	54.2	24.9	79.1	0.68	30.8	C
Tidewatch Drive	I	52	37.8	8.5	46.3	0.46	35.9	B
Total	I		97.8	62.3	160.1	1.20	27.0	D

Arterial Level of Service: NB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tidewatch Drive	I	55	16.8	13.7	30.5	0.17	20.5	E
Cherry Point Rd.	I	52	37.8	26.8	64.6	0.46	25.7	D
Pritcher Point Rd.	I	45	32.5	41.5	74.0	0.34	16.3	E
Argent Blvd.	I	45	33.2	22.6	55.8	0.34	22.1	D
Total	I		120.3	104.6	224.9	1.31	21.0	D

Arterial Level of Service: SB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Argent Blvd.	I	55	5.8	24.0	29.8	0.06	7.3	F
Short Cut Rd.	I	45	33.2	26.9	60.1	0.34	20.5	E
Pearlstine Dr.	I	45	32.5	13.1	45.6	0.34	26.5	D
Tidewatch Drive	I	52	37.8	12.4	50.2	0.46	33.1	C
Total	I		109.3	76.4	185.7	1.20	23.2	D

Arterial Level of Service: NB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
	I	55	16.8	8.7	25.5	0.17	24.5	D
Cherry Point Rd.	I	52	37.8	33.9	71.7	0.46	23.2	D
	I	45	54.2	15.8	70.0	0.68	34.8	B
Total	I		108.8	58.4	167.2	1.31	28.2	C

Arterial Level of Service: SB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
	I	55	5.8	68.3	74.1	0.06	2.9	F
Pearlstine Dr.	I	45	54.2	74.0	128.2	0.68	19.0	E
Tidewatch Drive	I	52	37.8	12.9	50.7	0.46	32.7	C
Total	I		97.8	155.2	253.0	1.20	17.1	E

Arterial Level of Service: NB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
	I	55	16.8	10.5	27.3	0.17	22.9	D
Cherry Point Rd.	I	52	37.8	18.2	56.0	0.46	29.6	C
Argent Blvd.	I	45	54.2	27.7	81.9	0.68	29.8	C
Total	I		108.8	56.4	165.2	1.31	28.6	C

Arterial Level of Service: SB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Argent Blvd.	I	55	5.8	27.8	33.6	0.06	6.5	F
Pearlstine Dr.	I	45	54.2	12.0	66.2	0.68	36.8	B
Tidewatch Drive	I	52	37.8	10.0	47.8	0.46	34.7	B
Total	I		97.8	49.8	147.6	1.20	29.2	C

Arterial Level of Service: NB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
	I	55	16.8	9.5	26.3	0.17	23.7	D
Cherry Point Rd.	I	52	37.8	36.3	74.1	0.46	22.4	D
Pritcher Point Rd.	I	45	32.5	19.8	52.3	0.34	23.1	D
Argent Blvd	I	45	33.2	10.9	44.1	0.34	27.9	C
Total	I		120.3	76.5	196.8	1.31	24.0	D

Arterial Level of Service: SB SC 170

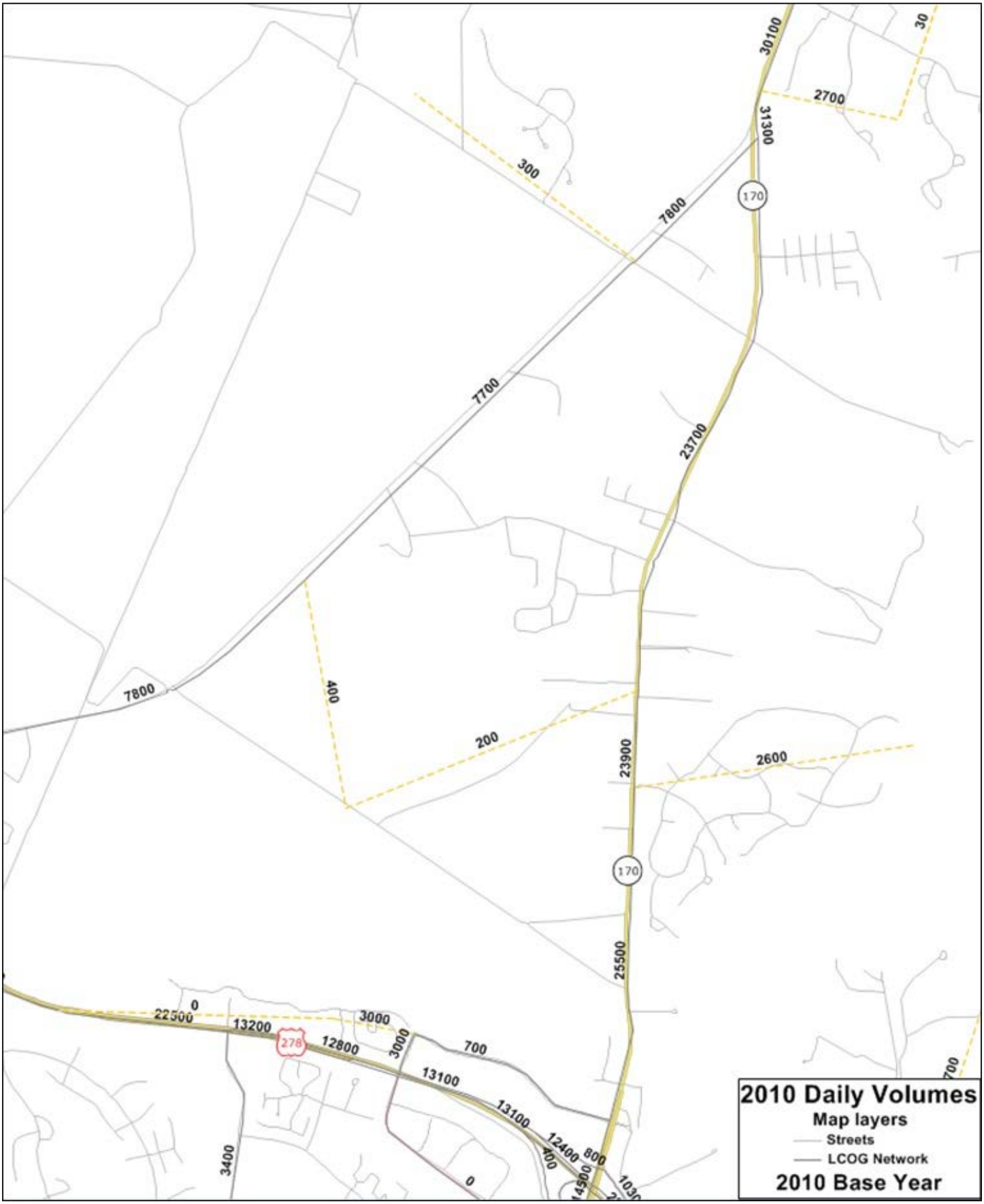
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Argent Blvd	I	55	5.8	26.0	31.8	0.06	6.8	F
Short Cut Rd.	I	45	33.2	55.1	88.3	0.34	14.0	F
Pearlstine Dr.	I	45	32.5	42.9	75.4	0.34	16.0	F
Tidewatch Drive	I	52	37.8	17.6	55.4	0.46	30.0	C
Total	I		109.3	141.6	250.9	1.20	17.2	E

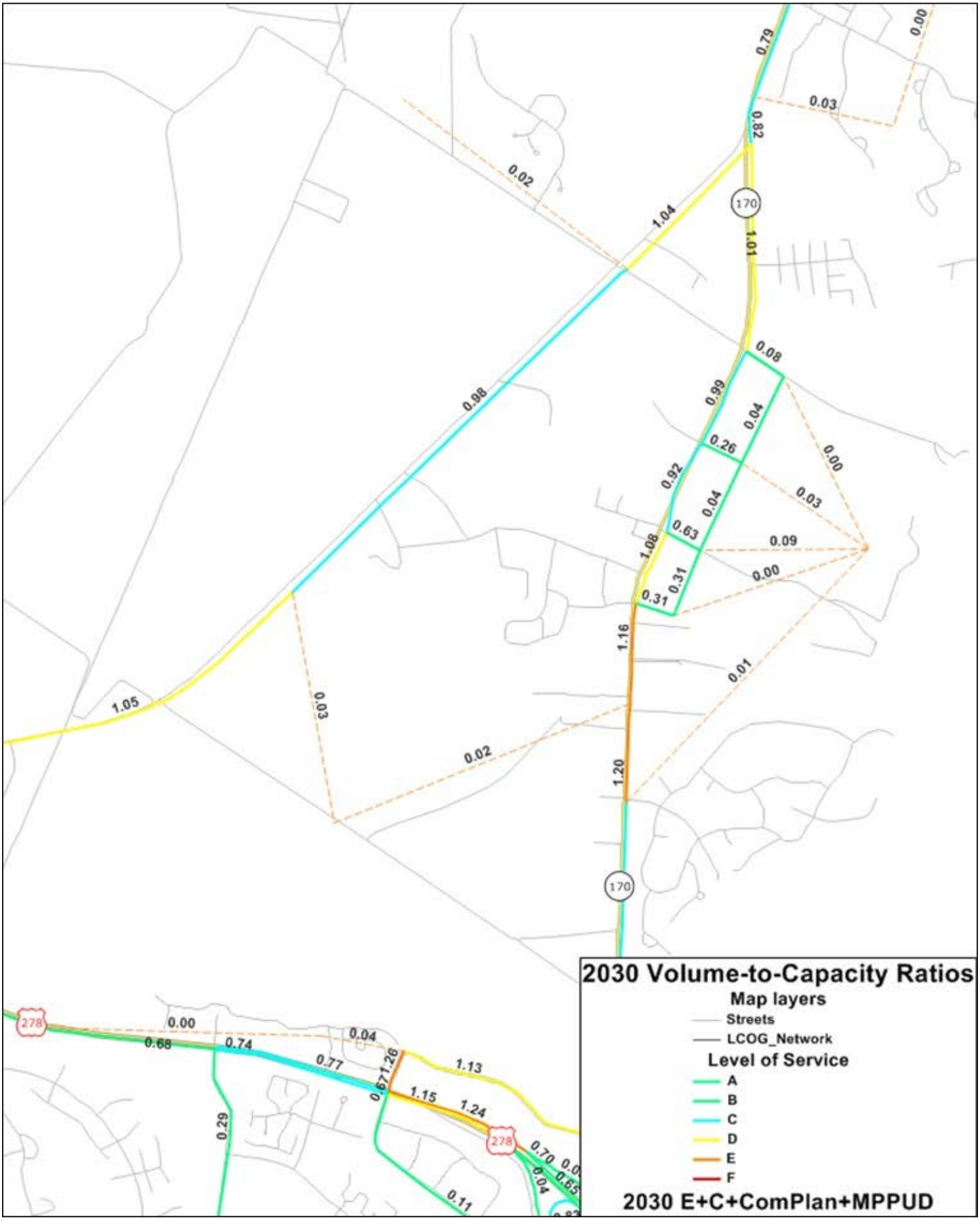
Arterial Level of Service: NB SC 170

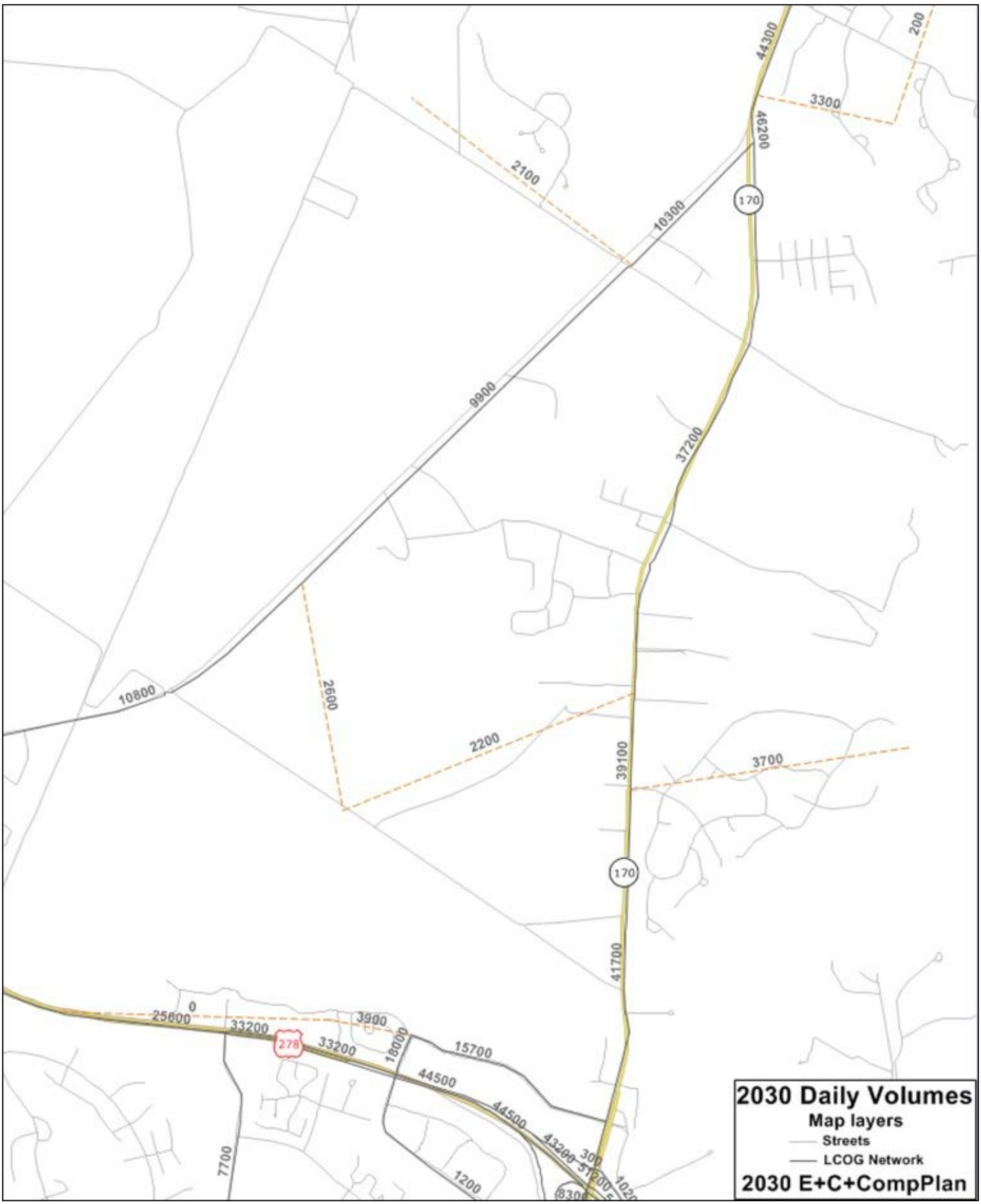
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Tidewatch Drive	I	55	16.8	14.0	30.8	0.17	20.3	E
Cherry Point Rd.	I	52	37.8	27.6	65.4	0.46	25.4	D
Pritcher Point Rd.	I	45	32.5	38.9	71.4	0.34	16.9	E
Argent Blvd.	I	45	33.2	22.7	55.9	0.34	22.0	D
Total	I		120.3	103.2	223.5	1.31	21.1	D

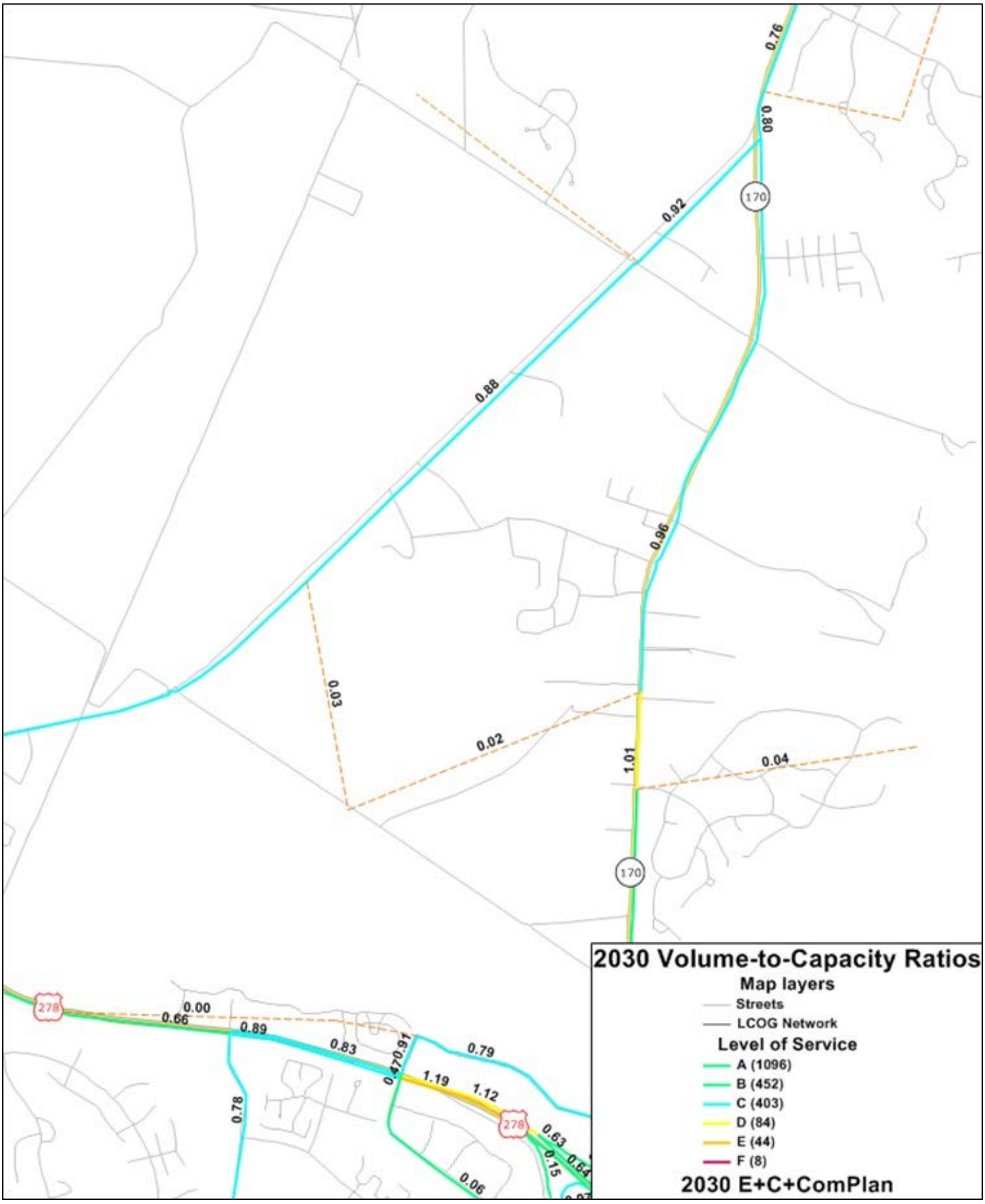
Arterial Level of Service: SB SC 170

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Argent Blvd.	I	55	5.8	24.1	29.9	0.06	7.3	F
Short Cut Rd.	I	45	33.2	26.9	60.1	0.34	20.5	E
Pearlstine Dr.	I	45	32.5	13.2	45.7	0.34	26.4	D
Tidewatch Drive	I	52	37.8	12.6	50.4	0.46	32.9	C
Total	I		109.3	76.8	186.1	1.20	23.2	D


30100
30
2700
31300
300
7800
170
7700
23700
7800
400
200
23900
2600
170
25500
0
22500
13200
3000
278
12800
3000
700
13100
13100
12400
800
400
3400
0
2010 Daily Volumes
Map layers
Streets
LCOG Network
2010 Base Year


2030 Volume-to-Capacity Ratios
Map layers
Streets
LCOG_Network
Level of Service
A
B
C
D
E
F
2030 E+C+ComPlan+MPPUD
170
278
0.79
0.00
0.03
0.82
0.02
1.04
1.01
0.08
0.98
0.99
0.04
0.26
0.00
0.92
0.03
0.04
0.63
1.08
0.09
0.31
0.00
0.31
1.16
0.01
1.05
0.03
0.02
1.20
0.00
0.68
0.74
0.04
0.77
1.26
1.13
0.29
1.15
1.24
0.70
0.11


