PD-159 (Final Version)
Approved by Council
August 17, 2017
(conditions incorporated)

Planned Development
Guidelines For

Berkeley Electric Cooperative
Johns Island District Office

1125 Main Road
Johns Island, SC

March 24, 2017
Revised August 29, 2017 per Conditions of Approval

Prepared By:
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North Charleston, SC 29418
Phone: (843) 740-7700

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1. Planned Development Name

Berkeley Electric Cooperative - Johns Island District Office

2. Statement of Objectives

The subject property is located on Johns Island at the intersection of Main Road and Patton Avenue across from St. John's Fire Dept. Station 7 and adjacent to St. James United Methodist Church. The parent tract consists of a total of 774.50 acres, of which approximately 34.5 acres will be subdivided for this development. The intent of this application is to create a Planned Development for the proposed Berkeley Electric Cooperative (BEC) facility. The goal of this development is to provide an office and customer service building with a community meeting room, along with warehouse, maintenance, and storage areas that serve and are relevant to the operations of Berkeley Electric Cooperative and to the citizens of Johns Island and surrounding area which they serve. A new centrally located facility will also give them the ability to respond to required emergency staging and operations that are required during natural disaster or other emergency events.

Proposed Planned Development:
TMS: Portion of 281-00-00-098
34.544 Acres (**Zoned PD**)

3. Intent of Proposed PD

Mission Statement: "*Berkeley Electric Cooperative is committed to providing safe, reliable and affordable energy, while enhancing the lives of those we serve.*"

The Johns Island District Office Planned Development is proposed to allow the mix of office, warehouse, and service uses that are necessary for Berkeley Electric Cooperative to maintain their operations and public services on Johns Island. These facilities will replace the current BEC facilities that are currently located on Maybank Highway on Johns Island and will provide an efficient use of land resulting in a more economical network of utilities, public grounds and buildings, and other facilities per Section 4.23.4(F) of the ZLDR. The proposed facility will serve as an operations hub, management office, bill payment and convenience center, community meeting center, emergency operations center, and an equipment storage and warehouse facility.
An important function of the proposed facility is to provide expanded operations and support areas during man-made and natural disasters to ensure public safety to repair and restore power to residents. This complies with providing a development pattern that incorporates adequate public safety in its design per Section 4.23.4(H). The Planned Development zoning is needed to support the proposed mix of uses that are typically not available under any of the base zoning districts or under the strict application of the standards of the ZLDR that were designated primarily for development on individual lots per Section 4.23.4(A).
The development will provide quality design and environmentally sensitive development by allowing the development to take advantage of special site characteristics, locations, and land use arrangements per Section 4.23.4(C). The site will be laid out in a manner to provide office, administrative, and customer service in the front of the site with ease of access for the community. The warehouse and operations uses will be positioned to the rear of the office building and will house the critical components needed for the daily service operations for electrical transmission and

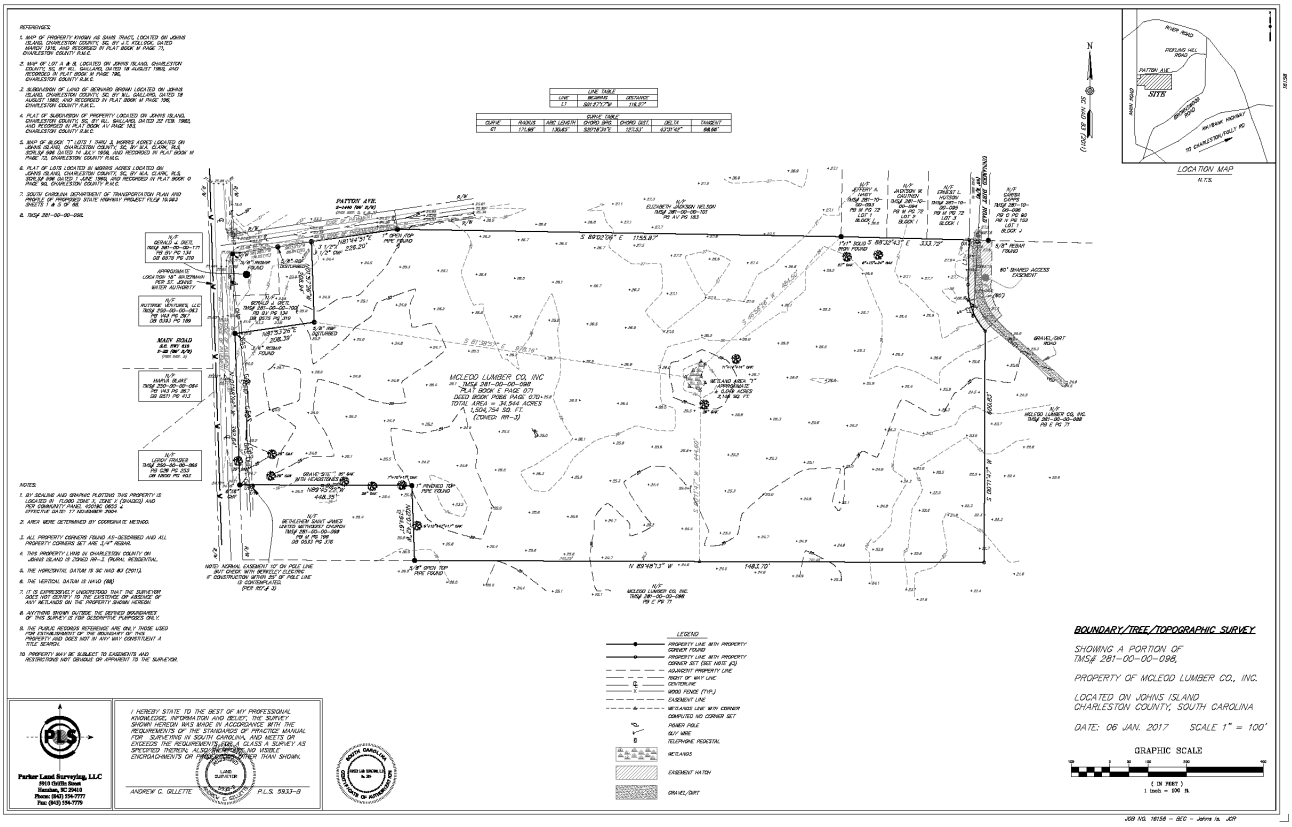
distribution. The buildings will relate to each other and to the site with vehicular and pedestrian connections to ensure ease of access. Additionally, the site and circulation design will comply with the ZLDR and will provide accessible routes. Site and parking lot landscaping will soften the building and parking areas through the use of plant materials appropriate to Johns Island. Buffers will remain undisturbed and where necessary shall be augmented to help protect the existing neighboring properties from any negative visual impact. Minor disturbances in the buffer shall be permitted for required grading, utilities, driveways, and stormwater elements. Best management practices for stormwater will be implemented to ensure that water quality is maintained and that pre and post development flows are maintained.

4. Site Information

Total Gross Acreage (Proposed Parcel) = 34.544 Acres

Highland Acreage = 34.495 Acres
Non-Jurisdictional Wetland Acreage = 0.049 Acres
OCRM Critical Acreage = 0.0 Acres

A plat is in an approvable state that will be approved and recorded upon approval of the PD zoning district for the subdivision of the parcel.



5. Allowable Land Uses

The uses listed in A-G are the only allowable uses for the PD.

A. Office

BEC offices for operations and customer service will be located at this facility. The offices may include a multi-lane drive-thru use for customer convenience to pay bills and for other customer service needs. A maximum of 2 drive-thru lanes are permitted. The office building will also include a community meeting room that may seat approximately 100 people.

B. Enclosed Storage

A warehouse facility will be on site to house equipment and materials that are frequently required for new service and to repair or upgrade existing power systems. The warehouse may include a loading dock for deliveries. Other enclosed storage is also allowed for vehicle, equipment, and material storage.

C. Covered Storage

Covered Storage areas will be structures with roofs but do not have walls. These may be used for storage of equipment, materials, vehicles and similar items.

D. Outdoor Storage

Outdoor uncovered storage and overflow laydown yards will be required for service vehicles, equipment, pole bunks, and materials that are required for the installation and maintenance of electrical transmission and distribution lines, substations, or other items related to BEC's operations and infrastructure. A separately fenced area may be included for storage and pick up of materials by other electrical sub-contractors to BEC. This area is not intended for rental or storage of equipment by others. These areas are intended to be flexible to allow storage and configuration as demand requires. All areas noted as "paved area" or "gravel/ paved area" on the conceptual plan may be used for storage and staging items. The "overflow laydown yard" may also be used for storage, but is not required to be paved or gravel. Bulk / loose material storage is prohibited (i.e.; sand, gravel).

E. Maintenance

A maintenance building with a wash bay is also required for operations. A fueling area will also be included.

F. Emergency Staging

In the event of natural/ man-made disasters or other emergency event the property may be used for staging of additional crews, equipment, temporary facilities, and the like to restore electrical service and infrastructure.

G. Accessory Uses and Structures

Accessory uses and structures are permitted as allowed by the ZLDR for commercial and industrial accessory uses (in ZLDR Article 6.5). Any accessory structures must comply with the dimensional standards of Section 6 of the PD.

6. Dimensional Standards

Table of Dimensional Standards	
Maximum Residential Density	0 units per acre
Maximum Office Area	32,000 SF
Maximum Enclosed Storage Area	73,000 SF
Maximum Covered Storage Area	52,000 SF
Maximum Maintenance Area	14,000 SF
Minimum Buffers:	
Front - Main Road	75 feet (Type S5 Buffer)
Patton Ave. North Property Line	50 feet (Type S4 Buffer)
North Property Line (Abutting Residentially Zoned Lots)	100 feet *
All other Property Lines	50 feet *
*Buffer shall include 6 Canopy Trees, 8 Understory Trees, and 35 shrubs per 100 linear feet.	
Fence: 6' Height screen fencing shall be required on the inside of the buffer edge adjacent to all residential uses / zoning. This screen fence may be chain link fence with privacy treatment and barbed wire for security purposes if desired. Chain link fence with barbed wire located in the buffer must be approved by the Planning Director. Metal ornamental fence may be used at other areas on site where screening is not required.	
Wetlands	35' (undisturbed)
OCRM Critical Line	35'
Minimum Setbacks:	
Front - Main Road	Equal to Buffer (75 feet)
Patton Ave. North Property Line	Equal to Buffer (50 feet)
North Property Line (Abutting Residentially Zoned Lots)	Equal to Buffer (100 feet)
All other Property Lines	Equal to Buffer (50 feet)
Wetlands	35'
OCRM Critical Line	50' (building setback)
Maximum Building Cover	40% of lot
Maximum Building Height	35 feet

Character Image: Metal Ornamental Fence

7. Impact Assessment/Analysis

Public and private service providers that will serve the proposed development have been contacted and provided the conceptual site plan or development summary for review. A request for letters of coordination have been submitted to each public and private service provider and are attached in the Exhibits section of this document.

Electricity will be provided by Berkeley Electric Co-Op and shall be served by existing overhead power lines along the east side of Main Road. Water will be provided by St. John's Water Company by an existing 18" water line located within the Main Road right of way. Sewer will be provided by an onsite septic system regulated by South Carolina Department of Health and Environmental Control. There is availability for gas service through SCE&G. A utility sketch plan is provided in the Exhibits section of this document. All utilities within the PD will be located underground. Care will be taken to avoid any adverse impacts to grand or protected trees.

The proposed development is located on Main Road near the intersection of Patton Avenue. The development will have two primary access points. One will be located on Main Road for public use and one will be located on Patton Avenue for employee and contractor access. Currently there is an existing driveway that provides access to the site from the intersection of Patton Avenue and Sassy Drive. The secondary access indicated across from Sassy Drive is a potential future access point and may be permitted in the event that the existing right of way and 60' access easement are improved. No right-of-ways are proposed within the planned development since access will be provided at the locations indicated on the conceptual site plan. All access improvements on site will be privately maintained.

The applicant will coordinate with SCDOT to obtain necessary approvals for site access to Main Road and Patton Avenue (including driveway separation) and will provide documentation from SCDOT that the access is sufficient for the proposed uses and estimated average daily trips. Based on the *Highway Design Manual* considerations for the project driveway, an exclusive left-turn lane along Main Road at the front entrance is recommended at the time of this document. A southbound left turn lane may also be considered for access to Patton Avenue, but may be not be required at the time of development if determined by the Planning Director that the turn lane is not necessary. The access and any recommended improvements will be considered during project design development and will be subject to review / permitting with any required agencies. In the event that the traffic generation is reduced based on use, then the need for turn lanes may be re-evaluated. See the traffic impact assessment report in the Appendix section of this document.

CARTA has requested a stop for their Tri-County Link shuttle with an accessible route to the building. A concrete pad will be provided per CARTA's request within the Main Road right-of-way subject to review and approval by permitting agencies. The exact location and size will be determined during the site plan review phase of the project.

8. Access

The primary access to the development for office and the convenience center will be from Main Road (S-20) and will be primarily for member and community use. An employee entrance will be

located on Patton Avenue to give access to the employee parking and other areas. Each of the driveways will be a minimum of 24ft. wide (12ft. each lane).

The access locations and any required improvements will be coordinated and permitted with the South Carolina Department of Transportation (SCDOT) and/ or Charleston County as required.

9. Development Schedule

The development is intended to proceed in a single phase. Future use expansion areas will not be implemented until the demand is needed in the future.

10. Compliance with the ZLDR

A. Items not specifically addressed within this Planned Development shall comply with the Charleston County Zoning and Land Development Regulations Ordinance for the Rural Commercial Zoning District per Article 4.19.

B. Applicant shall proceed with the development in accordance with the provisions of these zoning regulations, applicable provisions of the Charleston County Comprehensive Plan, and with such conditions as may be attached to any rezoning to the applicable PD district.

C. The provisions of Article 3.10, Variances, of the ZLDR shall not apply to the Planned Development and all major changes to the Planned Development must be approved by County Council. Tree variances may be granted in accordance with Article 3.10 and all other sections of the ZLDR.

D. The proposed development complies with the approval criteria contained in Section 4.23.9(E)(9) as explained herein:

1. This Planned Development complies with the standards contained in Article 4.23.6(F) for Commercial Development of the ZLDR by providing pedestrian connectivity and common access points.
2. The development is consistent with the intent of the Comprehensive Plan and other adopted policy documents by the preservation of existing on site wetlands, buffers, and existing grand trees. A community meeting room is also provided in the office building for the benefit of the surrounding community to have an accessible gathering place which helps foster a sense of community. Another function of the proposed facility is to provide operations and support during man-made and natural disasters to ensure public safety to repair and restore power to residents. No residential units are proposed within the development so no density increase is associated with the improvements.
3. The County and other agencies will be able to provide the necessary public services, facilities, and programs, to serve this development at the time it is developed. The County and other agencies have been notified of the proposed development and have provided letters of coordination. Coordination letters may be reviewed in the Exhibits section of this document.

11. Historic and Archeological Survey

A cultural resources assessment was conducted by Brockington in January 2017. Their field investigation did not identify any artifacts and they did not observe any cultural features other than existing logging roads. It is unlikely that any sites would be found that would be eligible for the National Register of Historic Places or require any other management or mitigation. However, the site may be considered likely to contain subsurface archeological sites or contain native American camp sites. A grave yard associated with the adjacent church is located along the southern property line and a few grave stones are located just inside the 50' buffer and will not be disturbed. See the Appendix for the full assessment report.

12. Architectural Guidelines

The Architectural Guidelines of Article 9.6 of the ZLDR shall apply to this proposed Planned Development. Furthermore, the following guidelines will apply:

1. The roofs of all structures will be generally hip or gable type with the office building roof slopes consistent with the rural Lowcountry designs. Utility buildings will have lower roof slopes of 1:12 to maximize interior clear heights required by the BEC equipment.
2. All office structures will adhere to a rural village architectural theme utilizing the proper scale, proportion, detail, materials, colors and landscape that will be compatible to similar buildings located throughout the Lowcountry recognized as offering quality Lowcountry design. The utility structures (enclosed storage, vehicle maintenance) will be Pre-Engineered Metal Building structure with Tilt-up concrete walls.
3. Glass facades will not exceed 50% of any buildings total exterior wall structure.
4. Office buildings will generally be constructed of Tilt-up concrete construction using a traditional architectural theme with approved finishes per the zoning ordinance. Due to their further proximity from view, Utility buildings (enclosed storage and vehicle maintenance buildings) will have painted Tilt-up concrete walls. Covered storage buildings will be Pre-Engineered Metal Building structures (no walls).
5. Building Color Scheme – All buildings will utilize colors natural to the site that are generally compatible with surrounding plant life and natural elements of the site. All roofs will be standing seam metal, subtle color pad with most buildings having a rural or galvalume appearance. In general, no more than four different colors per building will be allowed.
6. Lighting standards will meet the Standards set forth in ZLDR section 9.6.4.C, in order to minimize impacts of lighting on neighboring properties, enhance the aesthetics of the site, and provide adequate security the following shall apply:
    a. Light sources shall be full cutoff to ensure light sources are properly concealed/shielded to reduce glare and impacts to adjacent properties and roadways.
    b. No up-lighting will be allowed.
    c. Light poles and wall mount lighting heights may not exceed 30 feet.
    d. Exterior lights shall be arranged and installed to result in zero footcandles being measured at the northern property line abutting residentially zoned parcels.

A. Character Imagery

13. Areas Designated for Future Use

All areas designated for future expansion or not intended for immediate improvement or development shall remain in a natural state until such a time as development permits are approved.

14. Signs

One monument style sign may be permitted on Main Road and one smaller employee directional style sign may be permitted on Patton Avenue. Signage will comply with article 9.11, Signs, of the ZLDR.

In addition to article 9.11 of the ZLDR, the following shall also apply:

A. All free standing signs shall be monument style, externally lit.
B. Free standing signs shall not exceed ten (10) feet in height and fifty (50) square feet of sign area.
C. All sign illumination:
    1. Illuminated signs located adjacent to any residential area shall be controlled so as not to create excessive glare to properties within adjacent residential areas. Footcandles shall be reduced by one-half the allowable footcandle after hours of operation.
    2. LED signs are prohibited;
    3. No illumination that simulates traffic control devices or emergency vehicles shall be used.

4. All illumination must be from a steady, stationary light source.
5. Internal Illumination:
    a. No signs shall be internally illuminated.
6. External Illumination:
    a. Illumination shall be from a steady stationary light source, shielded and directed solely at the sign.
    b. Light sources to illuminate signs shall be shielded as to not cause glare hazardous to pedestrians or vehicle drivers or so as to create a nuisance to adjacent properties.
    c. The intensity of light shall not exceed twenty (20) footcandles at any point on the sign face.
    d. The color of light sources to illuminate signs shall be white.
    e. Signs shall not have light-reflecting backgrounds or letters.

15. Parking

Parking shall be provided in accordance with ZLDR Article 9.3, Off-Street Parking and Loading.

16. Tree Protection

The existing site has been used for tree farming and generally consists of planted rows of pine trees with an existing undisturbed natural buffer with native trees along the road frontages. A limited number of grand trees exist on site. Grand trees in good health shall be preserved or shall require a variance from the Board of Zoning Appeals for removal and/ or mitigation. All grand tree locations and species have been surveyed and are included on the existing conditions survey.

The planned development shall comply with the provisions of Article 9.4, Tree Protection and Preservation, of the ZLDR. All trees located within required buffers as outlined in Article 9.5 shall be protected. Exceptions may include non-grand tree removals for minor grading/stormwater, utilities, and driveways.

17. Landscape Requirements

A. The site will be appropriately landscaped per ZLDR section 9.5, Landscaping, Screening, and Buffers.

B. Right-of-Way Buffers
The Planning Director shall be authorized to waive/modify minimum buffer planting requirements when an undisturbed natural buffer exists that is the same depth and amount of plant material as that which is required.

Existing gas and overhead powerlines and/or easements run inside the required buffer along Main Rd. Where drainage or other utility easements exist along property lines, required landscape buffers shall be located adjacent to the easement/utilities and may be reduced in width by the width of the easement. The buffers must contain the density of plant material required in the full buffer even if the buffer is reduced due to utility easements, and is only

allowed by the approval of the Planning Director, but in no case shall the buffer width be less than fifty (50) feet. The Main Road right-of-way buffer must contain the plant material of an S5 type buffer.

In the event that the Main Road right of way is widened prior to the development being submitted for site plan review, to the extent practicable, the buffer may be reduced to no less than ten (10) feet and contain a low masonry screen wall.

18. Resource Areas

Planned developments shall protect any resources determined significant by the Planning Director including, but not limited to: agricultural soils and active farmland, buffer areas between active farmland and existing/planned future non-farm development, wetlands, mature trees, and habitat of species designated as of federal, state and local concern.
Existing grand trees and significant trees in the buffer will be preserved. An existing wetland area on site will be preserved and a 35' wetland buffer will be provided. Additionally, buffers will be provided adjacent to neighboring properties and roadways where indicated on the site plan. Existing plant material in the buffers should be preserved. Temporary and permanent Best Management Practices will be implemented to ensure protection to existing resources. See Section 16 for Tree Protection requirements.

19. Storm Water

The planned development shall comply with all Charleston County Stormwater Ordinances and SCDHEC Regulatory requirements. For site locations within sensitive drainage basins prone to flooding additional stormwater design and construction requirements may be required by the Director of Public Works prior to Stormwater permit approval and issuance. Where possible and allowed by permit, the proposed site may connect its stormwater system with existing conveyances. Best Management Practices (BMP's) shall be utilized, installed, and maintained in compliance with applicable approved permits throughout all phases including, but not limited to, site development, construction, and post construction.

Applicant shall comply with Charleston County Stormwater Ordinances and SCDHEC Regulatory requirements for pre and post construction water quality and quantity. Stormwater design, construction, and maintenance shall be in compliance with applicable approved Charleston County Stormwater Permits. Utilization of approved and permitted Low Impact Design elements is encouraged within a comprehensive site Master Drainage Plan.

20. Letters of Coordination

See Exhibits Section "I" for copies of the following coordination letters.

SCDOT	The South Carolina Department of Transportation has reviewed the proposed development and its letter of coordination is attached.
FIRE DEPT.	The St. John's Fire Department has reviewed the proposed development and its letter of coordination is attached.
BERKELEY ELEC. CO-OP (Electric)	The Berkeley Electric Co-Op has reviewed the proposed development and its letter of coordination is attached.
ST. JOHN'S WATER (Water)	St. John's Water has reviewed the proposed development and its letter of coordination is attached.
SCE&G (Gas)	South Carolina Electric and Gas has reviewed the proposed development and its letter of coordination is attached.
CHARLESTON CO. SHERIFF	The Charleston County Sheriff has reviewed the proposed development and its letter of coordination is attached.
CHARLESTON CO. EMS	Charleston County Emergency Medical Services has reviewed the proposed development and its letter of coordination is attached.
CHARLESTON CO. PUBLIC WORKS	Charleston County Public Works has reviewed the proposed development and its letter of coordination is attached.
CHARLESTON CO. TRANSPORTATION DEVELOPMENT	Charleston County Transportation Development has reviewed the proposed development and its letter of coordination is attached.
U.S. ARMY CORPS OF ENGINEERS	The U.S. Army Corps of Engineers has reviewed the proposed development and its letter of coordination is attached.
U.S. POST OFFICE	The United States Post Office has reviewed the proposed development and its letter of coordination is attached.
CARTA	Charleston Regional Transportation Authority (CARTA) has been notified of the proposed development and their letter of coordination is attached.

21. Referenced ZLDR

References to the Charleston County Zoning and Land Development regulations at the approval time of this Planned Development shall apply by reference and are included in the appendix of this document. The following sections are referenced within the document:

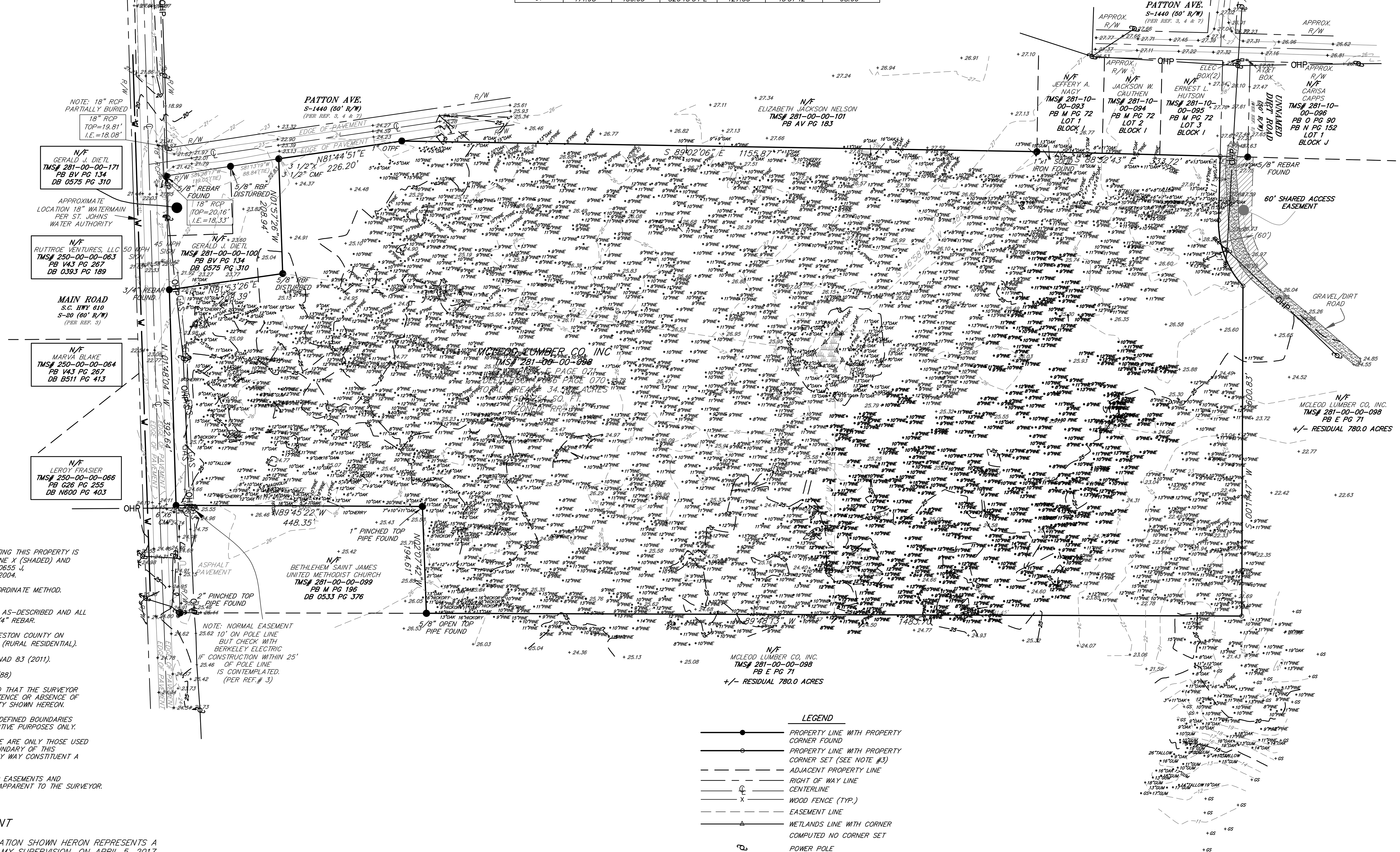
Article 4.19 – Rural Commercial District, Article 9.3 – Off-Street Parking and Loading, Article 9.4 – Tree Protection and Preservation, Article 9.5 – Landscaping, Screening and Buffers, Article 9.6 – Architectural and Landscape Design Standards, Article 9.7 – Wetlands, Waterways and OCRM Critical Line, Article 9.11 – Signs.

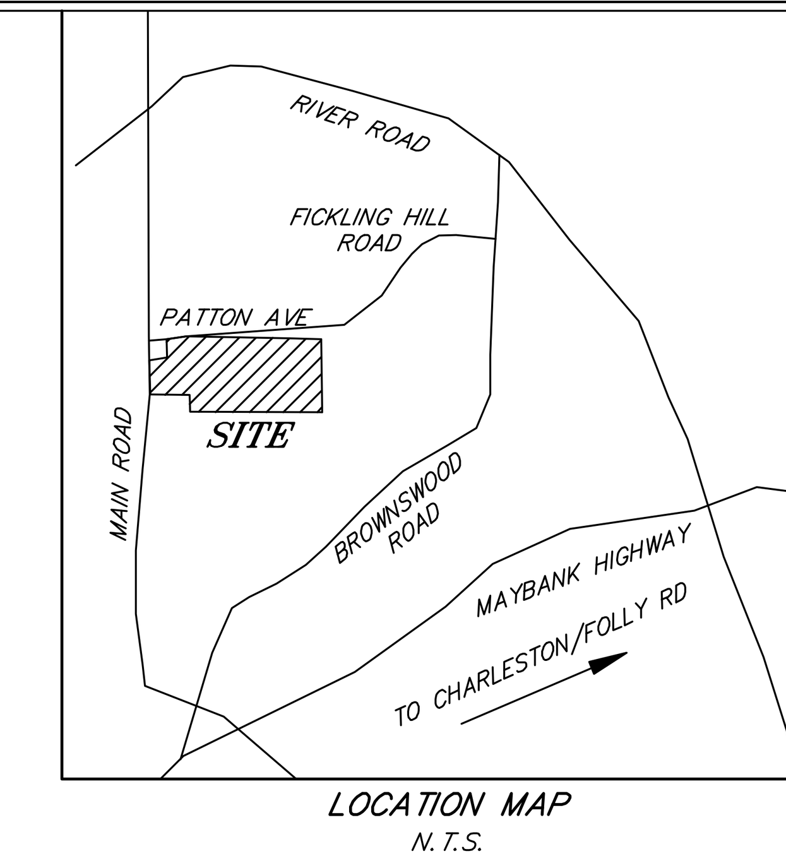
REFERENCES:

1. MAP OF PROPERTY KNOWN AS SAMS TRACT, LOCATED ON JOHNS ISLAND, CHARLESTON COUNTY, SC, BY J.T. KOLLOCK, DATED MARCH 1916, AND RECORDED IN PLAT BOOK M PAGE 71, CHARLESTON COUNTY R.M.C.
2. MAP OF LOT A & B, LOCATED ON JOHNS ISLAND, CHARLESTON COUNTY, SC, BY W.L. GAILLARD, DATED 18 AUGUST 1960, AND RECORDED IN PLAT BOOK M PAGE 196, CHARLESTON COUNTY R.M.C.
3. SUBDIVISION OF LAND OF BERNARD BROWN LOCATED ON JOHNS ISLAND, CHARLESTON COUNTY, SC, BY W.L. GAILLARD, DATED 18 AUGUST 1960, AND RECORDED IN PLAT BOOK M PAGE 196, CHARLESTON COUNTY R.M.C..
4. PLAT OF SUBDIVISION OF PROPERTY LOCATED ON JOHNS ISLAND, CHARLESTON COUNTY, SC, BY W.L. GAILLARD, DATED 22 FEB. 1982, AND RECORDED IN PLAT BOOK AV PAGE 183, CHARLESTON COUNTY R.M.C.
5. MAP OF BLOCK "I" LOTS 1 THRU 3, MORRIS ACRES LOCATED ON JOHNS ISLAND, CHARLESTON COUNTY, SC, BY W.A. CLARK, RLS, SCRLS# 596 DATED 14 JULY 1959, AND RECORDED IN PLAT BOOK M PAGE 72, CHARLESTON COUNTY R.M.C.
6. PLAT OF LOTS LOCATED IN MORRIS ACRES LOCATED ON JOHNS ISLAND, CHARLESTON COUNTY, SC, BY W.A. CLARK, RLS, SCRLS# 596 DATED 1 JUNE 1960, AND RECORDED IN PLAT BOOK O PAGE 90, CHARLESTON COUNTY R.M.C.
7. SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION PLAN AND PROFILE OF PROPOSED STATE HIGHWAY PROJECT FILE# 10.563 SHEETS 1 & 5 OF 68.
8. TMS# 281-00-00-098.