44300
200
3300
46200
2100
10300
170
9900
37200
10800
2600
2200
39100
3700
170
41700
0
25600
33200
3900
278
33200
18000
15700
44500
44500
43200
7700
1200
2030 Daily Volumes
Map layers
Streets
LCOG Network
2030 E+C+CompPlan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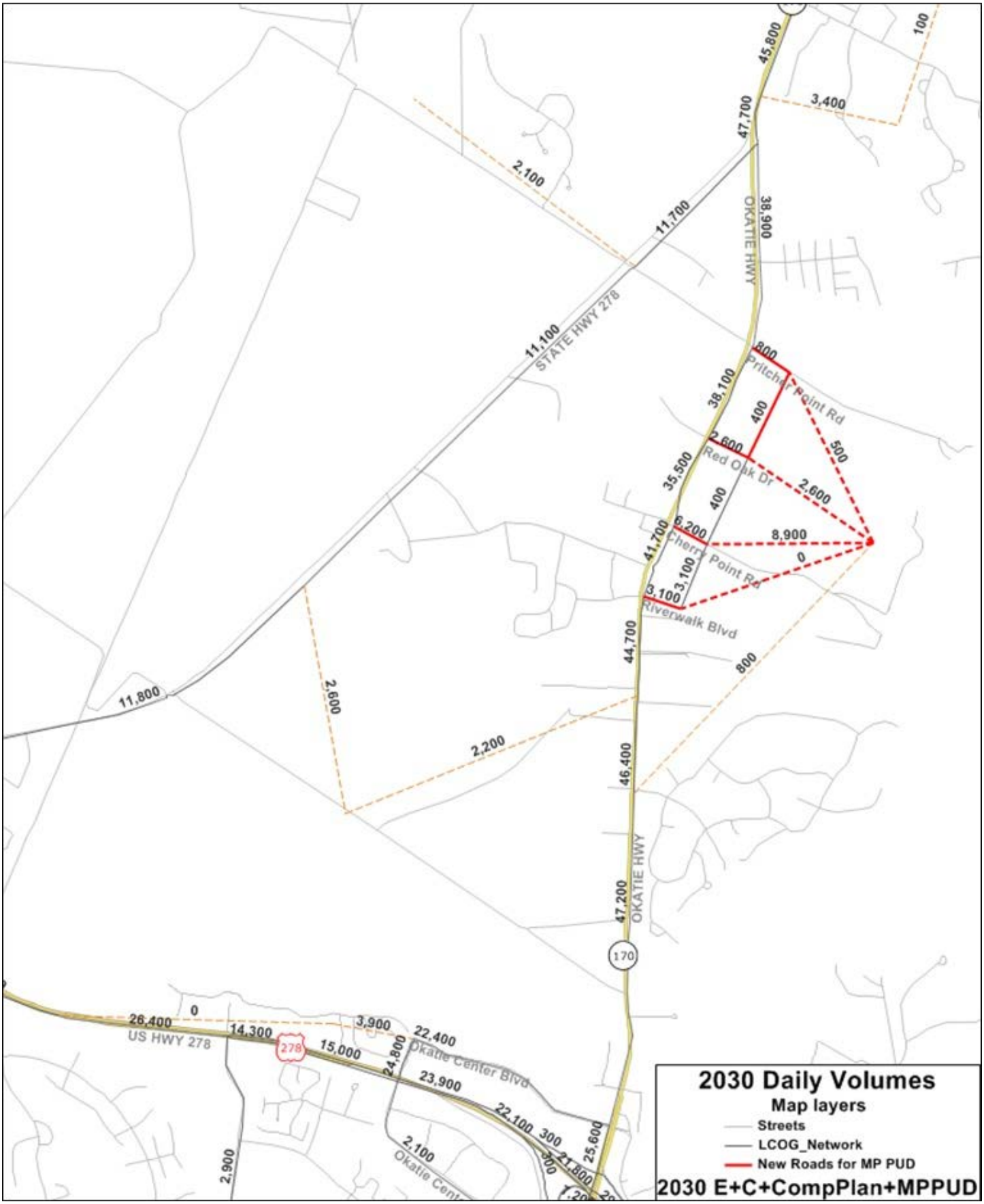
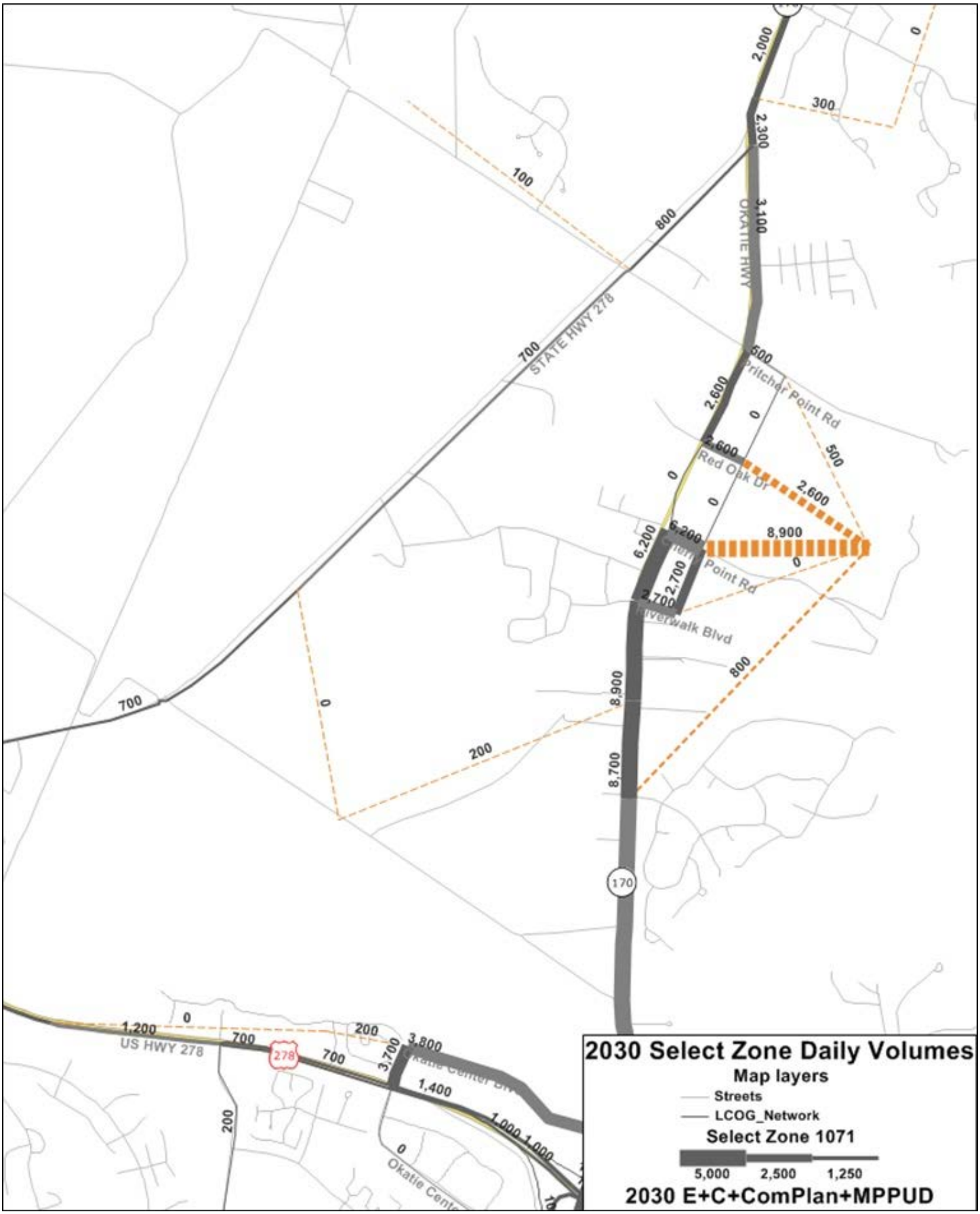
0.80
170
0.92
0.88
0.96
0.03
0.02
1.01
0.04
170
278
0.00
0.66
0.89
0.83
0.47
0.91
0.79
1.19
1.12
278
0.78
0.63
0.15
0.64
0.06
2030 Volume-to-Capacity Ratios
Map layers
Streets
LCOG Network
Level of Service
A (1096)
B (452)
C (403)
D (84)
E (44)
F (8)
2030 E+C+ComPlan


2030 Daily Volumes
Map layers
Streets
LCOG_Network
New Roads for MP PUD
2030 E+C+CompPlan+MPPUD
OKATIE HWY
STATE HWY 278
US HWY 278
Pritchard Point Rd
Red Oak Dr
Cherry Point Rd
Riverwalk Blvd
Okatie Center Blvd
45,800
47,700
38,900
11,700
11,100
38,100
35,500
41,700
44,700
46,400
47,200
11,800
2,100
3,400
100
800
400
2,600
500
6,200
8,900
0
3,100
2,200
26,400
14,300
15,000
24,800
23,900
22,400
3,900
22,100
300
25,600
21,800
2,900
170
278


2030 Select Zone Daily Volumes
Map layers
Streets
LCOG_Network
Select Zone 1071
5,000
2,500
1,250
2030 E+C+ComPlan+MPPUD
OKATIE HWY
STATE HWY 278
US HWY 278
Pritchett Point Rd
Red Oak Dr
Riverwalk Blvd
Okatie Center Blvd
2,000
2,300
3,100
2,600
6,200
2,700
8,900
8,700
3,700
3,800
1,400
1,200
300
100
800
700
500
200
0
170
278

SC 170/US 278 Corridor Study Analysis Findings and Recommended Access Management Standards

Prepared for:
Beaufort County

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December 2003

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The SC 170 and US 278 corridors are key arterials in Beaufort County. These arterials currently serve high traffic volumes during the peak hours, with the US 278 corridor serving heavy seasonal traffic flow to/from Hilton Head Island and the Town of Bluffton. In the face of high existing volumes and strong projected growth in the area, Beaufort County is interested in maximizing the available capacity on these existing roadway corridors that link the City of Beaufort, Town of Bluffton, Hilton Head Island, and I-95. The SC 170 corridor north of US 278 borders Jasper County, which is also projecting high growth into the future.

At the request of Beaufort County, Day Wilburn Associates, Inc. (DWA) has performed an analysis of the SC 170 corridor from US 278 to Old Baileys Road and the US 278 corridor from SC 170 to the Jasper County Line. The study of the SC 170 corridor began by considering application of the existing US 278 corridor access management standards (east of SC 170). The existing access management standards for the US 278 corridor are documented in the US 278 Immediate Needs Study, 2000, by Wilbur Smith Associates, Inc. (WS). The existing US 278 standards were overlaid onto the SC 170 roadway network and major development access locations, and the intersection spacing criteria were modified slightly to fit the conditions along the SC 170 corridor. Analysis of traffic conditions along the SC 170 corridor revealed that the proposed standards provide good operations which maximize available throughput. These draft SC 170 corridor standards were used as the basis for development of draft Countywide Access Management Standards, in conjunction with the Comprehensive Plan update. The draft Countywide Access Management Standards are documented in Beaufort County Access Management Standards, September 2002, by DWA.

DWA then performed additional analysis along the SC 170 corridor north of US 278 and along US 278 west of SC 170 with additional planned development, including the USC New River Campus. The following paragraphs summarize the need for access management standards along the US 278 and SC 170 corridors and describe the consistency in application of the access management standards along US 278 east and west of SC 170, as well as along SC 170 north of US 278.

Need for Access Management Standards

The Beaufort County Draft Comprehensive Plan Future Land Use Update, January 2003, indicates southern Beaufort County grew by 73% in the 1990s, and the county as a whole was the fastest growing county in South Carolina. The future land use plan indicates the County has a capacity for 177,000 additional residents. This additional growth will further strain the arterial roadway network in Beaufort County, including the US 278 and SC 170 corridors.

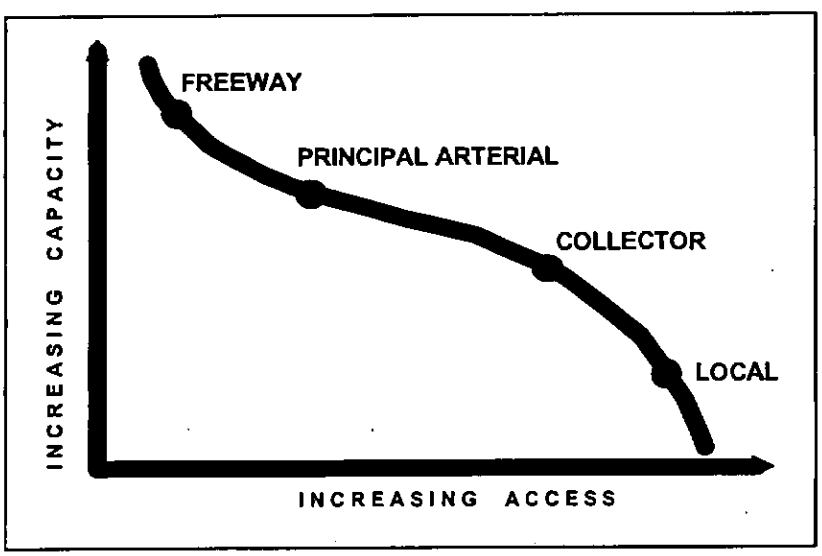
The US 278 and SC 170 corridors are designated as principal arterials on the County's Functional Classification Map. These are the only roads in southern Beaufort County providing for long distance through travel. Therefore, the through capacity along these roadways must be.

preserved, as indicated in the Comprehensive Plan. Preserving the throughput capacity in a manner consistent with serving long trips along the corridor means preserving capacity at a reasonable corridor level of service (LOS) to allow consistent travel times with minimal stopping.

Physical barriers provide constraints on implementation of new parallel principal arterials, including:

- Distances between Beaufort and Bluffton/Hilton Head
- Wetlands and waterways which limiting capacity expansion
- Increased development reducing available routes and increasing right-of-way cost

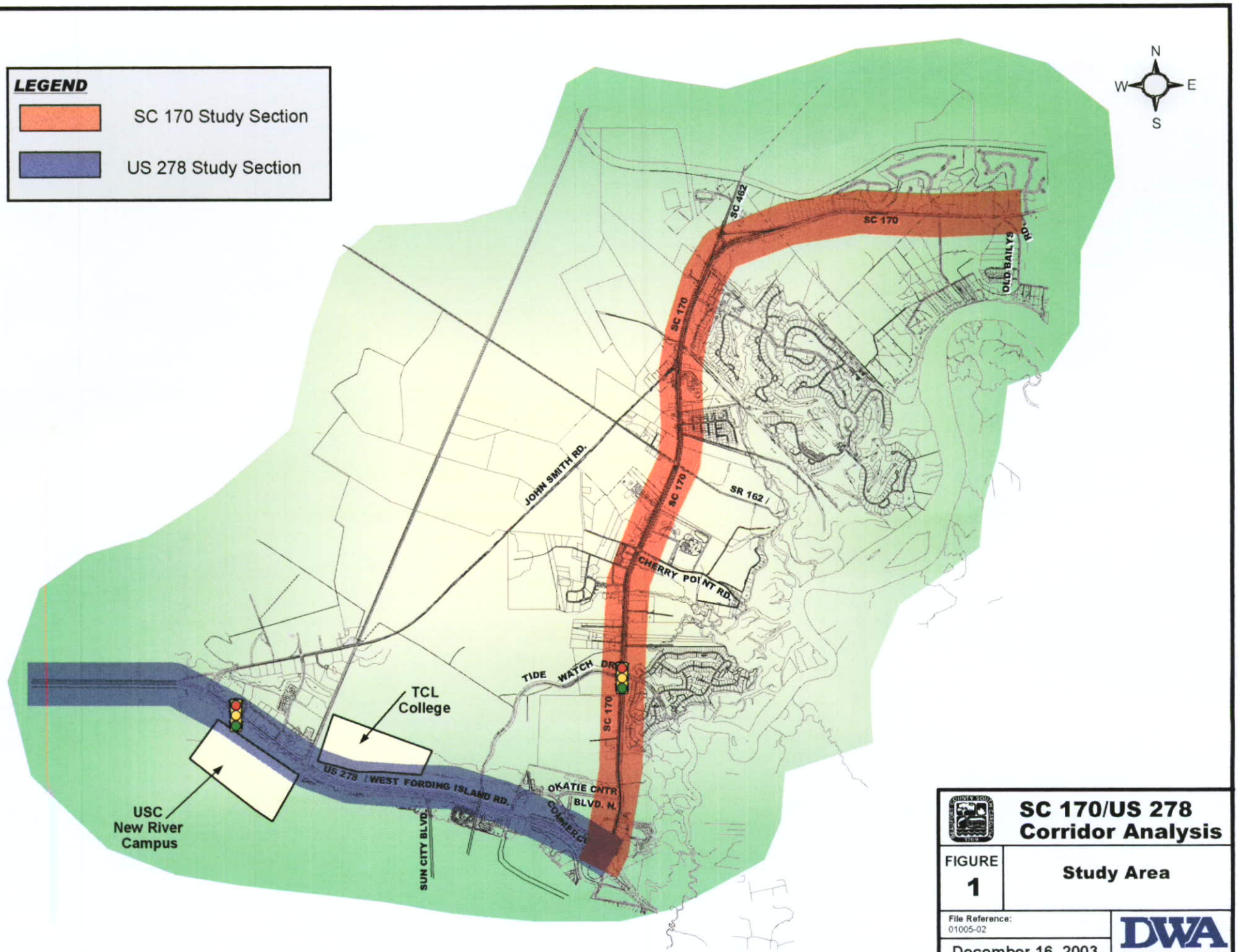
Therefore, preservation of the existing capacity to satisfy long trips is needed to accommodate the planned growth, as indicated in the County's Comprehensive Plan and accounted for in the Countywide TRANPLAN travel demand model.



As this graphic shows, as a roadway provides more access it will experience reduced capacity. A principal arterial such as US 278 and SC 170 focuses on mobility as a priority over local access.

The County's comprehensive planning process and other planning efforts have recognized the goal of focusing on mobility for the US 278 and SC 170 corridors. It would be more expensive and have greater impacts to install a new continuous parallel roadway to satisfy long trips versus installing shorter connecting roadways to accommodate shorter trips. Therefore, the operational strategy for the US 278 and SC 170 corridors includes:

- Maximize the throughput capacity along US 278 and SC 170.
- Use existing parallel roadways, such as Bluffton Parkway, to satisfy shorter trips, and install additional parallel roadway connections.
- Use backside connections and interparcel access to minimize the need for travel along US 278 or SC 170 to access development generated trips from within the local area.