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S01°27'17"W	116.27'

CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD BRG.	CHORD DIST.	DELTA	TANGENT
C1	171.98'	130.65'	S20°18'34"E	127.53'	43°31'42"	68.66'





LOCATION MAP
N.T.S.

NOTES:

1. BY SCALING AND GRAPHIC PLOTTING THIS PROPERTY IS LOCATED IN FLOOD ZONE X, ZONE X (SHADED) AND PER COMMUNITY PANEL 45019C 0655 J, EFFECTIVE DATE: 17 NOVEMBER 2004.
2. AREA WERE DETERMINED BY COORDINATE METHOD.
3. ALL PROPERTY CORNERS FOUND AS-DESCRIBED AND ALL PROPERTY CORNERS SET ARE 3/4" REBAR.
4. THIS PROPERTY LYING IN CHARLESTON COUNTY ON JOHNS ISLAND IS ZONED RR-3. (RURAL RESIDENTIAL).
5. THE HORIZONTAL DATUM IS SC NAD 83 (2011).
6. THE VERTICAL DATUM IS NAVD (88)
7. IT IS EXPRESSIVELY UNDERSTOOD THAT THE SURVEYOR DOES NOT CERTIFY TO THE EXISTENCE OR ABSENCE OF ANY WETLANDS ON THE PROPERTY SHOWN HEREON.
8. ANYTHING SHOWN OUTSIDE THE DEFINED BOUNDARIES OF THIS SURVEY IS FOR DESCRIPTIVE PURPOSES ONLY.
9. THE PUBLIC RECORDS REFERENCE ARE ONLY THOSE USED FOR ESTABLISHMENT OF THE BOUNDARY OF THIS PROPERTY AND DOES NOT IN ANY WAY CONSTITUENT A TITLE SEARCH.
10. PROPERTY MAY BE SUBJECT TO EASEMENTS AND RESTRICTIONS NOT OBVIOUS OR APPARENT TO THE SURVEYOR.

LEGEND

- PROPERTY LINE WITH PROPERTY CORNER FOUND
- PROPERTY LINE WITH PROPERTY CORNER SET (SEE NOTE #3)
- ADJACENT PROPERTY LINE
- RIGHT OF WAY LINE
- CENTERLINE
- WOOD FENCE (TYP.)
- EASEMENT LINE
- WETLANDS LINE WITH CORNER
- COMPUTED NO CORNER SET
- POWER POLE
- GUY WIRE
- TELEPHONE PEDESTAL
- WETLANDS
- EASEMENT HATCH
- GRAVEL/DIRT

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

SURVEYOR'S STATEMENT

I CERTIFY THAT THE INFORMATION SHOWN HERON REPRESENTS A FIELD SURVEY MADE UNDER MY SUPERVISION, ON APRIL 5, 2017. I FURTHER CERTIFY THAT ALL INFORMATION DEPICTED IS A CORRECT REPRESENTATION OF ACTUAL FIELD CONDITIONS, AND THAT ALL HORIZONTAL DIMENSIONS, VERTICAL DIMENSIONS, AND GRADE LINES SHOWN ARE A TRUE REPRESENTATION OF EXISTING CONDITIONS.

SOUTH CAROLINA REGISTERED LAND SURVEYOR 5933-B ANDREW C. GILLETTE

ANDREW C. GILLETTE,
S.C.P.L.S. NO. 5933-B

TITLE

TOPOGRAPHIC & TREE SURVEY

SHOWING A PORTION OF
TMS# 281-00-00-098
LOCATED ON JOHNS ISLAND
CHARLESTON COUNTY, S.C.

NO.	DATE	REVISIONS

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION PARKER LAND SURVEYING, LLC No. 3814

Parker Land Surveying, LLC
5910 Griffin Street
Hanahan, SC 29410
Phone: (843) 554-7777
Fax: (843) 554-7779

DESIGNED : –
DRAWN : JCR
CHECKED : RAA
APPROVED : ACG
SCALE : 1"=100'
DATE : 01/06/2017
PROJECT NO. : 16158
SHEET 1 OF 1

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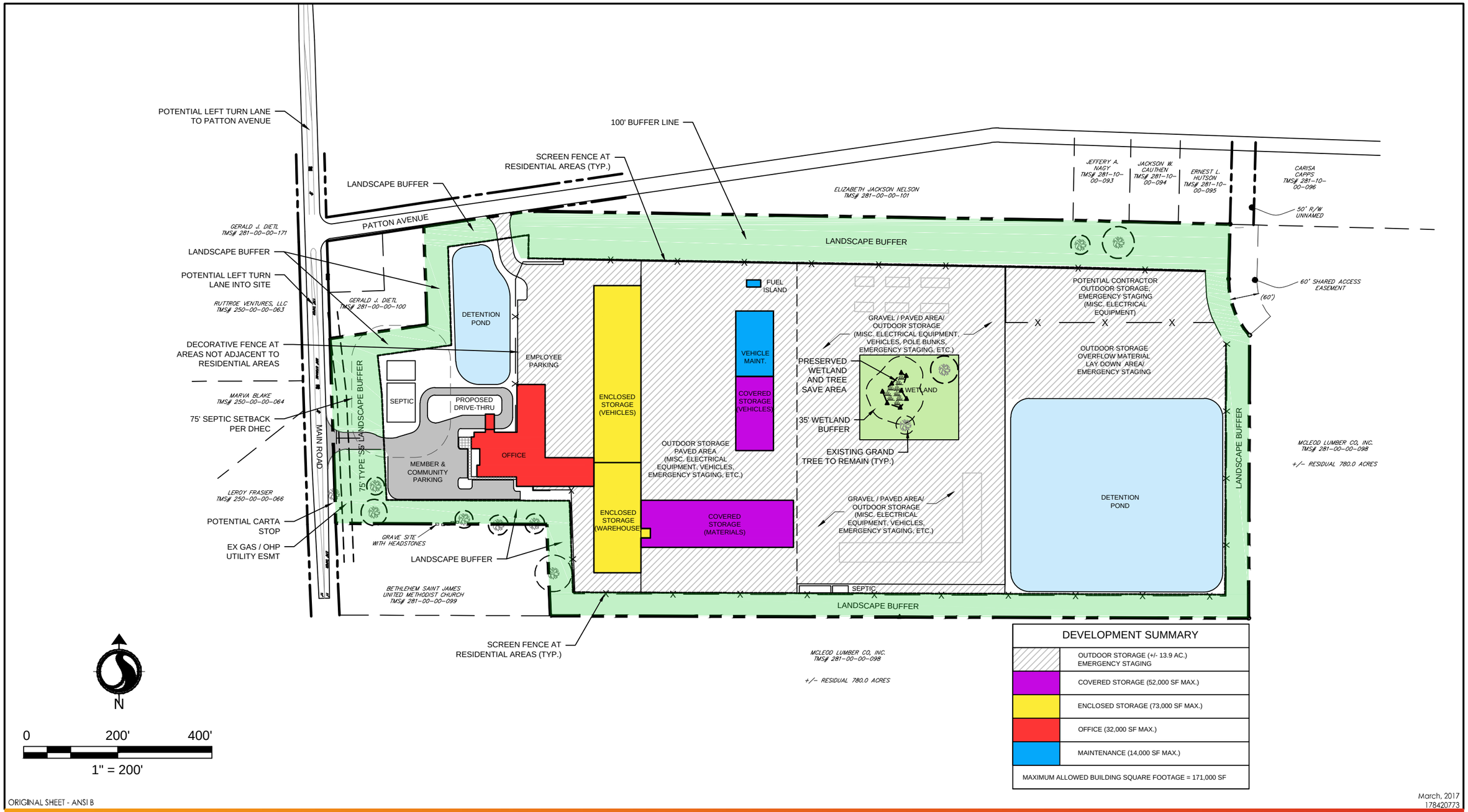

DEVELOPMENT SUMMARY	
	OUTDOOR STORAGE (+/- 13.9 AC.) EMERGENCY STAGING
	COVERED STORAGE (52,000 SF MAX.)
	ENCLOSED STORAGE (73,000 SF MAX.)
	OFFICE (32,000 SF MAX.)
	MAINTENANCE (14,000 SF MAX.)
MAXIMUM ALLOWED BUILDING SQUARE FOOTAGE = 171,000 SF	

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ORIGINAL SHEET - ANSI B

March, 2017
178420773

Stantec

4969 Centre Pointe Dr, Suite 200
North Charleston, SC 29418

Legend

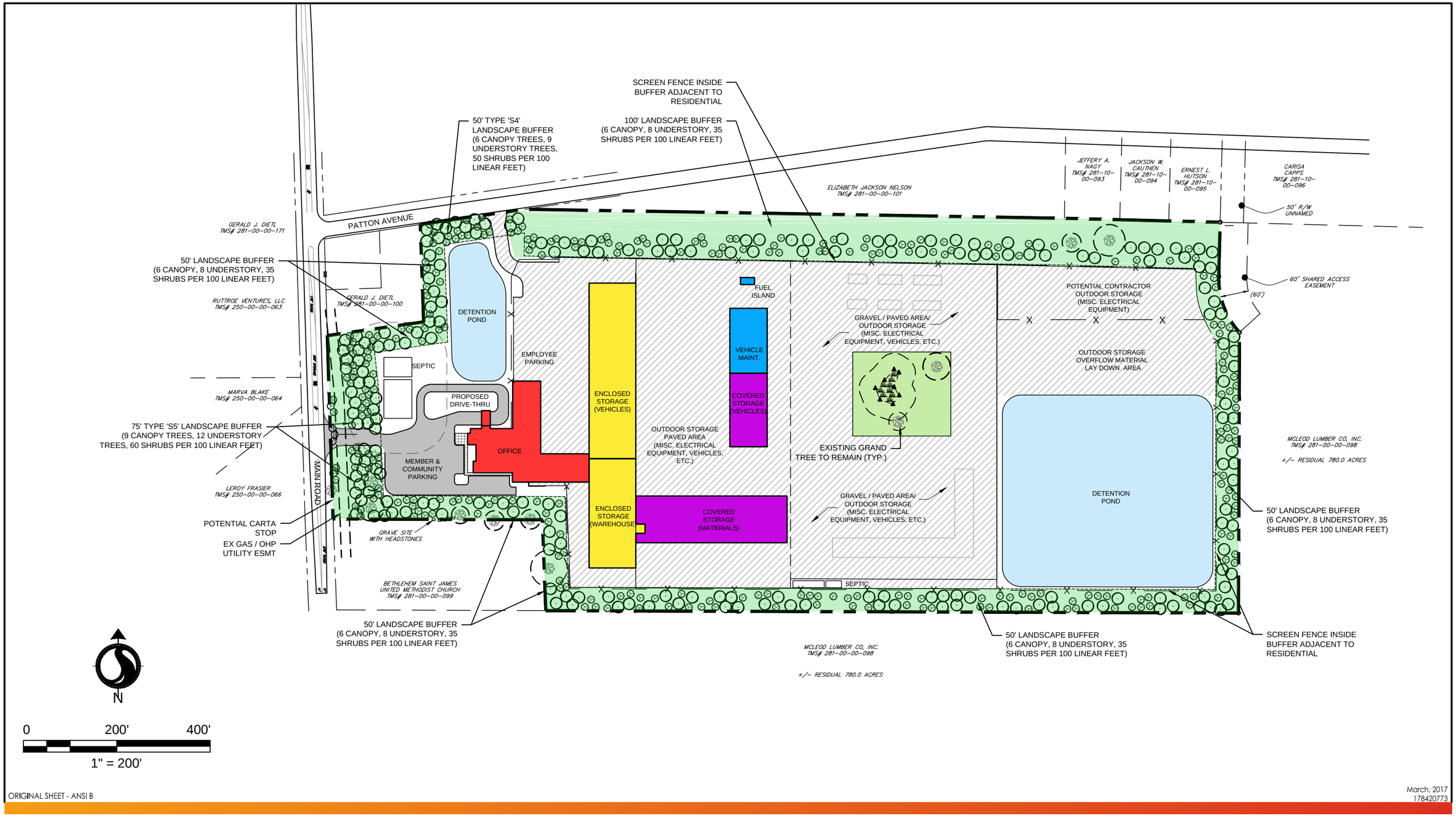
Notes

1. THIS SITE PLAN, BUILDINGS, AND LISTED SQUARE FOOTAGE ARE SCHEMATIC IN ORDER TO SHOW MASSING AND LAND USES ON SITE. EXACT LOCATION AND CONFIGURATION ARE SUBJECT TO CHANGE DURING DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS. ALL PLANS SUBJECT TO AGENCY REVIEW / APPROVAL INCLUDING SITE PLAN REVIEW IN CHARLESTON COUNTY.

Client/Project
BERKELEY ELECTRIC COOPERATIVE
JOHNS ISLAND DISTRICT OFFICE
Johns Island, South Carolina

Figure No.
2

Title
EXHIBIT "B"
Proposed Site Plan Concept



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2017/08/29 8:01 AM By: Lilly, Josh

ORIGINAL SHEET - ANSI B

March, 2017
178420773

Stantec

4969 Centre Pointe Dr, Suite 200
North Charleston, SC 29418

Legend

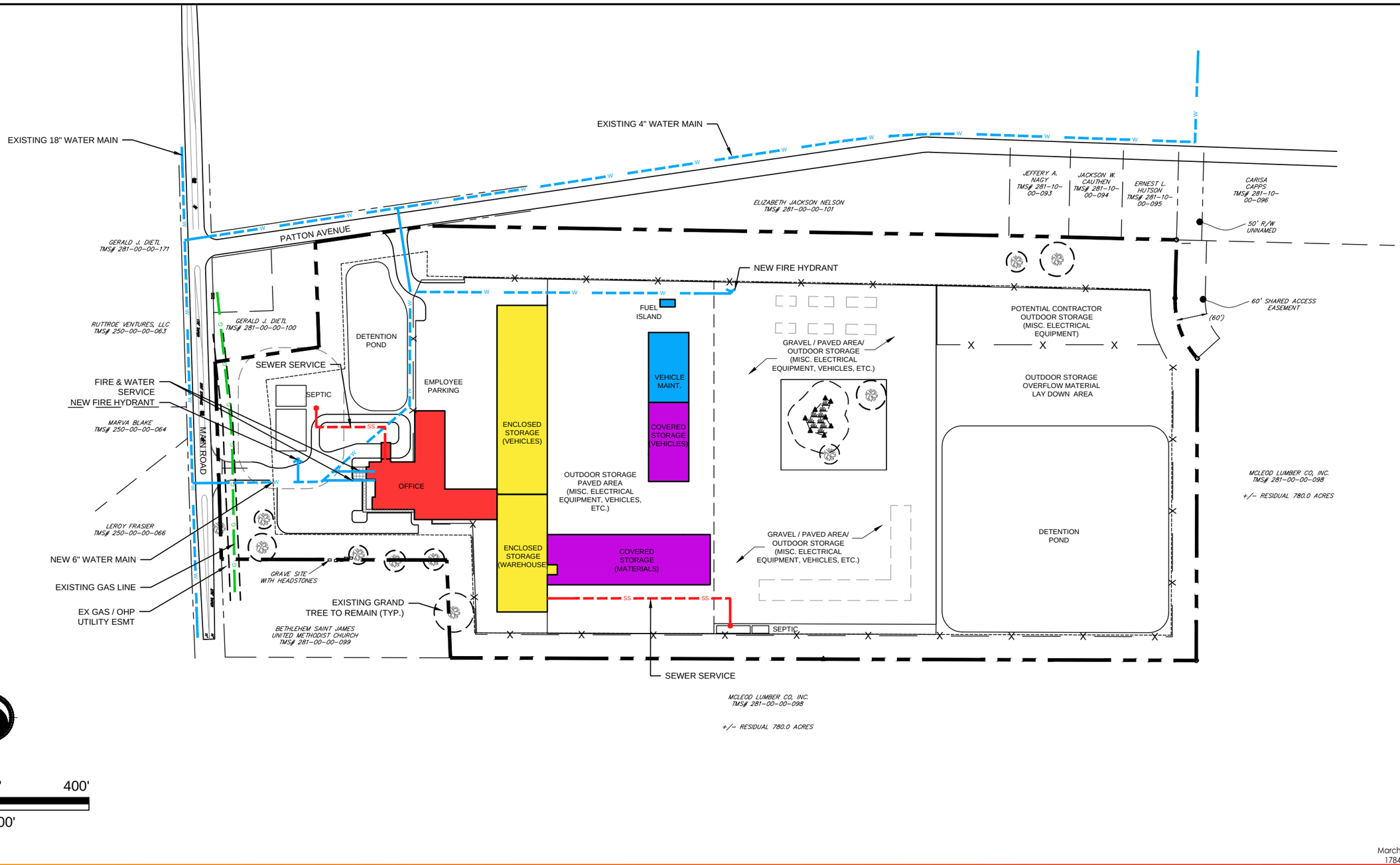
Notes

1. THIS SITE PLAN, BUILDINGS, AND LISTED SQUARE FOOTAGE ARE SCHEMATIC IN ORDER TO SHOW MASSING AND LAND USES ON SITE. EXACT LOCATION AND CONFIGURATION ARE SUBJECT TO CHANGE DURING DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS. ALL PLANS SUBJECT TO AGENCY REVIEW / APPROVAL INCLUDING SITE PLAN REVIEW IN CHARLESTON COUNTY.

Client/Project
BERKELEY ELECTRIC COOPERATIVE
JOHNS ISLAND DISTRICT OFFICE
Johns Island, South Carolina

Figure No.
3

Title
EXHIBIT "C"
Landscape Sketch Plan Concept



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2017/08/29 8:01 AM By: Lilly, Josh

ORIGINAL SHEET - ANSI B

March, 2017
178420773

Stantec

4969 Centre Pointe Dr, Suite 200
North Charleston, SC 29418

Legend

- W — PROPOSED WATER SERVICE
- G — EXISTING GAS SERVICE
- SS — PROPOSED SANITARY SEWER SERVICE TO ONSITE SEPTIC FIELD

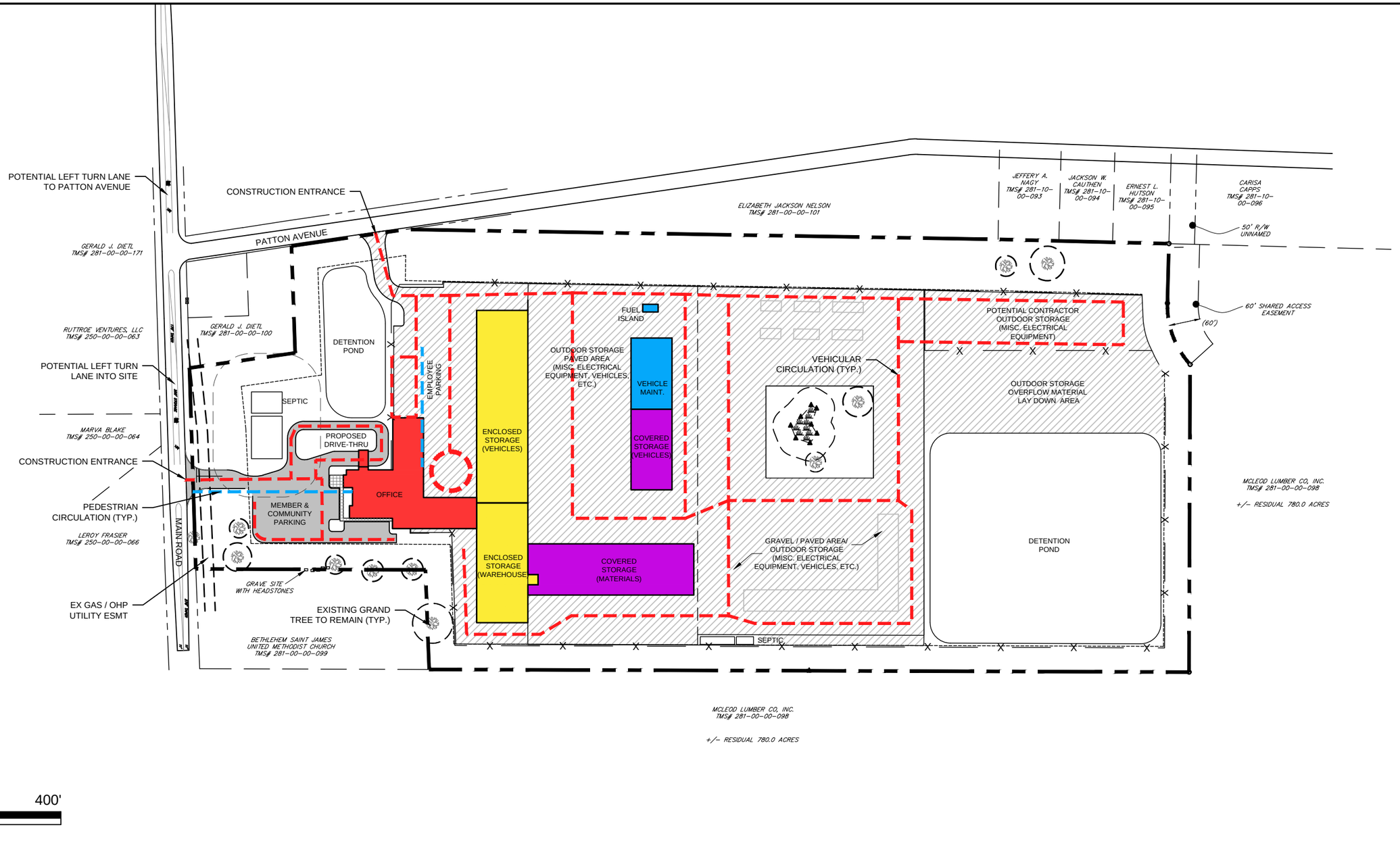
Notes

1. THIS SITE PLAN, BUILDINGS, AND LISTED SQUARE FOOTAGE ARE SCHEMATIC IN ORDER TO SHOW MASSING AND LAND USES ON SITE. EXACT LOCATION AND CONFIGURATION ARE SUBJECT TO CHANGE DURING DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS. ALL PLANS SUBJECT TO AGENCY REVIEW / APPROVAL INCLUDING SITE PLAN REVIEW IN CHARLESTON COUNTY.

Client/Project
BERKELEY ELECTRIC COOPERATIVE
JOHNS ISLAND DISTRICT OFFICE
Johns Island, South Carolina

Figure No.
4

Title
EXHIBIT "D"
Utility Sketch Plan Concept



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2017/08/29 8:01 AM By: Lilly, Josh

ORIGINAL SHEET - ANSI B

March, 2017
178420773

Legend

- PROPOSED VEHICULAR CIRCULATION
- PROPOSED PEDESTRIAN CIRCULATION

Notes

1. THIS SITE PLAN, BUILDINGS, AND LISTED SQUARE FOOTAGE ARE SCHEMATIC IN ORDER TO SHOW MASSING AND LAND USES ON SITE. EXACT LOCATION AND CONFIGURATION ARE SUBJECT TO CHANGE DURING DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS. ALL PLANS SUBJECT TO AGENCY REVIEW / APPROVAL INCLUDING SITE PLAN REVIEW IN CHARLESTON COUNTY.

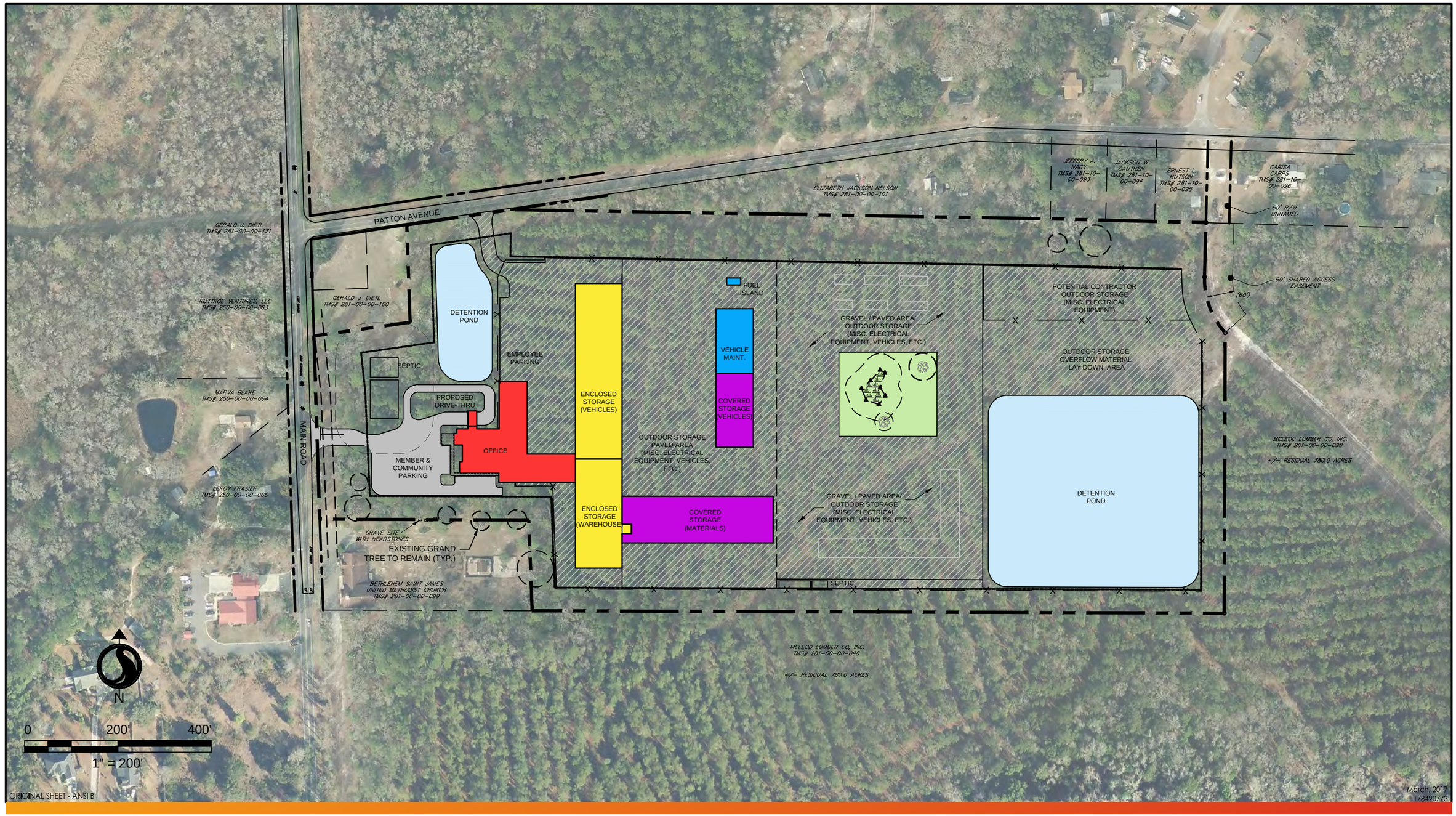
Stantec

4969 Centre Pointe Dr, Suite 200
North Charleston, SC 29418

Client/Project
BERKELEY ELECTRIC COOPERATIVE
JOHNS ISLAND DISTRICT OFFICE
Johns Island, South Carolina

Figure No.
5

Title
EXHIBIT "E"
Traffic Circulation / Access Plan Concept



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2017/08/29 8:01 AM By: Lilly, Josh

ORIGINAL SHEET - ANSI B

March 2017
178420773

Stantec

4969 Centre Pointe Dr, Suite 200
North Charleston, SC 29418

Legend

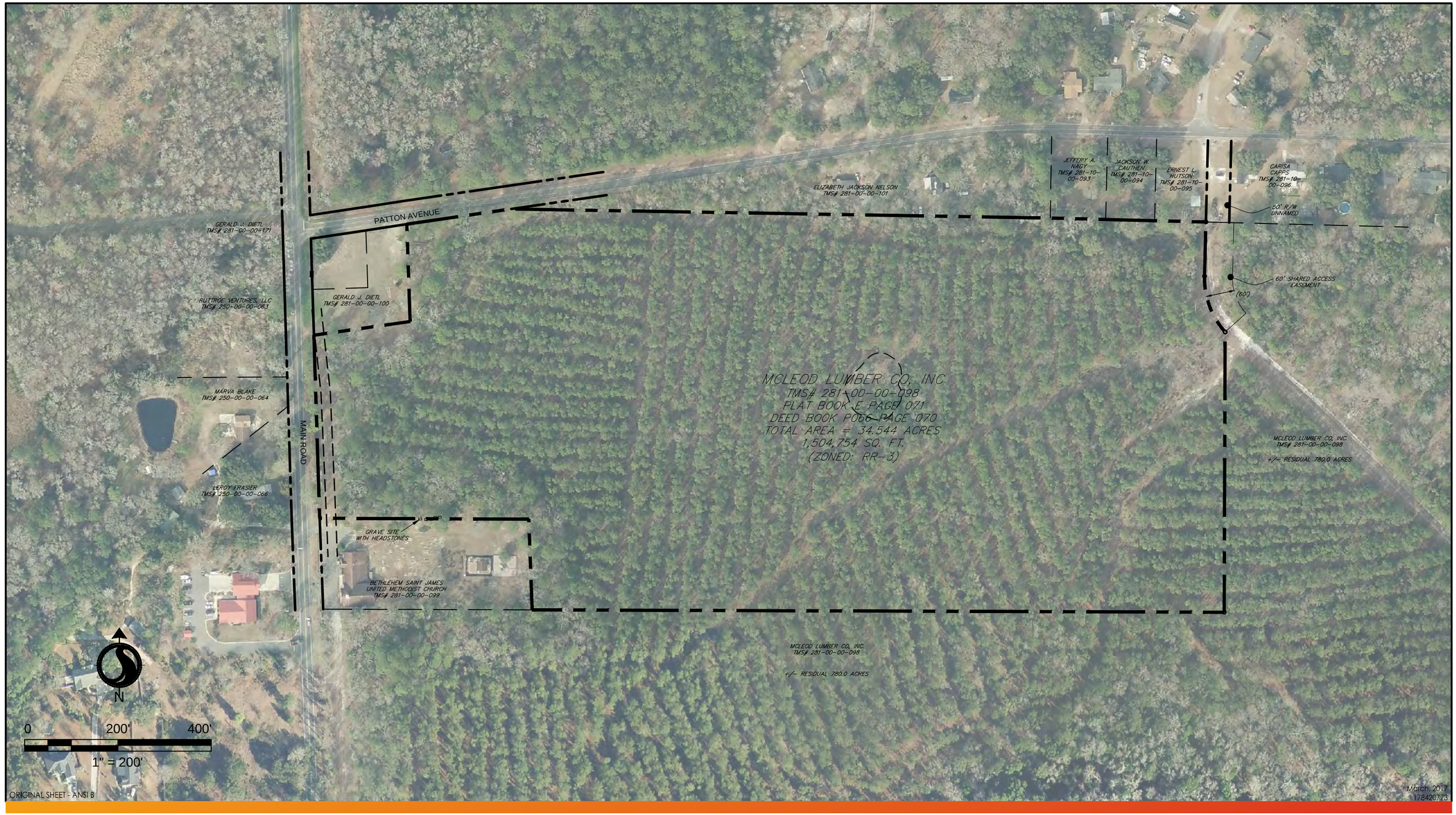
Notes

1. THIS SITE PLAN, BUILDINGS, AND LISTED SQUARE FOOTAGE ARE SCHEMATIC IN ORDER TO SHOW MASSING AND LAND USES ON SITE. EXACT LOCATION AND CONFIGURATION ARE SUBJECT TO CHANGE DURING DESIGN DEVELOPMENT AND CONSTRUCTION DOCUMENTS. ALL PLANS SUBJECT TO AGENCY REVIEW / APPROVAL INCLUDING SITE PLAN REVIEW IN CHARLESTON COUNTY.

Client/Project
BERKELEY ELECTRIC COOPERATIVE
JOHNS ISLAND DISTRICT OFFICE
Johns Island, South Carolina

Figure No.
6

Title
EXHIBIT "F"
AERIAL PHOTO / SITE CONCEPT



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2017/08/29 8:01 AM By: Lilly, Josh

Legend

Notes

Stantec

4969 Centre Pointe Dr, Suite 200
North Charleston, SC 29418

Client/Project
BERKELEY ELECTRIC COOPERATIVE
JOHNS ISLAND DISTRICT OFFICE
Johns Island, South Carolina

Figure No.
7

Title
EXHIBIT "G"
AERIAL PHOTO / PROPOSED PARCEL

Exhibit H

Location Map

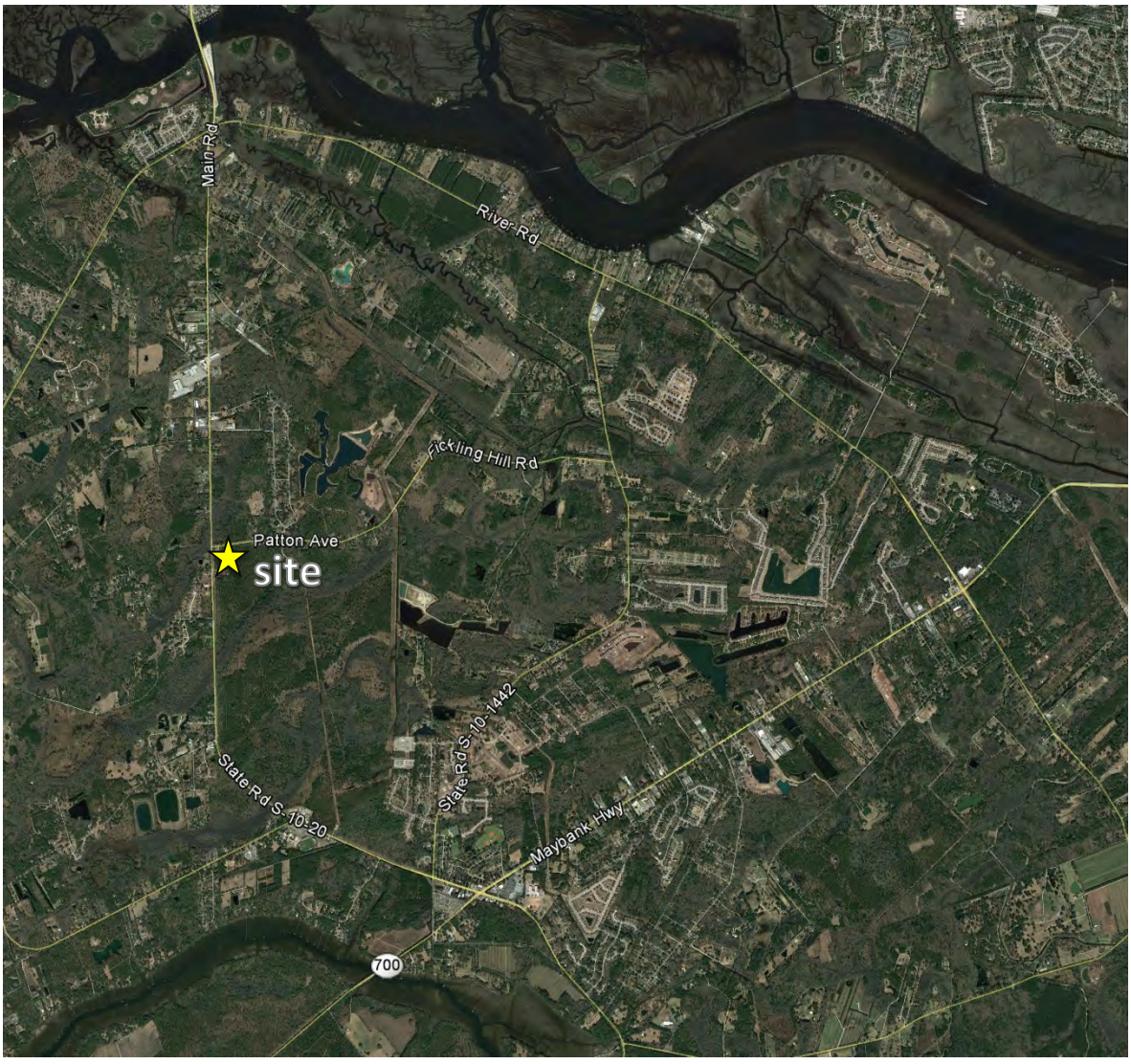

Exhibit I

Letters of Coordination

From: Fleming, Juleigh B. [mailto:FlemingJB@scdot.org]
Sent: Wednesday, February 22, 2017 10:43 AM
To: Day, Stuart <Stuart.Day@stantec.com>
Cc: Grooms, Robert W. <GroomsRW@scdot.org>
Subject: SC-700 (Maybank Hwy) Berkeley Electric Coop Preliminary Review

Stuart,

Thank you for the early coordination concerning the Berkeley Electric Cooperative site located on SC-700 (Maybank Highway).

After reviewing the attached preliminary plan, our office has no objection to the proposed project. Please provide your traffic impact analysis for review once it is complete. Driveway locations and possible roadway improvments can be reviewed preliminarily once a more concrete site plan is completed and prior to submission of an encroachment permit application. Any proposed access points should meet SCDOT ARMS manual requirements.

This email does not constituent encroachment approval. Final approval is issued through our online EPPS system.

Please let me know if you have any questions.

Thank you!

JuLeigh B Fleming
District Permit Engineer

SCDOT

6355 Fain Street
North Charleston, SC 29406

Desk: 843-746-6722

ST. JOHN'S FIRE DISTRICT

P.O. BOX 56
1148 Main Road
JOHNS ISLAND, S.C. 29455
PHONE: (843) 559-9194
FAX: (843) 737-0058

January 18, 2017

Kevin Vollnogle
4969 Centre Pointe Dr Suite 200
North Charleston, SC 29418

Re: Letter of Coordination

Mr. Vollnogle,

The St. John's Fire District is in receipt of your request and acknowledges you will be building an office/warehouse at the intersection of Patton and Main Road. Any emergency needs at the site shall be addressed by dialing 911.

The St. John's Fire District utilizes the 2015 International Fire Code (IFC) and applicable National Fire Protection Association (NFPA) codes as indicated by laws and standards recognized by the Office of the State Fire Marshal and Charleston County to ensure the safety of businesses and events located in the St. John's Fire District.

Applicable code compliance will be based on the type and use of the structure. Inspections of the facility area will be required during construction and annually after the certificate of occupancy is approved. A final report will be provided for your reference after each inspection.

The St. John's Fire District looks forward to ensuring your events are safe for attendees and emergency responders

Please contact me directly at 843-864-4384 or at c.kelly@stjfd.org with any further questions. Please notify me immediately of any changes to the submitted plans or change to the rain plan.

Regards,

Captain Chad A. Kelly
Community Risk Reduction Division
St. Johns Fire District
843-864-4384

Berkeley Electric Cooperative, Inc.

January 18, 2017

Stantec
C/o: Josh Lilly
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418

Re: Power Availability for New BEC Facility, TMS 281-00-00-098
Johns Island, SC

Dear Josh:

Berkeley Electric Cooperative will supply the electrical distribution requirements for the above referenced locations and we look forward to extending our facilities to meet the needs of this development.

All services that are rendered will be under our service rules and regulations at the time of service. If you have any questions, please don't hesitate to give me a call.

Sincerely,

John Hall
Manager of Construction and Design

JH/ts

Cc: Tim Mobley, V.P. of Engineering and Operations
Kevin Mims, Supervisor of Distribution Design
Scott Bennett, Johns Island District Line Superintendent
Jace Johnston, Johns Island District Service Planner

Post Office Box 1234
Moncks Corner, SC 29461
(843) 761-8200
Fax (843) 572-1250

Post Office Box 128
Johns Island, SC 29457
(843) 559-2468
Fax (843) 559-3970

Post Office Box 1589
Hilton Head, SC 29938
(843) 681-3020
Fax (843) 681-6761

Post Office Box 340
Awendaw, SC 29429
(843) 928-3345
Fax (843) 928-3344

www.berkeleyelectric.coop

ST. JOHN'S WATER COMPANY, INC.
"This institution is an equal opportunity employer and provider"
Post Office Box 629
John's Island, South Carolina 29457-0629
Phone (843) 559-0186
Fax (843) 559-0371

January 4, 2017

Mr. Shaun Cavey
Stantec
4969 Centre Pointe Drive
Suite 200
N. Charleston, SC 29418

Re: Office-Warehouse at TMS number 281-00-00-098
Water Availability and Willingness to Serve

Dear Mr. Cavey:

This letter is to confirm that TMS number 281-00-00-098 on Johns Island is within the water service area of the St. John's Water Company, Inc. (SJWC). SJWC does have water available from an existing 18-inch water line located on Main Road for water service to TMS number 281-00-00-098 for the proposed approximate 20,000 square foot office and 25,000 square foot warehouse facilities. Our system is SC DHEC approved and we have the capacity and willingness to provide potable water service to TMS number 281-00-00-098.

If you have any questions, please feel free to give me a call at 843-514-5570.

Sincerely,

Colleen Schild

Colleen Schild
Assistant Manager/Engineer

Daniel O. Duggan, MBA
Account Manager
Gas Sales
3680 Leeds Ave
Charleston, SC 29405
Phone: (843) 834-1016
Daniel.Duggan@scana.com

1/18/17

Kevin Vollnogle, PLA/ ASLA
Landscape Architect
Stantec
4969 Centre Pointe Drive Suite 200, North Charleston SC 29418-6952
Phone: 843-740-6353
Fax: 843-740-7707

Re: corner of Main Road and Patton Ave on Johns Island on a 34.9 acre parcel (TMS # 281-00-00-098).

Dear Mr. Vollnogle:

I am pleased to inform you that South Carolina Electric & Gas Company (SCE&G) will be able to provide **natural gas** service to the above referenced project. Services will be provided in accordance with SCE&G's General Terms and Conditions, other documents on file with the South Carolina Public Service Commission, and the company's standard operating policies and procedures.

Any cost associated with providing service will be determined when a finalized/approved plan is submitted to our office. In order to begin engineering work for the project, the following information will need to be provided:

1.) Detailed utility site plan (AutoCAD format preferred) showing water, sewer, and storm drainage. The finalized/approved plan must include lot numbers, street names, and 911 addresses for each lot.
2.) Additional drawings that indicate wetlands boundaries, tree survey with barricade plan and buffer zones (if required), as well as any existing or additional easements will also be needed.
3.) Copies of the Army Corp of Engineers official delineation and permits. If applicable, OCMR permits should also be included.
4.) Signed copy of this letter acknowledging its receipt and responsibility for its contents and authorization to begin engineering work with the understanding that SCE&G intends to serve the referenced project.

SCE&G's construction standards and specifications are available upon request. For more information or questions, contact me by phone at (843) 576-8931 or at Daniel.Duggan@scana.com.

Sincerely,

Daniel O. Duggan
Account Manager

Acknowledgement of Receipt
Signature_____
Title_____ Date_____

- 1 -

Office of the Sheriff

County of Charleston

Sheriff J. Al Cannon, Jr.

February 8, 2017

Mr. Kevin Vollnogle
Stantec
4969 Centre Pointe Drive Ste 200
North Charleston, SC 29418

re: Letter of Coordination

Mr. Vollnogle,

The Charleston County Sheriff's Office acknowledges your intention to build a development at **1125 Main Road, Johns Island, SC 29455.** This development for the Berkeley Electric Cooperative (BEC) facility is intended to provide an office and customer service building for the BEC.

If off-duty deputies are needed for added security, a signed written contract outlining the stipulations must be reviewed and signed by the event coordinator at least ten (10) days prior to the event. This can be accomplished by applying online at:

http://sheriff.charlestoncounty.org/off-duty-request.php.

Please understand that *all* law enforcement matters will need to be reported to this agency. This can be accomplished by calling the **Charleston County Consolidated Dispatch Center** at **843-743-7200** or dialing **911 for emergencies**. Additional information can be accessed on our agency website at www.ccso.charlestoncounty.org.

If you have any questions, feel free to contact this office via telephone or by email.

Regards,

Lt. R. Zelinsky

Lieutenant Rita Avila Zelinsky
Off Duty Coordinator
Charleston County Sheriff's Office
(843) 529-6220
rzelinsky@charlestoncounty.org

Administrative Office
3691 Leeds Avenue
N. Charleston, SC 29405
~ Sheriff ~
Voice (843) 554-2230
Fax (843) 554-2243

Law Enforcement Division
3691 Leeds Avenue
N. Charleston, SC 29405
~ Patrol ~
Voice (843) 202-1700
Fax (843) 554-2234

Al Cannon Detention Center
3841 Leeds Avenue
N. Charleston, SC 29405
Voice (843) 529-7300
Fax (843) 529-7406

Judicial Center
100 Broad Street, Suite 381
Charleston, SC 29401
Voice (843) 958-2100
Fax (843) 958-2128

CHARLESTON COUNTY
SOUTH CAROLINA
Emergency Medical Services

CHARLES MILLICAN
Deputy Chief

[illegible]
Fax [illegible]
[illegible]
Lonnie Hamilton, III Public Services Building
4045 Bridge View Drive, Suite B[illegible]
North Charleston, SC 29405-[illegible]

January 26, 2017

Mr. Kevin Vollnogle, Landscape Architect
Santec
4969 Centre Pointe Drive
Suite 200
North Charleston, SC 29418

RE: BERKELEY ELECTRIC COOPERATIVE; TMS No. 281-00-00-098

Dear Mr. Vollnogle,

The Charleston County Emergency Medical Services (EMS) Department acknowledges your intention to develop the above referenced property. Charleston County EMS is the advanced life support paramedic first response and transport agency for this location – and all medical and trauma related incidents will need to be reported to this agency. This can be accomplished through the Charleston County Consolidated Dispatch Center by dialing 911.

During your scheduled Site Plan Review with Charleston County Planning Staff – EMS staff will attend in order to participate in any further review and coordination of the development design.

Sincerely,

Deputy Chief C. Millican

www.charlestoncounty.org

James R. Neal
Director

CHARLESTON COUNTY
SOUTH CAROLINA
Public Works Department

843.202.7600
Fax 843.202.7601
jneal@charlestoncounty.org
Lonnie Hamilton, III
Public Services Building
4045 Bridge View Drive, Suite A301
North Charleston, SC 29405-7464

March 20, 2017

Mr. Kevin Vollnogle, PLA/ASLA
Stantec Consulting Services Inc.
4969 Centre Point Drive Suite 200
North Charleston, SC 29418-6952

RE: BERKELEY ELECTRIC CO-OPERATIVE OFFICE MAIN ROAD PUD ;
TMS # 281-00-00-098

Dear Mr. Vollnogle,

We have reviewed the draft Berkeley Electric Cooperative Johns Island District Office Planned Development Guidelines, dated March 14, 2017, for an office and warehouse operations complex located on Main Road and Patton Avenue. At present, this letter represents sufficient coordination with the Public Works Stormwater Division in order to continue the revised planned development rezoning process for the property.

The proposed operations development being located on Main Road and Patton Avenue will be permittable provided the project is in compliance with Charleston County Stormwater Program Permitting Standards and Procedures Manual. Additional review, coordination, and approval by the Public Works Department will be required during the County Stormwater Permitting review and permitting process.

Sincerely,

Frank Pandullo, P.E., PWLF
Stormwater Utility Manager & Technical Manager

cc: Charleston County Planning Department (Andrea Harris-Long, AICP)
Charleston County Public Works Department (Frank Pandullo P.E., PWLF)
File

James R. Neal
Director
843.202.7600
Fax 843.202.7601
jneal@charlestoncounty.org

CHARLESTON COUNTY
SOUTH CAROLINA

Lonnie Hamilton, III
Public Services Building
4045 Bridge View Drive, Suite A301
North Charleston, SC 29405-7464

Public Works Department

April 13, 2017

Mr. Kevin Vollnogle
Stantec Consulting Services, Inc.
4969 Centre Point Drive, Suite 200
North Charleston, SC 29418-6952

RE: BERKELEY ELECTRIC COOPERATIVE OFFICE MAIN ROAD PLANNED DEVELOPMENT – TMS #281-00-00-098

Dear Mr. Vollnogle:

We are in receipt of your Berkeley Electric Cooperative Johns Island Office Planned Development Guidelines, dated March 24, 2017, for a complex located on Main Road and Patton Avenue on Johns Island. This letter acknowledges you have notified Charleston County Public Works regarding your plans for this parcel and that we have reviewed your preliminary plans and have no objection. The Public Works Department is prepared to review your detailed site plan when you are ready.

Please continue to submit necessary documentation directly to the County Zoning and Planning Department for other than specific encroachment permit applications for County right-of-way and drainage easements. These applications should be provided to the Public Works Department to the attention of Mr. Herbert Nimz, Civil Engineer I, at the address listed above.

Sincerely,

Matthew Fountain, P.E., P.G.
Engineering Manager

MF:bw
c: James R. Neal, P.E., Public Works Director
Herbert Nimz, Civil Engineer I
Joel Evans, Zoning and Planning Director
Andrea Harris-Long, Zoning and Planning

American Public Works Association

SC-16555 2F562

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

JAN 12 2017

Regulatory Division

Ms. Sydni Redmond
Passarella & Associates, Inc.
505 Belle Hall Parkway, Suite 102
Mt. Pleasant, South Carolina 29464

Dear Ms. Redmond:

This is to acknowledge receipt of your project submittal to the Charleston District Regulatory Division, for review.

SAC Number: SAC-2017-00065

Applicant: Shaun Cavey

Project: BEC Johns Island

Project Manager: Tyler L. Sgro

All future inquiries regarding this matter should be directed to the Project Manager at 843-329-8037. Additional information about the Charleston District Regulatory Program and Public Notice postings can be found at our web site located at http://www.sac.usace.army.mil/.

U.S. Army Corps of Engineers
Regulatory Division
Charleston District

UNITED STATES POSTAL SERVICE

JOHNS ISLAND POST OFFICE

Johns Island, South Carolina 29455

From: Dave Anderson, Postmaster Johns Island, SC

Subject: Service to 1125 Main Rd

To: Kevin Vollnogle, Stantec, and Charleston County

To Whom it May Concern,

The Us Postal Service perceives no problem with the proposed site for the Berkeley Electric facility. Mail delivery is currently in existence for neighbors of this property and is delivered from Main Rd. The Johns Island Post Office will deliver to this address when construction is completed.

Dave Anderson, Postmaster
Johns Island Post Office
2860 Maybank Hwy
Johns Island, SC 29455-9998
(843) 559-0622

From: Jeff Burns

To: Vollnogle, Kevin

Subject: RE: Charleston County Coordination for Rezoning

Date: Friday, February 03, 2017 6:05:40 PM

Kevin,

The proposed rezoning of the parcel identified as TMS # 281-00-00-098 is served by the rural transit system, Tri-County Link. Based on the use as a customer service outlet, it is requested that a transit stop be incorporated at the ROW adjacent to the building. Since this is a rezoning process, it may not be feasible to discuss exact location. The request is for a concrete pad to be installed at the back of sidewalk and connect to the accessible path from the street to the building. I will be happy provide dimensions and specifications when the site plan is developed.

Thank you for this opportunity to coordinate transportation facilities with new development. Please feel free to contact me with any questions.

Sincerely,
Jeff

Jeffrey Burns, AICP
Senior Planner
Berkeley-Charleston-Dorchester Council of Governments BCDCOG
1362 McMillan Ave., Suite 100 North Charleston, SC 29405 843.529.2128
www.bcdcog.com
www.ridecarta.com

Devri Detoma, P.E.
Construction Project Manager I
Transportation Development

CHARLESTON COUNTY
SOUTH CAROLINA

843.202.6[illegible]
Fax 843.202.6152
[illegible]
[illegible]
[illegible]
North Charleston, SC 29405

April 20, 2017

Mr. Kevin Vollnogle
Stantec Consultant Services, Inc.
4969 Centre Point Drive, Suite 200
N. Charleston, SC 29418-6952

RE: BERKELY ELECTRIC COOPERATIVE OFFICE MAIN ROAD PLANNED DEVELOPMENT- TMS #281-00-00-098

Dear Mr. Vollnogle:

Charleston County Transportation Development has reviewed the Berkely Electric Cooperative Johns Island Office Plans for a building located on a parcel located at the Main Road and Pattern Avenue intersection on Johns Island. This letter acknowledges that you have notified the Charleston County Transportation Development Department regarding your plans for this parcel in an effort to coordinate with our proposed US 17 at Main Road Intersection and Main Road Widening Project.

Transportation Development plans to award a contract this spring to begin the National Environmental Policy Act (NEPA) documentation required by the Federal Highway Association (FHWA) to widen Main to 4 lanes from Bees Ferry Road to Betsy Kerrison. This study will include a right-of-way analysis, but not right-of-way acquisition. It will take anywhere from 4 to 7 years to complete the NEPA process, depending on the environmental impacts the project may cause. Once the document is completed, and it is determined that we can move forward with the widening, we will need to acquire additional right-of-way to accommodate the added lanes.

By initial evaluation, I would assume we will not be able to only widen the east side of Main Road because of the fire station's current location. I suspect we will need to purchase right-of-way from both sides of Main Road, and possibly purchase an additional gas easement on TMS 281-00-00-098 so that it does not lie under the newly widened road. Both of the discussed right-of-way and gas easement purchases would impact your proposed landscaped buffer.

In summary, it is too early to determine how the referenced parcel will be impacted by the US 17 and Main Road Intersection Improvements or the Main Road Widening Project. Please let me know if I can be of further assistance at this time.

Sincerely,

Devri DeToma, P.E.
Construction Project Manager

www.charlestoncounty.org

Shaun Cavey
Stantec
4969 Centre Pointe Drive, Suite 200
North Charleston, SC 29418-6952

January 20, 2017

Re: Cultural Resources Assessment of the 34.5-Acre BEC Johns Island Tract, Charleston County, South Carolina.

Dear Mr. Cavey:

Introduction. In January 2017, Brockington and Associates, Inc. completed a cultural resources assessment of the 34.5-acre BEC Johns Island Tract in Charleston County, South Carolina. This assessment provides basic information on known historic properties (sites, buildings, structures, objects, and districts listed on or eligible for the National Register of Historic Places [NRHP]), the potential for archaeological or historical resources to exist within the project tract, and how these resources may affect the future use of the project tract. It is unlikely that this assessment will satisfy regulations of the US Army Corps of Engineers (USACE) concerning the potential effects of permitted undertakings on historic properties should you pursue the development of the project tract.

Historic properties are protected by federal and state laws. If a project requires a federal permit, license, or approval, the federal agency must comply with Section 106 of the National Historic Preservation Act (NHPA), which requires that all cultural resources identified within the Area of Potential Effects (APE) must be recorded and assessed for NRHP eligibility. Cultural resources that meet the eligibility criteria for listing in the NRHP are considered "significant" resources and must be taken into consideration during the planning of federal projects. Federal agencies generally require avoidance or mitigation measures in order to minimize adverse effects on eligible cultural resources. Projects requiring a federal permit, license, or approval are subject to compliance with the requirements described above. Appropriate compliance measures, which may include avoidance, cultural resource monitoring, and/or mitigation procedures designed to minimize impacts, are determined by the lead agency on a project-specific basis.

Briefly, the assessment revealed that the BEC Johns Island Tract resembles other tracts of similar size in the immediate area of Johns Island with respect to cultural resources. Intensive cultural resources survey of the study area likely will be required to obtain permits for development. We have reason to believe that archaeological sites will likely be identified during this survey. There is a possibility that one or more Native American camp sites may be on the project tract. These types of archaeological sites typically are not eligible for the NRHP.

Charles Philips (Brockington Senior Historian) conducted the historical research. Mr. Philips and Josh Fletcher (Brockington Senior Archaeologist) conducted the field inspection. Mr. Philips and Mr. Fletcher compiled this assessment report.

Background Research. The Senior Archaeologist initially reviewed the locations of known archaeological sites, architectural resources, and historic properties maintained by the State Historic Preservation Office (SHPO) and the South Carolina Institute of Archaeology and Anthropology (SCIAA) on their ArchSite online database. During the background research, the Senior Archaeologist viewed copies of archaeological site forms and report excerpts for previously recorded archaeological sites, architectural resources, and previous cultural resources studies within 0.5 mile of the study area. There are no previously recorded archaeological sites and one previously recorded architectural resource (Resource 1438) within 0.5 mile of the BEC Johns Island Tract. Preservation Consultants, Inc. (Fick et al. 1989) recorded architectural Resource 1438 (St. James Methodist Church Cemetery) during their historical survey of James Island and Johns Island. The cemetery is located just southwest of the BEC Johns Island Tract and is discussed in further detail below. Resource 1438 is not eligible for the NRHP. There is also one previously investigated project tract within 0.5 mile of the BEC Johns Island Tract. In 2002, Brockington and Associates (Fletcher and Hendrix 2002) conducted a cultural resources survey of the 311-acre St. John's Golf Tract. Fletcher and Hendrix (2002) recorded no cultural resources within 0.5 mile of the BEC Johns Island Tract. The locations of the BEC Johns Island Tract, Resource 1438, and the previously investigated St. John's Golf Tract are shown on Figure 1.

The Project Historian reviewed archival materials at the South Carolina Room of the Charleston County Public Library, resources at the Charleston County Register of Mesne Conveyance, and the Probate offices, all in Charleston. He consulted the resources of the online index of the South Carolina Department of Archives and History (SCDAH) and the South Carolina Historical Society. He reviewed published materials in Fick (1992), Jordan and Stringfellow (1998), and Edgar (1998). The Project Historian interviewed Mrs. Alicia Thompson, Charleston County Public Librarian. Mrs. Thompson is a resident of the area, and is familiar with many of the families who have long resided on Johns Island. The research results are summarized in the historic overview below.

Brief Historical Overview of the Project Tract. The BEC Johns Island Tract was located in the historic St. Johns Colleton Parish, a historic parish established in 1730 that included Johns Island, Wadmalaw Island, Edisto Island and other coastal barrier islands (Stauffer 1994:7). The 34.5-acre BEC Johns Island Tract was entirely cut out of the 800-acre "Sams' Pine Hill Plantation," a nineteenth-century cotton and pine plantation owned for most of the first half of that century by William Sams (Jordan and Stringfellow 1998:237-249). Prior to the Sams ownership, the land appears to have been part of the Beamer and Stanyarne family lands, large land-owning families in the Colonial Period in St. Johns Colleton Parish. The project tract is bound to the west by Main Road (SC Road S-10-20), a mid-nineteenth-century primary roadway that connected the Johns Island Ferry across the Stono River with Fenwick Road (roughly modern-day Maybank Highway). Likely in the early twentieth century, a small portion of the plantation was cut off and sold to the St. James United Methodist Church. The church property that includes the church cemetery is located in an outparcel in the southwest corner of the BEC Johns Island Tract. Patton Road, originally a farm road that roughly formed the boundary between Pine Hill and property to the north, is located to the north of the project tract. A narrow strip of wooded land containing several houses generally separates the project tract from Patton Road. The project tract appears to have been historically cotton and timber lands.

Southwest of the project tract the authors observed an earthen causeway that crosses a lowland. This causeway appears to have been a roadway connecting the northern portion of the Sams' plantation with the southern section but does not appear to have served any other purpose. The causeway is located outside of the project tract.

William Sams appears to have inherited an 800+-acre plantation from his grandparents, William and Elizabeth Hext Sams, when his grandmother died in 1813 (Jordan and Stringfellow 1998:287). This William Sams did not live on Johns Island but apparently used the land for cotton and timber, calling it his "Pine Hill" Tract (Charleston County Deed Book [CCDB] Z10:605). William Sams lived on nearby Wadmalaw Island at "Sams Place." In 1824, he filed a tax return showing 780 acres in St. Johns Colleton Parish along with 32 slaves. Most likely this is the Pine Hill Tract. Jordan and Stringfellow (1998:287) show a settlement site on the Pine Hill Plantation to the south of the current project tract. Since Sams owned land on Wadmalaw Island and Johns Island and both are in St. Johns Colleton Parish, it is impossible to determine if his slaves were working Pine Hill or the Sams Place.