SC 170/US 278 Corridor Analysis

FIGURE 1

Study Area

File Reference: 01005-02

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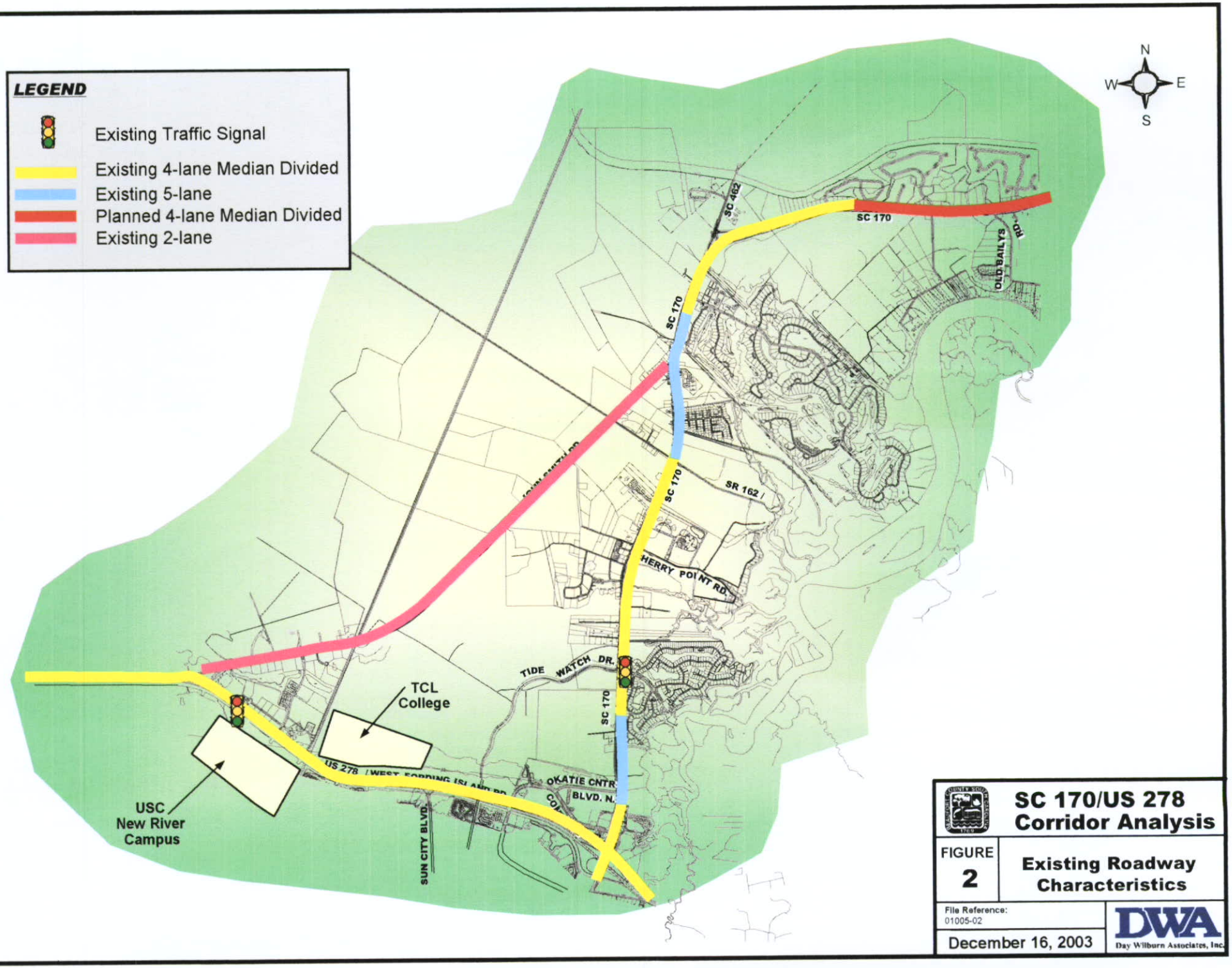

SC 170/US 278 Corridor Analysis

FIGURE 2 — **Existing Roadway Characteristics**

File Reference: 01005-02

December 16, 2003

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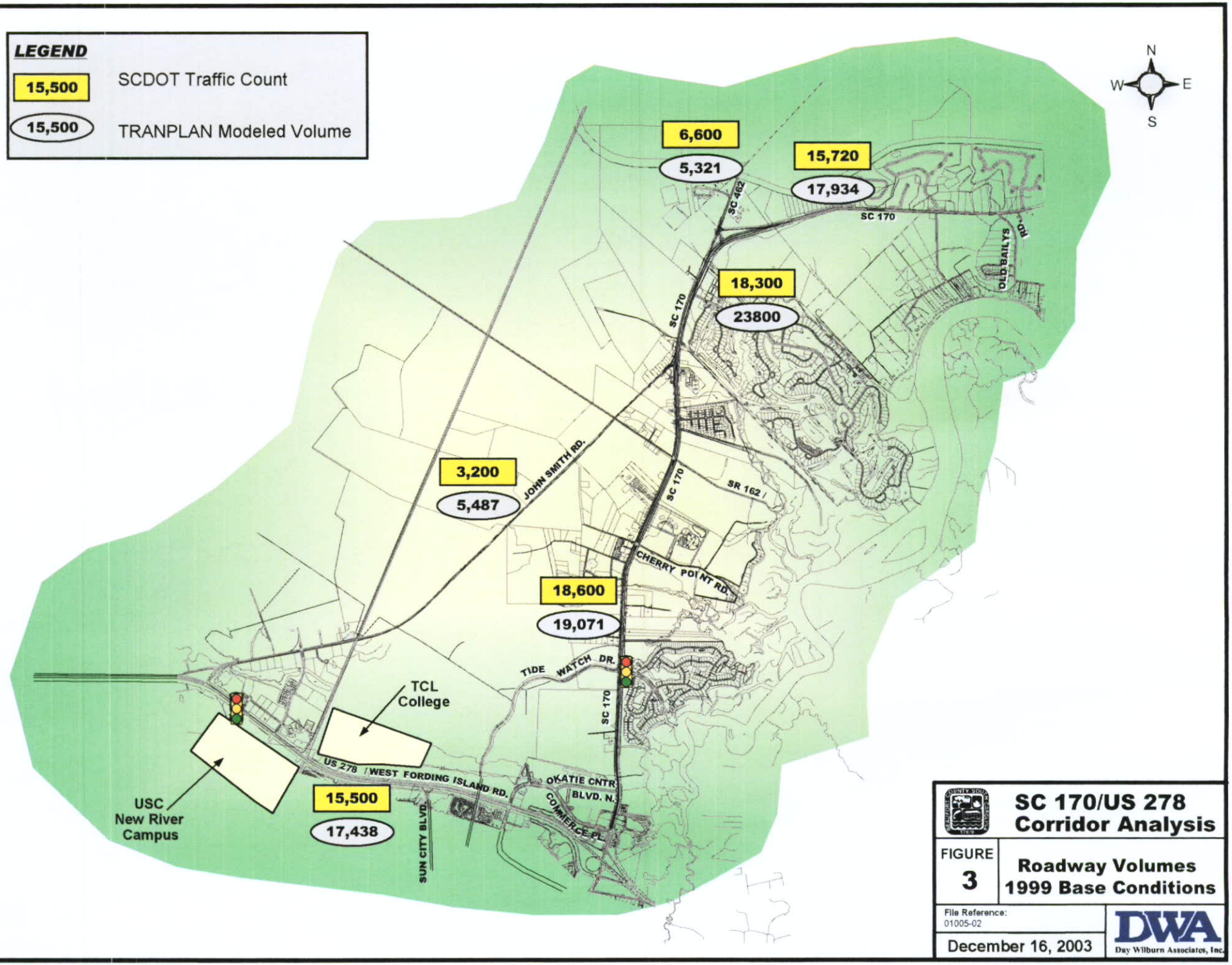
LEGEND
15,500
SCDOT Traffic Count
15,500
TRANPLAN Modeled Volume
N
W
E
S
6,600
5,321
15,720
17,934
SC 462
SC 170
OLD BAILYS RD.
18,300
23800
SC 170
JOHN SMITH RD.
3,200
5,487
SC 170
SR 162
CHERRY POINT RD.
18,600
19,071
TIDE WATCH DR.
SC 170
TCL College
US 278 / WEST FORDING ISLAND RD.
OKATIE CNTR BLVD. N.
COMMERCE PL.
USC New River Campus
15,500
17,438
SUN CITY BLVD.
SC 170/US 278 Corridor Analysis
FIGURE 3
Roadway Volumes 1999 Base Conditions
File Reference: 01005-02
December 16, 2003
DWA
Day Wilburn Associates, Inc.

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In addition to the operational benefits of less frequent interruptions to mainline traffic flow, the spacing of access points facilitates use of minor arterials and collectors to provide connections to final trip origins/destinations.

Analysis Area

The following corridor sections were examined as a part of this analysis:

- SC 170 from US 278 to Old Baileys Road
- US 278 from SC 170 to Jasper County Line

This study area is shown in Figure 1. Existing roadway conditions, including the location of existing traffic signals and the number of travel lanes on each section of roadway, are shown in Figure 2. As this figure indicates, the study corridors are primarily four-lane divided roads with some existing five-lane sections (including two-way left turn lanes). Discussions with SCDOT revealed that the locations of existing median breaks was negotiated as a part of the right-of-way purchase along these corridors. Therefore, the existing breaks in access along the corridors are likely to remain in place. Existing traffic volumes for the 1999 base year conditions are shown in Figure 3. These volumes indicate conditions below the capacities of the SC 170 and US 278 corridors with few existing signalized access points.

New Development Considered in Analysis

The corridor analysis considered planned growth above the growth by TAZ already provided in the growth assumptions for the Beaufort County TRANPLAN model. The TRANPLAN model was modified to account for the following growth:

- *Specific growth planned along SC 170 in Beaufort County was considered*
  - Growth assumed in Beaufort County TRANPLAN model to reflect buildout conditions (year 2020) was used as a starting point
  - Beaufort County TAZ 74 disaggregated to account for development patterns along east side of SC 170
  - Additional growth planned in vicinity of Cherry Point Road / Pritcher Point Road was added to model (TAZs 90 and 91)

- *Jasper County growth planned in the Branigar Plan was included in analysis*
  - Additional TAZs added west of SC 170 and north of US 278 to account for Branigar Planned Development in Jasper County
  - Additional primary roadway network in Jasper County and/or new interchange with I-95 was not considered

- *Additional College Campus growth was considered along US 278*
  - Additional growth added in new TAZ 107 to account for USC New River Campus south of US 278
  - Additional growth added in new TAZ 108 to account for TCL College north of US 278

Analysis Methodology

A variety of analysis tools were used to determine the roadway capacity available along sections of the corridor and compare it to projected volumes with access management standards applied along the corridor. The corridor analysis was performed using future year 2020 traffic volumes obtained from modifying the Beaufort County TRANPLAN model to reflect additional planned development in Beaufort County and adjacent portions of Jasper County, as documented in SC 170/US 278 Corridor Study Travel Demand Model Technical Memorandum, September 2003. The paragraphs below indicate the analysis steps undertaken.

Modification of County TRANPLAN Model

The Beaufort County TRANPLAN model was used to project future buildout traffic volumes for year 2020 (refer to Figure 4). The TRANPLAN runs included:

- Base year conditions
- 2020 E+C network
- 2020 E+C network with potential roadway connections in Jasper County, including widening of John Smith Road to five-lane section and connection of roadway from Tide Watch Drive to John Smith Road

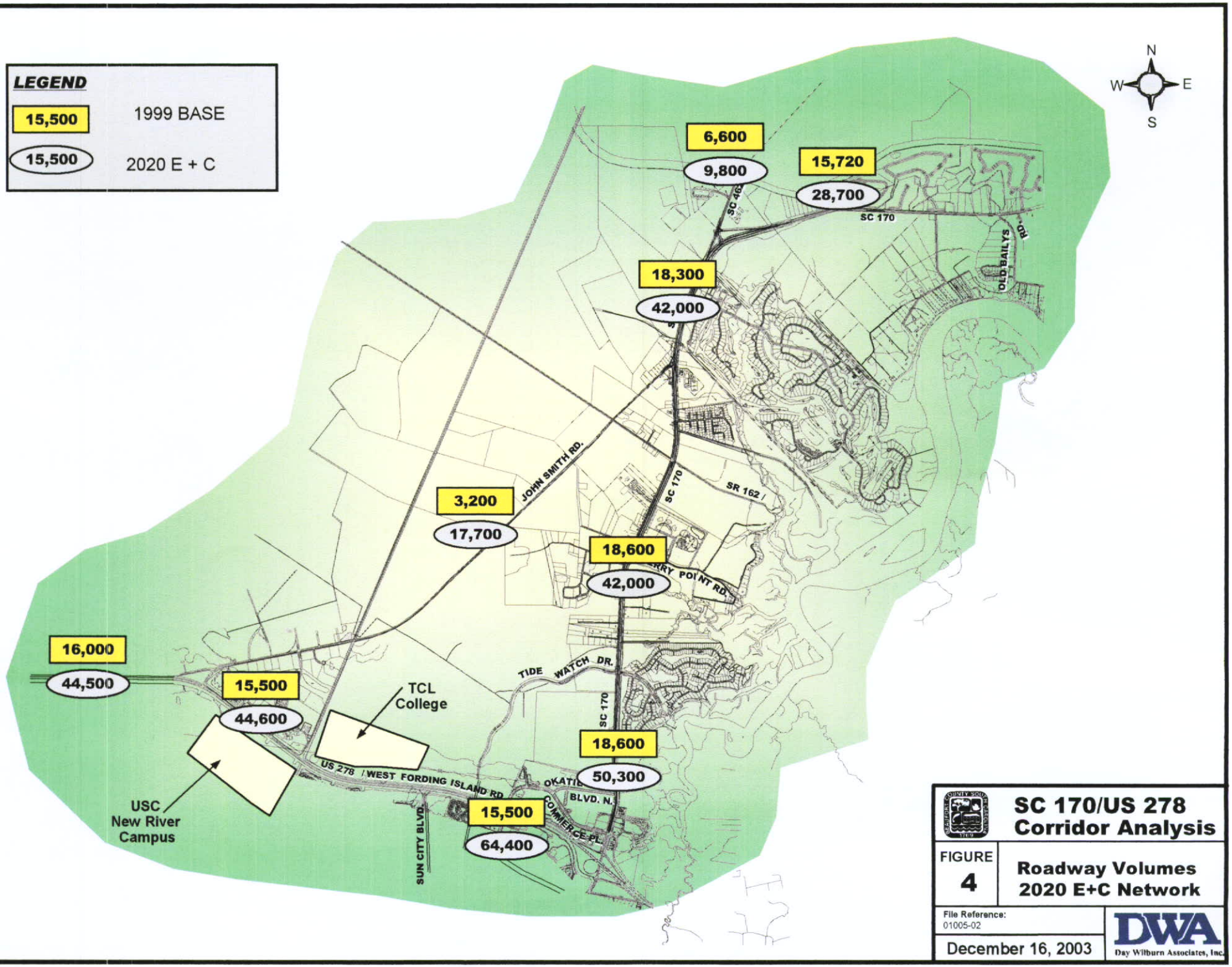
Corridor Capacity Determined

The corridor capacity was determined through examination of operations along the arterial as a whole as well as at typical intersections. Arterial analysis was conducted using HCM methodology to examine potential access spacing. Individual intersection analysis was performed using Synchro software to determine the throughput capacity at typical intersections with projected future operations.

Corridor Capacity Compared to Future Projected Volumes at Buildout (2020)

The capacity of the corridor was compared to future projected traffic volumes at buildout for the following two future conditions:

- 2020 E+C
- 2020 E+C with potential improvements to roadway network currently under consideration by Jasper County



SC 170/US 278 Corridor Analysis

FIGURE 4

Roadway Volumes 2020 E+C Network

File Reference: 01005-02

December 16, 2003

DWA Day Wilburn Associates, Inc.

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Existing US 278 Access Management Standards Considered for Application

The corridor analysis began with the existing access management standards, currently adopted by the County and applied along US 278 east of SC 170, including the following:

- Full signalized access – 3,600' spacing
- Directional signalized access – 2,000' spacing
- Right-in-right out only driveway spacing – 1,000'

As intersection spacing standards were considered for SC 170 north of US 278, the existing US 278 access management standards were modified to reflect likely signalized access needs as reflected by local development patterns and existing roadway network. This resulted in the following signal spacing standards:

- Full signalized access – 3,200' spacing
- Directional signalized access – 1,900' spacing
- Right-in/right-out only driveway spacing – 500'

These draft SC 170 corridor standards were used as the basis for development of draft Countywide Access Management Standards, in conjunction with the Comprehensive Plan update. DWA then performed additional analysis along the SC 170 corridor north of US 278 and along US 278 west of SC 170 with additional planned development, including the USC New River Campus.

As the modified intersection spacing standards were applied, they were compared to the existing US 278 access management standards, currently applied east of SC 170. The section of SC 170 north of US 278 has more frequent intersections with arterial and collector streets and existing major development access points than are present along US 278 east of SC 170, where the existing access management standards are in place. Similarly, the US 278 corridor from Sun City through John Smith Road has more frequent intersections with existing roads and planned college access locations than are present along US 278 east of SC 170. The modified signal spacing developed along US 278 west of SC 170 and along SC 170 north of US 278 fit with these roadway and major access spacings, while providing adequate signal spacing so that interaction between traffic signals does not limit throughput capacity.

Study Findings and Conclusions

Analysis of the SC 170 and US 278 corridors has resulted in the study findings and conclusions described below. The analysis indicates access management is needed to maximize the use of the existing roadway for servicing through vehicles as traffic volumes increase in the future. The access management standards allow the roadway to operate with less friction, at levels closer to the available volume throughput at the intersections. With frequent signal spacing, usable roadway capacity can decrease 15-20% due to friction and multiple stops.

Projected Traffic Volume Growth

The TRANPLAN results indicate significant traffic volume growth to year 2020 (4-5% per year):

- Traffic volumes along SC 170 are projected to increase by 26,000 vpd through 2020 (4.7% per year)
- Traffic volumes along US 278 are projected to increase by 35,000 vpd through 2020 (5.5% per year)

Comparison of Projected Volumes to Corridor Capacity

The arterial analysis confirmed the intersection spacing standards are appropriate to facilitate through traffic flow along the corridors. Though less than the original 3,600', the reduced spacing is not short enough to change the operating environment from rural/suburban to urban which results in slower overall travel speeds, increased travel time, and reduced throughput capacity. Therefore, these spacings are recommended for application in the DWA study, through implementation of access management standards, as part of a corridor management plan for the study corridors.

The maximum throughput capacity was determined based on arterial analysis using HCS software and operations of critical intersections using Synchro software. Based on this analysis, the following maximum capacities were achieved based on the operational factors as indicated:

- US 278 maximum capacity of 44,600 vpd based on assumed corridor operational factors (90% or 40,000 vpd used for arterial capacity):
  - Directional distribution of 65%
  - K factor of 10%
  - Cycle length of 160 seconds = allowable through delay
  - 55% of green time allocated to through movement
  - 20% of approach vehicles turning at intersection
- SC 170 maximum capacity of 43,000 based on assumed corridor operational factors (90% or 39,000 vpd used for arterial capacity):
  - Directional distribution of 65%
  - K factor of 10%
  - Cycle length of 130 seconds = allowable through delay
  - 55% of green time allocated to through movement
  - 20% of approach vehicles turning at intersection

These capacities result in individual intersection approach LOS equal to the cycle length (130 to 160 seconds), which represents LOS F conditions for that intersection approach. However, with intersection spacing per the indicated spacing standards, the corridor is projected to operate with overall travel times indicating LOS D conditions.

A comparison of the calculated roadway volume to capacity (v/c) with access management standards implemented is shown in Table 1.

Table 1
Comparison of Projected Daily Volume to Available Daily Capacity for US 278 and SC 170 Corridors

Segment	1999 Volume SCDOT Count	2020 Model Volume	Throughput Capacity	2020 V/C W/ recs	2020 Volume Under(Over) Capacity
US 278 west of John Smith Rd.	16,000	44,500	40,000	1.11	(4,500)
US 278 from USC Campus to John Smith Rd.	15,500	44,600	40,000	1.12	(4,600)
US 278 from SC 170 to USC Campus	15,500	64,400	40,000	1.61	(24,400)
SC 170 from US 278 to Tide Watch Dr.	18,600	50,300	33,000[1]	0.15	(17,300)
SC 170 from Tide Watch Dr. to John Smith Rd.	18,600	42,000	39,000	1.08	(3,000)
SC 170 north of John Smith Rd.	18,300	42,000	39,000	1.08	(3,000)

[1] The proximity of signalized intersections on this section of SC 170 limits throughput capacity to values less than that for other sections.

As this tables shows. the 2020 v/c ratios are near or over capacity for both roadways. In addition, each of the links is projected to be over capacity in year 2020. Most of the roadway segments are anticipated to be slightly over capacity, with the exception of US 278 just west of SC 170 and SC 170 just north of US 278, both of which experience significant capacity deficiencies.

Identification of Continuing Deficiencies

The analysis indicates that, even with access management standards in place, significant capacity deficiencies will remain in some areas, including:

- US 278 east of the New River Campus – Heavy traffic volume demand in this area is well over capacity (24,400 vpd deficiency). Development of the USC New River Campus and TCL College contribute to the additional travel demand in this area.
- SC 170 north of US 278 – A concentration of volumes in this area combines with planned signal spacing that is less than recommended in the access management standards, resulting in a major capacity deficiency (projected at 17,300 vpd).

Roadway modifications being considered by Jasper County include widening John Smith Road to five lanes and providing a roadway connection from John Smith Road to Tide Watch Drive. These improvements could reduce the additional capacity needs along SC 170 from Tide Watch Drive to US 278 by 4,150 vpd (a continuing capacity deficiency of 13,150 vpd will remain on this section).

The results of the current corridor analysis along US 278 are consistent with the previous US 278 corridor study in identifying the potential benefits of access management. However, the revised land use assumptions in the current analysis indicate the potential need to continue access management west of SC 170, along with the need for additional through roadway capacity along US 278 (potential six-lane section) and/or parallel roadways to accommodate the high projected volumes (64,400 vpd resulting in a capacity deficiency of 24,400 vpd).

Signal Spacing Exception to Recommended Standards

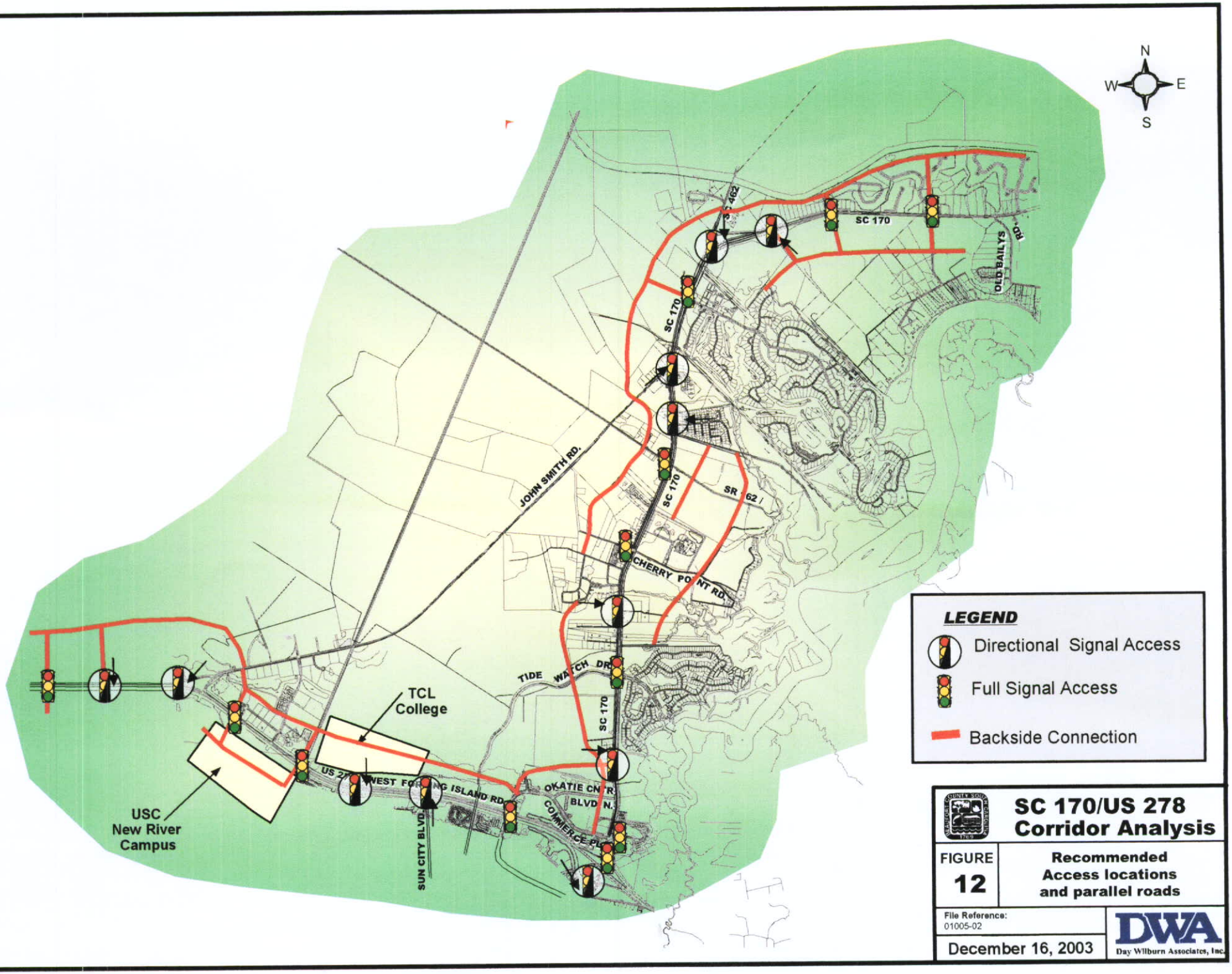
Due to the existing property boundaries of the USC New River Campus site and the location of its access points relative to the existing roadway network, an exception to the recommended signal spacing standard is recommended to allow a spacing of 2,640 feet between the following full signalized access points:

- US 278 at New River Campus West Access/Wal-Mart Access Road - The Wal-Mart access road north of US 278 is planned for extension to John Smith Road, providing an intersection with through capabilities from the USC New River Campus to John Smith Road.
- US 278 at New River Campus East Access/TCL College West Access - This access point will serve both colleges and connect to an east/west road, which will lead from the TCL New River Campus across New River Parkway to the Wal-Mart site. Connection of the signalized access point north to intersect with John Smith Road is recommended to provide multiple travel paths to the north for access to the colleges without requiring travel on US 278.

The spacing exception of 2,640' is at the low end of the recommended spacing for signalized intersections to maximize throughput. These intersections should be closely coordinated to maximize US 278 throughput and minimize friction between intersections.

Need for Parallel Roadway Connections and Backside Access

For the recommended access management standards to work effectively, implementation of parallel roadway connections and backside access is needed. Achieving the capacities indicated in this study requires maximizing utilization of the arterial through movement at the intersections, as well as increasing the spacing of access locations. The analysis assumptions include the allocation of a minimum of 55% of the signal green time to the main roadway through movement. Implementation of this green time split with fewer access points can result in backups of vehicles on the side streets unless alternative access is provided to satisfy local trips. Roads parallel to the principal arterials with connection to the parcels via side roads or backside access is critical to serving local trips without the need to access the arterial for traveling a few blocks. The Access Management Plan drawings shown in Figures 5 through 11 provide a concept for implementation of parallel roadways along the SC 170 and US 278 corridors. An overview of the recommended parallel roadways is shown in Figure 12.



SC 170/US 278 Corridor Analysis

FIGURE 12	Recommended Access locations and parallel roads
File Reference: 01005-02	DWA Day Wilburn Associates, Inc.
December 16, 2003	

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Providing additional capacity parallel to SC 170 and US 278 is recommended for study, in conjunction with increasing the development of college campuses and Branigar Master Plan, as a part of the Beaufort County Southern Regional Study. Installation of backside and parallel roadway connections can reduce the need for drivers to access the main roadway for short trips.

In the area of SC 170 between Tide Watch Drive and John Smith Road, if the backside connections accommodate 25% of generated traffic in adjacent TAZs assigned to SC 170, a total trip reduction of 5,700 vpd will result on this section. However, assuming the same 25% capture rate in the critical area of SC 170 north of US 278, the backside connection west of SC 170 would amount to a total trip reduction of only 550 vpd on this congested section.

The results of the corridor analysis provide specific guidance regarding the application of access management standards, including:

- Based on analysis of projected buildout (year 2020) conditions along the SC 170 and US 278 corridors, application of the Countywide Access Management Standards is strongly recommended. In conjunction with these standards, incorporation of future signalized access points only as defined in this study into the Corridor Management Plans for US 278 and SC 170 is critical.
- Eight signal locations are proposed along the US 278 corridor (four full access signals and four directional access signals)
- Fifteen signal locations are proposed along the SC 170 corridor (eight full access signals and seven directional access signals)
- Backside connections are recommended along the SC 170 and US 278 corridors in conjunction with implementation of the access locations within a Corridor Management Plan.

Recommended Access Locations

The following signal locations are recommended along the US 278 corridor (refer to Figures 5, 6, and 7):

- Second median break west of John Smith Road (full signal access)
- First median break west of John Smith Road (directional signal access –north side)
- John Smith Road (directional signal access – north side)
- Wal-Mart Entrance/USC New River Campus (full signal access)
- USC New River Campus East Entrance (full signal access)
- TCL Campus (directional signal access – north side)
- Sun City Boulevard (directional signal access – south side)
- Oakatie Boulevard (full signal access)

The following signal locations are proposed along the SC 170 corridor (refer to Figures 8 through 11):

- US 278 Eastbound ramp (directional signal access – west side)
- US 278 Westbound ramp (full signal access)
- Oakatie Boulevard (full signal accesss)
- Oakatie Center (directional signal access (west side)
- Tide Watch Drive (full signal access)
- Median break north of Tide Watch Drive (directional signal access – west side)
- Cherry Point Road (full signal access)
- Pritcher Point Road (full signal access)
- Residential development north of Prichard Point Road (directional signal access – east side)
- John Smith Road (directional signal access – west side)
- Old Field Plantation Entrance (full signal access)
- SC 462 (directional access – north side)
- Median break east of SC 462 (directional access – south side)
- Median break west of Old Baileys Road (full access)
- Camp St. Mary's Road (full access)

Backside connections are recommended along the SC 170 and US 278 corridors in conjunction with implementation of the access locations within a corridor management plan (refer to Figure 12).

Opportunities to provide additional capacity parallel to SC 170 and US 278 are recommended for study, in conjunction with increasing development of college campuses and Branigar Master Plan, as a part of the Beaufort County Southern Regional Study.

Recommended Access Management Standards

Based on analysis of projected buildout (year 2020) conditions along the SC 170 and US 278 corridors, application of the Countywide Access Management Standards is recommended. In conjunction with these standards, incorporation of the future signalized access points, defined in this study and identified above, is recommended for incorporation in the Corridor Management Plans for US 278 and SC 170.

The application of access management standards can improve the efficiency of a transportation network. Access management is a tool that can help prevent traffic congestion by limiting and controlling vehicles entering, exiting, and turning along a corridor. Traffic movement is facilitated by minimizing the potential disruptions to the vehicles in the roadway. Effective access standards benefit a community by reducing accidents, increasing roadway capacity, providing better access to businesses, and improving mobility.

The recommended access management standards for US 278 west of SC 170 and for SC 170 north of US 278 address the following:

- Number of Driveways
- Driveway Spacing and Corner Clearance
- Driveway Design
- Driveway Linkages
- Acceleration and Deceleration Lanes
- Driveway Retrofit Techniques
- Signal Spacing
- Median Breaks
- Backside Access

The following sections explain the various access management techniques and establish standards for each technique.

Signal Spacing

The placement of traffic signals significantly impacts the ability to move traffic along a roadway. Signals placed too closely together can impede the flow of traffic on the roadway. Traffic signals should only be erected if they are warranted for a particular location and, if warranted, should follow specific placement guidelines. The following signal spacing shall apply along the study corridors:

- Full signalized access – 3200' spacing
- Directional signalized access – 1,900' spacing

A full signalized access location provides signalized access to both sides of the arterial. A directional signalized access provides signalized access to one side of the arterial. The other side remains free flowing past the signalized access point. On the side of the arterial where access is provided, the arterial traffic is stopped. On the side of the arterial where access is not provided, the movements to and from the accessed side of the arterial are provided via acceleration and deceleration lanes on the left side of the free flowing arterial section. By requiring only one side of the arterial to stop, this unique signal configuration requires coordination of flow for only one direction, simplifying signal operations (since there is no need to provide signal coordination in two directions).

Signal Operations to Maximize Throughput

Maintaining throughput capacity along the SC 170 and US 278 corridors requires the maximizing the available green time along the corridor. Therefore, all signalized intersections shall provide a minimum of 55% of the signal cycle length for through movement green time for US 278 and SC 170. Along the corridor as a whole, an average of 65% of the signal cycle shall be allocated to for through movement green time for US 278 and SC 170.

Median Breaks

Median breaks along a roadway have a significant effect on the ability to move traffic safely. A median break allows for potential conflict created by traffic crossing over several lanes of traffic. Median breaks should only be allowed at specific intervals to minimize the number of potential conflict points. New median breaks shall not be permitted along US 278 or SC 170 unless they are replacing a closed median break to provide a better location for a full or directional signal in a manner consistent with the signal locations identified for the corridors and included in the Corridor Management Plan.

Number of Driveways

A minimum of one point of access to a property will be allowed. Additional access points above the one permitted may be granted provided the continuous roadway frontage of the property exceeds 200 feet. Driveways should be limited to the number needed to provide adequate access to a property. Factors such as alignment with opposing driveways and minimum spacing requirements will have a bearing on the location and number of driveways approved. Refer to Table 2.

Table 2
Maximum Number of Driveways per Frontage

Length of Frontage	Maximum Number of Driveways
200 feet or less	1
200+ to 600 feet	2
600+ to 1,000 feet	3
1,000+ to 1,500 feet	4
More than 1,500 feet	4 plus 1 per each additional 500 feet of frontage

SCDOT Access and Roadside Management Standards

Driveway Spacing and Corner Clearance

Driveway spacing and corner clearance standards are an essential tool used to manage potential conflicts between through traffic and traffic generated by development. The establishment of driveway and corner clearance standards serves to limit the number of potential conflict points and separate potential conflict points. These standards are particularly effective in preventing future traffic problems in lightly to moderately developed areas likely to develop in the future.

Driveways should be located away from other intersections to minimize the potential for conflict. When possible, access should be limited or denied along higher class roadways and access should be provided from the lower class intersecting roadway. A minimum driveway spacing of 500' shall be maintained along SC 170 and US 278. Driveway spacing shall be measured from the closest edge of pavement to the next closest edge of pavement. All driveways shall be right-in and right-out only unless located at an existing median break location. If safety issues associated with left turns into or out of a driveway that is not identified as a future signalized access location in the Corridor Management Plan exist, the safety issues shall be mitigated through conversion of the driveway to right-in and right-out access only.

Driveway Design

Traffic entering and exiting developments creates potential conflict with vehicles traveling on the roadway. Appropriate driveway design can improve safety and reduce congestion. Driveways should be designed to allow vehicles to enter and exit the roadway quickly and safely with minimum impact to the traffic on the roadway. Driveways should have appropriate turn radii and driveway width. The throat of a driveway must be adequate in depth in order to allow a vehicle to queue as it enters or exits the highway. An access point must also be designed to accommodate appropriate vehicle types. Table 3 outlines driveway width and turn radii standards. The principal elements of driveway design are outlined in SCDOT's Access and Roadside Management Standards.

Driveway Linkages

There are several techniques for linking driveways to improve access from the roadway and between parcels. Shared driveways serve two or more adjacent properties that may or may not be comprised of land from each property. Shared driveways allow for larger driveway spacing and improved management of traffic entering and exiting a development.

Cross access driveways interconnect the parking facilities of two or more abutting properties. They are always comprised of land from both properties. Cross access driveways provide an opportunity for vehicles to move between developments without using the roadway. Cross access driveways reduce traffic on the roadway and reduce the potential for conflict between entering, exiting, and through traffic.

Table 3
Driveway Width and Tuning Radii

Land Use or Design Vehicle	Driveway Width (feet)	Turning Radii (feet)
Single Residence (with curb and gutter)	10-16	5-10
Single Residence (with shoulder)	10-16	10-20
Small Apartment Complex (with curb and gutter)	10-16	5-10
Small Apartment Complex (with shoulder)	10-16	10-20
Large Apartment Complex	24-40	20-40
Urban Commercial (One-Way)	14-24	See Design Vehicle Type Below
Urban Commercial (Two-Way)	24-40	See Design Vehicle Type Below
Rural Commercial (One-Way)	18-24	See Design Vehicle Type Below
Rural Commercial (Two-Way)	24-50	See Design Vehicle Type Below
Industrial (Single Unit Truck)		40
Industrial (WB-40 Tractor Trailer)		40
Industrial (WB-50 Tractor Trailer)		50
Industrial (WB-62 Tractor Trailer)		50

The land comprising the shared or cross access driveways should be recorded as an easement and serve as a covenant attached to the property. Joint maintenance agreements should also be incorporated into the property deed. Linkages requiring mutually executed easements should be required between adjoining properties to provide movement without requiring a return to the public roadway.

A circulation road may be used as the linkage when a uniform setback line is established on a number of properties so that drives at the front of the building can be interconnected. A common road should be provided if possible to avoid the striping of lots.

A system of joint-use driveways and cross access easements should be established wherever feasible. Vehicle and pedestrian links to adjacent properties with provisions for stubbed out connections should be required when adjacent land is not developed.

Acceleration and Deceleration Lanes

Acceleration and deceleration lanes on corridors providing access into and out of developments that produce a substantial number of trips can reduce the slowing and stopping of traffic caused by turning vehicles. The purpose of an acceleration or deceleration lane is to enhance motorist safety and the through movement of vehicles on the corridor. These lanes are desirable features on any road, but offer the most benefit on principal arterials. These lanes are needed when the volume of traffic turning at a site is high enough in relation to the through traffic to constitute the potential for disruption.

A traffic impact study will be required according to the *Beaufort County Traffic Impact Analysis Ordinance* to determine the need for acceleration or deceleration lanes. Beaufort County staff will review the traffic impact study to determine the need for acceleration or deceleration lanes.

Driveway Retrofit Techniques

Opportunities to bring existing driveways to the current standards appear when a business changes ownership or when any improvements to the existing driveways or parking lots occur. As changes are made to previously developed property or to the roadway, driveways will be evaluated for the need to be relocated, consolidated, or eliminated if they do not meet the access management standards.

Backside Access

The development of backside access roads provides an opportunity to remove turning traffic from the roadway and serve businesses with alternate access. Backside access to businesses provides exposure to a greater number of businesses, thus increasing commercial value, and improves intersection spacing on cross roads. Traffic that would otherwise enter and exit from the main roadway has access to a large number of businesses from a safer, less conflicting location.

Where feasible, a backside access road should be provided. Developments should be designed to connect to existing backside access, where provided. Where feasible, a continuous backside access road shall be provided either immediately behind the buffer yard or, if outlots are provided, along the rear property line of the outlots.

Where backside access does not exist, developments should be designed to allow for future backside access through construction of circulation roads to the rear and parking on the side and in the rear of properties.

Additional Guidelines

In addition to the aforementioned guidelines, it is recommended that multimodal access be considered, planned and incorporated. Signalized intersections should have marked crosswalks and appropriate crosswalk signalization.

Unless specifically stated otherwise, SCDOT Roadside Management Standards should be followed. The recommended guidelines in this document should be utilized in addition to the SCDOT strategies. When they are in conflict, the stricter requirement shall govern.

Topic:	Narrative / Osprey Point Amended Master Plan
Date Submitted:	February 19, 2018
Submitted By:	Josh Tiller
Venue:	Natural Resources Committee

Topic: Narrative / Osprey Point Amended Master Plan
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COMBINED NARRATIVE

OSPREY POINT AND RIVER OAKS AT OKATIE VILLAGE AMENDMENT REQUESTS

Introduction

Okatie Village originally consisted of Okatie Marsh PUD, Osprey Point PUD, and River Oaks PUD, each passed by Beaufort County Council as separate parts of a coordinated whole in 2008. Each was enacted with its separate, but coordinated, Development Agreement at the same time, following over two years of active planning and negotiations.

The dream of Okatie Village was a mixed-use community, where kids could walk or be driven to the elementary school (without entering Highway 170), families could shop at the Neighborhood Commercial Village, park facilities were to be available to all, and an historic Workforce Housing requirement would make it possible for average income, working families to be part of the community. Environmental controls were the highest in the County, to protect the river and marsh, with required water quality testing.

The dream evaporated during the Great Recession. Nothing was built or developed on any of the three properties. Okatie Marsh went bankrupt and was purchased by the County for open space. River Oaks went bankrupt next and was sold by the bank, with an uncertain future. Osprey Point came in to Beaufort County for an amendment to its PUD and Development Agreement in 2014, attempting to salvage something with a prospective development partner. The 2014 Osprey Point plan envisioned an age restricted and gated community. That plan also failed to move forward after approval, due to high projected lot costs.

A new plan has emerged for a coordinated development that seeks to restore much of the original vision of Okatie Village, while competing successfully in the current market. Osprey Point presents a new Second Amended Development Agreement and PUD, and River Oaks comes forward with a coordinated First Amendment to its Development Agreement and PUD. The details of each proposal are contained in the respective submittals which accompany this Narrative. To lend context to the proposals, this Narrative summarizes the allowed development within Okatie Village in 2008, followed by the allowed development in 2014 (at the time of the Osprey Point First Amendment), and finally, a brief summary of allowed development within Okatie Village under these current proposals.