By the mid-1800s, Sams lost Pine Hill and the tract passed through many different and mostly absentee owners for more than a century. In 1839, Sams mortgaged his Pine Hill plantation to John Hanahan, and in 1845 Hanahan foreclosed on the mortgage and acquired the plantation (CCDB R11:439). The property remained with John Hanahan until his death. In 1881, Hanahan's executor sold the land to Mary L. Beckett who kept it for six years before selling it to Richard Grimshaw, who held several tracts in the area (CCDB Y18:47 and A32:44). Though the Becketts did not own the land until 1881, they may have rented and farmed it long before that. Jordan and Stringfellow (1998:248) place a member of the Beckett family at Sams' Pine Hill Plantation as early as the 1860 US Census.

In 1889, the land passed to Anna Eastwood, who held it for some 20 years until William Schurmer acquired Pine Hill in 1909 (CCDB A30:136 and W23:265). For most of the next half century the land was conveyed to several owners. In 1916, J. T. Kollock surveyed the tract, noting the St. James Church to the southwest. Little else is shown except that Pine Hill had been subdivided into five lots; the project tract was located inside Lot 1. The survey is shown in Figure 2. The 1919 *Legareville, SC* quadrangle, shown in Figure 3, reveals only the St. James United Methodist Church to the southwest of the project tract and the large causeway that crosses the wetlands to the south of the project tract. In 1953, the M. L. McLeod Lumber Company purchased the tract and the heirs of the company are the current owners of record (CCDB P56:548 and P66:70). The M. L. McLeod Lumber Company appears to have used the land for timber production.

Field Investigations. On December 16, 2016, the Senior Archaeologist and Senior Historian conducted pedestrian inspections of the BEC Johns Island Tract. The project tract is located on high, well-drained land on the east side of Main Road in north-central Johns Island. A small, wooded and residentially developed buffer zone separates the northern boundary of the project tract from Patton Road. The St. James United Methodist Church and cemetery are located to the southwest of the project tract. The project tract is bound to the south by wooded land owned by the M. L. McLeod Lumber Company. An unnamed lowland swamp into which the project tract drains flows a short distance to the south of the project tract. A small isolated wetland is located in the center of the project tract. The tract is briefly bounded on the west by a Berkeley Electric transmission line corridor and other lands of the M. L. McLeod Lumber Company.

The investigators accessed the project tract via an unpaved access road from Main Road, located south of St. James United Methodist Church. The project tract contains several unpaved logging/hunting access roads. The small size of the tract and the presence of the roads made vehicular and pedestrian access possible to all parts of the tract. The project tract is wooded in planted pines that appear to have been recently thinned. Mapped soils within the project tract consist of primarily well-drained Chipley loamy fine and Wagram loamy fine soils, with smaller areas of a somewhat poorly drained Leon fine sand in the western and central areas of the tract (Miller

1971:60-61). On the coastal Sea Islands, historically well-drained soils near fresh water sources have a high potential to contain cultural resources. Historic plats and maps of the area and archival research did not indicate any historic period settlements on the project tract. We observed no historic artifacts on the project tract during the field inspection. The small circular-shaped wetlands in the center of the tract, dry at the time of the field inspection, contains a grove of hardwoods, largely live oaks and bay trees. Investigators observed no artifacts indicative of prehistoric or historic occupations near the wetlands. Additionally, we observed no other cultural features other than the logging/hunting access roads. Figure 4 presents views of the project tract.

Investigators inspected the unnamed wetlands south of the project tract and observed the remnants of a sizable earthen causeway shown in Figure 3. The causeway, though it has missing portions, spans the unnamed lowlands from south to north. It appears to be an abandoned roadway that provided access from the southern portion of Pine Hill Plantation to the northern section. This feature is located approximately 500 feet south of the BEC Johns Island Tract. Figure 5 shows a view of the causeway.

We inspected the St. James United Methodist Church cemetery during the investigation. The church building sits on the west side of the property along Main Road and is less than 50 years old. It likely replaced an older wooden structure that is no longer in existence. The cemetery is well defined with dirt access roadways on the north and south sides and a small earthen berm surrounding the north, south and east sides of the lot. The church continues to use the cemetery, based on evidence of recent burials. The headstones indicate that the earliest burials occurred around 1918. The cemetery grounds are well maintained. A fenced walkway leading from the church to the children's play area divides part of the cemetery. It does not appear that any marked or unmarked graves are located outside of the church/cemetery lot. Figure 5 shows a view of the church and cemetery.

Risk Category. *High.* Risk is based on the assumption the project will require a federal permit, license, or approval, and that the federal agency must comply with Section 106 of the NHPA. Based on the background research and field investigations to date, the 34.5-acre BEC Johns Island Tract has the potential to contain subsurface archaeological sites. The location of the well-drained soils near fresh water lowlands in the coastal Sea Islands setting indicate a high potential to contain cultural deposits likely requiring further archaeological investigations. An intensive archaeological survey may identify one or more Native American camp sites, especially in areas surrounding natural springs and freshwater wetlands. As noted above, the majority of these sites will likely be determined not eligible for the NRHP, require no further management after identification, and will not affect the use of the project tract, though there is a possibility that sites may be determined eligible for the NRHP, and could affect the future use of portions of the tract. Any site determined to be eligible for the NRHP would require preservation through green spacing or mitigative actions using standard treatment protocols developed in consultation with the lead agency. If mitigation measures are warranted, a historic properties treatment plan will be developed for any NRHP-eligible sites requiring mitigation. Mitigation measures may consist of data recovery and possible construction monitoring.

Please do not hesitate to contact us if you have any questions or require any further information concerning the BEC Johns Island Tract. We appreciate the opportunity to assist you with this project.

Sincerely,

Joshua N. Fletcher, RPA
Senior Archaeologist

Charles F. Philips, Jr.
Senior Historian

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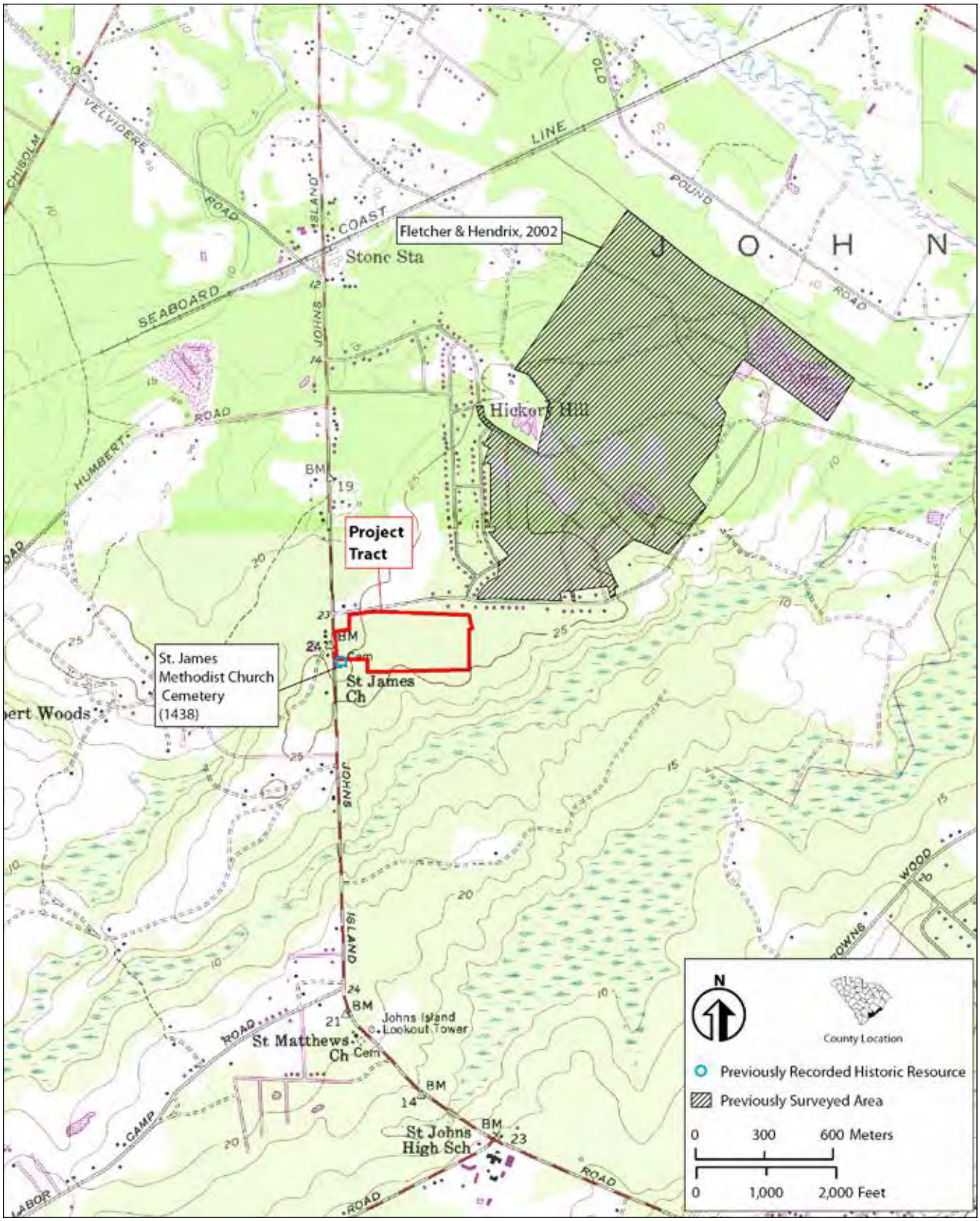

Figure 1. Location of the BEC Johns Island Tract and all identified cultural resources on the USGS 1958/p.r. 1979 *Johns Island*, *SC* and 1959/p.r. 1971 *Legareville*, *SC* quadrangles.

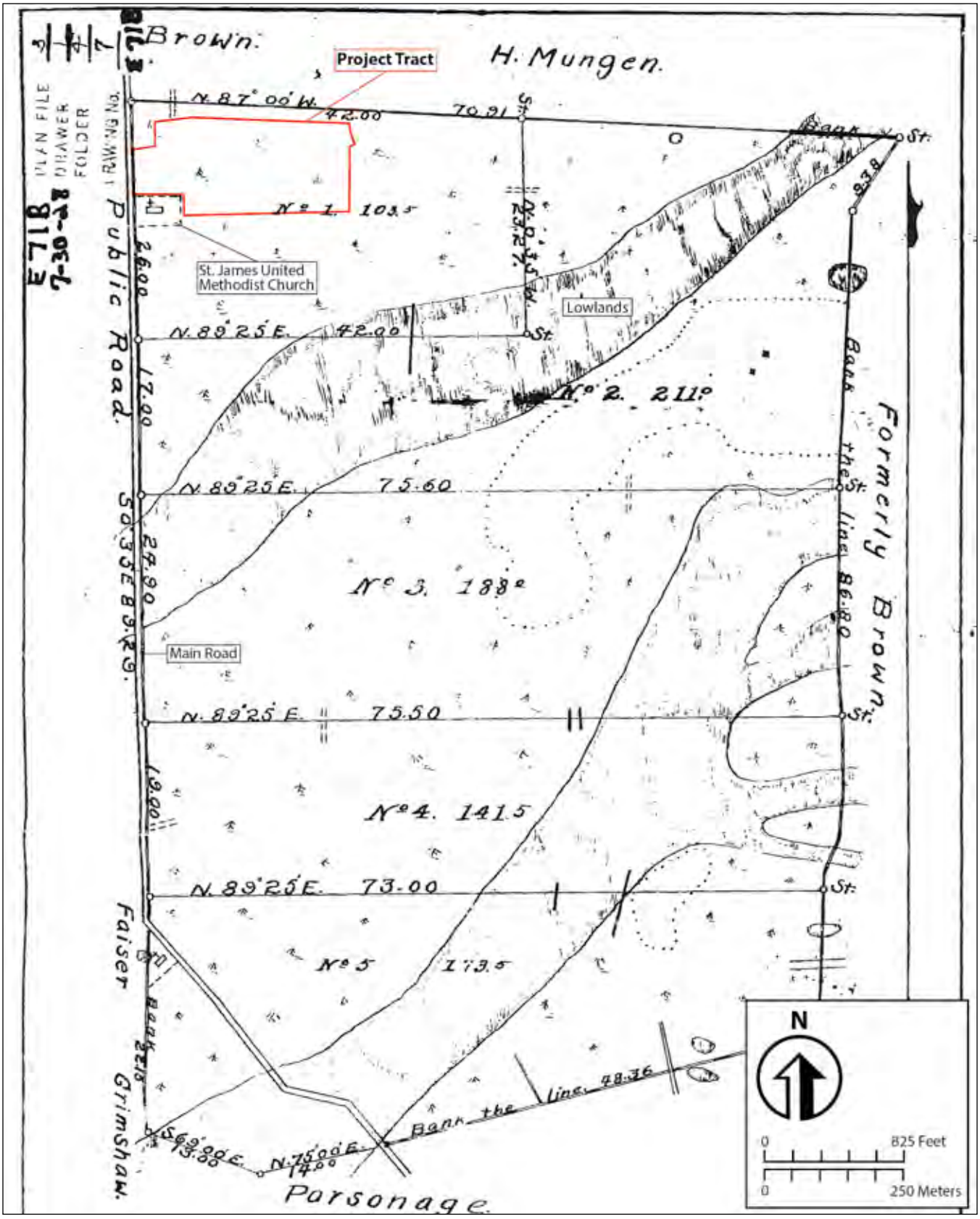

Figure 2. Portion of a 1916 plat of the Sams Plantation with the project tract superimposed (Charleston County Plat Book E:71).

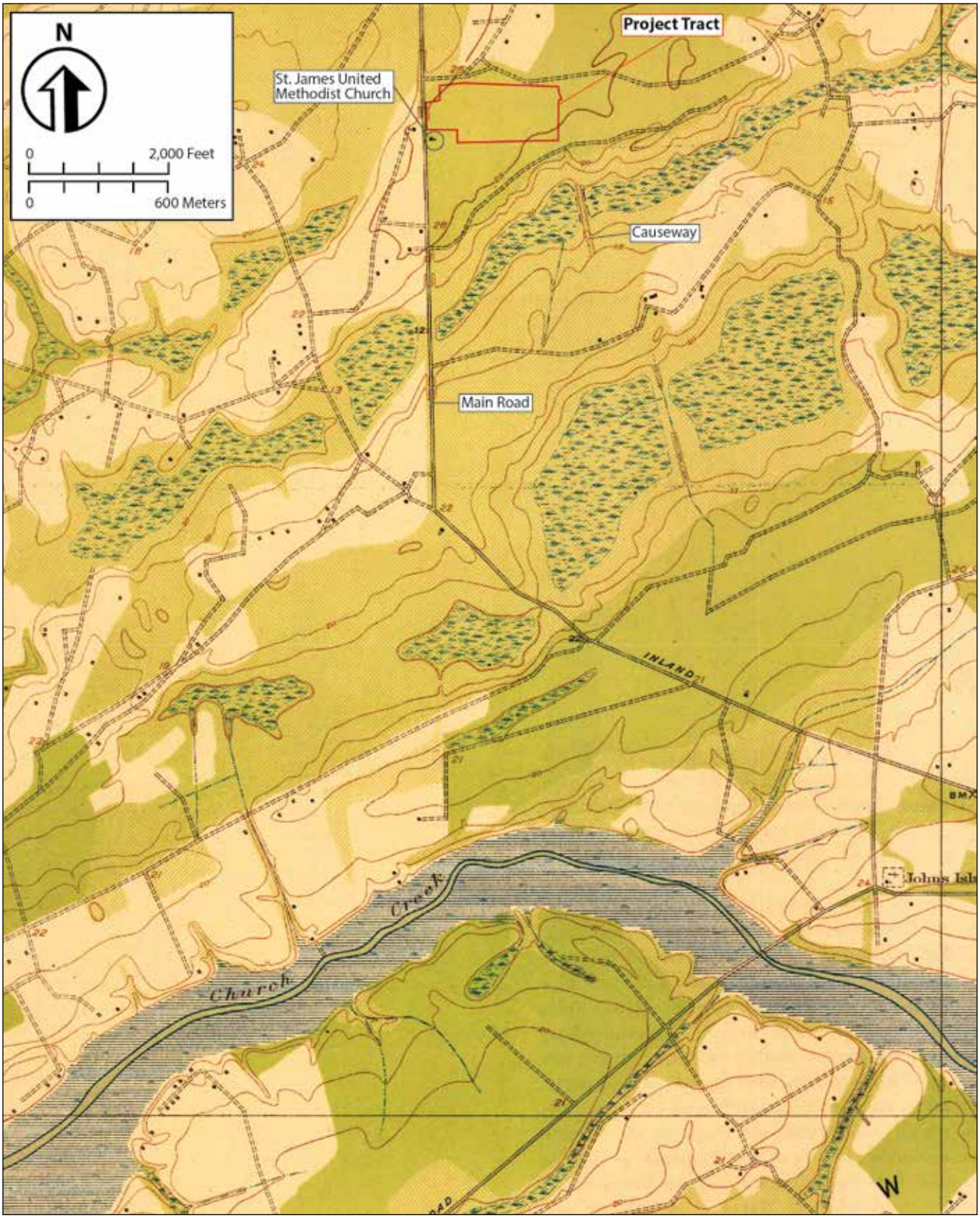

Figure 3. Portion of a 1919 map of the area with the project tract superimposed with the St. James Church and the causeway (1919 US War Department *Legareville*, *SC* quadrangle).

Figure 4. Views of the project tract: typical view of planted pines on the project tract, facing southwest (top); view of the isolated wetlands and hardwoods in the middle of the project tract, facing northwest (middle); view of the Berkeley Electric transmission line corridor on the eastern edge of the project tract, facing northwest (bottom).

Figure 5. View of the causeway over the unnamed wetlands south of the project tract, facing south (top) and view of the rear of the St. James United Methodist Church and a portion of the cemetery, facing west (bottom).

BERKELEY ELECTRIC COOPERATIVE – JOHNS ISLAND DISTRICT OFFICE TRAFFIC IMPACT ANALYSIS

Johns Island, South Carolina

Prepared for:
Berkeley Electric Cooperative, Inc.

Prepared by:
Stantec Consulting Services Inc.

February 2017

BERKELEY ELECTRIC COOPERATIVE – JOHNS ISLAND DISTRICT OFFICE TRAFFIC IMPACT ANALYSIS

Charleston, South Carolina

Prepared for:
Berkeley Electric Cooperative, Inc.
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Johns Island, SC

Prepared by:
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4969 Centre Pointe Drive, Suite 200
North Charleston, South Carolina
Phone: (843) 740-7700
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February 2017

Project No. 178420773

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Signature *Date*

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Executive Summary

A traffic impact analysis was conducted for the Berkeley Electric Cooperative – Johns Island District Office in accordance with Charleston County and SCDOT guidelines. The proposed Berkeley Electric Cooperative – Johns Island District Office site is located in the southeast quadrant of the intersection of Main Road and Patton Avenue on Johns Island in Charleston County, South Carolina.

Access to the development will be provided through one proposed full access driveway along Main Road, one proposed full access driveway along Patton Avenue, and one full access driveway along the power easement that intersects with Patton Avenue.

The results of the intersection analysis indicate that the study intersections currently operate and are expected to continue to operate at an acceptable LOS with consideration of the Berkeley Electric Cooperative – Johns Island District Office, with one exception. The westbound approach of the Main Road & Patton Avenue intersection is projected to experience undesirable LOS conditions in the future during the PM peak hour. The projected delay is likely due in part to the conservative nature of the *HCM 2010* unsignalized methodology. No improvements are recommended.

Based on the *Highway Design Manual* considerations, an exclusive southbound left-turn lane along Main Road is recommended. Based on the criteria set in SCDOT's *ARMS* manual, it is recommended that the southbound left-turn lane along Main Road at Project Driveway #1 consist of a total length of 380 feet, with 200 feet of storage and a 180-foot taper.

1.0 Introduction

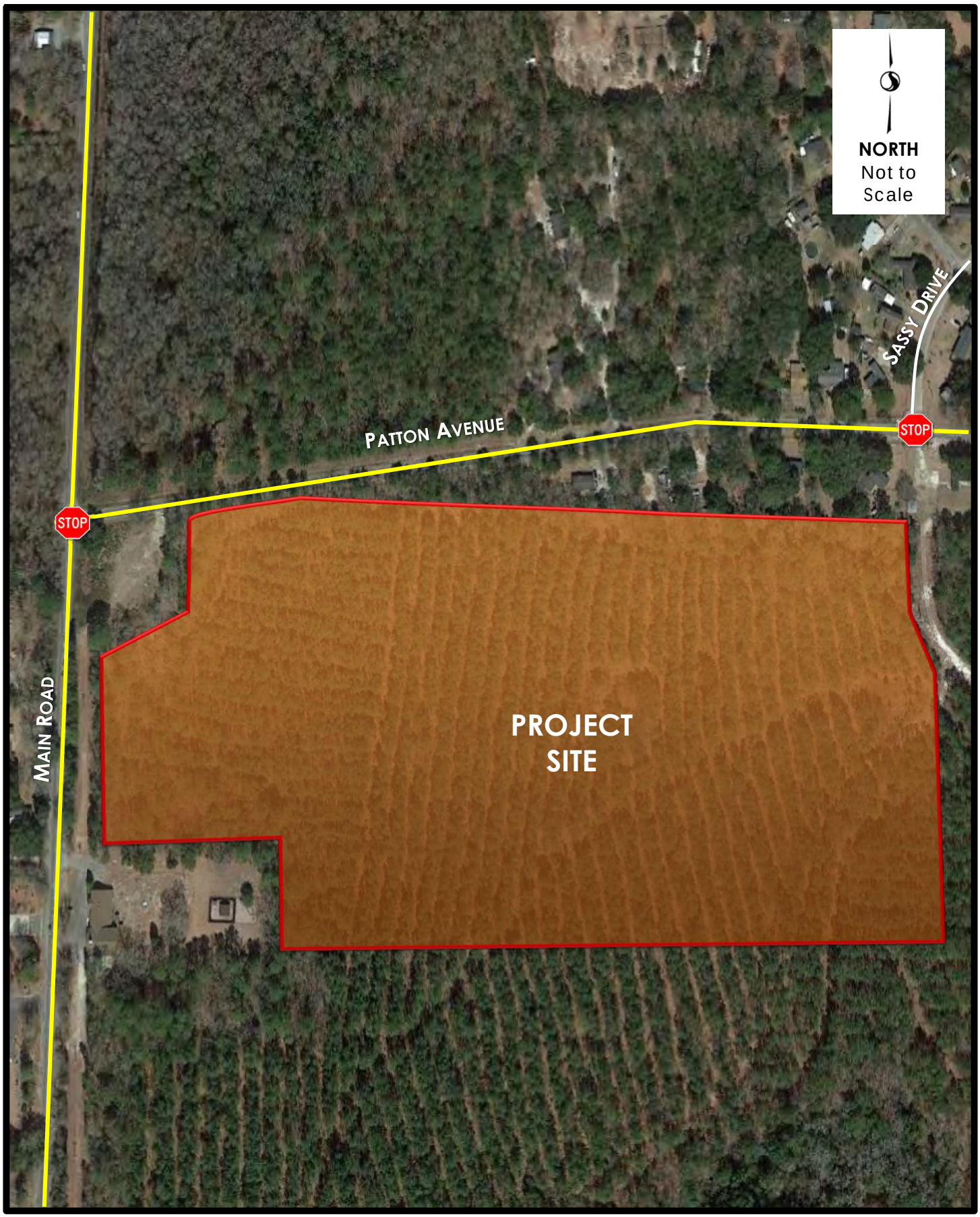
The purpose of this report is to document a traffic impact analysis for the Berkeley Electric Cooperative – Johns Island District Office in accordance with Charleston County and SCDOT guidelines. This report summarizes the procedures and findings of the traffic impact analysis.

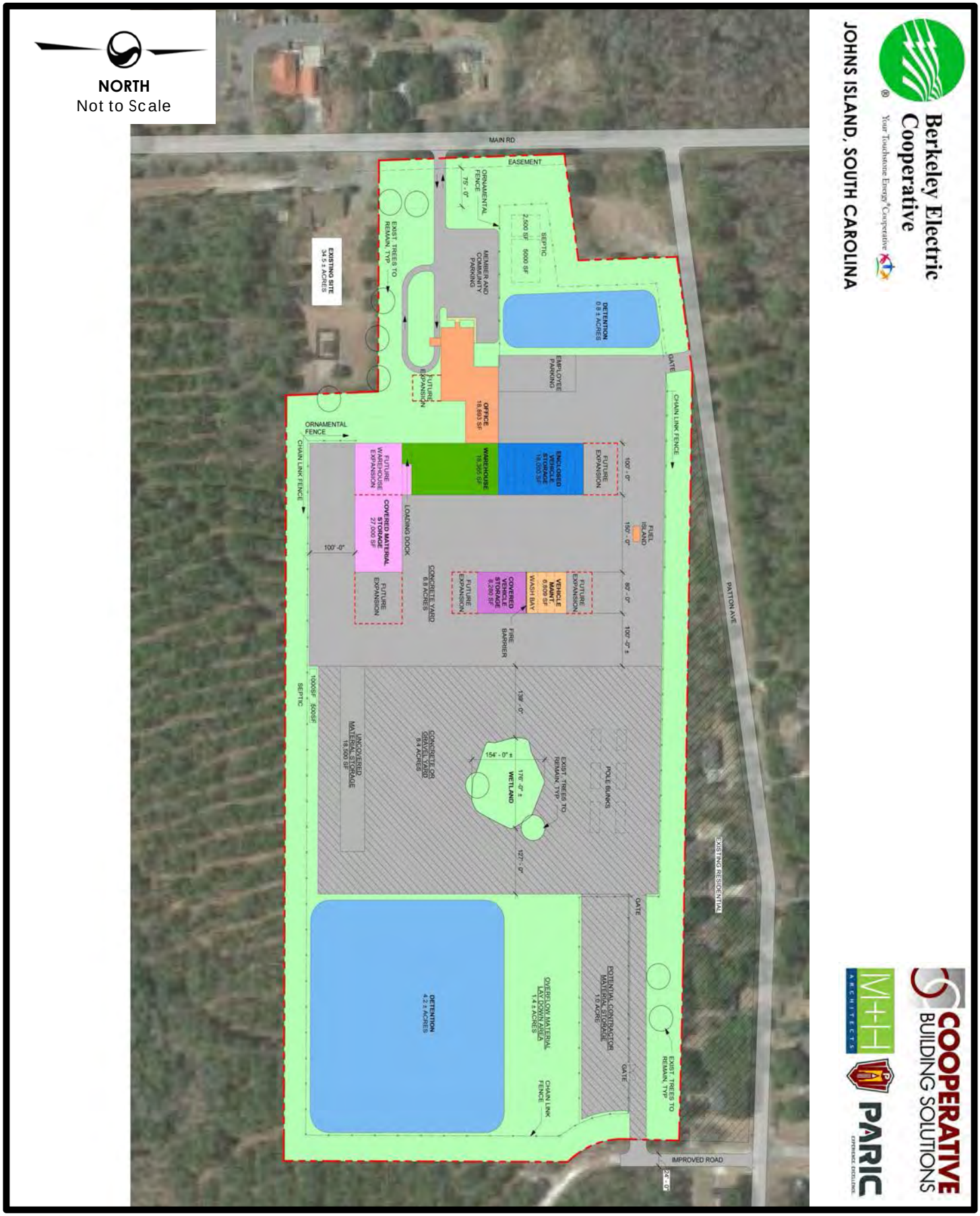
1.1 PROJECT BACKGROUND

The proposed Berkeley Electric Cooperative – Johns Island District Office site is located in the southeast quadrant of the intersection of Main Road and Patton Avenue on Johns Island in Charleston County, South Carolina. Access to the development will be provided through one proposed full access driveway along Main Road, one proposed full access driveway along Patton Avenue, and one full access driveway along the power easement that intersects with Patton Avenue.

The traffic impact analysis considers the weekday AM peak hour (between 7:00 AM and 9:00 AM) and the weekday PM peak hour (between 4:00 PM and 6:00 PM) as the study time frames. The extent of the existing roadway network to be studied consists of the intersection of Main Road & Patton Avenue for use in the traffic impact analysis.

The build out date for the proposed development is anticipated for 2020; therefore, future-year 2020 conditions were analyzed as the Build scenario. Exhibit 1.1 illustrates the location of the project site, including the adjacent public roadway network, and Exhibit 1.2 illustrates a site plan of the proposed development.


NORTH
Not to Scale
SASSY DRIVE
PATTON AVENUE
STOP
STOP
MAIN ROAD
PROJECT SITE


NORTH
Not to Scale
Berkeley Electric Cooperative
Your Touchstone Energy® Cooperative
JOHNS ISLAND, SOUTH CAROLINA
MAIN RD
EASEMENT
ORNAMENTAL FENCE
75' - 0"
SEPTIC
2,500 SF
5000 SF
MEMBER AND COMMUNITY PARKING
EXIST. TREES TO REMAIN, TYP
EXISTING SITE
34.5 ± ACRES
DETENTION
0.8 ± ACRES
EMPLOYEE PARKING
GATE
CHAIN LINK FENCE
FUTURE EXPANSION
OFFICE
18,600 SF
ORNAMENTAL FENCE
CHAIN LINK FENCE
FUTURE WAREHOUSE EXPANSION
WAREHOUSE
18,000 SF
ENCLOSED VEHICLE STORAGE
18,000 SF
FUTURE EXPANSION
100' -0"
150' -0"
FUEL ISLAND
COVERED MATERIAL STORAGE
27,000 SF
LOADING DOCK
100'-0"
FUTURE EXPANSION
CONCRETE YARD
6.8 ACRES
FUTURE EXPANSION
COVERED VEHICLE STORAGE
8,280 SF
VEHICLE MAINT.
6,000 SF
WASH BAY
FUTURE EXPANSION
80' - 0"
100' -0" ±
FIRE BARRIER
PATTON AVE
1000SF
500SF
SEPTIC
UNCOVERED MATERIAL STORAGE
18,500 SF
CONCRETE OR GRAVEL YARD
8.4 ACRES
139' -0"
154' - 0" ±
176' -0" ±
WETLAND
EXIST. TREES TO REMAIN, TYP
POLE BUNKS
127' - 0"
EXISTING RESIDENTIAL
GATE
DETENTION
4.2 ± ACRES
OVERFLOW MATERIAL LAY DOWN AREA
1.4 ± ACRES
POTENTIAL CONTRACTOR MATERIAL STORAGE
1.0 ACRE
CHAIN LINK FENCE
GATE
EXIST. TREES TO REMAIN, TYP
IMPROVED ROAD
24' -0"
COOPERATIVE BUILDING SOLUTIONS
M+H ARCHITECTS
PARIC

1.2 EXISTING ROADWAY CONDITIONS

Main Road is a two-lane arterial that primarily serves residential and commercial land uses. The 2015 AADT was 10,800 vpd. The posted speed limit is 45 mph. Based upon existing turning movement counts, the percentage of heavy vehicles along Main Road is 4%.