The Original Okatie Village Plan (2008)

The original Okatie Village included Okatie Marsh (with 395 allowed homes and 64,800 square feet of commercial), Osprey Point (with 527 allowed homes and 207,700 square feet of Village Commercial), and River Oaks (with 330 allowed retirement cottages, apartments and condos, with nursing and other facilities). Of the combined total of 1,250 homes, 922 homes allowed families, with the remainder being age restricted within River Oaks.

Complete traffic, environmental, and economic studies were performed at the time. The traffic and road improvements were designed to accommodate these larger expected populations, and the storm water and other environmental features were designed to accommodate these loads. In fact, at the request of Planning Staff, these studies included projected development of nearby properties, to ensure that the Okatie Village communities could function and that the designed systems were adequate.

Only the River Oaks retirement PUD was envisioned to be gated, so that all family residences within both Okatie Marsh and Osprey Point could reach, through internal roads and paths, both the nearby school site and the planned Village Commercial area off Highway 170. The original developers of both Osprey Point and Okatie Marsh made historic commitments to include affordable, workforce housing for at least some of the product types, but not for single family housing.

Okatie Village Plan in 2014

The years from the original 2008 approvals of Okatie Village communities, through 2013, were very dark times. As stated above, Okatie Marsh failed completely and was purchased by Beaufort County for open space. River Oaks, the proposed retirement community, foundered and was in bankruptcy and foreclosure. Osprey Point was the last standing of the three communities, but no development had taken place and disaster was on its horizon as well. A national builder sought the Osprey Point property for an age restricted, gated community. Many months were spent in negotiations with Beaufort County, and finally the First Amendment to Osprey Point Development Agreement and PUD was passed in late 2014. But alas, internal negotiations and projected lot cost overruns doomed the new Osprey Point direction. No development took place and the proposed national builder moved on.

With the passage of the Osprey Point First Amendment in 2014, the original vision for Okatie Village was all but lost. Okatie Marsh was gone, and its potential for 395 homes was down to zero. River Oaks was in bankruptcy, with no one stepping up to develop the retirement center at that location. Osprey Point was down to 396 potential residents (from its 527 original approval). All of the anticipated homes within Osprey Point were to be age restricted homes, with no provision for families to interact with the schools or the planned Village Commercial

area. This loss of much of the residential density darkened the possibility of the Village Commercial area ever being built as envisioned, and doomed its future to a highway strip center.

The new 2014 commitment of Osprey Point to develop a minimum of 15 affordable homes became a somewhat hollow commitment, with no houses being built at all, at any price range.

New Okatie Village Plan of 2017

Against this background, the owners of Osprey Point and River Oaks have joined forces to present a new coordinated plan, which revives much of the original Okatie Village dream. All homes in both communities will now allow families.

Even more importantly, the two communities have pledged to allow cross access to one another, so that all residents can reach the schools and all residents can reach the Village Commercial area. Total residential density for Osprey Point remains at 396, and River Oaks density is forecast at 315 homes. The Village Commercial density remains at 207,700, but now has a chance to thrive as part of an active, family oriented community.

One of the best features of the revived Okatie Village vision is an increased commitment to affordable, workforce housing. At present, before these amendments, the requirement for all of Okatie Village (if it develops as expected as single family) is 15 affordable homes. The new development partner has stepped up this commitment, and increased it substantially. A new minimum commitment of 40 affordable workforce homes within Okatie Village has been added. This important pledge will allow working families, teachers, police, fire fighters and others to buy homes in a beautiful new community.

The official documents for the First Amendment to River Oaks Development Agreement and PUD, and the Second Amendment to Osprey Point Development Agreement and PUD, are attached to this Narrative. The plans are explained in greater detail, along with the justifications for changes, in the body of these documents. The Owners, the prospective developers, and all team members will stand ready to answer any questions that arise in the process.

We seek the support of all Beaufort County residents, and we urge County staff, the Planning Commission, and Members of Council to review these requests carefully, and approve this revived vision for Okatie Village.

Respectfully submitted,

Lewis J. Hammet
Attorney for Osprey Point & River Oaks

LIST OF PROPOSED PUD CHANGES

OSPREY POINT AT OKATIE VILLAGE PUD (Second Amendment)

1. Only a few changes to the PUD and Master Plan, many of which are a restoration of the original agreement:
2. Changes:
    a. Master Plan and Trail Plan- Changes to the approved layout to reflect restored direct interconnectivity with adjoining River Oaks (Vehicular, Bike and Pedestrian), so all can reach schools, village commercial, Highway 170, and the planned 13 Acre Park. This change removes the parallel road easement along the southern property line of Osprey Point that connected River Oaks to Highway 170 and the Commercial area of Osprey Point. In the previous Amendment, there was no commitment to build a road, just a provision to provide the easement. The change restores the original interconnectivity between Osprey Point and River Oaks by use of roads already obligated for construction. – No change in density or development and design standards from approved 1st Amendment.
    b. Added a second vehicular access point to the Connector Road.
    c. Allowed use for family housing restored. (Previously changed to age restricted).
    d. All other items in Second Amendment relate to the Development Agreement issues. All stormwater, environmental and related standards continue, including commitment to stormwater quality testing.

STATE OF SOUTH CAROLINA	)	**SECOND AMENDMENT TO**
	)	**OSPREY POINT DEVELOPMENT**
COUNTY OF BEAUFORT	)	**AGREEMENT AND PUD ZONING**

This Second Amendment To Osprey Point Development Agreement and PUD Zoning is made and entered this _____ day of _____, 2017, by and between LCP III, LLC (Owner), and the governmental authority of Beaufort County, South Carolina ("County").

WHEREAS, a Development Agreement, with accompanying PUD Zoning, was made and entered between Owner and County for Osprey Point, as recorded in Book 2888 at page 169, et. seq., on September 3, 2009, following passage by Beaufort County Council and due execution by the parties; and,

WHEREAS, Osprey Point is a portion of a larger, coordinated development area, known as Okatie Village, which also included the Okatie Marsh PUD and the River Oaks PUD, with their respective Development Agreements, which were negotiated, adopted and recorded simultaneously with Osprey Point; and,

WHEREAS, no development activity or sales activity took place within the overall Okatie Village properties, including Osprey Point, during the first five years after the original approvals of these developments; and,

WHEREAS, Owner and County agreed to certain terms under a First Amendment to Osprey Point Development Agreement and PUD Zoning (First Amendment), which was duly passed on final reading on December ___, 2014, but said First Amendment was never executed and recorded, due to the continuing economic problems and the failure by the Owner and

prospective development partner to consummate the development venture contemplated by the First Amendment; and,

WHEREAS, a related entity, Malind Bluff Development, LLC, has taken a small interest in the Osprey Point property for development financing purposes, and is therefore joining into this Second Amendment to evidence its agreement with and consent hereto (see the attached Exhibit K Joinder); and,

WHEREAS, the original Development Agreements for Okatie Village, including Osprey Point, would have expired and terminated in September of 2014, but said Development Agreements have been extended hereby and under the South Carolina Tolling Acts of 2010 and 2013; and,

WHEREAS, significant changes have taken place in real estate market conditions and within the Okatie Village development area since the original approvals for Osprey Point, and since the First Amendment thereto, making it practically and economically unfeasible to develop Osprey Point under the exact terms of either the original Osprey Point Development Agreement and PUD, or the First Amendment thereto; and,

WHEREAS, the Owner and County have agreed to this Second Amendment to the Osprey Point Development Agreement and PUD in order to adjust the terms thereof to reflect current conditions, as provided below, while at the same time significantly reducing the density of Osprey Point and preserving the important protections to the environment and many other important features of the original Development Agreement and the First Amendment, as also provided below;

NOW THEREFORE, in consideration of the terms and conditions hereof, the Owner and County hereby agree as follows:

I. INCORPORATION.

The above recitals are hereby incorporated herein by reference.

II. STATEMENT OF DEVELOPMENT BACKGROUND AND CHANGES TO MARKET CONDITIONS AND CIRCUMSTANCES.

The First Amendment detailed changes which occurred to the general real estate marketplace and the broader economy, from the original Okatie Village approvals until the 2014 First Amendment of the Osprey Point Approvals. These changes are restated below, followed by an update regarding changed circumstances since the 2014 First Amendment.

Planning and negotiations toward ultimate approval of the three Okatie Village Tracts, including Osprey Point, occurred in 2006 - 2008, at a time that development was exploding in Beaufort County, and the pace of that development activity was expected to continue and accelerate as the baby boom generation was beginning to reach retirement age. Prices for homes and for commercial properties were escalating and that trend was expected to continue.

All of these trends ended before development of any of the Okatie Village communities could begin. Sales prices plummeted and a financial crisis prevented developers from acquiring needed development loans, and prevented potential buyers from obtaining home loans, even at reduced prices. Okatie Village properties were particularly hard hit, since their Development Agreements imposed fees and burdens beyond any other development properties in Beaufort County.

The Okatie Marsh PUD failed completely before any development took place. Beaufort County acquired the entire property, which has been added to the County's Open Space land holdings. River Oaks has likewise been struggling and its ultimate fate is being determined. Osprey Point, the central property of the three Okatie Village tracts, now has real potential to move forward in an economically conscientious way, under the name Malind Bluff. Several changes to the original plan have been necessitated by these changing market conditions, and are set forth below. Some of the changes are significant, while others are relatively minor. The justifications for each of these changes are set forth as the changes themselves are discussed.

Since 2014, the two remaining Okatie Village PUDs (Osprey Point and River Oaks) have continued to struggle, with no development activity occurring. River Oaks PUD went into bankruptcy and the original Owner lost the property. Osprey Point failed to move forward as a completely age restricted community, as envisioned by the First Amendment. The expected development partnership between the Owner of Osprey Point and a national builder fell apart due to failed negotiations over lot cost factors and a continuing change to market conditions. The fact that Osprey Point would be the only development subject to $6,000 per house school fees was a major contributing factor.

On the positive side, a new development partner has emerged to bring activity to both Osprey Point and River Oaks. The two remaining PUDs are working together to produce modifications that restore much of the original vision of Okatie Village as a functioning, live/work community, with access for all residents of both communities to the Village Commercial, the School areas, and a 13-acre public park (which was mandated by the First Amendment).

The minimum changes to the First Amendment that are required to carry out these plans and restore the original vision of Okatie Village are set forth below.

III. DEVELOPMENT PLAN CHANGES.

A revised Master Plan and revised Trail and Open Space Plan are attached as Exhibits B and C respectively to this Second Amendment (Exhibit A continues as a restatement of the original property description).

Both the First Amended Development Agreement and PUD Zoning are hereby further amended by this Second Amendment to reflect all changes which are shown and depicted on revised Exhibits B and C hereto, regarding the specific changes that are referenced herein and any other changes necessary, by implication, to effectuate these Development Plan and Master Plan changes. The following changes to the original and First Amended Development Agreement and Master Plan are specifically listed and approved:

A. Commercial and Residential Density Reduction. Reductions to residential density were committed to under Section III (A) of the First Amendment. All terms stated under said Section III (A) of the First Amendment are hereby endorsed and incorporated herein by reference, regarding both commercial and residential density. These changes reduce residential density from 527 allowed units down to 396 allowed units.

B. Allowed Development Type and Resulting Changes to Roadway and Pathway (Including Trails) Standards. Unlike the approach stated in Section III (B) of the First Amendment, the current development planning for Osprey Point does not envision or require age

restricted development only. Therefore, Section III (B) of the First Amendment is hereby deleted in its entirety and replaced by the terms of Section III (B) of this Second Amendment:

A mix of age targeted residential, family allowed residential, and (potentially) age restricted residential is envisioned and allowed hereby. The exact mix of these residential types will be based on market demand and will be at the Owner's discretion. The residential area is planned to be single family detached, although other residential building types are allowed, as was provided under both the First Amendment and the original Development Agreement.

Roads, Pathways, and Trails within the residential area may have limited access restrictions, subject to the additional, mandatory requirement that any gating of the community shall allow access by residents of the adjacent River Oaks development to reach the Village Commercial Area and Highway 170 accesses, at least for daylight hours. A reciprocal requirement will be incorporated into the River Oaks First Amendment that will allow restricted access, but mandate that residents of Osprey Point be allowed access across River Oaks to reach the School and Cherry Point area, at least for daylight hours and school related trips.

This reciprocal access between Osprey Point and River Oaks will restore an important element of the original Okatie Village concept embodied in the original Development Agreements. Automobile, bike, and pedestrian travel can flow across development lines, allowing all residents access to the Village Commercial, and allowing all residents access to the School/Cherry Point areas.

As was provided under the First Amendment, the Connector Road, as shown on Exhibit B hereto, shall be developed at the time of development of Phase I of Osprey Point, with the provision that Owner may satisfy this requirement by posting a bond for this road construction at

125% of its estimated cost with the County, when Phase I commences, with the commitment to construct the road at the time that fifty percent of allowed residential density has been permitted for vertical construction. Beaufort County shall have no obligation to construct or maintain such roadway.

The Second Amended Master Plan (Exhibit B hereto) depicts the changes to the road system to allow this internal linkage between the communities, and the Amended Trail and Open Space Plan (Exhibit C hereto) also reflects these changes. An updated traffic analysis is attched as Exhibit I hereto. All provisions of the original Development Agreement and First Amended Development Agreement and PUD to the contrary are hereby amended to conform herewith. Exhibit J hereto reflects the required minor changes to the Amended Osprey Point Transect Zones of the First Amendment.

C. Public Park Area/Access. The terms and conditions of Section III (C) of the First Amendment continue and are incorporated herein, by reference, deleting the references to age restricted development, which is modified as above stated, and provided further that the private River Park Area is now planned for 6+ acres rather than 8+ acres, to accommodate more open space internally in the Osprey Point plan.

D. Design, Construction and Maintenance Contribution to County Park. The terms and conditions of Section III (D) of the First Amendment continue and are incorporated herein by reference. The requirement that Osprey Point develop and maintain a passive park of 13 acres on the adjacent County owned land is continued hereunder, as negotiated in the First Amendment, with work on the public park site to begin when development work begins on the 6+ acre common area space(private River Park) to be located on the marsh front of Osprey Point.

No work on the public park site is required before such time. The preliminary park plan worked out with staff at the time of the First Amendment is attached hereto as Exhibit H and incorporated herein and shall serve as the general outline of the work to be performed.

E. Public Safety Site. The terms and conditions of Section III (E) of the First Amendment continue and are incorporated herein by reference. The commitment to contribute this public safety site is continued, on the same terms negotiated in the First Amendment.

F. Legal Status Of Workers. Owner and Beaufort County recognize that both the law and politics surrounding these issues regarding the legal status of workers has been evolving since the original Development Agreement was adopted in 2008. Owner continues its commitment to abiding by all applicable laws and to providing an equal opportunity work place at Osprey Point. The provisions of Article V of the original Development are hereby repealed, to avoid potential conflict with evolving laws and policies.

G. Workforce Housing Requirement. The terms and conditions of Section III (F) of the First Amendment continue and are incorporated herein by refence, with the following additional terms. The minimum of 15 residential units within Osprey Point to be developed and offered at sales prices which qualify under the low income or moderate income affordability standards, as set forth in the First Amendment, may be satisfied in either the Osprey Point or River Oaks residential areas, although the ultimate obligations of the Osprey Point Owner otherwise remain as stated in the First Amendment.

H. Impact/Development Fee Issues. The terms of the original Development Agreement and First Amendment regarding fees due under Section IV (H) remain unchanged. In

addition, regarding School Capital Construction fees, Owner and County recognize that South Carolina law has changed to allow the potential for Beaufort County to enact a development impact fee ordinance of general application to provide funding for school capital improvements. If Beaufort County adopts such a development fee ordinance for school capital improvements in the future, the terms of such new law shall apply to all future development at Osprey Point, on the same basis as other development in Beaufort County. Given this change in South Carolina law, and recognizing the competitive disadvantage that has prevented development in Osprey Point for many years, the parties agree to eliminate Section IV(G) of the original Development Agreement.

I. Design Guidelines/Residential Design. The terms and conditions of Section III (H) of the First Amendment remain in place to govern all residential and commercial development within Osprey Point. References to age restricted development are deleted to be consistent with the development types allowed hereunder.

J. Agreement Not To Annex. The terms and conditions of Section III (I) of the First Amendment continue and are incorporated herein by reference.

K. Development Schedule Amendment. Subject to the same reservations and conditions contained under Section IV of the original Development Agreement and Exhibit D thereto, the Development Schedule is hereby amended as set forth in Exhibit D hereto, to reflect current forecasts and expected schedules.

L. Preliminary Drainage Plan, Water Plan and Sanitary Sewer Plans. The terms and conditions of Section III (K) of the First Amendment continue and are incorporated

herein by reference, and no major changes are proposed. Minor changes to the routing of these infrastructure elements are shown on Exhibits E, F, and G hereto, for completeness and to provide clarity as development progresses.

M. Terms of Agreement/Incorporation/Default. The original Development Agreement and PUD were approved by both parties, effective September 3, 2008. The parties hereby agree that terms of the original Development Agreement and the First Amendment are incorporated herein by reference, and that said documents are hereby amended as specifically set forth herein, directly or by necessary implication. The term of this Second Amendment shall be for five years from the date of execution hereof, provided that the term shall be further extended for an additional five years if neither party hereto is in material breach hereof and if development of the subject property has not been completed during the initial term, and also, further extended by any South Carolina laws which have extended Development Agreements generally, for the full tolling period established by law. Both parties agree that with the execution and adoption hereof, no present defaults exist between the parties and all future activities within Osprey Point shall be governed by the terms hereof.

IN WITNESS WHEREOF, the parties hereby set their hands and seals, effective the date first above written.

WITNESSES

OWNER:

LCP III, LLC

_____

By:_____

Its:

_____ Attest: _____

Its:

_____

STATE OF SOUTH CAROLINA)
) **ACKNOWLEDGMENT**
COUNTY OF BEAUFORT)

I HEREBY CERTIFY, that on this ____ day of _____, 201__. before me, the undersigned Notary Public of the State and County aforesaid, personally appeared _____, and _____known to me (or satisfactorily proven) to be the person whose name is subscribed to the within document, as the appropriate official of LCP III, LLC, who acknowledged the due execution of the foregoing document.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year last above mentioned.

_____
Notary Public for South Carolina
My Commission Expires: _____

WITNESSES:

COUNTY OF BEAUFORT

_____ _____
County Council Chairman

_____ Attest:_____
County Clerk - County of Beaufort

STATE OF SOUTH CAROLINA)
) **ACKNOWLEDGMENT**

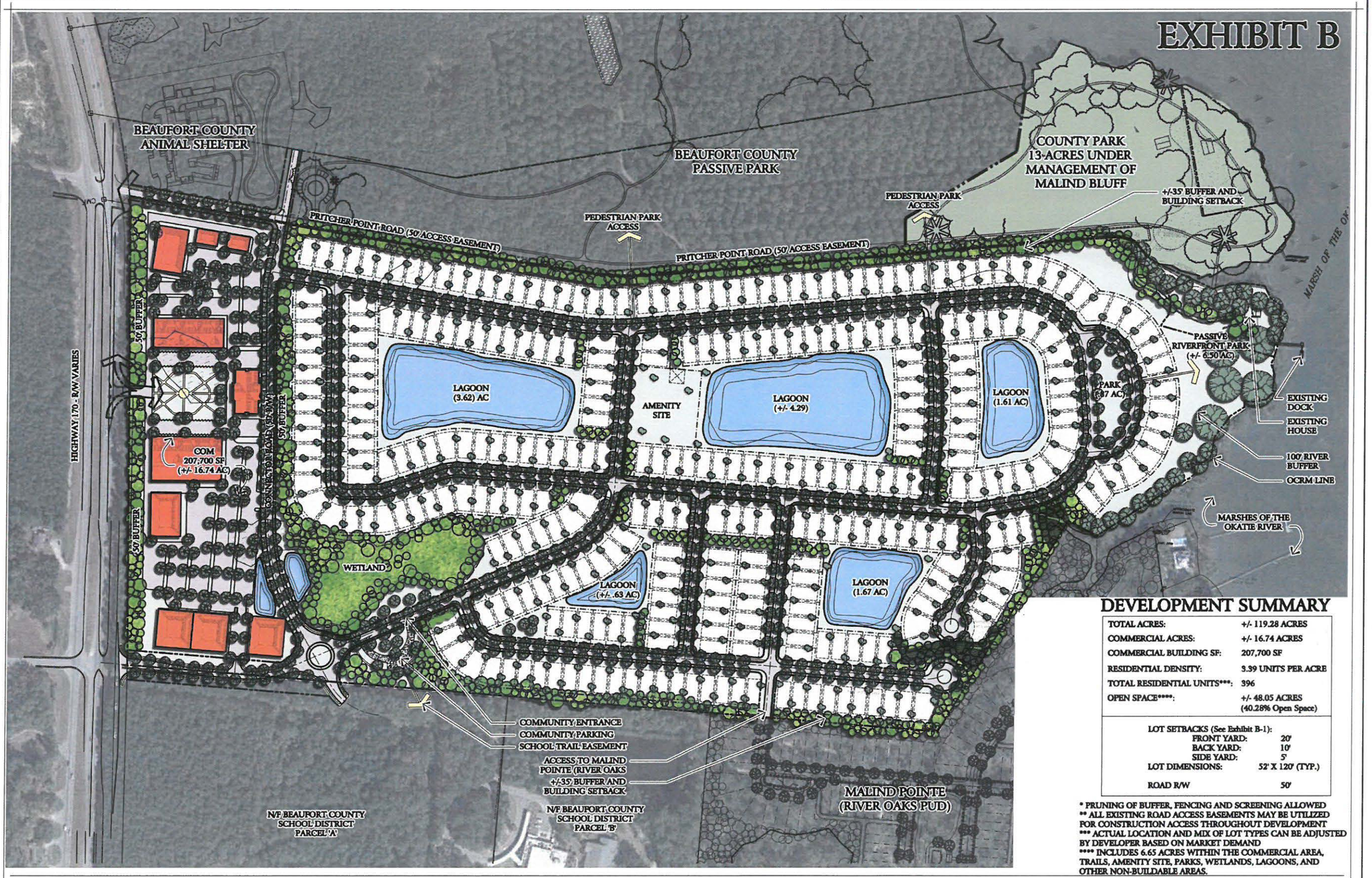
COUNTY OF BEAUFORT)

I HEREBY CERTIFY, that on this ___ day of _____, 201__ before me, the undersigned Notary Public of the state and County aforesaid, personally appeared known to me (or satisfactorily proven) to be the persons whose name is subscribed to the within document, who acknowledged the due execution of the foregoing Development Agreement.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year last above mentioned.

_____
Notary Public for South Carolina
My Commission Expires:_____

EXHIBIT B



DEVELOPMENT SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL ACRES:	+/- 16.74 ACRES
COMMERCIAL BUILDING SF:	207,700 SF
RESIDENTIAL DENSITY:	3.39 UNITS PER ACRE
TOTAL RESIDENTIAL UNITS***:	396
OPEN SPACE****:	+/- 48.05 ACRES (40.28% Open Space)

LOT SETBACKS (See Exhibit B-1):	
FRONT YARD:	20'
BACK YARD:	10'
SIDE YARD:	5'
LOT DIMENSIONS:	52' X 120' (TYP.)
ROAD R/W	50'

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** ALL EXISTING ROAD ACCESS EASEMENTS MAY BE UTILIZED FOR CONSTRUCTION ACCESS THROUGHOUT DEVELOPMENT
*** ACTUAL LOCATION AND MIX OF LOT TYPES CAN BE ADJUSTED BY DEVELOPER BASED ON MARKET DEMAND
**** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, AMENITY SITE, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
78N PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909
Voice 843.815.4000 jktiller@jktiller.com Fax 843.815.4002

Ward Edwards ENGINEERING

OSPREY POINT (MALIND BLUFF) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

GRAPHIC SCALE

NORTH 0 200' 400' 600'

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

JKT Job Number: 201731-01

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EXHIBIT C

BEAUFORT COUNTY ANIMAL SHELTER

BEAUFORT COUNTY PASSIVE PARK

COUNTY PARK 13-ACRES UNDER MANAGEMENT OF MALIND BLUFF

PEDESTRIAN PARK ACCESS

PEDESTRIAN PARK ACCESS

+/-35' BUFFER AND BUILDING SETBACK

PRITCHER POINT ROAD (50' ACCESS EASEMENT)

PRITCHER POINT ROAD (50' ACCESS EASEMENT)

MARSH OF THE OKATIE

HIGHWAY 170 - R/W VARIES

50' BUFFER

50' BUFFER

CONNECTOR ROAD (50' R/W)

50' BUFFER

COM
207,700 SF
(+/- 16.74 AC)

LAGOON
(3.62) AC

AMENITY SITE

LAGOON
(+/- 4.29)

LAGOON
(1.61 AC)

PARK
(.87 AC)

PASSIVE RIVERFRONT PARK
(+/- 6.50 AC)

EXISTING DOCK

EXISTING HOUSE

100' RIVER BUFFER

OCRM LINE

MARSHES OF THE OKATIE RIVER

WETLAND

LAGOON
(+/- .63 AC)

LAGOON
(1.67 AC)

COMMUNITY ENTRANCE

COMMUNITY PARKING

SCHOOL TRAIL EASEMENT

ACCESS TO MALIND POINTE (RIVER OAKS

+/-35' BUFFER AND BUILDING SETBACK

N/F BEAUFORT COUNTY SCHOOL DISTRICT PARCEL 'A'

N/F BEAUFORT COUNTY SCHOOL DISTRICT PARCEL 'B'

MALIND POINTE (RIVER OAKS PUD)

TRAILS AND OPEN SPACE SUMMARY

TOTAL ACRES:	+/- 119.28 ACRES
COMMERCIAL OPEN SPACE:	+/- 6.65 ACRES
RESIDENTIAL OPEN SPACE:	+/- 42.07 ACRES
TOTAL TRAILS:	+/- 18,500 LF (+/-3.50 MI)
TOTAL OPEN SPACE**:	+/- 49.01 ACRES
PERCENT OPEN SPACE:	+/- 41.09%

POTENTIAL OPEN SPACE AMENITY USES:
Fishing, Wildlife Viewing, Interpretive Nature Trails, Jogging/Walking Trails, Bike Trails, Swimming Pool, Passive Parks, Fire Pits, Fishing Docks, Fishing Boardwalks, Kayak/Canoe Storage and Launch, Bocce Ball, Tennis, Pickle Ball, Playground, Dog Park, Walkable Access to COM and Future County Park

* PRUNING OF BUFFER, FENCING AND SCREENING ALLOWED
** INCLUDES 6.65 ACRES WITHIN THE COMMERCIAL AREA, TRAILS, PROPOSED PASSIVE WATERFRONT PARK, PARKS, WETLANDS, LAGOONS, AND OTHER NON-BUILDABLE AREAS.

PROPOSED MULTI-PURPOSE PEDESTRIAN TRAIL (TYP.)

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TEN PINCKNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909
Voice: 843.815.4000 jkteller@jkteller.com Fax: 843.815.4002

Ward Edwards ENGINEERING

OSPREY POINT (MALIND BLUFF)
TRAILS AND OPEN SPACE PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

GRAPHIC SCALE

NORTH 0 200' 400' 600'

JKT Job Number: 201731-01

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Exhibit D

DEVELOPMENT SCHEDULE

Development of the Property is expected to occur over the five (5) year term of the Agreement, with the sequence and timing of development activity to be dictated largely by market conditions. The following estimate of expected activity is hereby included, to be updated by Owner as the development evolves over the term:

	Year(s) of Commencement / Completion				
Type of Development	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**
Commercial (Sq. Ft.)		45,000	30,000	75,000	62,700
Residential, Single Family (1)	74	74	74	74	100
Residential, Multifamily (2)	--				
Affordable / Workforce Housing (3)	--				
Park -- % To Be Completed	--	100%	--	--	--
Multi-Purpose Trail & Pathways -- % To Be Completed	--	25%	30%	30%	15%
Public Safety Site Transfer -- % To Be Completed	--	100%	--	--	--

(1) 396 single family units are forecast to remain to be built at the end of five years.
(2) none planned.
(3) River Oaks Schedule

As stated in the Development Agreement, Section VI, actual development may occur more rapidly or less rapidly, based on market conditions and final product mix.

EXHIBIT E

0 150 300 Feet

LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
ATLAS SURVEYING, INC.

LIDAR REFERENCE:
BEAUFORT COUNTY

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

EXISTING WATER LEGEND
EXISTING WATER MAIN
EXISTING FIRE HYDRANT
EXISTING VALVE
EXISTING METER

EXISTING SEWER LEGEND
EXISTING GRAVITY SEWER LINE
EXISTING GRAVITY SEWER MANHOLE
EXISTING FORCE MAIN

EXISTING DRAINAGE LEGEND	
EXISTING STORM DRAIN (SOLID WALL)	SD
EXISTING STORM DRAIN (PERFORATED CMP)	
EXISTING STORM STRUCTURE	
EXISTING WATERSHED DELINEATION	

PROPOSED WATER LEGEND
PROPOSED WATER MAIN
PROPOSED FIRE HYDRANT
PROPOSED VALVE
PROPOSED METER

PROPOSED SEWER LEGEND
PROPOSED GRAVITY SEWER LINE
PROPOSED GRAVITY SEWER MANHOLE
PROPOSED FORCE MAIN
PROPOSED SERVICE LATERAL

PROPOSED DRAINAGE LEGEND	
PROPOSED STORM DRAIN (SOLID WALL)	
PROPOSED STORM DRAIN (PERFORATED CMP)	
PROPOSED STORM STRUCTURE	
SPOT ELEVATION	EL: XX.X

PROPOSED DRAINAGE SYSTEM

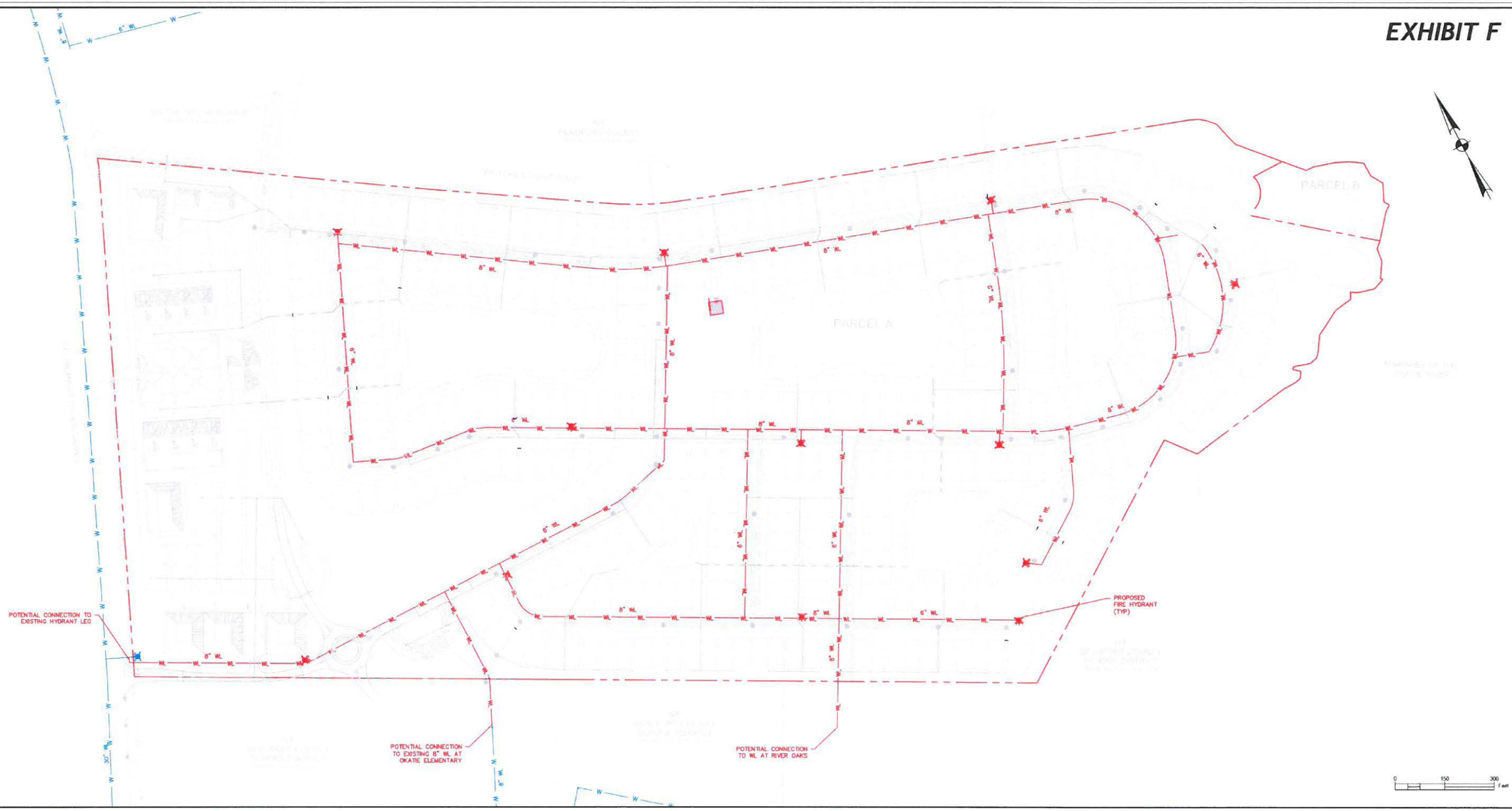
OSPREY POINT (MALIND BLUFF)
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 01-25-18
PROJECT NO.: 170252
SCALE: 1"=150'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
WWW.WARDEDWARDS.COM

IF THIS SHEET IS LESS THAN 22" X 34" IT IS A REDUCED PRINT. SCALE ACCORDINGLY

EXHIBIT F



LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
ATLAS SURVEYING, INC.

LIDAR REFERENCE:
BEAUFORT COUNTY

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

EXISTING WATER LEGEND	
EXISTING WATER MAIN	W
EXISTING FIRE HYDRANT	
EXISTING VALVE	
EXISTING METER	

EXISTING SEWER LEGEND
EXISTING GRAVITY SEWER LINE
EXISTING GRAVITY SEWER MANHOLE
EXISTING FORCE MAIN

EXISTING DRAINAGE LEGEND	
EXISTING STORM DRAIN (SOLID WALL)	SD
EXISTING STORM DRAIN (PERFORATED CMP)	
EXISTING STORM STRUCTURE	
EXISTING WATERSHED DELINEATION	

PROPOSED WATER LEGEND	
PROPOSED WATER MAIN	WL
PROPOSED FIRE HYDRANT	
PROPOSED VALVE	
PROPOSED METER	

PROPOSED SEWER LEGEND
PROPOSED GRAVITY SEWER LINE
PROPOSED GRAVITY SEWER MANHOLE
PROPOSED FORCE MAIN
PROPOSED SERVICE LATERAL

PROPOSED DRAINAGE LEGEND
PROPOSED STORM DRAIN (SOLID WALL)
PROPOSED STORM DRAIN (PERFORATED CMP)
PROPOSED STORM STRUCTURE
SPOT ELEVATION

PROPOSED WATER DISTRIBUTION SYSTEM

OSPREY POINT (MALIND BLUFF)
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 01-25-18
PROJECT NO.: 170252
SCALE: 1"=150'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
WWW.WARDEDWARDS.COM

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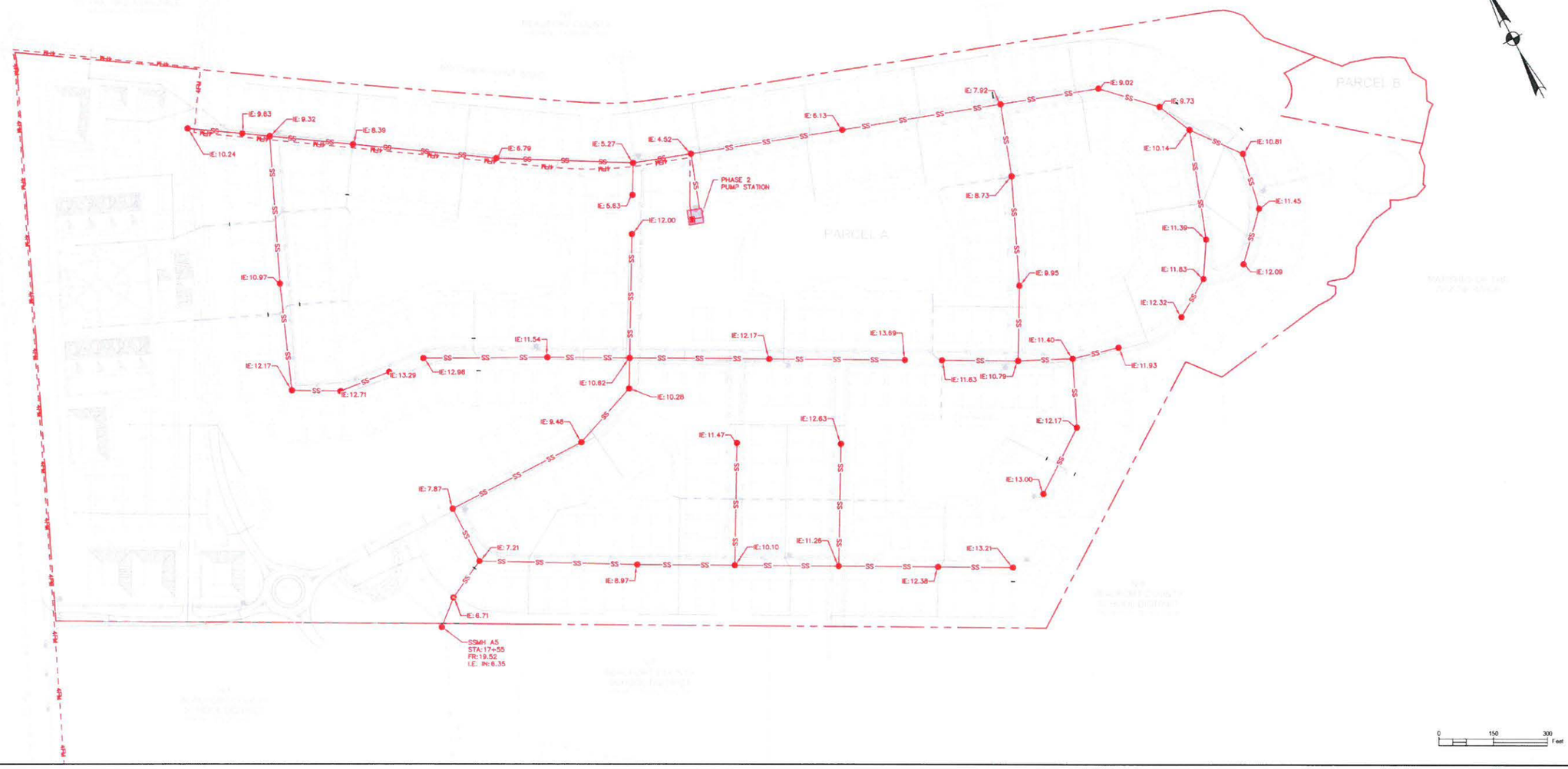
EXHIBIT G



LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
ATLAS SURVEYING, INC.