Patton Avenue is a two-lane local road that primarily serves residential land uses. The posted speed limit is 35 mph. The 2015 AADT was 850 vpd. Based upon existing turning movement counts, the percentage of heavy vehicles along Patton Avenue is 8%.

2.0 Driveway Spacing Review

Access to the development will be provided through one proposed full access driveway along Main Road, one proposed full access driveway along Patton Avenue, and one full access driveway along the power easement that intersects with Patton Avenue. A review of the driveway spacing of the proposed full access driveways was undertaken based upon information contained in SCDOT's *Access & Roadside Management Standards (ARMS)* manual.

Based upon the 45 mph posted speed limit and the driveway spacing criteria of *ARMS*, a minimum driveway spacing of 325 feet is required for full access along Main Road. The proposed full access driveway on Main Road, Project Driveway #1, is located approximately 460 feet south of Patton Avenue, which meets the SCDOT spacing criteria, and 125 feet north of the Bethlehem St. James United Methodist Church driveway, which is 38% of the SCDOT spacing criteria for this location. It should be noted that the church driveway will experience low volumes while the proposed facility is in operation.

Based upon the 35 mph posted speed limit and the driveway spacing criteria of *ARMS*, a minimum driveway spacing of 125 feet is required for full access along Patton Avenue. The first proposed full access employee entrance driveway on Patton Avenue, Project Driveway #2, is located approximately 430 feet west of Main Road, which meets the SCDOT spacing criteria.

Based on the assumed 30 mph speed limit and the driveway spacing criteria of *ARMS,* a minimum driveway spacing of 75 feet is required for access along the power easement. The proposed access driveway along the power easement will be approximately 225 feet south of Patton Avenue, which meets the SCDOT spacing criteria.

3.0 Project Traffic

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the Berkeley Electric Cooperative – Johns Island District Office. These trips were distributed and assigned throughout the study roadway network.

3.1 PROPOSED LAND USES

The Berkeley Electric Cooperative – Johns Island District Office site will consist of office space, warehouse space, and exterior material storage. The project site is currently vacant.

3.2 TRIP GENERATION ESTIMATES

The trip generation potential for the development was estimated using traffic volume information collected from the existing Berkeley Electric Cooperative Office on Maybank Highway/SC 700. As noted in ITE's *Trip Generation Manual* reference, local data is preferred for projecting trip generation potential when available. Peak hour count data was collected at the existing Berkeley Electric Cooperative Office at 3351 Maybank Highway during a typical weekday. The local data was used to develop trip generation estimates for the weekday AM and weekday PM peak hours of the Berkeley Electric Cooperative Office driveways. The trip generation estimates for the development, based on existing square footage, is shown in Table 3.1 and documented in Appendix A. The trip generation estimates for the development, based on the proposed square footage of the new site, is shown in Table 3.2 and documented in Appendix A. The peak hour traffic data is documented in Appendix B.

Table 3.1 – Existing Site Trip Generation Estimates

Land Use	Scale	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Enter	Exit	Enter	Exit
Existing Berkeley Electric Cooperative Site	27,100 sf	16	21	26	39
New, External Trips:		**16**	**21**	**26**	**66**

Table 3.2 – Proposed Site Trip Generation Estimates

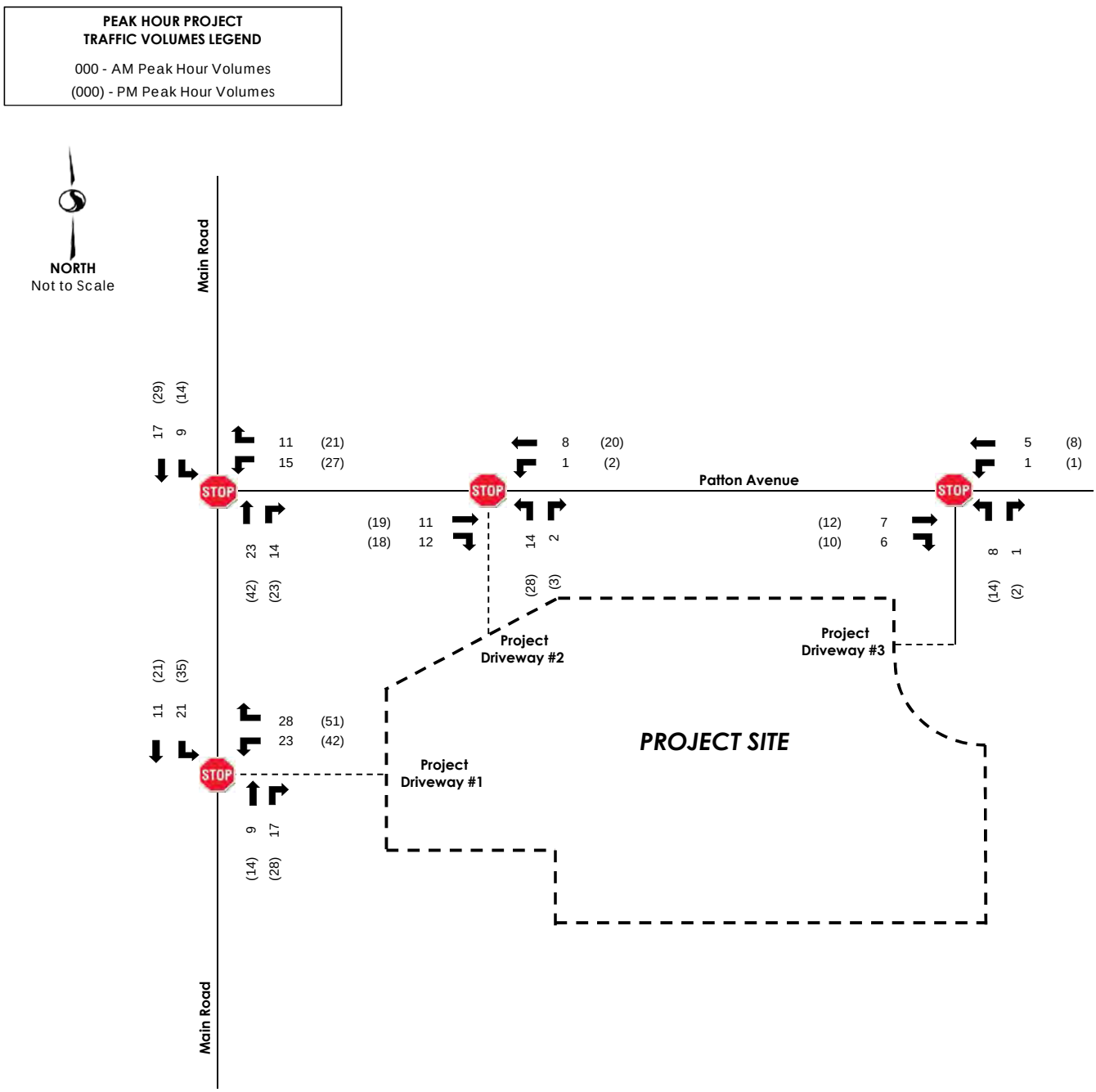
Land Use	Scale	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Enter	Exit	Enter	Exit
Proposed Berkeley Electric Cooperative Site	97,347 sf	58	76	94	140
New, External Trips:		**58**	**76**	**94**	**140**

3.3 TRIP DISTRIBUTION & ASSIGNMENT

New external traffic expected to be generated by the Berkeley Electric Cooperative – Johns Island District Office was distributed and assigned to the roadway network based upon existing travel patterns in the area. The general distribution of new project trips was assumed to be:

- 10% to/from the east via Patton Avenue
- 45% to/from the north via Main Road; and
- 45% to/from the south via Main Road.

The assignment of project traffic is illustrated in Exhibit 3.1 for the AM and PM peak hours.


PEAK HOUR PROJECT
TRAFFIC VOLUMES LEGEND
000 - AM Peak Hour Volumes
(000) - PM Peak Hour Volumes
NORTH
Not to Scale
Main Road
Patton Avenue
STOP
Project Driveway #1
Project Driveway #2
Project Driveway #3
PROJECT SITE

4.0 Traffic Volume Development

Existing 2017 traffic volumes were collected for use in the analysis and future year traffic volumes were developed for projected 2020 conditions. The future-year 2020 traffic volumes consisted of the 2017 traffic volumes adjusted by an annual growth rate and projected traffic volumes of the Berkeley Electric Cooperative – Johns Island District Office.

4.1 EXISTING TRAFFIC VOLUMES

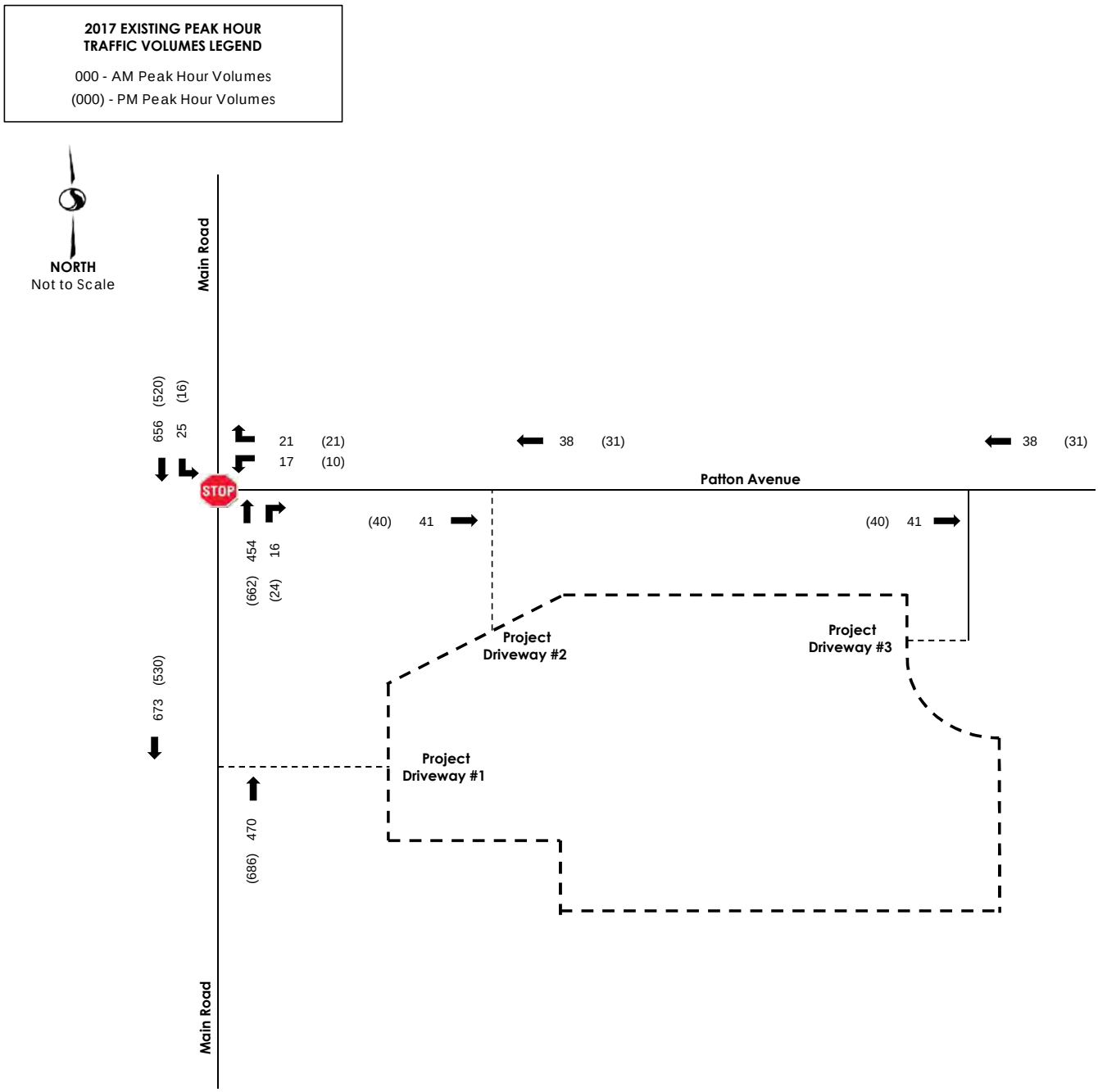
Vehicle turning movement counts were conducted in 2017 during the weekday AM peak period (from 7:00 AM to 9:00 AM) and the weekday PM peak period (from 4:00 PM to 6:00 PM) at the intersection of Main Road & Patton Avenue for use in the traffic impact analysis.

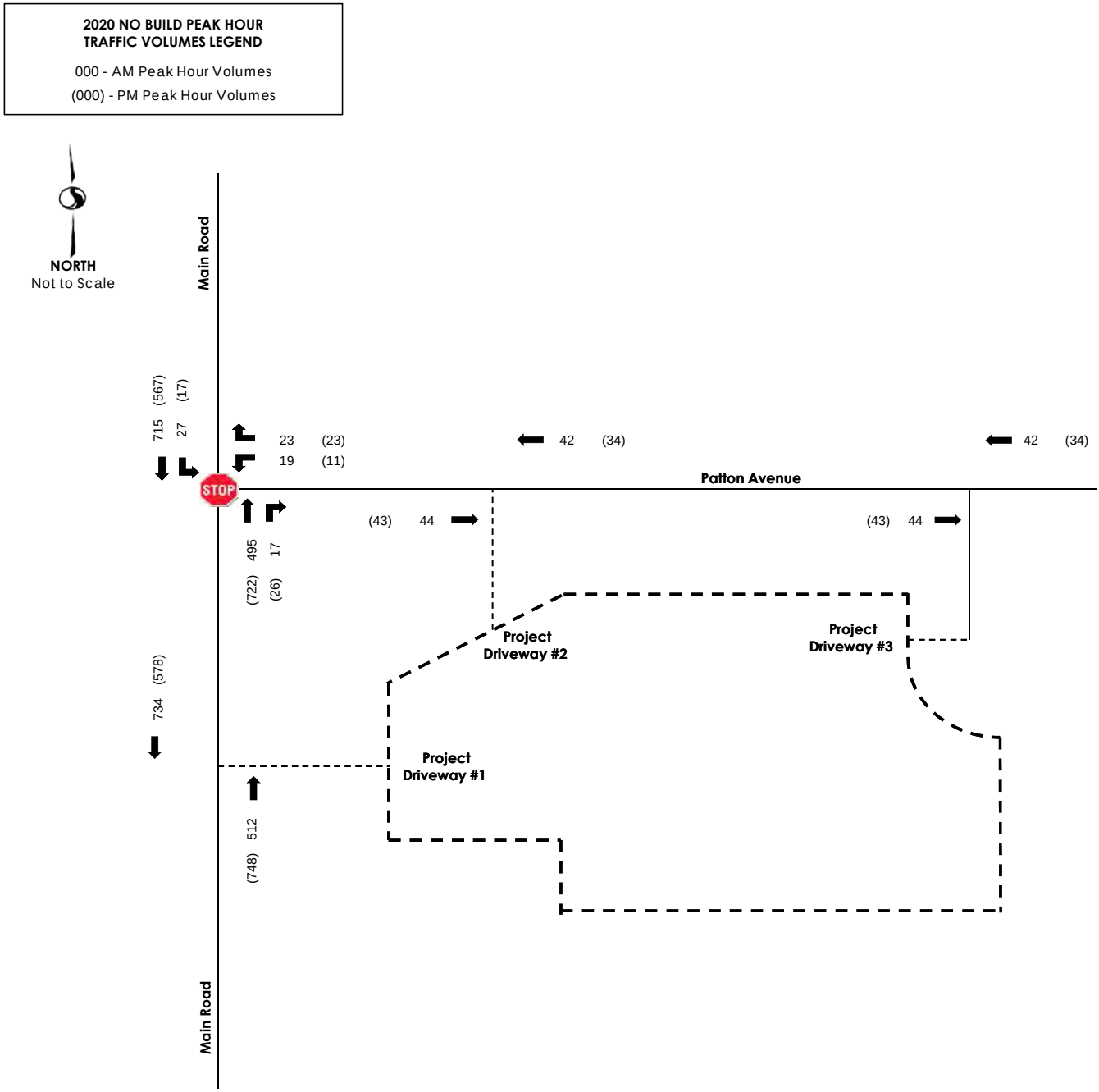
The raw 2017 volume counts are provided in Appendix B and the 2017 existing traffic volumes are illustrated in Exhibit 4.1 and documented in Appendix C.

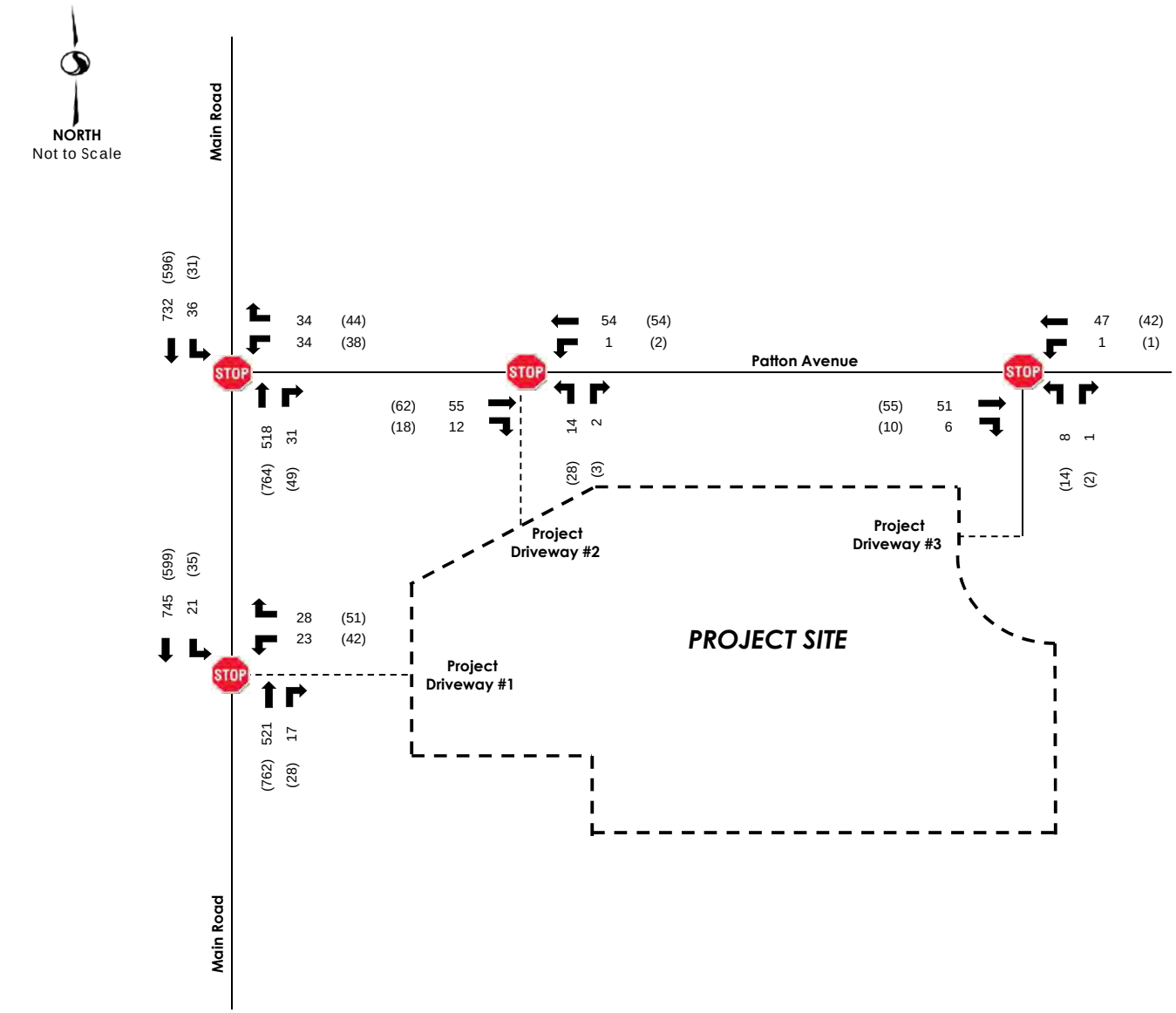
4.2 FUTURE TRAFFIC VOLUME PROJECTIONS

To develop an annual background growth rate for use in the analysis, historical count data for Main Road and Patton Avenue (SCDOT count stations #347 and #662) was reviewed over the past five years. It was determined that Main Road has experienced an annual growth of less than 1.0%. Patton Avenue has experienced annual growth of more than 2.5%. Therefore, to provide a conservative analysis, a 3% annual growth rate was utilized to develop 2020 No Build traffic volumes, which are illustrated in Exhibit 4.2 and documented in Appendix C.

The Berkeley Electric Cooperative – Johns Island District Office project traffic volumes were then added to the 2020 No Build traffic volumes to develop 2020 Build traffic volumes, which are illustrated in Exhibit 4.3 and documented in Appendix C.


2017 EXISTING PEAK HOUR
TRAFFIC VOLUMES LEGEND
000 - AM Peak Hour Volumes
(000) - PM Peak Hour Volumes
NORTH
Not to Scale
Main Road
Patton Avenue
STOP
656 (520)
25 (16)
21 (21)
17 (10)
38 (31)
38 (31)
(40) 41
(40) 41
454 (662)
16 (24)
673 (530)
470 (686)
Project Driveway #1
Project Driveway #2
Project Driveway #3
Main Road


2020 NO BUILD PEAK HOUR
TRAFFIC VOLUMES LEGEND
000 - AM Peak Hour Volumes
(000) - PM Peak Hour Volumes
NORTH
Not to Scale
Main Road
Patton Avenue
STOP
715 (567)
27 (17)
23 (23)
19 (11)
42 (34)
42 (34)
(43) 44
(43) 44
495 17
(722) (26)
734 (578)
512
(748)
Project
Driveway #1
Project
Driveway #2
Project
Driveway #3
Main Road


2020 BUILD PEAK HOUR PROJECT
TRAFFIC VOLUMES LEGEND
000 - AM Peak Hour Volumes
(000) - PM Peak Hour Volumes
NORTH
Not to Scale
Main Road
Patton Avenue
Project Driveway #1
Project Driveway #2
Project Driveway #3
PROJECT SITE
STOP
732 (596)
36 (31)
34 (44)
34 (38)
518 (764)
31 (49)
(62) (18)
55 12
54 (54)
1 (2)
14 (28)
2 (3)
(55) (10)
51 6
47 (42)
1 (1)
8 (14)
1 (2)
745 (599)
21 (35)
28 (51)
23 (42)
521 (762)
17 (28)

5.0 Traffic Impact Analysis

Using the existing and projected traffic volumes previously discussed, intersection analyses were conducted for the study and project driveway intersections considering 2017 Existing conditions, 2020 No Build conditions, and 2020 Build conditions. This analysis was conducted using the Transportation Research Board's *Highway Capacity Manual 2010 (HCM 2010)* methodologies of the *Synchro*, Version 9 software for intersection analysis.

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

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

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

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

5.1 INTERSECTION LOS ANALYSIS

As part of the intersection analysis, SCDOT's default *Synchro* parameters were utilized. Existing peak-hour factors (PHF) were utilized in the analysis of existing and future conditions with a minimum PHF of 0.90 and maximum PHF of 0.95 being considered for future-year conditions. Existing heavy vehicle percentages, as previously discussed, were utilized in the analysis. The existing lane geometry was also utilized for the analysis of existing conditions and the future-year scenarios.

Using the *Synchro,* intersection analyses were conducted for 2017 Existing conditions, 2020 No Build conditions, and 2020 Build conditions for the weekday AM peak-hour and the weekday PM peak-hour time periods. The results of the intersection analyses for existing and future-year conditions for the weekday AM and PM peak-hour time periods are summarized in Table 5.2. For the unsignalized intersections, the LOS and delay results are shown for the worst-case minor-street approaches only, as based upon the *HCM 2010* methodologies for two-way stop-controlled intersections.

Table 5.2 – Intersection Analysis Results

Intersection	Intersection Control	LOS/Delay (seconds)					
		2017 Existing Conditions		2020 No Build Conditions		2020 Build Conditions	
		AM	PM	AM	PM	AM	PM
Main Road & Patton Avenue	Two -way stop	C/19.0 (WB)	C/22.0 (WB)	C/22.1 (WB)	C/23.6 (WB)	D/29.4 (WB)	E/42.1 (WB)
Main Road & Project Driveway #1	Two -way stop	-	-	-	-	C/22.5 (WB)	D/32.0 (WB)
Patton Avenue & Project Driveway #2	Two -way stop	-	-	-	-	A/9.2 (NB)	A/9.3 (NB)
Patton Avenue & Project Driveway #3	Two-way stop	-	-	-	-	A/9.1 (NB)	A/9.1 (NB)

Note: LOS/Delay is shown for the worst-case minor-street approach of the two-way stop-controlled intersections.

The results of the intersection analyses indicate that the study intersections are expected to operate at an acceptable LOS with consideration of the Berkeley Electric Cooperative – Johns Island District Office, with one exception.

The westbound approach of the Main Road & Patton Avenue intersection is projected to experience undesirable LOS conditions in the future during the PM peak hour. The projected delays are likely due in part to the conservative nature of the *HCM 2010* unsignalized methodology. No improvements are recommended.

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

5.2 TURN LANE ANALYSIS

An analysis was conducted to determine the potential need for exclusive turn lanes for the proposed ingress movements at the proposed project driveway intersections along Main Road and Patton Avenue. This analysis was conducted utilizing the criteria documented in SCDOT's *ARMS* manual and *Highway Design Manual* (2003).

The need for exclusive right-turn lanes is based upon the criteria documented in Section 15.5.1.1 of the *Highway Design Manual,* which consists of seven considerations. These considerations and applications for the proposed project driveways are listed below.

1) *at a free-flowing leg of any intersection on a two-lane urban or rural highway which satisfies the criteria in Figure 15.5A;*

   Due to the fact that Main Road and Patton Avenue meet the criteria, the project driveways were analyzed for exclusive right turn lanes using Figure 15.5A. The driveways do not satisfy the criteria of Figure 15.5A. Worksheets documenting the turn lane analysis are provided in Appendix G.

2) *at the free-flowing leg of any unsignalized intersection on a high-speed, four-lane urban or rural highway which satisfies the criteria in Figure 15.5B;*

   The criteria are not applicable for Main Road and Patton Avenue as neither are a high speed (50 mph or greater) roadway.

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

   A northbound right turn lane would not improve the LOS at the intersection of Main Road & Patton Avenue.

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

   The project driveways along Main Road and Patton Avenue are not proposed to be signalized nor are the project driveways projected to experience greater than 300 right-turning vehicles per hour; therefore, this consideration is not met.

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

   There are no right-turn lanes along Main Road, Patton Avenue, or at nearby intersections; therefore, this consideration is not met.

6) *at railroad crossings where the railroad is paralleled to the facility and is located close to the intersection and where a right-turn lane would be desirable to store queued vehicles avoiding interference with the movement of through traffic; or*

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

7) *at any intersection where the crash experience, existing traffic operations, sight distance restrictions, or engineering judgment indicates a significant conflict related to right turning vehicles.*

   No issues with crashes, traffic operations, or sight distance are known; therefore, this consideration is not applicable.

Based on the *Highway Design Manual* considerations for the project driveway, exclusive right-turn lanes at the project driveways are not recommended at this time.

The need for exclusive left-turn lanes is based upon the criteria documented in Section 15.5.1.2 of the *Highway Design Manual,* which consists of six considerations. These considerations and applications for the proposed project driveways along Main Road and Patton Avenue are listed below.

1) *at any unsignalized intersection on a two-lane urban or rural highway which satisfies the criteria in Figures 15.5C, 15.5D, 15.5E, 15.5F, 15.5G;*

   Due to the fact that Main Road and Patton Avenue meet the criteria, the project driveways were analyzed for exclusive left-turn lanes using Figure 15.5F. Based on the assumed 45 mph speed limit, the Main Road & Project Driveway #1 intersection satisfies the criteria of Figure 15.5F. Worksheets documenting the turn lane analysis are provided in Appendix G.

2) *at any signalized intersection. At locations where you have 300 vehicles per hour, consider a traffic review to determine if dual left-turn lanes are required;*

   The project driveway intersections are not signalized; therefore, this consideration is not applicable.

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

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

4) *at all median crossovers;*

   There is no median along Main Road or Patton Avenue; therefore, this consideration is not applicable.

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

   There are no other left-turn lanes along Main Road or Patton Avenue at nearby driveways; therefore, this consideration is not applicable.

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

   No issues with crashes, traffic operations, or sight distance are known; therefore, this consideration is not applicable.

Based on the *Highway Design Manual* considerations for the project driveway, an exclusive left-turn lane along Main Road at Project Driveway #1 is recommended. Based on the criteria set in SCDOT's *ARMS* manual, it is recommended that the southbound left-turn lane along Main Road at Project Driveway #1 consist of a total length of 380 feet, with 200 feet of storage and a 180-foot taper.

6.0 Summary of Findings and Recommendations

A traffic impact analysis was conducted for the Berkeley Electric Cooperative – Johns Island District Office in accordance with Charleston County and SCDOT guidelines. The proposed Berkeley Electric Cooperative – Johns Island District Office site is located in the southeast quadrant of the intersection of Main Road and Patton Avenue on Johns Island in Charleston County, South Carolina.

Access to the development will be provided through one proposed full access driveway along Main Road, one proposed full access driveway along Patton Avenue, and one full access driveway along the power easement that intersects with Patton Avenue.

The results of the intersection analysis indicate that the study intersections currently operate and are expected to continue to operate at an acceptable LOS with consideration of the Berkeley Electric Cooperative – Johns Island District Office, with one exception. The westbound approach of the Main Road & Patton Avenue intersection is projected to experience undesirable LOS conditions in the future during the PM peak hour. The projected delay is likely due in part to the conservative nature of the *HCM 2010* unsignalized methodology. No improvements are recommended.

Based on the *Highway Design Manual* considerations, an exclusive southbound left-turn lane along Main Road is recommended. Based on the criteria set in SCDOT's *ARMS* manual, it is recommended that the southbound left-turn lane along Main Road at Project Driveway #1 consist of a total length of 380 feet, with 200 feet of storage and a 180-foot taper.