LIDAR REFERENCE:
BEAUFORT COUNTY

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

EXISTING WATER LEGEND
EXISTING WATER MAIN
EXISTING FIRE HYDRANT
EXISTING VALVE
EXISTING METER

EXISTING SEWER LEGEND	
EXISTING GRAVITY SEWER LINE	SS
EXISTING GRAVITY SEWER MANHOLE	
EXISTING FORCE MAIN	

EXISTING DRAINAGE LEGEND	
EXISTING STORM DRAIN (SOLID WALL)	SD
EXISTING STORM DRAIN (PERFORATED CMP)	
EXISTING STORM STRUCTURE	
EXISTING WATERSHED DELINEATION	

PROPOSED WATER LEGEND
PROPOSED WATER MAIN
PROPOSED FIRE HYDRANT
PROPOSED VALVE
PROPOSED METER

PROPOSED SEWER LEGEND	
PROPOSED GRAVITY SEWER LINE	SS
PROPOSED GRAVITY SEWER MANHOLE	
PROPOSED FORCE MAIN	FM
PROPOSED SERVICE LATERAL	E SC

PROPOSED DRAINAGE LEGEND
PROPOSED STORM DRAIN (SOLID WALL)
PROPOSED STORM DRAIN (PERFORATED CMP)
PROPOSED STORM STRUCTURE
SPOT ELEVATION

PROPOSED SANITARY SEWER SYSTEM

OSPREY POINT (MALIND BLUFF)
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 01-25-18
PROJECT NO.: 170252
SCALE: 1"=150'

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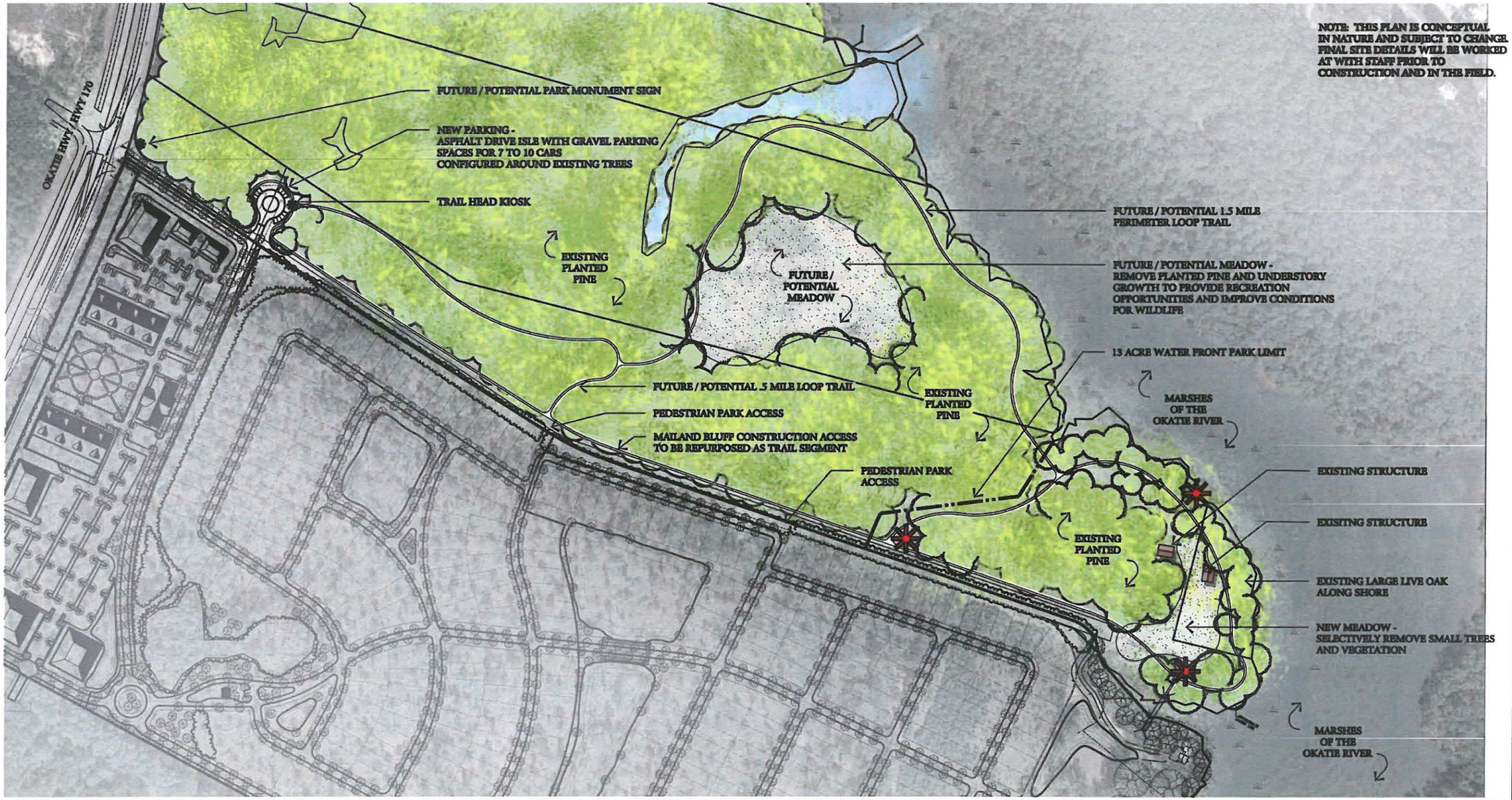
EXHIBIT H



PREPARED FOR:
BAUFORT COUNTY

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
789 PINCKNEY COLONY ROAD SUITE 101 BLUFFTON SC 29909

OKATIE RIVER PASSIVE PARK
Conceptual Master Plan
BEAUFORT COUNTY, SOUTH CAROLINA

OCT. 23, 2014

SCALE 1" = 300'

NORTH 0 300' 600' 900'

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. PARK DETAILS TO BE WORKED OUT WITH COUNTY STAFF IN THE FUTURE. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

JKT Job Number: 201403-02

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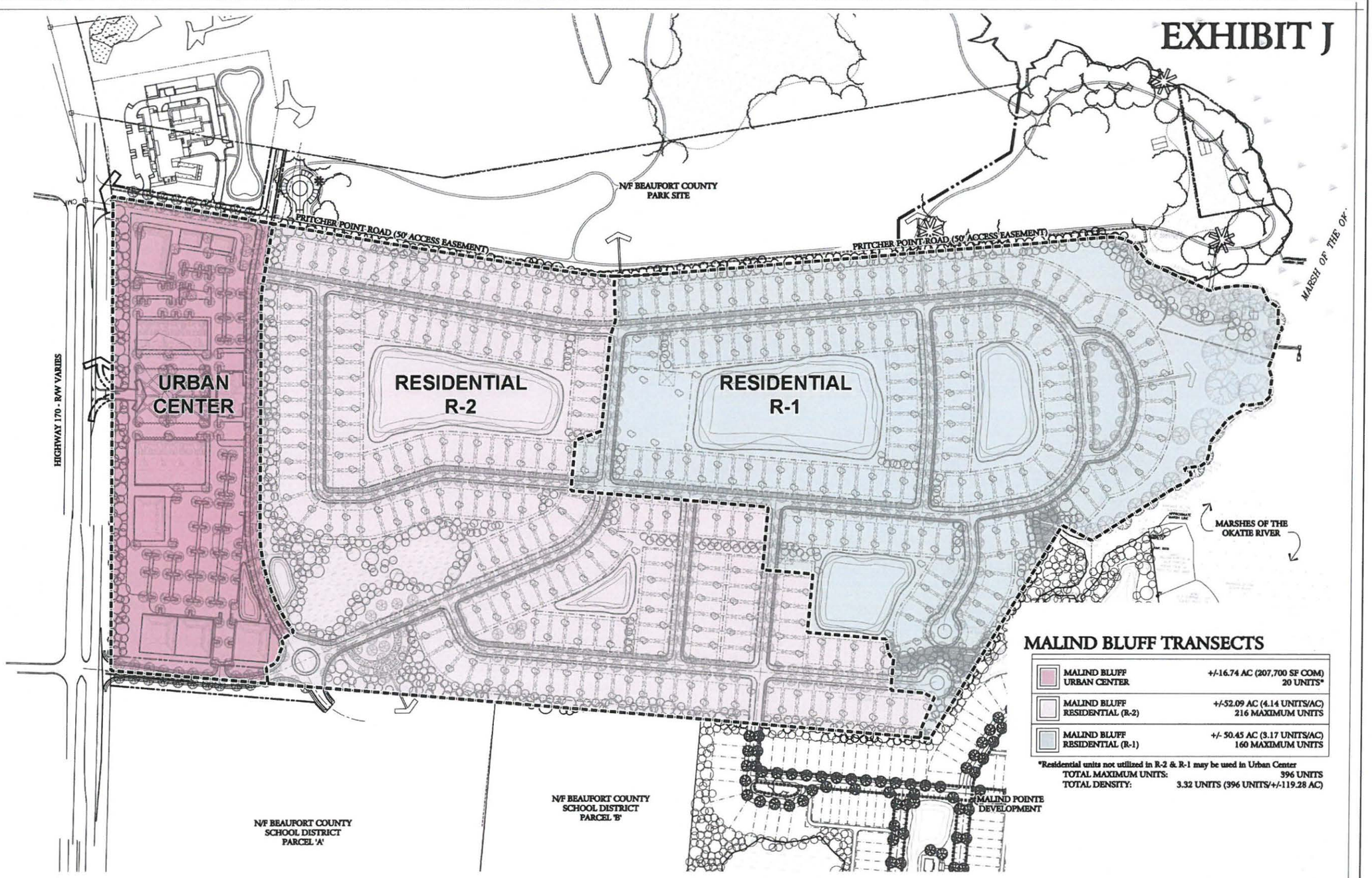
EXHIBIT J



MALIND BLUFF TRANSECTS

MALIND BLUFF URBAN CENTER	+/-16.74 AC (207,700 SF COM) 20 UNITS*
MALIND BLUFF RESIDENTIAL (R-2)	+/-52.09 AC (4.14 UNITS/AC) 216 MAXIMUM UNITS
MALIND BLUFF RESIDENTIAL (R-1)	+/- 50.45 AC (3.17 UNITS/AC) 160 MAXIMUM UNITS

*Residential units not utilized in R-2 & R-1 may be used in Urban Center

TOTAL MAXIMUM UNITS: 396 UNITS

TOTAL DENSITY: 3.32 UNITS (396 UNITS/+/-119.28 AC)

PREPARED FOR:
PULTE GROUP

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
TEN FINCHNEY COLONY ROAD SUITE 101 BLUFFTON, SC 29909
Voice: 843.815.4000 jktiller@jktiller.com Fax: 843.815.4002

Ward Edwards ENGINEERING

OSPREY POINT (MALIND BLUFF) TRANSECT MAP

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

NORTH

GRAPHIC SCALE 0 200' 400' 600'

JKT Job Number: 201731-01

Topic:	Narrative / River Oaks Amended Master Plan
Date Submitted:	February 19, 2018
Submitted By:	Josh Tiller
Venue:	Natural Resources Committee

Topic: Narrative / River Oaks Amended Master Plan
Date Submitted: February 19, 2018
Submitted By: Josh Tiller
Venue: Natural Resources Committee

COMBINED NARRATIVE

OSPREY POINT AND RIVER OAKS AT OKATIE VILLAGE AMENDMENT REQUESTS

Introduction

Okatie Village originally consisted of Okatie Marsh PUD, Osprey Point PUD, and River Oaks PUD, each passed by Beaufort County Council as separate parts of a coordinated whole in 2008. Each was enacted with its separate, but coordinated, Development Agreement at the same time, following over two years of active planning and negotiations.

The dream of Okatie Village was a mixed-use community, where kids could walk or be driven to the elementary school (without entering Highway 170), families could shop at the Neighborhood Commercial Village, park facilities were to be available to all, and an historic Workforce Housing requirement would make it possible for average income, working families to be part of the community. Environmental controls were the highest in the County, to protect the river and marsh, with required water quality testing.

The dream evaporated during the Great Recession. Nothing was built or developed on any of the three properties. Okatie Marsh went bankrupt and was purchased by the County for open space. River Oaks went bankrupt next and was sold by the bank, with an uncertain future. Osprey Point came in to Beaufort County for an amendment to its PUD and Development Agreement in 2014, attempting to salvage something with a prospective development partner. The 2014 Osprey Point plan envisioned an age restricted and gated community. That plan also failed to move forward after approval, due to high projected lot costs.

A new plan has emerged for a coordinated development that seeks to restore much of the original vision of Okatie Village, while competing successfully in the current market. Osprey Point presents a new Second Amended Development Agreement and PUD, and River Oaks comes forward with a coordinated First Amendment to its Development Agreement and PUD. The details of each proposal are contained in the respective submittals which accompany this Narrative. To lend context to the proposals, this Narrative summarizes the allowed development within Okatie Village in 2008, followed by the allowed development in 2014 (at the time of the Osprey Point First Amendment), and finally, a brief summary of allowed development within Okatie Village under these current proposals.

The Original Okatie Village Plan (2008)

The original Okatie Village included Okatie Marsh (with 395 allowed homes and 64,800 square feet of commercial), Osprey Point (with 527 allowed homes and 207,700 square feet of Village Commercial), and River Oaks (with 330 allowed retirement cottages, apartments and condos, with nursing and other facilities). Of the combined total of 1,250 homes, 922 homes allowed families, with the remainder being age restricted within River Oaks.

Complete traffic, environmental, and economic studies were performed at the time. The traffic and road improvements were designed to accommodate these larger expected populations, and the storm water and other environmental features were designed to accommodate these loads. In fact, at the request of Planning Staff, these studies included projected development of nearby properties, to ensure that the Okatie Village communities could function and that the designed systems were adequate.

Only the River Oaks retirement PUD was envisioned to be gated, so that all family residences within both Okatie Marsh and Osprey Point could reach, through internal roads and paths, both the nearby school site and the planned Village Commercial area off Highway 170. The original developers of both Osprey Point and Okatie Marsh made historic commitments to include affordable, workforce housing for at least some of the product types, but not for single family housing.

Okatie Village Plan in 2014

The years from the original 2008 approvals of Okatie Village communities, through 2013, were very dark times. As stated above, Okatie Marsh failed completely and was purchased by Beaufort County for open space. River Oaks, the proposed retirement community, foundered and was in bankruptcy and foreclosure. Osprey Point was the last standing of the three communities, but no development had taken place and disaster was on its horizon as well. A national builder sought the Osprey Point property for an age restricted, gated community. Many months were spent in negotiations with Beaufort County, and finally the First Amendment to Osprey Point Development Agreement and PUD was passed in late 2014. But alas, internal negotiations and projected lot cost overruns doomed the new Osprey Point direction. No development took place and the proposed national builder moved on.

With the passage of the Osprey Point First Amendment in 2014, the original vision for Okatie Village was all but lost. Okatie Marsh was gone, and its potential for 395 homes was down to zero. River Oaks was in bankruptcy, with no one stepping up to develop the retirement center at that location. Osprey Point was down to 396 potential residents (from its 527 original approval). All of the anticipated homes within Osprey Point were to be age restricted homes, with no provision for families to interact with the schools or the planned Village Commercial

area. This loss of much of the residential density darkened the possibility of the Village Commercial area ever being built as envisioned, and doomed its future to a highway strip center.

The new 2014 commitment of Osprey Point to develop a minimum of 15 affordable homes became a somewhat hollow commitment, with no houses being built at all, at any price range.

New Okatie Village Plan of 2017

Against this background, the owners of Osprey Point and River Oaks have joined forces to present a new coordinated plan, which revives much of the original Okatie Village dream. All homes in both communities will now allow families.

Even more importantly, the two communities have pledged to allow cross access to one another, so that all residents can reach the schools and all residents can reach the Village Commercial area. Total residential density for Osprey Point remains at 396, and River Oaks density is forecast at 315 homes. The Village Commercial density remains at 207,700, but now has a chance to thrive as part of an active, family oriented community.

One of the best features of the revived Okatie Village vision is an increased commitment to affordable, workforce housing. At present, before these amendments, the requirement for all of Okatie Village (if it develops as expected as single family) is 15 affordable homes. The new development partner has stepped up this commitment, and increased it substantially. A new minimum commitment of 40 affordable workforce homes within Okatie Village has been added. This important pledge will allow working families, teachers, police, fire fighters and others to buy homes in a beautiful new community.

The official documents for the First Amendment to River Oaks Development Agreement and PUD, and the Second Amendment to Osprey Point Development Agreement and PUD, are attached to this Narrative. The plans are explained in greater detail, along with the justifications for changes, in the body of these documents. The Owners, the prospective developers, and all team members will stand ready to answer any questions that arise in the process.

We seek the support of all Beaufort County residents, and we urge County staff, the Planning Commission, and Members of Council to review these requests carefully, and approve this revived vision for Okatie Village.

Respectfully submitted,

Lewis J. Hammet
Attorney for Osprey Point & River Oaks

LIST OF PROPOSED PUD CHANGES

RIVER OAKS AT OKATIE VILLAGE PUD

1. Changes:
    a. Master Plan and Trail Plan reflect new direction as a family oriented community, including restored interconnectivity with Osprey Point, so all residents in both communities can reach schools, village commercial, and the 13 Acre park (by internal connections).
    b. The 30' and 40' Lot layout reflects single family uses, which was allowed previously, but previous layout reflected an expected retirement center. See Exhibits B-1 and B-2 for lot building placement details.
    c. Density reduction from 330 units to 315 units.
    d. Design and development standards adjusted to match the standards in the adjacent Osprey Point neighborhood, to accommodate more affordable, single family product. The builder has agreed to increase the commitment to affordable/workforce housing in the two communities (under the Development Agreement).
    e. As requested by Staff and the Planning Commission, the Master Plan has been updated to include alleyways on all 30' lots. In addition, these 30' Lots will be "zero" lot line (Z-Lots), which maximizes private open space within the lots. (See Exhibit B-1)
    f. All stormwater, environmental and related standards continue, including the commitment to stormwater quality testing.

All other items in the First Amendment to the River Oaks PUD and Development Agreement relate to Development Agreement issues.

STATE OF SOUTH CAROLINA	)	**FIRST AMENDMENT TO**
	)	**RIVER OAKS AT OKATIE VILLAGE**
COUNTY OF BEAUFORT	)	**DEVELOPMENT AGREEMENT AND PUD ZONING**

This First Amendment To River Oaks at Okatie Village Development Agreement and PUD Zoning ("First Amendment") is made and entered this _____ day of _____, 2017, by and between Roger Saunders and Sloan Saunders(Owner), and the governmental authority of Beaufort County, South Carolina ("County").

WHEREAS, River Oaks is a portion of a larger, coordinated development area, known as Okatie Village, which also included the Okatie Marsh PUD and the Osprey Point PUD, with their respective Development Agreements, which were negotiated, adopted, and recorded simultaneously with River Oaks; and,

WHEREAS, no development activity or sales activity has taken place within the overall Okatie Village properties, including River Oaks, during the approximately 9 years since the original approvals of these developments; and,

WHEREAS, the original Development Agreements for Okatie Village would have expired in September of 2014, but such Development Agreements have been extended by the South Carolina Tolling Acts of 2010 and 2013, so that the expiration date has been effectively extended until approximately January 1, 2022; and,

WHEREAS, significant changes have taken place in real estate market conditions and within the Okatie Village development area since the original approval of River Oaks, making it

practically and economically unfeasible to develop River Oaks under the exact terms of the original River Oaks Development Agreement and PUD; and,

WHEREAS, the current Owner and County have agreed to amend the River Oaks Development Agreement and PUD in order to adjust the terms thereof to reflect current conditions as provided below;

NOW THEREFORE, in consideration of the terms and conditions hereof, the Owner and County hereby agree as follows:

I. INCORPORATION.

The above recitals are incorporated herein by reference.

II. STATEMENT OF DEVELOPMENT BACKGROUND AND CHANGES TO MARKET CONDITIONS AND CIRCUMSTANCES.

Planning and negotiations toward ultimate approval of the three Okatie Village Tracts, including River Oaks, occurred in 2006 - 2008, at a time that development was exploding in Beaufort County, and the pace of that development activity was expected to continue and accelerate as the baby boom generation was beginning to reach retirement age. Prices for homes and for commercial properties were escalating and that trend was expected to continue.

All of these trends ended before development of any of the Okatie Village communities could begin. Sales prices plummeted and a financial crisis prevented developers from acquiring needed development loans, and prevented potential buyers from obtaining home loans, even at reduced prices. Okatie Village properties were particularly hard hit, since their Development

Agreements imposed fees and burdens beyond any other development properties in Beaufort County.

The Okatie Marsh PUD failed completely before any development took place. Beaufort County acquired the entire property, which has been added to the County's Open Space land holdings. River Oaks, envisioned as a retirement facility with 330 residential units, plus nursing home and other facilities, failed to materialize. In 2014, a new version of the River Oaks community as a non-age restricted, family community was ruled possible by minor amendment, but that also failed, largely because more extensive changes to the Master Plan were needed than a minor amendment could accommodate, and also, due to the continuing problem of Development Fees in excess of competition.

Osprey Point, the central property of the three Okatie Village tracts, now has real potential to move forward in an economically conscientious way, under the name Malind Bluff. Several changes to the original plan have been necessitated by these changing market conditions, and are set forth in the Second Amendment to Osprey Point Development Agreement and PUD.