Appendix A

Trip Generation Worksheet

EXISTING TRIP GENERATION

Berkeley Electric Cooperative – Johns Island Office

Weekday AM Peak Hour

TRIP GENERATION CHARACTERISTICS				DIRECT. DISTRIB.		GROSS TRIPS			NEW EXTERNAL TRIPS		
Land Use	Scale	Unit	Equation/Rate	In	Out	In	Out	Total	In	Out	Total
Existing Berkeley Electric Cooperative Site	27.1	ksf	T=1.37(X)	43%	57%	16	21	37	16	21	37
					Total:	16	21	37	16	21	37

Weekday PM Peak Hour

TRIP GENERATION CHARACTERISTICS				DIRECT. DISTRIB.		GROSS TRIPS			NEW EXTERNAL TRIPS		
Land Use	Scale	Unit	Equation/Rate	In	Out	In	Out	Total	In	Out	Total
Existing Berkeley Electric Cooperative Site	27.1	ksf	T=2.40(X)	40%	60%	26	39	65	26	39	65
					Total:	26	39	65	26	39	65

PROPOSED TRIP GENERATION ESTIMATES
Berkeley Electric Cooperative – Johns Island Office

Weekday AM Peak Hour

TRIP GENERATION CHARACTERISTICS				DIRECT. DISTRIB.		GROSS TRIPS			NEW EXTERNAL TRIPS		
Land Use	Scale	Unit	Equation/Rate	In	Out	In	Out	Total	In	Out	Total
Proposed Berkeley Electric Cooperative Site	97.3	ksf	T=1.37(X)	43%	57%	58	76	134	58	76	134
					Total:	58	76	134	58	76	134

Weekday PM Peak Hour

TRIP GENERATION CHARACTERISTICS				DIRECT. DISTRIB.		GROSS TRIPS			NEW EXTERNAL TRIPS		
Land Use	Scale	Unit	Equation/Rate	In	Out	In	Out	Total	In	Out	Total
Proposed Berkeley Electric Cooperative Site	97.3	ksf	T=2.40(X)	40%	60%	94	140	234	94	140	234
					Total:	94	140	234	94	140	234

Appendix B

Traffic Count Data

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Then Click the Comments Tab

File Name : Patton Ave @ Main Rd
Site Code :
Start Date : 1/12/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Main Rd Southbound				Patton Ave Westbound				Main Rd Northbound				Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	4	163	0	0	2	0	3	0	0	102	0	0	0	0	0	0	274
07:15	4	155	0	0	1	0	3	0	0	110	11	0	0	0	0	0	284
07:30	5	132	0	0	5	0	3	0	0	128	2	0	0	0	0	0	275
07:45	15	180	0	0	4	0	5	0	0	97	3	0	0	0	0	0	304
Total	28	630	0	0	12	0	14	0	0	437	16	0	0	0	0	0	1137
08:00	1	158	0	0	3	0	6	0	0	125	6	0	0	0	0	0	299
08:15	4	186	0	0	5	0	7	0	0	104	5	0	0	0	0	0	311
08:30	4	126	0	0	2	0	5	0	0	95	4	0	0	0	0	0	236
08:45	2	140	0	0	0	0	3	0	0	108	5	0	0	0	0	0	258
Total	11	610	0	0	10	0	21	0	0	432	20	0	0	0	0	0	1104
16:00	2	142	0	0	2	0	8	1	0	173	5	0	0	0	0	0	333
16:15	6	131	0	0	4	0	6	0	0	157	9	0	0	0	0	0	313
16:30	3	132	0	0	1	0	5	0	0	178	3	0	0	0	0	0	322
16:45	5	115	0	0	3	0	2	0	0	154	7	0	0	0	0	0	286
Total	16	520	0	0	10	0	21	1	0	662	24	0	0	0	0	0	1254
17:00	8	138	0	0	2	0	3	0	0	180	1	0	0	0	0	0	332
17:15	5	97	0	0	3	0	1	0	0	159	6	0	0	0	0	0	271
17:30	5	136	0	0	3	0	7	0	0	187	7	0	0	0	0	0	345
17:45	3	114	0	0	3	0	6	0	0	105	3	0	0	0	0	0	234
Total	21	485	0	0	11	0	17	0	0	631	17	0	0	0	0	0	1182
Grand Total	76	2245	0	0	43	0	73	1	0	2162	77	0	0	0	0	0	4677
Apprch %	3.3	96.7	0	0	36.8	0	62.4	0.9	0	96.6	3.4	0	0	0	0	0	
Total %	1.6	48	0	0	0.9	0	1.6	0	0	46.2	1.6	0	0	0	0	0	
Passenger Vehicles	70	2134	0	0	41	0	65	1	0	2063	76	0	0	0	0	0	4450
% Passenger Vehicles	92.1	95.1	0	0	95.3	0	89	100	0	95.4	98.7	0	0	0	0	0	95.1
Heavy Vehicles	6	101	0	0	2	0	7	0	0	93	1	0	0	0	0	0	210
% Heavy Vehicles	7.9	4.5	0	0	4.7	0	9.6	0	0	4.3	1.3	0	0	0	0	0	4.5
Buses	0	10	0	0	0	0	1	0	0	6	0	0	0	0	0	0	17
% Buses	0	0.4	0	0	0	0	1.4	0	0	0.3	0	0	0	0	0	0	0.4

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File Name : Patton Ave @ Main Rd
Site Code :
Start Date : 1/12/2017
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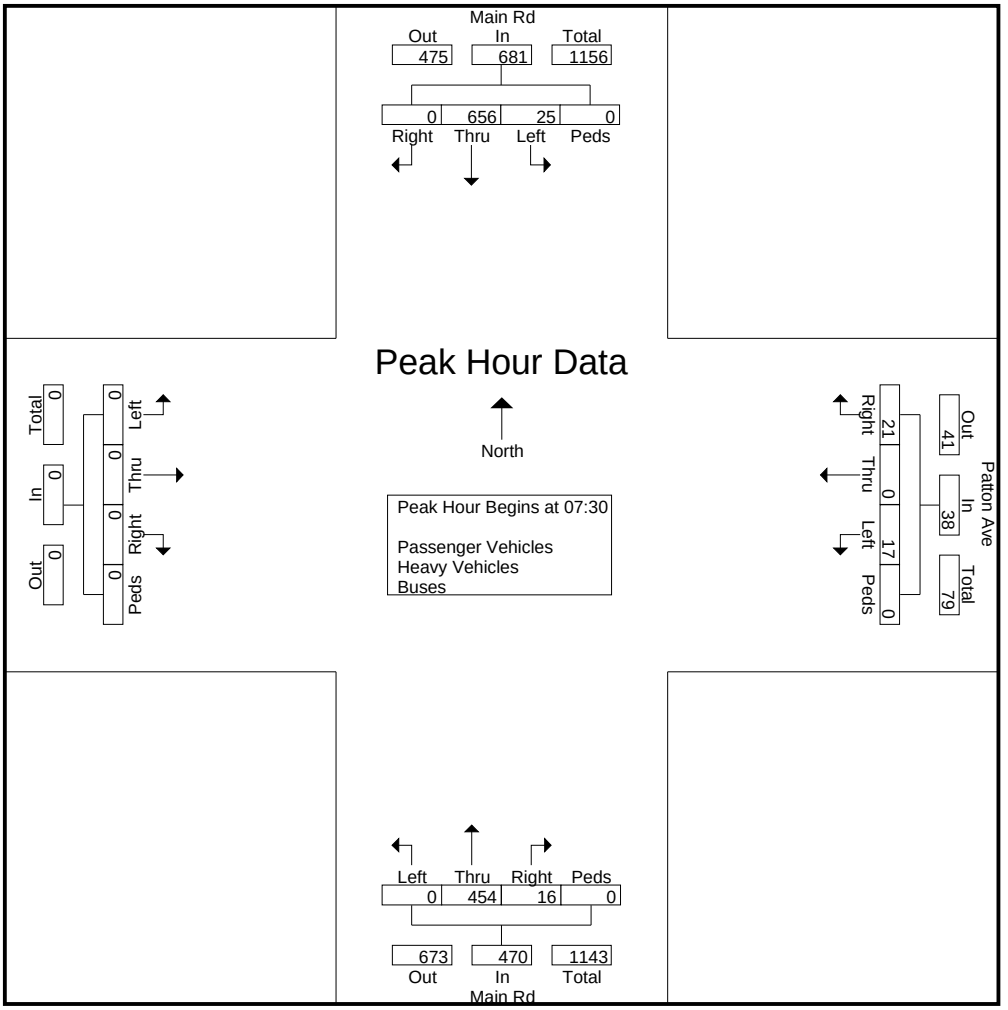
	Main Rd Southbound					Patton Ave Westbound					Main Rd Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	5	132	0	0	137	**5**	0	3	0	8	0	**128**	2	0	130	0	0	0	0	0	275
07:45	**15**	180	0	0	**195**	4	0	5	0	9	0	97	3	0	100	0	0	0	0	0	304
08:00	1	158	0	0	159	3	0	6	0	9	0	125	**6**	0	**131**	0	0	0	0	0	299
08:15	4	**186**	0	0	190	5	0	**7**	0	**12**	0	104	5	0	109	0	0	0	0	0	**311**
Total Volume	25	656	0	0	681	17	0	21	0	38	0	454	16	0	470	0	0	0	0	0	1189
% App. Total	3.7	96.3	0	0		44.7	0	55.3	0		0	96.6	3.4	0		0	0	0	0		
PHF	.417	.882	.000	.000	.873	.850	.000	.750	.000	.792	.000	.887	.667	.000	.897	.000	.000	.000	.000	.000	.956



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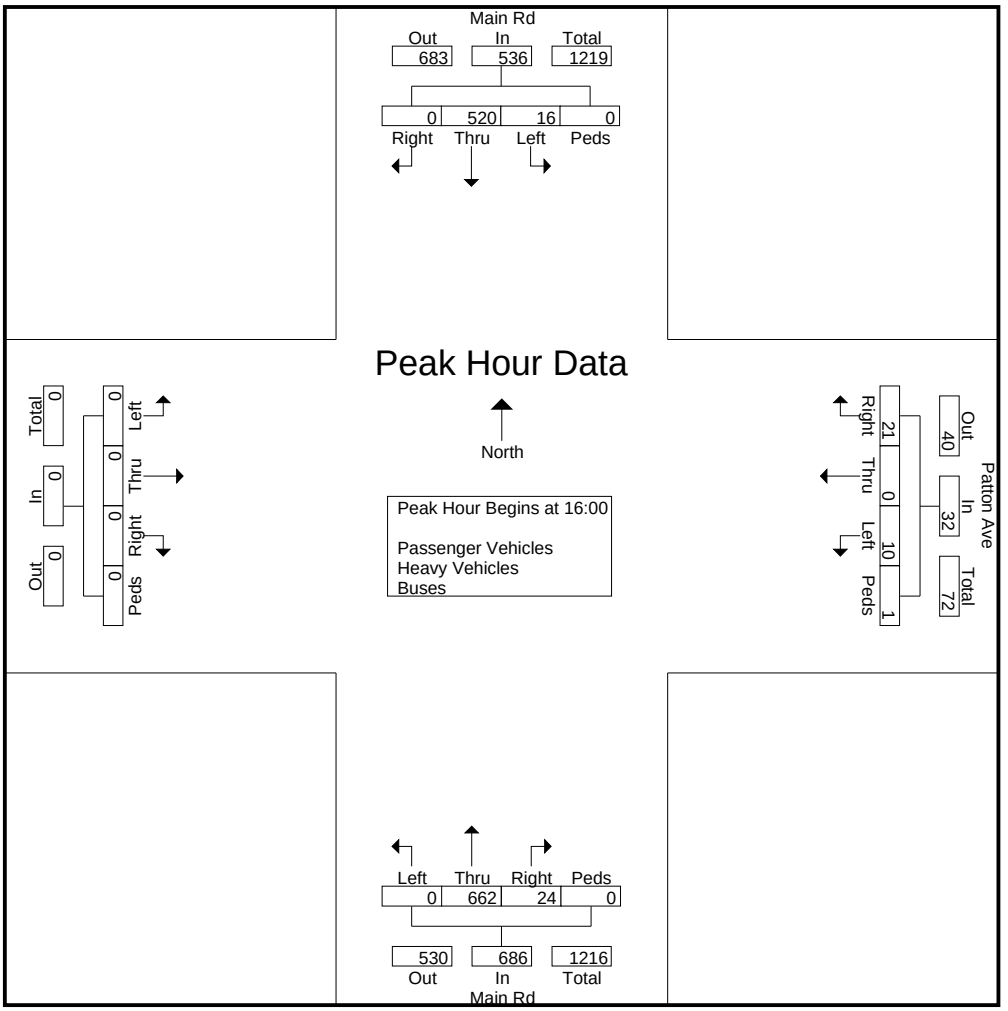
File Name : Patton Ave @ Main Rd
Site Code :
Start Date : 1/12/2017
Page No : 4

	Main Rd Southbound					Patton Ave Westbound					Main Rd Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	2	**142**	0	0	**144**	2	0	**8**	**1**	**11**	0	173	5	0	178	0	0	0	0	0	**333**
16:15	**6**	131	0	0	137	**4**	0	6	0	10	0	157	**9**	0	166	0	0	0	0	0	313
16:30	3	132	0	0	135	1	0	5	0	6	0	**178**	3	0	**181**	0	0	0	0	0	322
16:45	5	115	0	0	120	3	0	2	0	5	0	154	7	0	161	0	0	0	0	0	286
Total Volume	16	520	0	0	536	10	0	21	1	32	0	662	24	0	686	0	0	0	0	0	1254
% App. Total	3	97	0	0		31.2	0	65.6	3.1		0	96.5	3.5	0		0	0	0	0		
PHF	.667	.915	.000	.000	.931	.625	.000	.656	.250	.727	.000	.930	.667	.000	.948	.000	.000	.000	.000	.000	.941



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Site Code :
Start Date : 1/12/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Southbound				Maybank Hwy Westbound				Electric Coop Delivery Entrance Northbound				Maybank Hwy Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	0	0	0	103	0	0	0	0	0	0	0	118	0	0	221
07:15	0	0	0	0	0	120	0	0	2	0	0	0	0	87	2	0	211
07:30	0	0	0	0	0	129	0	0	1	0	0	0	0	98	2	0	230
07:45	0	0	0	0	1	150	0	0	0	0	0	0	0	110	0	0	261
Total	0	0	0	0	1	502	0	0	3	0	0	0	0	413	4	0	923
08:00	0	0	0	0	0	125	0	0	3	0	0	0	0	99	2	0	229
08:15	0	0	0	0	0	139	0	0	2	0	2	0	0	135	0	0	278
08:30	0	0	0	0	0	145	0	0	1	0	0	0	0	148	0	0	294
08:45	0	0	0	0	0	136	0	0	3	0	0	1	0	100	0	0	240
Total	0	0	0	0	0	545	0	0	9	0	2	1	0	482	2	0	1041
16:00	0	0	0	0	0	169	0	0	1	0	0	0	0	131	0	0	301
16:15	0	0	0	0	0	143	0	0	0	0	0	0	0	152	0	0	295
16:30	0	0	0	0	0	151	0	0	0	0	1	0	0	146	0	0	298
16:45	0	0	0	0	1	152	0	0	0	0	0	0	0	146	0	0	299
Total	0	0	0	0	1	615	0	0	1	0	1	0	0	575	0	0	1193
17:00	0	0	0	0	0	147	0	0	0	0	0	0	0	132	0	0	279
17:15	0	0	0	0	0	113	0	0	0	0	0	0	0	137	0	0	250
17:30	0	0	0	0	0	117	0	0	0	0	0	1	0	126	0	0	244
17:45	0	0	0	0	0	114	0	0	0	0	0	0	0	117	0	0	231
Total	0	0	0	0	0	491	0	0	0	0	0	1	0	512	0	0	1004
Grand Total	0	0	0	0	2	2153	0	0	13	0	3	2	0	1982	6	0	4161
Apprch %	0	0	0	0	0.1	99.9	0	0	72.2	0	16.7	11.1	0	99.7	0.3	0	
Total %	0	0	0	0	0	51.7	0	0	0.3	0	0.1	0	0	47.6	0.1	0	
Passenger Vehicles	0	0	0	0	2	2098	0	0	9	0	2	2	0	1937	4	0	4054
% Passenger Vehicles	0	0	0	0	100	97.4	0	0	69.2	0	66.7	100	0	97.7	66.7	0	97.4
Heavy Vehicles	0	0	0	0	0	41	0	0	4	0	1	0	0	38	2	0	86
% Heavy Vehicles	0	0	0	0	0	1.9	0	0	30.8	0	33.3	0	0	1.9	33.3	0	2.1
Buses	0	0	0	0	0	14	0	0	0	0	0	0	0	7	0	0	21
% Buses	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0.4	0	0	0.5

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File Name : Maybank Hwy @ Electric Coop Delivery Entrance
Site Code :
Start Date : 1/12/2017
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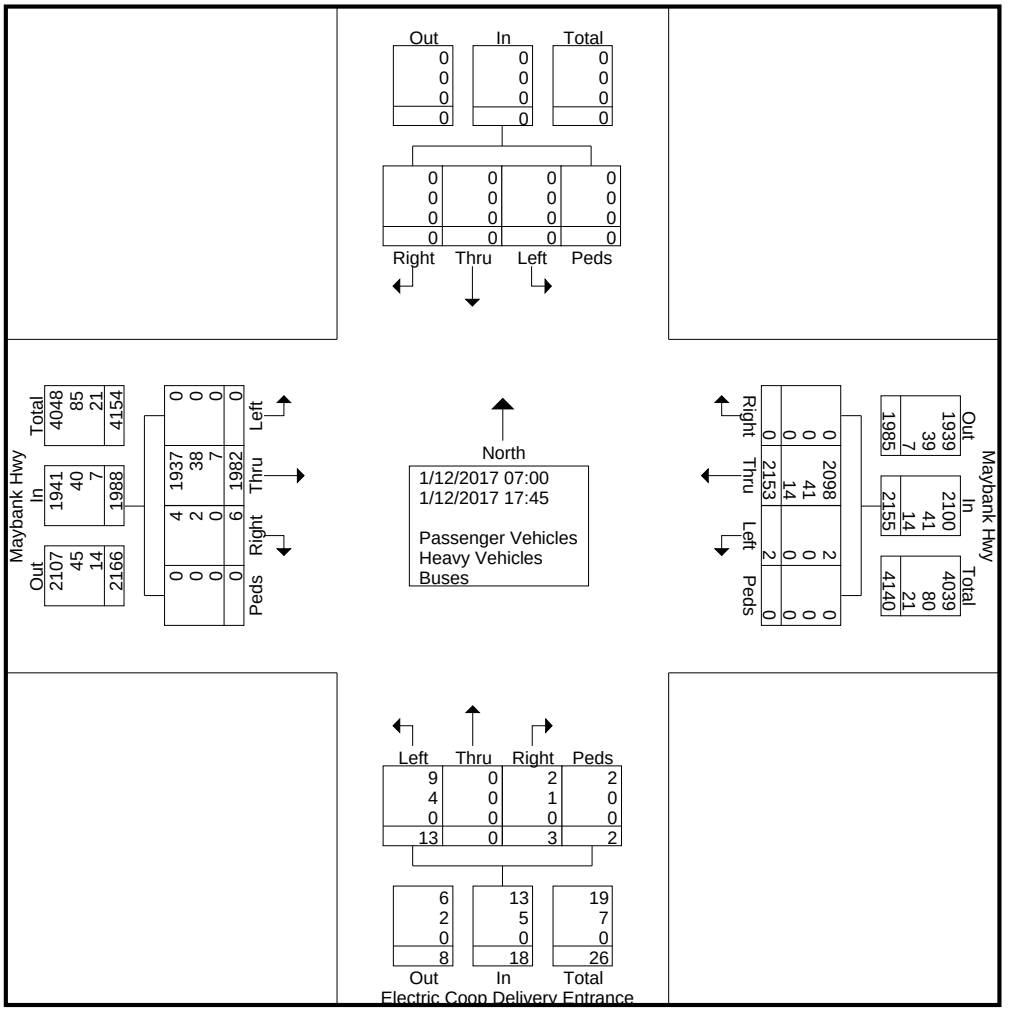

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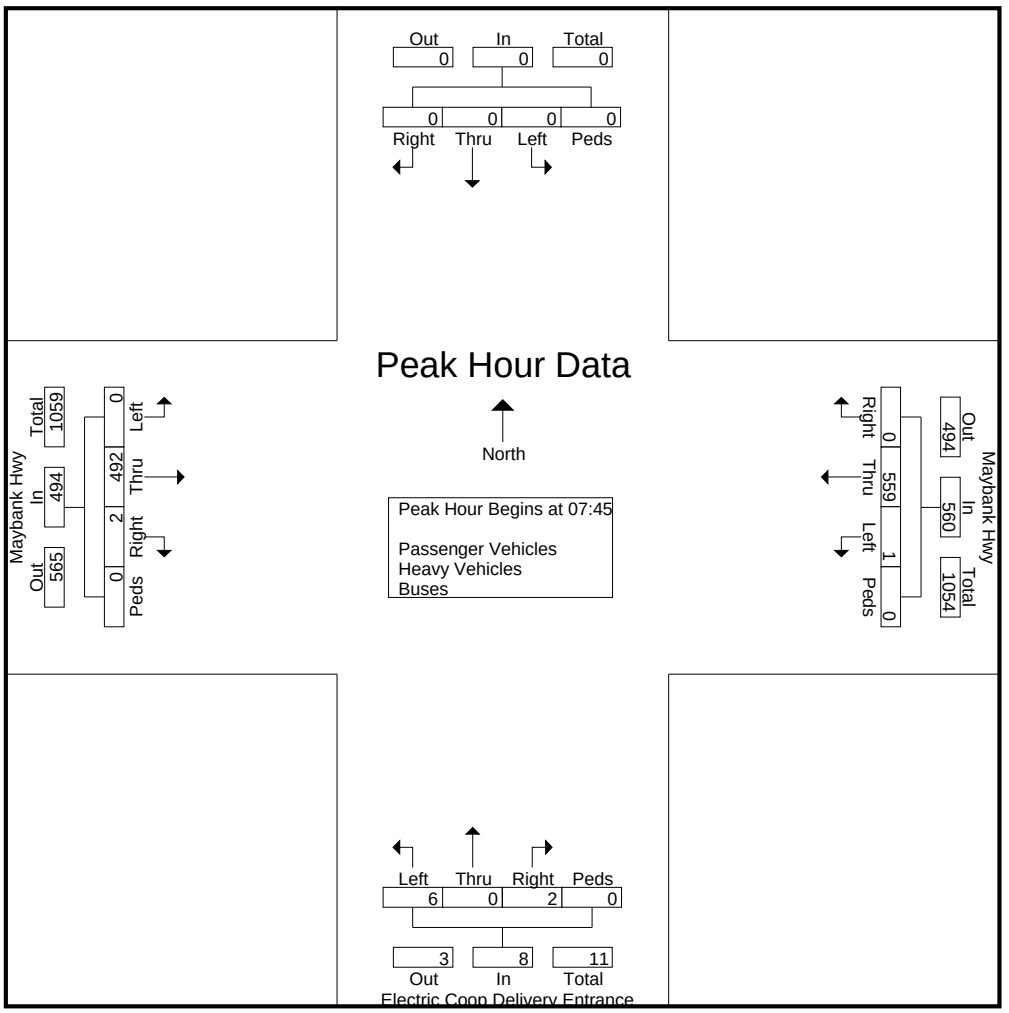
File Name : Maybank Hwy @ Electric Coop Delivery Entrance
Site Code :
Start Date : 1/12/2017
Page No : 3

	Southbound					Maybank Hwy Westbound					Electric Coop Delivery Entrance Northbound					Maybank Hwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	0	0	0	**1**	**150**	0	0	**151**	0	0	0	0	0	0	110	0	0	110	261
08:00	0	0	0	0	0	0	125	0	0	125	**3**	0	0	0	3	0	99	**2**	0	101	229
08:15	0	0	0	0	0	0	139	0	0	139	2	0	**2**	0	**4**	0	135	0	0	135	278
08:30	0	0	0	0	0	0	145	0	0	145	1	0	0	0	1	0	**148**	0	0	**148**	**294**
Total Volume	0	0	0	0	0	1	559	0	0	560	6	0	2	0	8	0	492	2	0	494	1062
% App. Total	0	0	0	0		0.2	99.8	0	0		75	0	25	0		0	99.6	0.4	0		
PHF	.000	.000	.000	.000	.000	.250	.932	.000	.000	.927	.500	.000	.250	.000	.500	.000	.831	.250	.000	.834	.903



SHORT COUNTS, LLC

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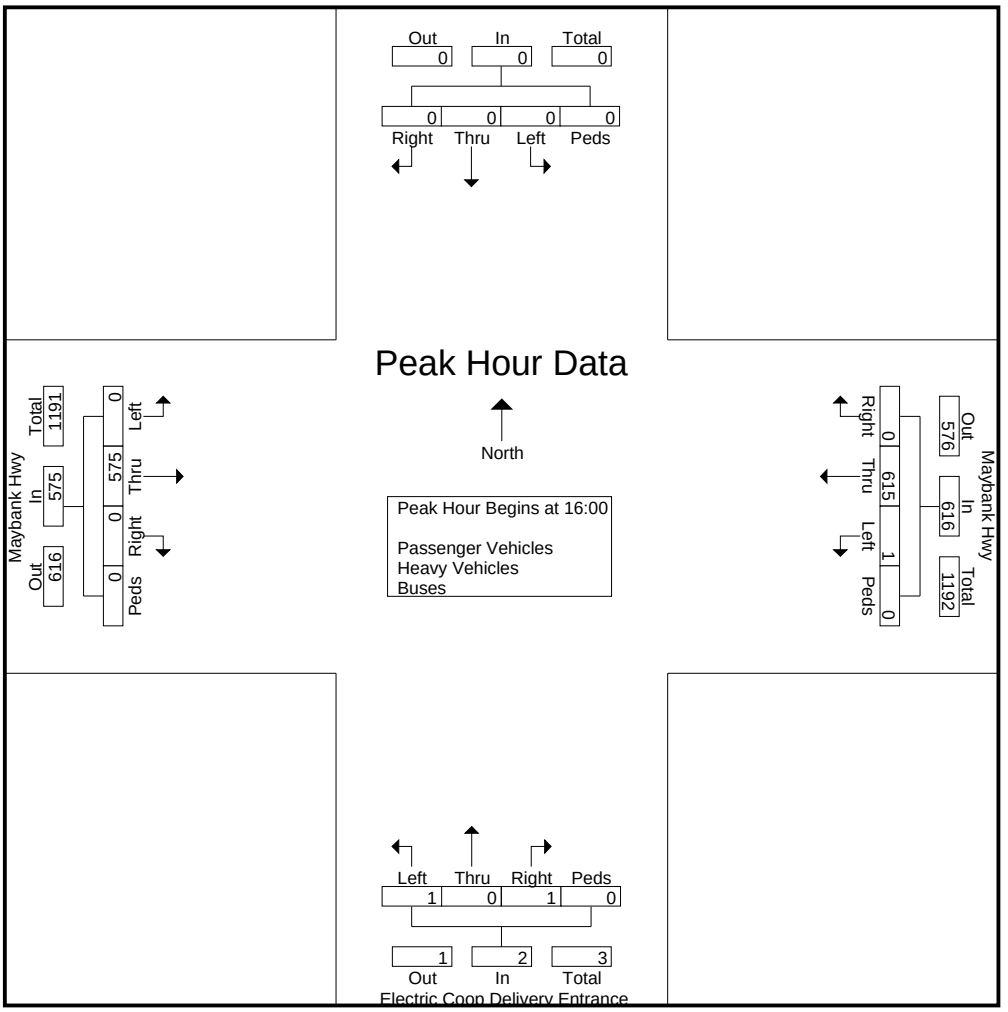
File Name : Maybank Hwy @ Electric Coop Delivery Entrance
Site Code :
Start Date : 1/12/2017
Page No : 4

	Southbound					Maybank Hwy Westbound					Electric Coop Delivery Entrance Northbound					Maybank Hwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	0	**169**	0	0	**169**	**1**	0	0	0	**1**	0	131	0	0	131	**301**
16:15	0	0	0	0	0	0	143	0	0	143	0	0	0	0	0	0	**152**	0	0	**152**	295
16:30	0	0	0	0	0	0	151	0	0	151	0	0	**1**	0	1	0	146	0	0	146	298
16:45	0	0	0	0	0	**1**	152	0	0	153	0	0	0	0	0	0	146	0	0	146	299
Total Volume	0	0	0	0	0	1	615	0	0	616	1	0	1	0	2	0	575	0	0	575	1193
% App. Total	0	0	0	0		0.2	99.8	0	0		50	0	50	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.250	.910	.000	.000	.911	.250	.000	.250	.000	.500	.000	.946	.000	.000	.946	.991



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

File Name : Maybank Hwy @ Electric Coop West-Clew St
Site Code :
Start Date : 1/12/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Clew St Southbound				Maybank Hwy Westbound				Electric Coop West Entrance Northbound				Maybank Hwy Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	2	0	0	0	0	105	0	0	0	0	1	0	0	110	0	0	218
07:15	1	0	1	0	0	107	0	0	1	0	0	0	0	101	0	0	211
07:30	0	0	1	0	1	127	0	0	1	0	0	0	1	95	0	0	226
07:45	0	0	0	0	0	152	5	0	0	0	0	0	2	95	0	0	254
Total	3	0	2	0	1	491	5	0	2	0	1	0	3	401	0	0	909
08:00	0	0	0	0	0	114	0	0	1	0	0	0	0	112	0	0	227
08:15	0	0	0	0	0	151	1	0	1	0	2	0	0	120	0	0	275
08:30	2	0	3	0	0	151	0	0	5	0	1	0	1	152	0	0	315
08:45	1	1	2	0	0	116	0	0	1	0	1	1	0	107	0	0	230
Total	3	1	5	0	0	532	1	0	8	0	4	1	1	491	0	0	1047
16:00	1	0	0	0	0	161	1	0	2	0	2	0	0	133	0	0	300
16:15	1	0	1	0	0	149	1	0	1	0	1	0	0	152	0	0	306
16:30	10	0	1	0	0	139	0	0	5	0	2	0	0	148	1	0	306
16:45	1	0	2	0	0	147	0	0	4	0	0	0	0	151	0	0	305
Total	13	0	4	0	0	596	2	0	12	0	5	0	0	584	1	0	1217
17:00	4	0	4	0	0	150	0	0	1	0	0	0	0	119	0	0	278
17:15	1	0	0	0	0	119	0	0	0	0	0	0	0	138	0	0	258
17:30	1	0	2	0	0	114	0	0	0	0	2	1	0	130	0	0	250
17:45	0	0	0	0	0	113	0	0	0	0	0	0	0	120	1	0	234
Total	6	0	6	0	0	496	0	0	1	0	2	1	0	507	1	0	1020
Grand Total	25	1	17	0	1	2115	8	0	23	0	12	2	4	1983	2	0	4193
Apprch %	58.1	2.3	39.5	0	0	99.6	0.4	0	62.2	0	32.4	5.4	0.2	99.7	0.1	0	
Total %	0.6	0	0.4	0	0	50.4	0.2	0	0.5	0	0.3	0	0.1	47.3	0	0	
Passenger Vehicles	25	1	16	0	1	2058	8	0	23	0	12	2	4	1941	2	0	4093
% Passenger Vehicles	100	100	94.1	0	100	97.3	100	0	100	0	100	100	100	97.9	100	0	97.6
Heavy Vehicles	0	0	1	0	0	42	0	0	0	0	0	0	0	34	0	0	77
% Heavy Vehicles	0	0	5.9	0	0	2	0	0	0	0	0	0	0	1.7	0	0	1.8
Buses	0	0	0	0	0	15	0	0	0	0	0	0	0	8	0	0	23
% Buses	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0.4	0	0	0.5

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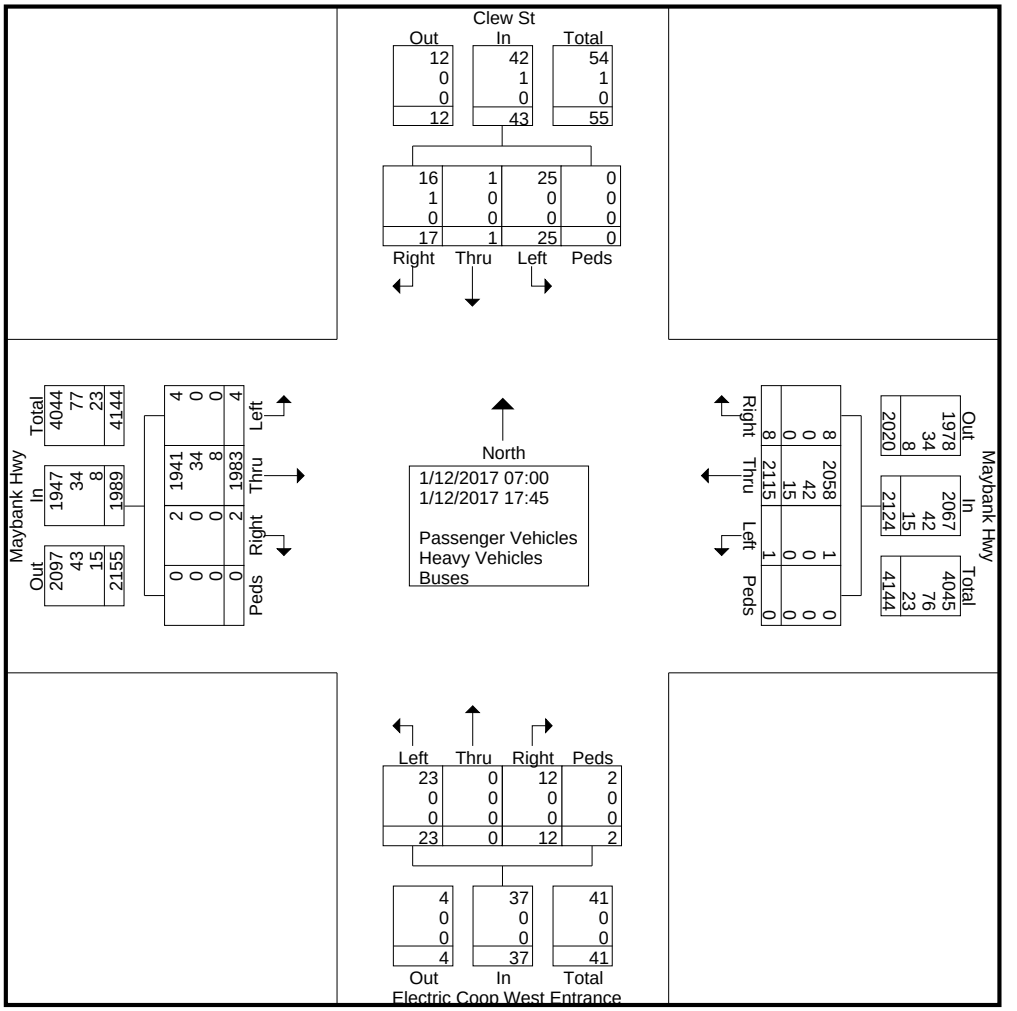
File Name : Maybank Hwy @ Electric Coop West-Clew St
Site Code :
Start Date : 1/12/2017
Page No : 2



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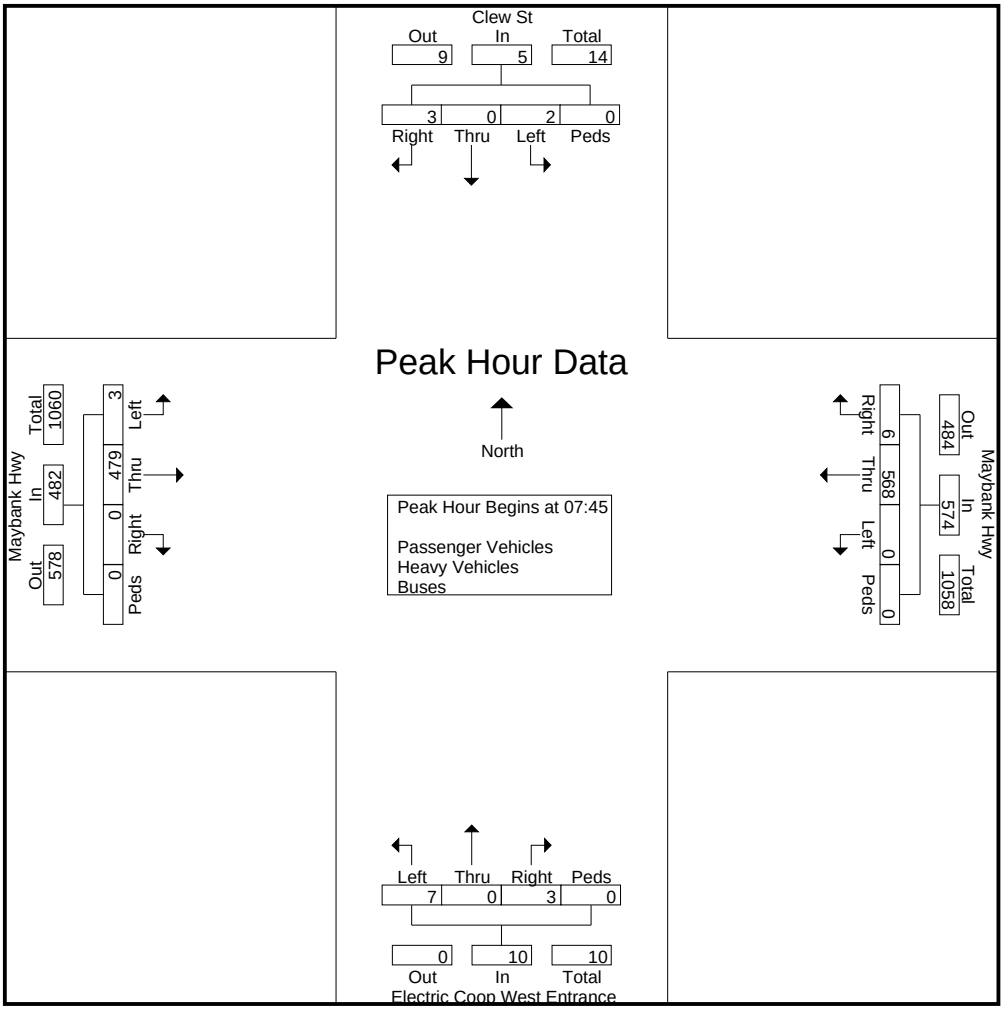
File Name : Maybank Hwy @ Electric Coop West-Clew St
Site Code :
Start Date : 1/12/2017
Page No : 3

	Clew St Southbound					Maybank Hwy Westbound					Electric Coop West Entrance Northbound					Maybank Hwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	0	0	0	0	**152**	**5**	0	**157**	0	0	0	0	0	**2**	95	0	0	97	254
08:00	0	0	0	0	0	0	114	0	0	114	1	0	0	0	1	0	112	0	0	112	227
08:15	0	0	0	0	0	0	151	1	0	152	1	0	**2**	0	3	0	120	0	0	120	275
08:30	**2**	0	**3**	0	**5**	0	151	0	0	151	**5**	0	1	0	**6**	1	**152**	0	0	**153**	**315**
Total Volume	2	0	3	0	5	0	568	6	0	574	7	0	3	0	10	3	479	0	0	482	1071
% App. Total	40	0	60	0		0	99	1	0		70	0	30	0		0.6	99.4	0	0		
PHF	.250	.000	.250	.000	.250	.000	.934	.300	.000	.914	.350	.000	.375	.000	.417	.375	.788	.000	.000	.788	.850



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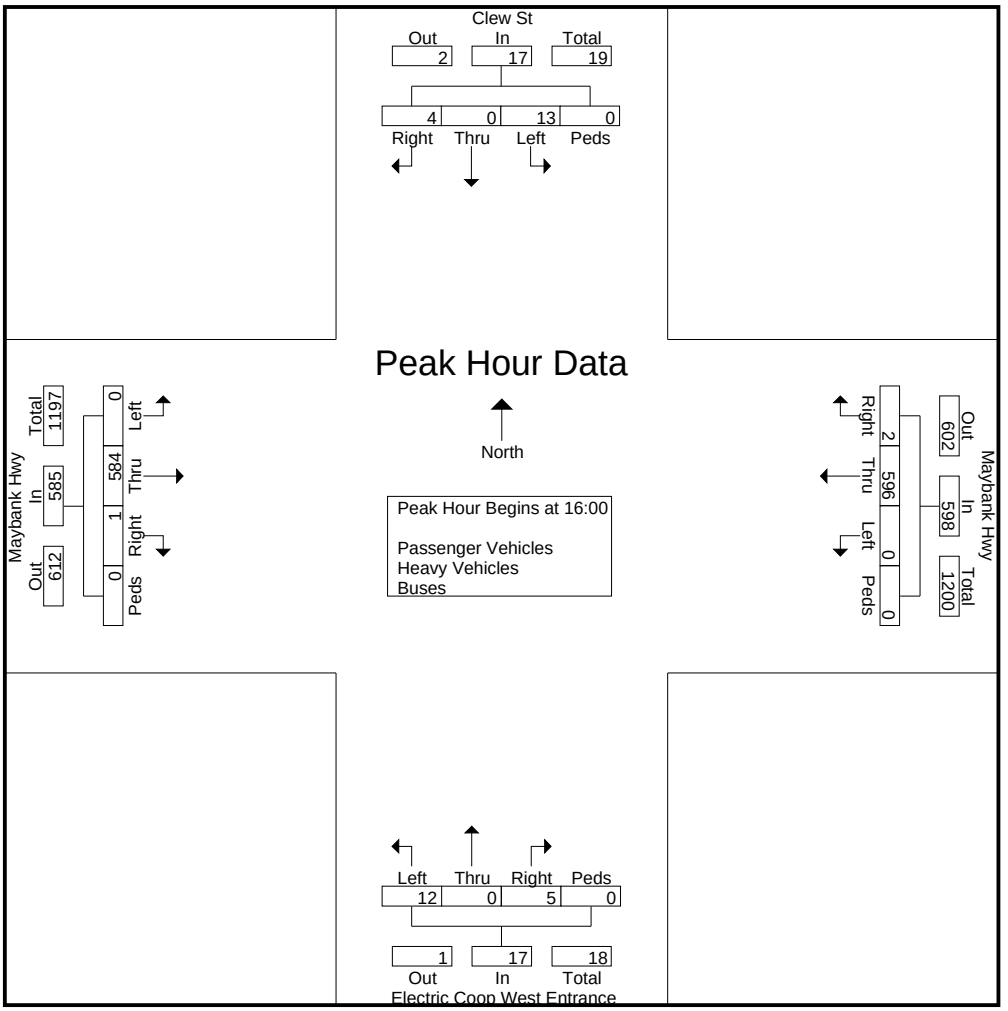
We can't say we're the Best, but you Can!

File Name : Maybank Hwy @ Electric Coop West-Clew St
Site Code :
Start Date : 1/12/2017
Page No : 4

	Clew St Southbound					Maybank Hwy Westbound					Electric Coop West Entrance Northbound					Maybank Hwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	1	0	0	0	1	0	**161**	**1**	0	**162**	2	0	**2**	0	4	0	133	0	0	133	300
16:15	1	0	1	0	2	0	149	1	0	150	1	0	1	0	2	0	**152**	0	0	**152**	**306**
16:30	**10**	0	1	0	**11**	0	139	0	0	139	**5**	0	2	0	**7**	0	148	**1**	0	149	306
16:45	1	0	**2**	0	3	0	147	0	0	147	4	0	0	0	4	0	151	0	0	151	305
Total Volume	13	0	4	0	17	0	596	2	0	598	12	0	5	0	17	0	584	1	0	585	1217
% App. Total	76.5	0	23.5	0		0	99.7	0.3	0		70.6	0	29.4	0		0	99.8	0.2	0		
PHF	.325	.000	.500	.000	.386	.000	.925	.500	.000	.923	.600	.000	.625	.000	.607	.000	.961	.250	.000	.962	.994



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

File Name : Maybank Hwy @ Electric Coop East Entrance
Site Code :
Start Date : 1/12/2017
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Southbound				Maybank Hwy Westbound				Electric Coop East Entrance Northbound				Maybank Hwy Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	0	0	0	113	0	0	0	0	0	0	0	112	2	0	227
07:15	0	0	0	0	0	112	0	0	0	0	1	0	0	98	0	0	211
07:30	0	0	0	0	0	120	0	0	0	0	0	0	0	95	0	0	215
07:45	0	0	0	0	1	159	0	0	0	0	0	0	0	95	0	0	255
Total	0	0	0	0	1	504	0	0	0	0	1	0	0	400	2	0	908
08:00	0	0	0	0	1	121	0	0	1	0	0	0	0	113	1	0	237
08:15	0	0	0	0	1	143	0	0	0	0	1	0	0	121	4	0	270
08:30	0	0	0	0	4	149	0	0	1	0	0	0	0	159	1	0	314
08:45	0	0	0	0	1	127	0	0	1	0	1	1	0	101	1	0	233
Total	0	0	0	0	7	540	0	0	3	0	2	1	0	494	7	0	1054
16:00	0	0	0	0	3	168	0	0	0	0	12	0	0	99	4	0	286
16:15	0	0	0	0	3	145	0	0	2	0	2	0	0	149	0	0	301
16:30	0	0	0	0	5	143	0	0	1	0	0	0	0	153	4	0	306
16:45	0	0	0	0	4	144	0	0	1	0	2	0	0	154	1	0	306
Total	0	0	0	0	15	600	0	0	4	0	16	0	0	555	9	0	1199
17:00	0	0	0	0	1	146	0	0	0	0	2	0	0	133	1	0	283
17:15	0	0	0	0	1	117	0	0	0	0	1	0	0	130	0	0	249
17:30	0	0	0	0	0	119	0	0	0	0	0	1	0	132	2	0	254
17:45	0	0	0	0	0	112	0	0	0	0	0	0	0	118	0	0	230
Total	0	0	0	0	2	494	0	0	0	0	3	1	0	513	3	0	1016
Grand Total	0	0	0	0	25	2138	0	0	7	0	22	2	0	1962	21	0	4177
Apprch %	0	0	0	0	1.2	98.8	0	0	22.6	0	71	6.5	0	98.9	1.1	0	
Total %	0	0	0	0	0.6	51.2	0	0	0.2	0	0.5	0	0	47	0.5	0	
Passenger Vehicles	0	0	0	0	22	2080	0	0	7	0	22	2	0	1917	21	0	4071
% Passenger Vehicles	0	0	0	0	88	97.3	0	0	100	0	100	100	0	97.7	100	0	97.5
Heavy Vehicles	0	0	0	0	3	44	0	0	0	0	0	0	0	38	0	0	85
% Heavy Vehicles	0	0	0	0	12	2.1	0	0	0	0	0	0	0	1.9	0	0	2
Buses	0	0	0	0	0	14	0	0	0	0	0	0	0	7	0	0	21
% Buses	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0.4	0	0	0.5

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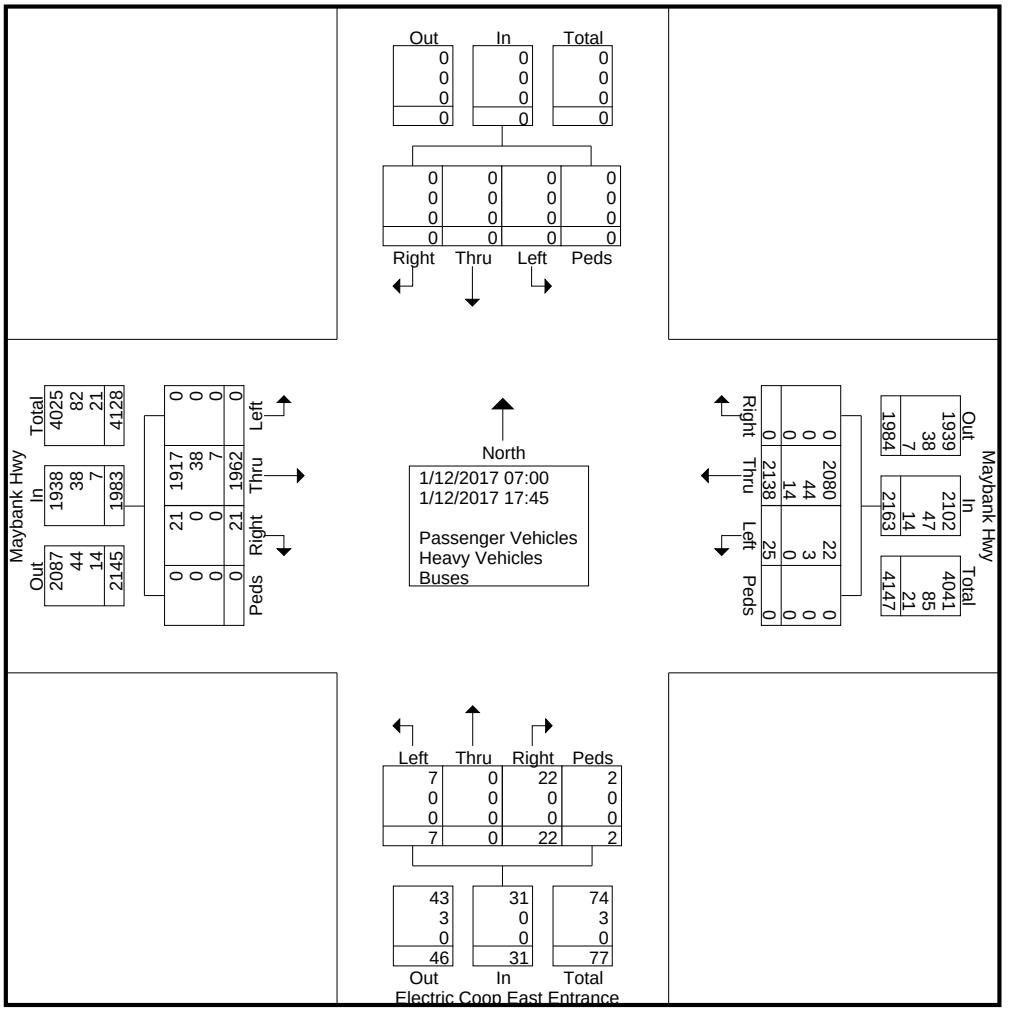
Start Date : 1/12/2017
Page No : 2



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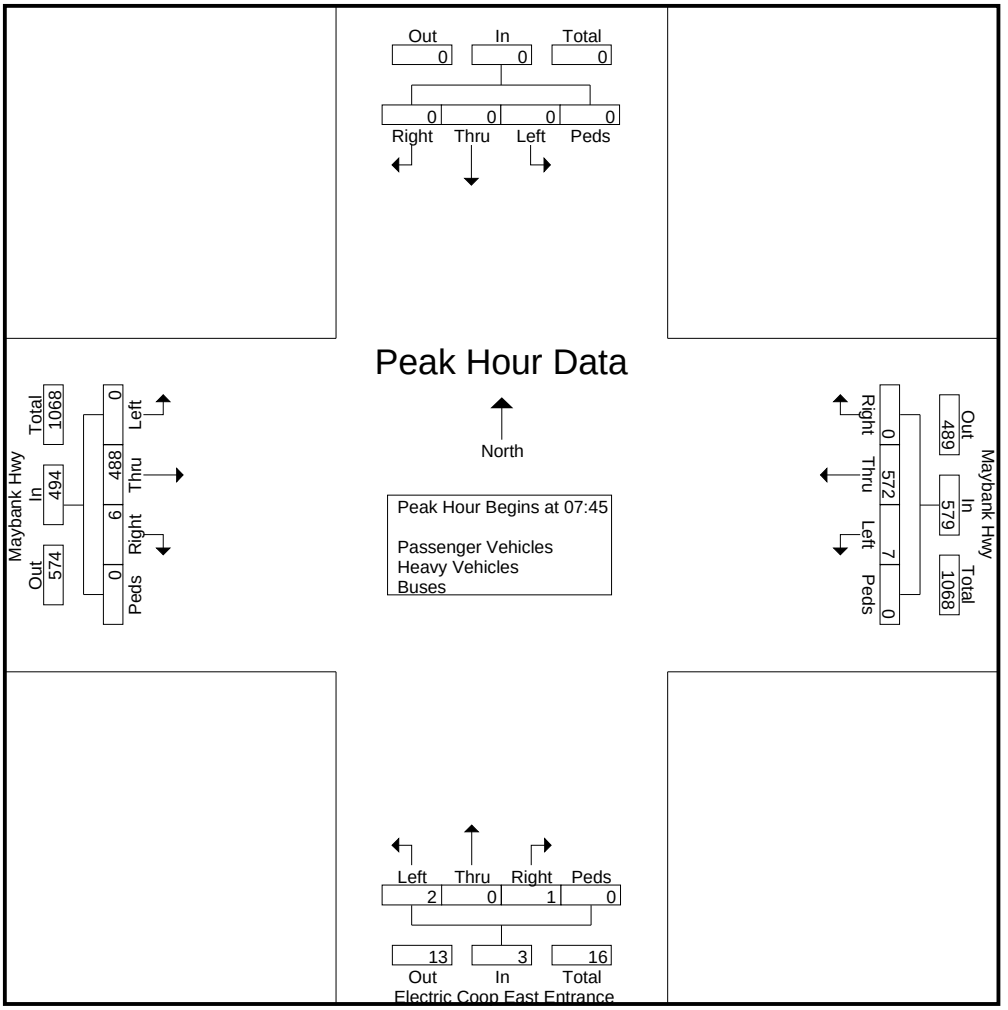
File Name : Maybank Hwy @ Electric Coop East Entrance
Site Code :
Start Date : 1/12/2017
Page No : 3

	Southbound					Maybank Hwy Westbound					Electric Coop East Entrance Northbound					Maybank Hwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	0	0	0	1	**159**	0	0	**160**	0	0	0	0	0	0	95	0	0	95	255
08:00	0	0	0	0	0	1	121	0	0	122	**1**	0	0	0	**1**	0	113	1	0	114	237
08:15	0	0	0	0	0	1	143	0	0	144	0	0	**1**	0	1	0	121	**4**	0	125	270
08:30	0	0	0	0	0	**4**	149	0	0	153	1	0	0	0	1	0	**159**	1	0	**160**	**314**
Total Volume	0	0	0	0	0	7	572	0	0	579	2	0	1	0	3	0	488	6	0	494	1076
% App. Total	0	0	0	0		1.2	98.8	0	0		66.7	0	33.3	0		0	98.8	1.2	0		
PHF	.000	.000	.000	.000	.000	.438	.899	.000	.000	.905	.500	.000	.250	.000	.750	.000	.767	.375	.000	.772	.857



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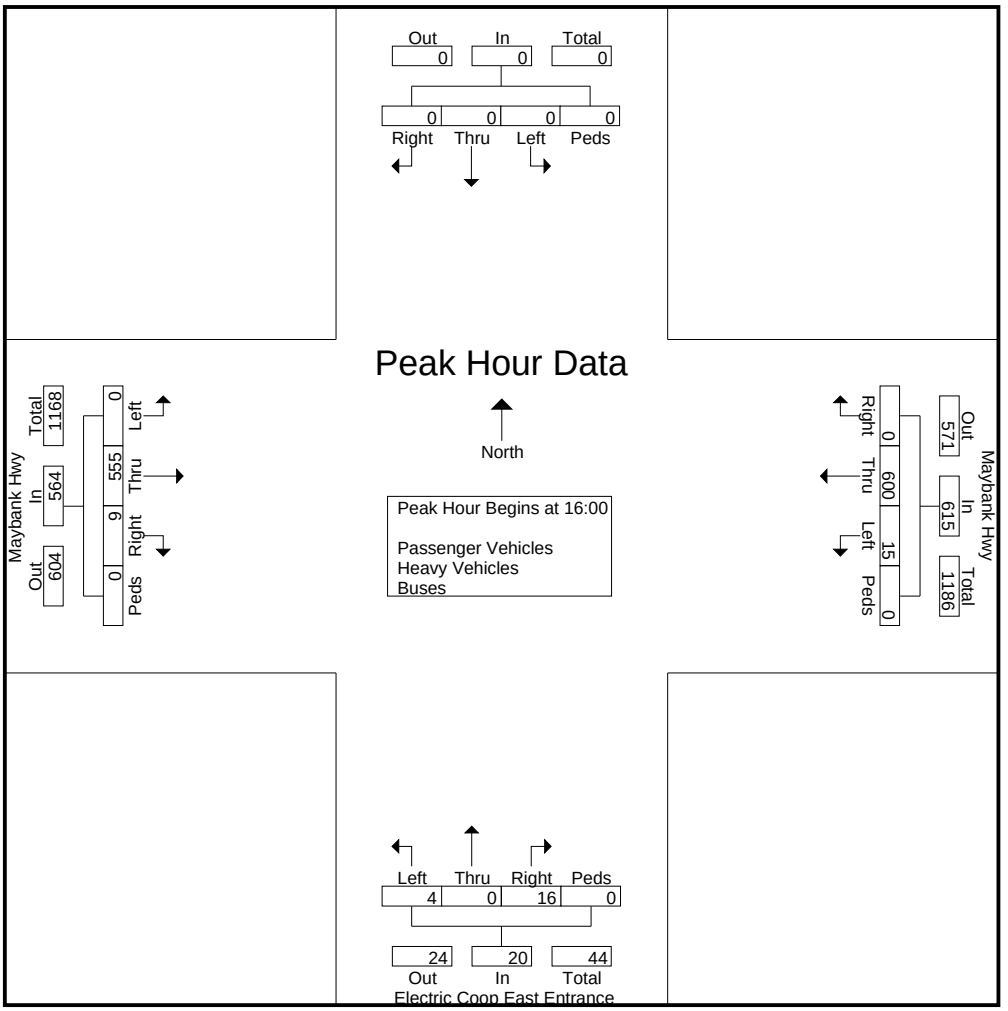
File Name : Maybank Hwy @ Electric Coop East Entrance
Site Code :
Start Date : 1/12/2017
Page No : 4

	Southbound					Maybank Hwy Westbound					Electric Coop East Entrance Northbound					Maybank Hwy Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	3	**168**	0	0	**171**	0	0	**12**	0	**12**	0	99	**4**	0	103	286
16:15	0	0	0	0	0	3	145	0	0	148	**2**	0	2	0	4	0	149	0	0	149	301
16:30	0	0	0	0	0	**5**	143	0	0	148	1	0	0	0	1	0	153	4	0	**157**	**306**
16:45	0	0	0	0	0	4	144	0	0	148	1	0	2	0	3	0	**154**	1	0	155	306
Total Volume	0	0	0	0	0	15	600	0	0	615	4	0	16	0	20	0	555	9	0	564	1199
% App. Total	0	0	0	0		2.4	97.6	0	0		20	0	80	0		0	98.4	1.6	0		
PHF	.000	.000	.000	.000	.000	.750	.893	.000	.000	.899	.500	.000	.333	.000	.417	.000	.901	.563	.000	.898	.980



Appendix C

Traffic Volume Development Worksheets

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Main Road & Patton Avenue

TRAFFIC CONTROL: One-Way Stop

DATE COUNTED: January 12, 2017

AM PEAK HOUR (7:15-8:15 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES				**17**		**21**		**454**	**16**	**25**	**656**	
Years To Buildout (2020)				3		3		3	3	3	3	
Yearly Growth Rate				3.0%		3.0%		3.0%	3.0%	3.0%	3.0%	
Background Traffic Growth				2		2		41	1	2	59	
2020 NO-BUILD TRAFFIC VOLUMES				**19**		**23**		**495**	**17**	**27**	**715**	
New Project Traffic				0		0		0	0	0	0	
2020 BUILD TRAFFIC VOLUMES				**19**		**23**		**495**	**17**	**27**	**715**	

PM PEAK HOUR (4:00-5:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES				**10**		**21**		**662**	**24**	**16**	**520**	
Years To Buildout (2020)				3		3		3	3	3	3	
Yearly Growth Rate				3.0%		3.0%		3.0%	3.0%	3.0%	3.0%	
Background Traffic Growth				1		2		60	2	1	47	
2020 NO-BUILD TRAFFIC VOLUMES				**11**		**23**		**722**	**26**	**17**	**567**	
New Project Traffic				0		0		0	0	0	0	
2020 BUILD TRAFFIC VOLUMES				**11**		**23**		**722**	**26**	**17**	**567**	

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Main Road & Project Driveway #1

TRAFFIC CONTROL: One-Way Stop

DATE COUNTED:

AM PEAK HOUR (7:15-8:15 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES				**0**		**0**		**470**	**0**	**0**	**673**	
Years To Buildout (2020)				3		3		3	3	3	3	
Yearly Growth Rate				3.0%		3.0%		3.0%	3.0%	3.0%	3.0%	
Background Traffic Growth				0		0		42	0	0	61	
2020 NO-BUILD TRAFFIC VOLUMES				**0**		**0**		**512**	**0**	**0**	**734**	
New Project Traffic				23		23		9	17	21	11	
2020 BUILD TRAFFIC VOLUMES				**23**		**23**		**521**	**17**	**21**	**745**	

PM PEAK HOUR (4:00-5:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES				**0**		**0**		**686**	**0**	**0**	**530**	
Years To Buildout (2020)				3		3		3	3	3	3	
Yearly Growth Rate				3.0%		3.0%		3.0%	3.0%	3.0%	3.0%	
Background Traffic Growth				0		0		62	0	0	48	
2020 NO-BUILD TRAFFIC VOLUMES				**0**		**0**		**748**	**0**	**0**	**578**	
New Project Traffic				42		51		14	28	35	21	
2020 BUILD TRAFFIC VOLUMES				**42**		**51**		**762**	**28**	**35**	**599**	

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Patton Avenue & Project Driveway #2