Since 2014, the two remaining Okatie Village PUDs (Osprey Point and River Oaks) have continued to struggle, with no development activity occurring. River Oaks PUD went into bankruptcy and the original Owner lost the property. Osprey Point failed to move forward as a completely age restricted community, as envisioned by the First Amendment. The expected development partnership between the Owner of Osprey Point and a national builder fell apart due to failed negotiations over lot cost factors and a continuing change to market conditions. The fact that Osprey Point would be the only development in Beaufort County subject to $6,000 per house school fees was a major contributing factor.

On the positive side, a new development partner has emerged to bring activity to both Osprey Point and River Oaks. The two remaining PUDs are working together to produce modifications that restore much of the original vision of Okatie Village as a functioning, live/work community, with access for all residents of both communities to the Village Commercial, the School areas, and a 13-acre public park (which was mandated by the First Amendment To Osprey Point).

The minimum changes to the River Oaks Development Agreement and PUD that are required to carry out these plans and restore the original vision of Okatie Village are set forth below.

III. DEVELOPMENT PLAN CHANGES.

A revised Master Plan and revised Trail and Open Space Plan are attached as Exhibits B and C, respectively, to this First Amendment (Exhibit A continues as a restatement of the original property description).

Both the Development Agreement and PUD Zoning are hereby amended by this First Amendment to reflect all changes which are shown and depicted on revised Exhibits B and C hereto, regarding the specific changes that are referenced herein and any other changes necessary, by implication, to effectuate these Development Plan and Master Plan changes. The following changes to the original Development Agreement and Master Plan are specifically listed and approved:

A. Residential Density Reduction. The original maximum residential density of 330 units is hereby reduced to a maximum of 315 residential units.

B. Allowed Development Type and Resulting Changes to Roadway and Pathway (Including Trails) Standards. The current development planning for River Oaks does not envision or require age restricted development. A mix of age targeted residential, family allowed residential, and (potentially) age restricted residential is envisioned and allowed hereby. The exact mix of these residential types will be based on market demand and will be at the Owner's discretion. The residential area is planned to be single family detached, although other residential building types are allowed, as was provided under the original Development Agreement.

Roads, Pathways, and Trails within the residential area may have limited access restrictions, subject to the additional, mandatory requirement that any gating of the community shall allow access by residents of the adjacent Osprey Point development to reach the School and Cherry Point areas, at least for daylight hours and school related trips. A reciprocal requirement will be incorporated into the Osprey Point Second Amendment that will allow restricted access, but mandate that residents of River Oaks be allowed access across Osprey Point to reach the Village Commercial Area and Highway 170 access, at least during daylight hours.

The Amended Master Plan (Exhibit B hereto) depicts the changes to the road system to allow this internal linkage between the communities, and the Amended Trail and Open Space Plan (Exhibit C hereto) also reflects these changes. All provisions of the original Development Agreement and PUD to the contrary are hereby amended to conform herewith.

C. **Workforce Housing Requirement**. The original River Oaks Development Agreement did not contain a Workforce Housing Requirement (as was required for Osprey Point and Okatie Marsh) because River Oaks was to be a retirement and age restricted development. With the changes adopted hereunder, and in the accompanying Osprey Point Second Amendment, a provision for workforce housing is appropriate. Therefore, River Oaks commits to a minimum of 25 residences to be offered at prices which qualify for workforce/affordable under the same guidelines and terms as apply to Osprey Point. This River Oaks provision raises the combined minimum from 15 units to a total of 40 qualifying residential units in the two communities of Okatie Village. Each community is responsible for meeting its individual requirement , however, so long as the 4o unit total requirement is met between the two developments, the workforce housing requirement will be satisfied. In other words, if Osprey Point develops 10 qualifying units, and River Oaks develops 30 qualifying units, this requirement shall be deemed satisfied for both communities.

D. **Impact/Development Fee Issues**. The terms of the original Development Agreement regarding fees due under Section IV (E) remain unchanged, with the following qualifications regarding School fees under Section IV(D). Owner and County recognize that South Carolina law has changed to allow the potential for Beaufort County to enact a development impact fee ordinance of general application to provide funding for school capital improvements. If Beaufort County adopts such a development fee ordinance for school capital improvements in the future, the terms of such new law shall apply to all future development within River Oaks, on the same basis as other development in Beaufort County. Given this change in South Carolina law, and recognizing the competitive disadvantage that has prevented development within River Oaks

for many years, the parties agree to eliminate Section IV(D) of the Development Agreement.

E. Design Guidelines/Residential Design. Under this First Amendment to River Oaks Development Agreement and PUD, River Oaks is committed to the same development type as the adjoining Osprey Point, and to internal integration with the adjoining Osprey Point community. Therefore, the same design and building flexibility as approved for Osprey Point, under both the First and Second Amendment to Osprey Point Development Agreement and PUD, is hereby adopted as controlling for River Oaks. All provisions of the River Oaks Development Agreement and PUD to the contrary are hereby repealed and replaced. The provisions of Section III (H) of the Osprey Point First and Second Amendments are incorporated herein by reference, substituting the name "River Oaks" for "Osprey Point", for the purposes of this First Amendment. This provision will allow River Oaks to fully integrate with its neighboring community, and further, allow the flexibility to meet the target market on the same terms as its major competitors in Southern Beaufort County, and also to meet its aggressive commitment to provide affordable housing. Notwithstanding the above flexibility, Owner agrees to utilize rear alley entrances for all lots of 35 foot width or less, as depicted on the Amended Master Plan, in order to minimize on street driveway locations for safety puposes.

F. Development Schedule Amendment. Subject to the same reservations and conditions contained under Section IV of the original Development Agreement and Exhibit D thereto, the Development Schedule is hereby amended as set forth in Exhibit D hereto, to reflect current forecasts and expected schedules.

G. Preliminary Drainage Plan, Water Plan and Sanitary Sewer Plans.

These preliminary plans are shown on Exhibits E, F, and G, respectively. All of these engineering elements fall at or below the load levels anticipated under the original River Oaks Development Agreement and PUD, so these changes to facilitate routing of these infrastructure elements constitute minor changes. These new Exhibits are included for completeness and to provide clarity as development progresses.

H. Legal Status of Workers. The provisions of Article V of the original River Oaks Development are hereby repealed, in order to avoid potential conflicts with evolving laws regarding immigration status of workers, while the commitment of Owner to provide an equal opportunity workplace continues.

I. Terms of Agreement/Incorporation/Default. The original Development Agreement and PUD were approved by both parties, effective September 3, 2008. The parties hereby agree that terms of the original Development Agreement are incorporated herein by reference, and that said documents are hereby amended as specifically set forth herein, directly or by necessary implication. The term of this First Amendment shall be for five years from the date of execution hereof, provided that the term shall be further extended for an additional five years if neither party hereto is in material breach hereof and if development of the subject property has not been completed during the initial term, and also, further extended by any South Carolina laws which have extended Development Agreements generally, for the full tolling period established by law. Both parties agree that with the execution and adoption hereof, no present defaults exist between the parties and all future activities within River Oaks shall be governed by the terms

hereof.

IN WITNESS WHEREOF, the parties hereby set their hands and seals, effective the date first above written.

WITNESSES

OWNER:

_____

_____ By:_____

Its:

_____ Attest: _____

Its:

_____

STATE OF SOUTH CAROLINA)
) **ACKNOWLEDGMENT**
COUNTY OF BEAUFORT)

I HEREBY CERTIFY, that on this ____ day of _____, 201__. before me, the undersigned Notary Public of the State and County aforesaid, personally appeared _____, and _____known to me (or satisfactorily proven) to be the person whose name is subscribed to the within document, as the appropriate official of _____, who acknowledged the due execution of the foregoing document.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year last above mentioned.

_____
Notary Public for South Carolina
My Commission Expires: _____

WITNESSES:

COUNTY OF BEAUFORT

_____

_____
County Council Chairman

_____

Attest:_____
County Clerk - County of Beaufort

STATE OF SOUTH CAROLINA)
)
COUNTY OF BEAUFORT)

ACKNOWLEDGMENT

I HEREBY CERTIFY, that on this ___ day of _____, 201__ before me, the undersigned Notary Public of the state and County aforesaid, personally appeared known to me (or satisfactorily proven) to be the persons whose name is subscribed to the within document, who acknowledged the due execution of the foregoing Development Agreement.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year last above mentioned.

_____
Notary Public for South Carolina
My Commission Expires:_____

EXHIBIT B

LOT YEILD: 315

30' X 110'

40' X 110'

Total Acres: +/-61.21

Residential Density: 5.14 DU/AC

Open Space: 26.26 AC (42.90%)

GRAPHIC SCALE

NORTH 0 150' 300' 450'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
181 BLUFFTON ROAD SUITE F505 BLUFFTON SC 29910
Voice 843.815.4800 Fax 843.815.4802

Ward Edwards ENGINEERING

RIVER OAKS (MALIND POINTE) AMENDED MASTER PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

THIS IS A CONCEPTUAL PLAN AND IS SUBJECT TO CHANGE. ALL SURVEY INFORMATION AND SITE BOUNDARIES WERE COMPILED FROM A VARIETY OF UNVERIFIED SOURCES AT VARIOUS TIMES AND AS SUCH ARE INTENDED TO BE USED ONLY AS A GUIDE. ALL PROPERTY LINES, TRACT DIMENSIONS AND NARRATIVE DESCRIPTIONS ARE FOR GRAPHIC REPRESENTATION ONLY, AS AN AID TO SITE LOCATION AND POTENTIAL LAND USE, AND ARE NOT LEGAL REPRESENTATIONS AS TO FUTURE USES OR LOCATIONS. J. K. TILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ITS ACCURACY OR STATE OF COMPLETION, OR FOR ANY DECISIONS (REQUIRING ACCURACY) WHICH THE USER MAY MAKE BASED ON THIS INFORMATION.

JKT Job Number: 201703-01

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EXHIBIT C

TRAILS AND OPEN SPACE

INTERNAL SIDEWALKS

PARKS

Total Acres: +/-61.21

Residential Density: 5.14 DU/AC

Open Space*: 26.26 AC (42.90 %)

*THE OPEN SPACES INCLUDE GARDENS, NATURAL AREAS, BUFFERS, STORMWATER AMENITIES, TRAILS AND OTHER NON-BUILDABLE LAND.

NORTH

GRAPHIC SCALE 0 200' 400' 600'

PREPARED FOR:
VILLAGE PARK HOMES, LLC

PREPARED BY:
J. K. TILLER ASSOCIATES, INC.
LAND PLANNING LANDSCAPE ARCHITECTURE
101 BLUFFTON ROAD SUITE F203 BLUFFTON, SC 29910
Voice 843.815.4030 jktiller@jktiller.com Fax 843.815.4035

Ward Edwards ENGINEERING

RIVER OAKS (MALIND POINTE) TRAILS AND OPEN SPACE PLAN

BEAUFORT COUNTY, SOUTH CAROLINA

FEBRUARY 2, 2018

JKT Job Number: 201703-01

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Exhibit D

DEVELOPMENT SCHEDULE

MALIND POINT (RIVER OAKS)

Development of the Property is expected to occur over the five (5) year term of the Agreement, with the sequence and timing of development activity to be dictated largely by market conditions. The following estimate of expected activity is hereby included, to be updated by Owner as the development evolves over the term:

	Year(s) of Commencement / Completion				
Type of Development	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**
Residential, Single Family (1)	50	50	50	50	50
Affordable / Workforce Housing (3)	-- 15	15	15	15	15
Park -- % To Be Completed	--	100%	--	--	--
Multi-Purpose Trail & Pathways -- % To Be Completed	--	25%	30%	30%	15%

(1) 300 single family units are forecast to remain to be built at the end of six years.
(2) none planned.
(3) River Oaks Schedule

As stated in the Development Agreement, Section VI, actual development may occur more rapidly or less rapidly, based on market conditions and final product mix.

EXHIBIT E

EXISTING WATER LEGEND
- EXISTING WATER MAIN
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING METER

PROPOSED WATER LEGEND
- PROPOSED WATER MAIN
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED METER

EXISTING SEWER LEGEND
- EXISTING GRAVITY SEWER LINE
- EXISTING GRAVITY SEWER MANHOLE
- EXISTING FORCE MAIN

PROPOSED SEWER LEGEND
- PROPOSED GRAVITY SEWER LINE
- PROPOSED GRAVITY SEWER MANHOLE
- PROPOSED FORCE MAIN
- PROPOSED SERVICE LATERAL

EXISTING DRAINAGE LEGEND
- EXISTING STORM DRAIN (SOLID WALL)
- EXISTING STORM DRAIN (PERFORATED CMP)
- EXISTING STORM STRUCTURE
- EXISTING WATERSHED DELINEATION

PROPOSED DRAINAGE LEGEND
- PROPOSED STORM DRAIN (SOLID WALL)
- PROPOSED STORM DRAIN (PERFORATED CMP)
- PROPOSED STORM STRUCTURE
- SPOT ELEVATION EL.XX.X

LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
COASTAL SURVEYING, INC.

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

PROPOSED DRAINAGE SYSTEM

0 120 240 Feet

RIVER OAKS

BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 02-02-18
PROJECT NO.: 180203
SCALE: 1"=120'

Ward Edwards ENGINEERING
P.O. BOX 381, BLUFFTON, SOUTH CAROLINA 29910
PH (843) 837-5250 / FAX (843) 837-2558
WWW.WARDEDWARDS.COM

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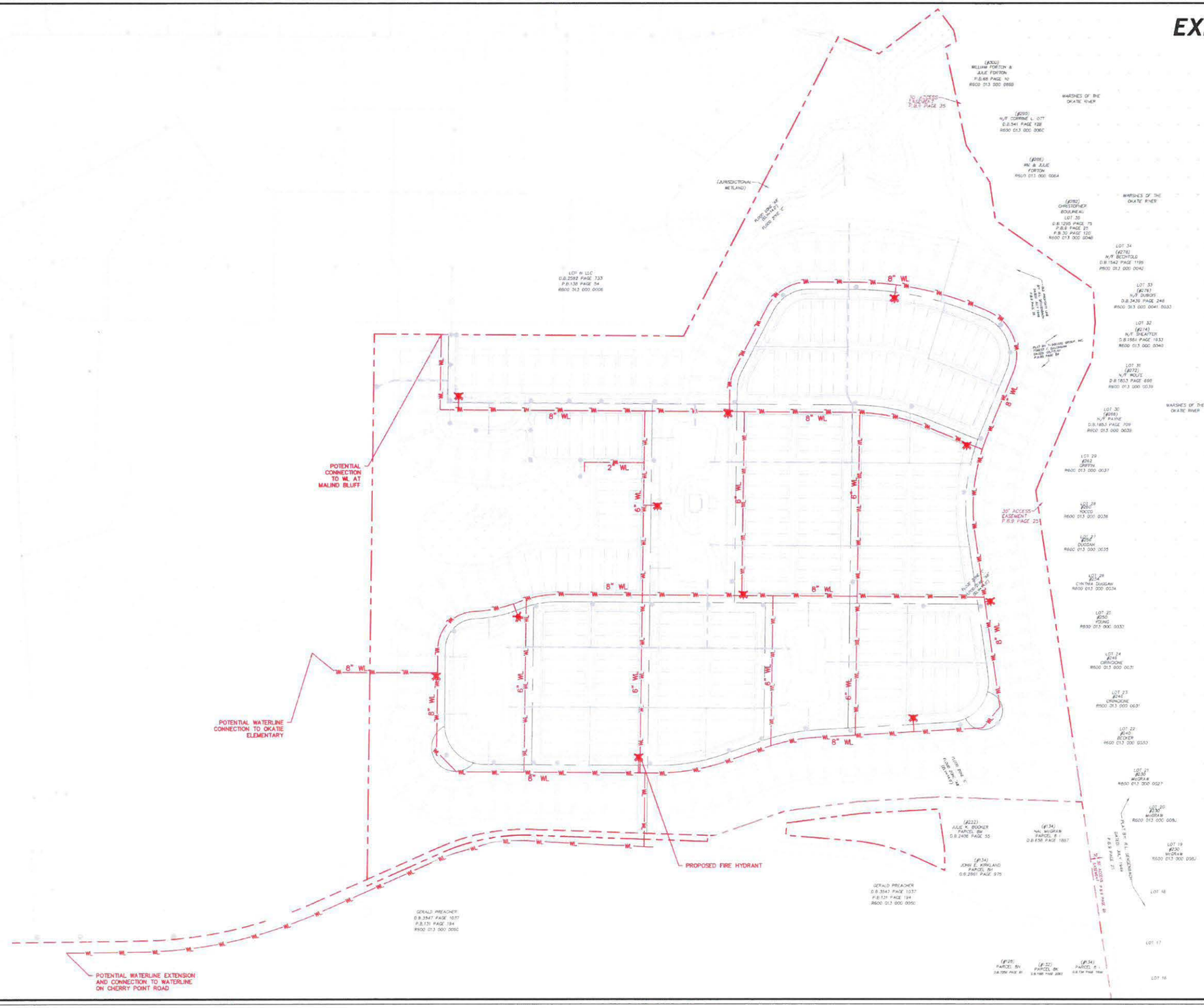
EXHIBIT F



EXISTING WATER LEGEND
- EXISTING WATER MAIN
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING METER

PROPOSED WATER LEGEND
- PROPOSED WATER MAIN
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED METER

EXISTING SEWER LEGEND
- EXISTING GRAVITY SEWER LINE
- EXISTING GRAVITY SEWER MANHOLE
- EXISTING FORCE MAIN

PROPOSED SEWER LEGEND
- PROPOSED GRAVITY SEWER LINE
- PROPOSED GRAVITY SEWER MANHOLE
- PROPOSED FORCE MAIN
- PROPOSED SERVICE LATERAL

EXISTING DRAINAGE LEGEND
- EXISTING STORM DRAIN (SOLID WALL)
- EXISTING STORM DRAIN (PERFORATED CMP)
- EXISTING STORM STRUCTURE
- EXISTING WATERSHED DELINEATION

PROPOSED DRAINAGE LEGEND
- PROPOSED STORM DRAIN (SOLID WALL)
- PROPOSED STORM DRAIN (PERFORATED CMP)
- PROPOSED STORM STRUCTURE
- SPOT ELEVATION — EL.XX.X

LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
COASTAL SURVEYING, INC.

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

PROPOSED WATER DISTRIBUTION SYSTEM

0 120 240 Feet

RIVER OAKS

BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 02-02-18
PROJECT NO.: 180203
SCALE: 1"=120'

Ward Edwards ENGINEERING
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EXHIBIT G

EXISTING WATER LEGEND

- EXISTING WATER MAIN
- EXISTING FIRE HYDRANT
- EXISTING VALVE
- EXISTING METER

PROPOSED WATER LEGEND

- PROPOSED WATER MAIN
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE
- PROPOSED METER

EXISTING SEWER LEGEND

- EXISTING GRAVITY SEWER LINE
- EXISTING GRAVITY SEWER MANHOLE
- EXISTING FORCE MAIN

PROPOSED SEWER LEGEND

- PROPOSED GRAVITY SEWER LINE
- PROPOSED GRAVITY SEWER MANHOLE
- PROPOSED FORCE MAIN
- PROPOSED SERVICE LATERAL

EXISTING DRAINAGE LEGEND

- EXISTING STORM DRAIN (SOLID WALL)
- EXISTING STORM DRAIN (PERFORATED CMP)
- EXISTING STORM STRUCTURE
- EXISTING WATERSHED DELINEATION

PROPOSED DRAINAGE LEGEND

- PROPOSED STORM DRAIN (SOLID WALL)
- PROPOSED STORM DRAIN (PERFORATED CMP)
- PROPOSED STORM STRUCTURE
- SPOT ELEVATION — EL. XX.X

LAND PLAN REFERENCE:
J. K. TILLER ASSOCIATES, INC.

SURVEY REFERENCE:
COASTAL SURVEYING, INC.

WETLANDS REFERENCE:
NEWKIRK ENVIRONMENTAL INC.

PROPOSED SANITARY SEWER SYSTEM

0 120 240 Feet

RIVER OAKS
BEAUFORT COUNTY, SOUTH CAROLINA

DATE: 02-02-18
PROJECT NO.: 180203
SCALE: 1"=120'

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