TRAFFIC CONTROL: One-Way Stop

DATE COUNTED:

AM PEAK HOUR (7:15-8:15 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**41**	**0**	**0**	**38**		**0**		**0**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		3.0%	3.0%	3.0%	3.0%		3.0%		3.0%			
Background Traffic Growth		4	0	0	3		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**45**	**0**	**0**	**41**		**0**		**0**			
New Project Traffic		11	12	1	8		14		2			
2020 BUILD TRAFFIC VOLUMES		**56**	**12**	**1**	**49**		**14**		**2**			

PM PEAK HOUR (4:00-5:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**40**	**0**	**0**	**31**		**0**		**0**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		3.0%	3.0%	3.0%	3.0%		3.0%		3.0%			
Background Traffic Growth		4	0	0	3		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**44**	**0**	**0**	**34**		**0**		**0**			
New Project Traffic		19	18	2	20		28		3			
2020 BUILD TRAFFIC VOLUMES		**63**	**18**	**2**	**54**		**28**		**3**			

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Patton Avenue & Project Driveway #3

TRAFFIC CONTROL: One-Way Stop

DATE COUNTED:

AM PEAK HOUR (7:15-8:15 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**41**	**0**	**0**	**38**		**0**		**0**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		3.0%	3.0%	3.0%	3.0%		3.0%		3.0%			
Background Traffic Growth		4	0	0	3		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**45**	**0**	**0**	**41**		**0**		**0**			
New Project Traffic		7	6	1	5		8		1			
2020 BUILD TRAFFIC VOLUMES		**52**	**6**	**1**	**46**		**8**		**1**			

PM PEAK HOUR (4:00-5:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**40**	**0**	**0**	**31**		**0**		**0**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		3.0%	3.0%	3.0%	3.0%		3.0%		3.0%			
Background Traffic Growth		4	0	0	3		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**44**	**0**	**0**	**34**		**0**		**0**			
New Project Traffic		12	10	1	8		14		2			
2020 BUILD TRAFFIC VOLUMES		**56**	**10**	**1**	**42**		**14**		**2**			

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Maybank Highway & BEC Delivery Entrance

TRAFFIC CONTROL: One-Way Stop

DATE COUNTED: January 12, 2017

AM PEAK HOUR (7:00-8:00 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**492**	**2**	**1**	**559**		**6**		**2**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		1.0%	1.0%	1.0%	1.0%		1.0%		1.0%			
Background Traffic Growth		15	0	0	17		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**507**	**2**	**1**	**576**		**6**		**2**			
New Project Traffic		0	0	0	0		0		0			
2020 BUILD TRAFFIC VOLUMES		**507**	**2**	**1**	**576**		**6**		**2**			

PM PEAK HOUR (4:00-5:00 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**575**	**0**	**1**	**615**		**1**		**1**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		1.0%	1.0%	1.0%	1.0%		1.0%		1.0%			
Background Traffic Growth		17	0	0	18		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**592**	**0**	**1**	**633**		**1**		**1**			
New Project Traffic		0	0	0	0		0		0			
2020 BUILD TRAFFIC VOLUMES		**592**	**0**	**1**	**633**		**1**		**1**			

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Maybank Highway & Clew Street/BEC West Entrance

TRAFFIC CONTROL: Two-Way Stop

DATE COUNTED: January 12, 2017

AM PEAK HOUR (7:00-8:00 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**3**	**479**	**0**	**0**	**568**	**6**	**7**	**0**	**3**	**2**	**0**	**3**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	0	14	0	0	17	0	0	0	0	0	0	0
2020 NO-BUILD TRAFFIC VOLUMES	**3**	**493**	**0**	**0**	**585**	**6**	**7**	**0**	**3**	**2**	**0**	**3**
New Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2020 BUILD TRAFFIC VOLUMES	**3**	**493**	**0**	**0**	**585**	**6**	**7**	**0**	**3**	**2**	**0**	**3**

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES	**0**	**584**	**1**	**0**	**596**	**2**	**12**	**0**	**5**	**13**	**0**	**4**
Years To Buildout (2020)	3	3	3	3	3	3	3	3	3	3	3	3
Yearly Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Background Traffic Growth	0	18	0	0	18	0	0	0	0	0	0	0
2020 NO-BUILD TRAFFIC VOLUMES	**0**	**602**	**1**	**0**	**614**	**2**	**12**	**0**	**5**	**13**	**0**	**4**
New Project Traffic	0	0	0	0	0	0	0	0	0	0	0	0
2020 BUILD TRAFFIC VOLUMES	**0**	**602**	**1**	**0**	**614**	**2**	**12**	**0**	**5**	**13**	**0**	**4**

INTERSECTION TRAFFIC VOLUME DEVELOPMENT

Maybank Highway & BEC East Entrance

TRAFFIC CONTROL: One-Way Stop

DATE COUNTED: January 12, 2017

AM PEAK HOUR (7:00-8:00 AM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**488**	**6**	**7**	**572**		**2**		**1**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		1.0%	1.0%	1.0%	1.0%		1.0%		1.0%			
Background Traffic Growth		15	0	0	17		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**503**	**6**	**7**	**589**		**2**		**1**			
New Project Traffic		0	0	0	0		0		0			
2020 BUILD TRAFFIC VOLUMES		**503**	**6**	**7**	**589**		**2**		**1**			

PM PEAK HOUR (4:45-5:45 PM)	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2017 TRAFFIC VOLUMES		**555**	**9**	**15**	**600**		**4**		**16**			
Years To Buildout (2020)		3	3	3	3		3		3			
Yearly Growth Rate		1.0%	1.0%	1.0%	1.0%		1.0%		1.0%			
Background Traffic Growth		17	0	0	18		0		0			
2020 NO-BUILD TRAFFIC VOLUMES		**572**	**9**	**15**	**618**		**4**		**16**			
New Project Traffic		0	0	0	0		0		0			
2020 BUILD TRAFFIC VOLUMES		**572**	**9**	**15**	**618**		**4**		**16**			

Appendix D

Analysis Worksheets (2017 Existing Conditions)

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	21	454	16	25	656
Future Vol, veh/h	17	21	454	16	25	656
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	96	96	96	96	96	96
Heavy Vehicles, %	8	8	4	4	4	4
Mvmt Flow	18	22	473	17	26	683

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1216	481	0	0	490	0
Stage 1	481	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.14	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.236	-
Pot Cap-1 Maneuver	194	573	-	-	1063	-
Stage 1	609	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	186	573	-	-	1063	-
Mov Cap-2 Maneuver	186	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	446	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	297	1063	-
HCM Lane V/C Ratio	-	-	0.133	0.024	-
HCM Control Delay (s)	-	-	19	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	21	662	24	16	520
Future Vol, veh/h	10	21	662	24	16	520
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	94	94	94	94	94	94
Heavy Vehicles, %	8	8	4	4	4	4
Mvmt Flow	11	22	704	26	17	553

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1304	717	0	0	730	0
Stage 1	717	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Critical Hdwy	7.18	6.28	-	-	4.14	-
Critical Hdwy Stg 1	6.18	-	-	-	-	-
Critical Hdwy Stg 2	6.18	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.236	-
Pot Cap-1 Maneuver	133	420	-	-	865	-
Stage 1	411	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	130	420	-	-	865	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	471	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	244	865	-
HCM Lane V/C Ratio	-	-	0.135	0.02	-
HCM Control Delay (s)	-	-	22	9.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Appendix E

Analysis Worksheets (2020 No Build Conditions)

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	23	495	17	27	715
Future Vol, veh/h	19	23	495	17	27	715
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	95	95	95	95	95	95
Heavy Vehicles, %	8	8	4	4	4	4
Mvmt Flow	20	24	521	18	28	753

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1339	530	0	0	539	0
Stage 1	530	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.14	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.236	-
Pot Cap-1 Maneuver	164	537	-	-	1019	-
Stage 1	578	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	156	537	-	-	1019	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	408	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.1	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	255	1019	-
HCM Lane V/C Ratio	-	-	0.173	0.028	-
HCM Control Delay (s)	-	-	22.1	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	23	772	26	17	567
Future Vol, veh/h	11	23	772	26	17	567
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	94	94	94	94	94	94
Heavy Vehicles, %	8	8	4	4	4	4
Mvmt Flow	12	24	821	28	18	603

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1474	835	0	0	849	0
Stage 1	835	-	-	-	-	-
Stage 2	639	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.14	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.236	-
Pot Cap-1 Maneuver	135	359	-	-	780	-
Stage 1	416	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	130	359	-	-	780	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	416	-	-	-	-	-
Stage 2	496	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.6	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	229	780	-
HCM Lane V/C Ratio	-	-	0.158	0.023	-
HCM Control Delay (s)	-	-	23.6	9.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Appendix F

Analysis Worksheets (2020 Build Conditions)

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	34	518	31	36	732
Future Vol, veh/h	34	34	518	31	36	732
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	95	95	95	95	95	95
Heavy Vehicles, %	8	8	4	4	4	4
Mvmt Flow	36	36	545	33	38	771

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1408	562	0	0	578	0
Stage 1	562	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.14	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.236	-
Pot Cap-1 Maneuver	148	515	-	-	986	-
Stage 1	559	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	138	515	-	-	986	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	383	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.4	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	218	986	-
HCM Lane V/C Ratio	-	-	0.328	0.038	-
HCM Control Delay (s)	-	-	29.4	8.8	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	28	521	17	21	745
Future Vol, veh/h	23	28	521	17	21	745
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	25	30	566	18	23	810

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1431	576	0	0	585	0
Stage 1	576	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.14	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.236	-
Pot Cap-1 Maneuver	148	517	-	-	980	-
Stage 1	562	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	145	517	-	-	980	-
Mov Cap-2 Maneuver	145	-	-	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	407	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.5	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	145	517	980	-
HCM Lane V/C Ratio	-	-	0.172	0.059	0.023	-
HCM Control Delay (s)	-	-	34.9	12.4	8.8	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	12	1	54	14	2
Future Vol, veh/h	55	12	1	54	14	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	2	2
Mvmt Flow	60	13	1	59	15	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	73	0	127	66
Stage 1	-	-	-	-	66	-
Stage 2	-	-	-	-	61	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	868	998
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	962	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	867	998
Mov Cap-2 Maneuver	-	-	-	-	867	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	961	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	881	-	-	1490	-
HCM Lane V/C Ratio	0.02	-	-	0.001	-
HCM Control Delay (s)	9.2	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	51	6	1	47	8	1
Future Vol, veh/h	51	6	1	47	8	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	2	2
Mvmt Flow	55	7	1	51	9	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	62	0	112	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1503	-	885	1007
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	970	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1503	-	884	1007
Mov Cap-2 Maneuver	-	-	-	-	884	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	969	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	896	-	-	1503	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	44	764	49	31	596
Future Vol, veh/h	38	44	764	49	31	596
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	94	94	94	94	94	94
Heavy Vehicles, %	8	8	4	4	4	4
Mvmt Flow	40	47	813	52	33	634

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1539	839	0	0	865	0
Stage 1	839	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Critical Hdwy	6.48	6.28	-	-	4.14	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.372	-	-	2.236	-
Pot Cap-1 Maneuver	123	357	-	-	770	-
Stage 1	414	-	-	-	-	-
Stage 2	482	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	115	357	-	-	770	-
Mov Cap-2 Maneuver	115	-	-	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	42.1	0	0.5
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	181	770	-
HCM Lane V/C Ratio	-	-	0.482	0.043	-
HCM Control Delay (s)	-	-	42.1	9.9	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	2.3	0.1	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	51	762	28	35	559
Future Vol, veh/h	42	51	762	28	35	559
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	150	0	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	46	55	828	30	38	608

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1527	843	0	0	859	0
Stage 1	843	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.14	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.236	-
Pot Cap-1 Maneuver	129	364	-	-	774	-
Stage 1	422	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	123	364	-	-	774	-
Mov Cap-2 Maneuver	123	-	-	-	-	-
Stage 1	422	-	-	-	-	-
Stage 2	476	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32	0	0.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	123	364	774	-
HCM Lane V/C Ratio	-	-	0.371	0.152	0.049	-
HCM Control Delay (s)	-	-	50.6	16.7	9.9	-
HCM Lane LOS	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	1.5	0.5	0.2	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	18	2	54	28	3
Future Vol, veh/h	62	18	2	54	28	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	2	2
Mvmt Flow	67	20	2	59	30	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	87	0	140	77
Stage 1	-	-	-	-	77	-
Stage 2	-	-	-	-	63	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1472	-	853	984
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	960	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1472	-	852	984
Mov Cap-2 Maneuver	-	-	-	-	852	-
Stage 1	-	-	-	-	946	-
Stage 2	-	-	-	-	959	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	863	-	-	1472	-
HCM Lane V/C Ratio	0.039	-	-	0.001	-
HCM Control Delay (s)	9.3	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	55	10	1	42	14	2
Future Vol, veh/h	55	10	1	42	14	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	8	8	8	2	2
Mvmt Flow	60	11	1	46	15	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	71	0	113	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	48	-
Critical Hdwy	-	-	4.18	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.272	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1492	-	884	999
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	974	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1492	-	883	999
Mov Cap-2 Maneuver	-	-	-	-	883	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.1
HCM LOS			A

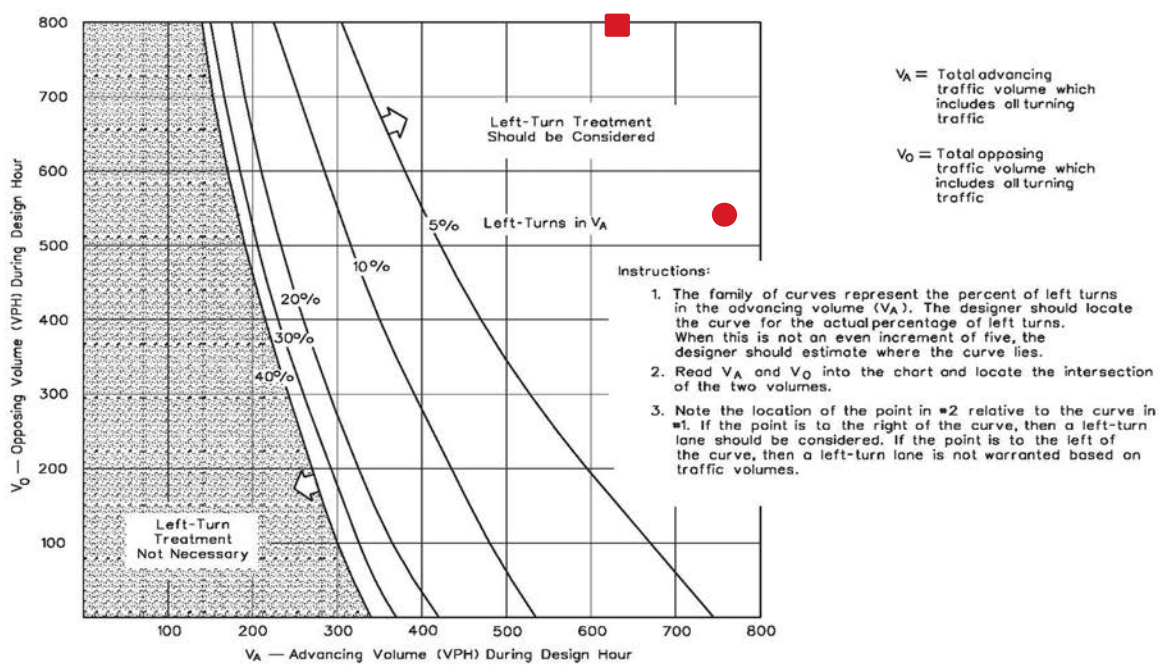
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	896	-	-	1492	-
HCM Lane V/C Ratio	0.019	-	-	0.001	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Appendix G

Turn Lane Analysis

LEFT-TURN LANE WARRANT REVIEW

INTERSECTION: Main Road & Project Driveway #1
MOVEMENT: Southbound Left-Turn Lane



VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (45 MPH)

Figure 15.5F

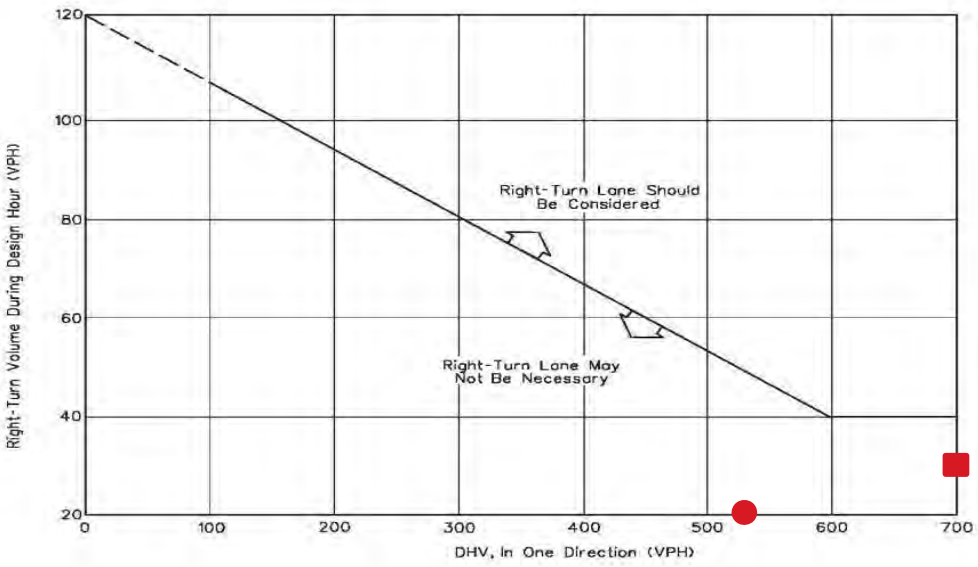
15.5(8) INTERSECTIONS May 2003

2020 Build Conditions	V_A	SBL	V_O	V_A LT %	Symbol
AM Peak Hour	766	21	538	3	●
PM Peak Hour	634	35	790	6	■

RIGHT-TURN LANE WARRANT REVIEW

INTERSECTION: Main Road & Project Driveway #1
MOVEMENT: Northbound Right-Turn Lane

May 2003 INTERSECTIONS 15.5(3)



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

Example

Given: Design Speed = 35 miles per hour (mph)
DHV = 250 vehicles per hour (vph)
Right Turns = 100 vehicles per hour (vph)

Problem: Determine if a right-turn lane is necessary.

Solution: To read the vertical axis, use 100 – 20 = 80 vehicles per hour. The figure indicates that a right-turn lane is not necessary, unless other factors (e.g., high crash rate) indicate a lane is needed.

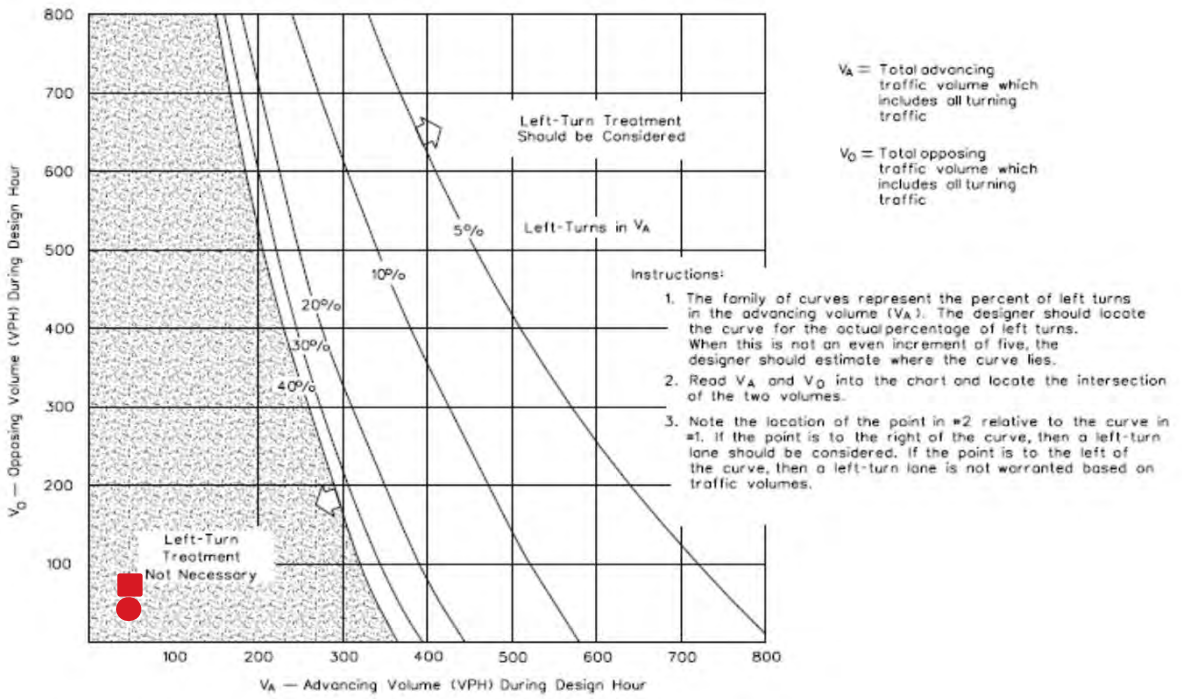
GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS

Figure 15.5A

2020 Build Conditions	Major Road Volume (Direction of Right Turn Ingress)	Right Turn Volume	Speed Along Right Turn Ingress	Symbol
AM Peak Hour	538	17	45	●
PM Peak Hour	790	28	45	■

LEFT-TURN LANE WARRANT REVIEW

INTERSECTION: Patton Avenue & Project Driveway #2
MOVEMENT: Westbound Left-Turn Lane



VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (40 MPH)

Figure 15.5G

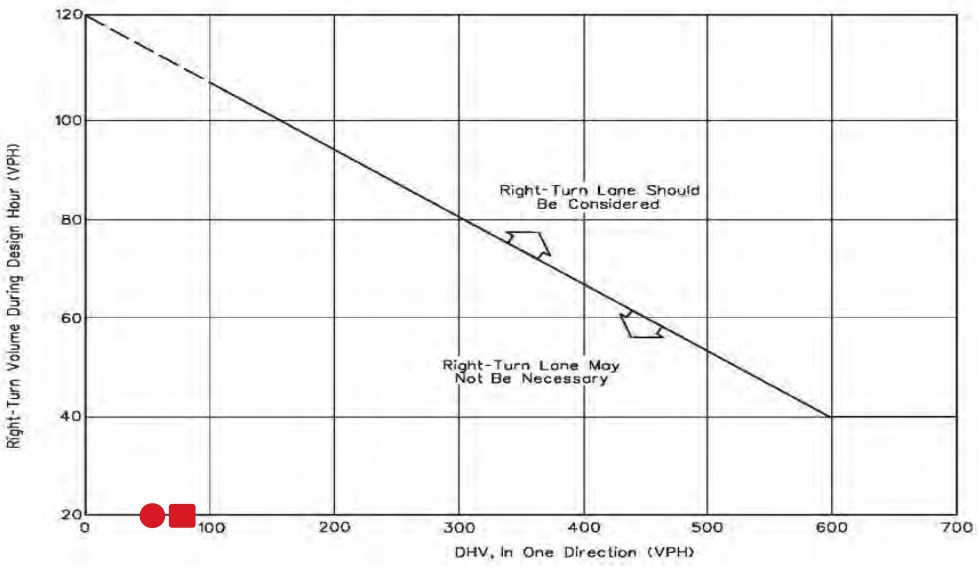
May 2003 INTERSECTIONS 15.5(9)

2020 Build Conditions	V_A	WBL	V_O	V_A LT %	Symbol
AM Peak Hour	55	1	67	2	●
PM Peak Hour	56	2	80	4	■

RIGHT-TURN LANE WARRANT REVIEW

INTERSECTION: Patton Avenue & Project Driveway #2
MOVEMENT: Eastbound Right-Turn Lane

May 2003 INTERSECTIONS 15.5(3)



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

Example

Given: Design Speed = 35 miles per hour (mph)
DHV = 250 vehicles per hour (vph)
Right Turns = 100 vehicles per hour (vph)

Problem: Determine if a right-turn lane is necessary.

Solution: To read the vertical axis, use 100 – 20 = 80 vehicles per hour. The figure indicates that a right-turn lane is not necessary, unless other factors (e.g., high crash rate) indicate a lane is needed.

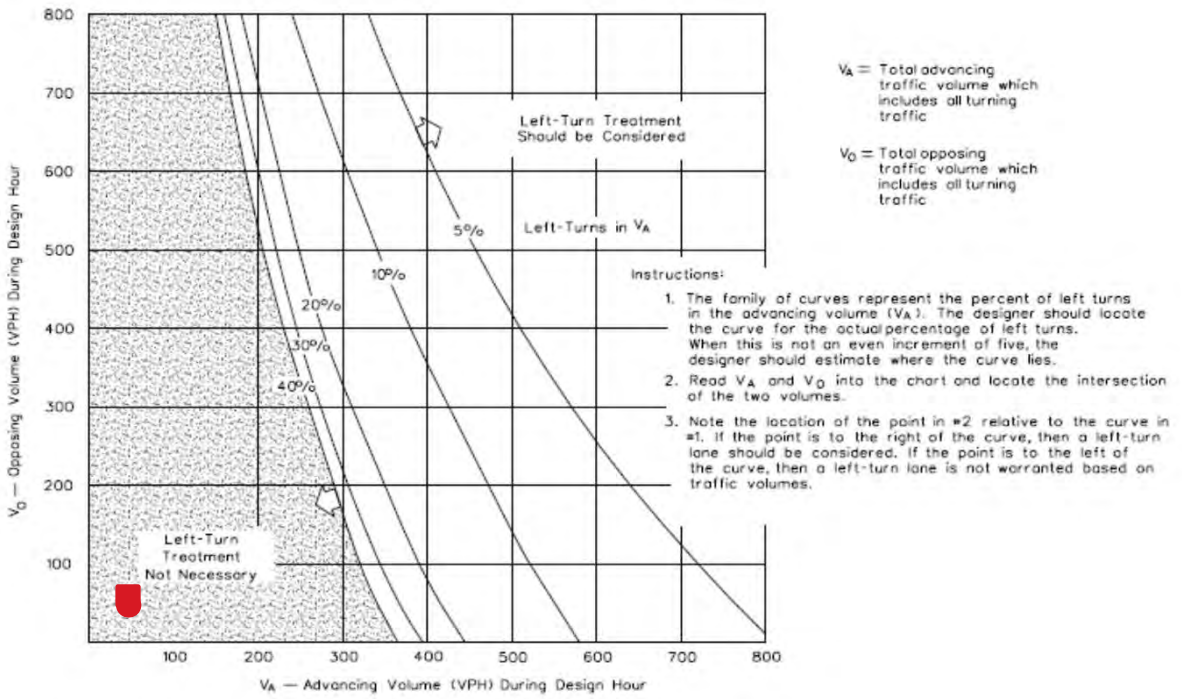
GUIDELINES FOR RIGHT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS

Figure 15.5A

2020 Build Conditions	Major Road Volume (Direction of Right Turn Ingress)	Right Turn Volume	Speed Along Right Turn Ingress	Symbol
AM Peak Hour	67	12	35	●
PM Peak Hour	80	18	35	■

LEFT-TURN LANE WARRANT REVIEW

INTERSECTION: Patton Avenue & Project Driveway #3
MOVEMENT: Westbound Left-Turn Lane



VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON TWO-LANE HIGHWAYS (40 MPH)

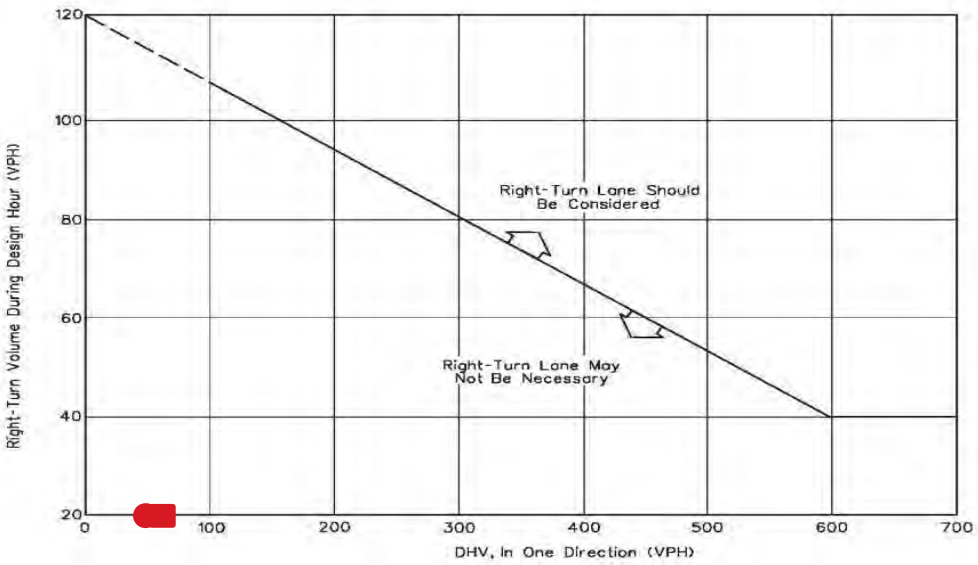
Figure 15.5G

2020 Build Conditions	V_A	WBL	V_O	V_A LT %	Symbol
AM Peak Hour	48	1	57	2	●
PM Peak Hour	43	1	65	2	■

RIGHT-TURN LANE WARRANT REVIEW

INTERSECTION: Patton Avenue & Project Driveway #3
MOVEMENT: Eastbound Right-Turn Lane

May 2003 INTERSECTIONS 15.5(3)



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

Example

Given: Design Speed = 35 miles per hour (mph)
DHV = 250 vehicles per hour (vph)
Right Turns = 100 vehicles per hour (vph)

Problem: Determine if a right-turn lane is necessary.

Solution: To read the vertical axis, use 100 – 20 = 80 vehicles per hour. The figure indicates that a right-turn lane is not necessary, unless other factors (e.g., high crash rate) indicate a lane is needed.

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

Figure 15.5A

2020 Build Conditions	Major Road Volume (Direction of Right Turn Ingress)	Right Turn Volume	Speed Along Right Turn Ingress	Symbol
AM Peak Hour	57	6	35	●
PM Peak Hour	65	10	35	■

ARTICLE 4.19 CR, RURAL COMMERCIAL DISTRICT

§4.19.1 PURPOSE AND INTENT

The CR, Rural Commercial district implements the Commercial (Rural Area) policies of the *Comprehensive Plan*.

§4.19.2 USE REGULATIONS

Uses are allowed in the CR district in accordance with the Use Regulations of Chapter 6.

§4.19.3 DENSITY/INTENSITY AND DIMENSIONAL STANDARDS

All development in the CR district shall be subject to the following density, intensity and dimensional standards:

CR DENSITY/INTENSITY AND DIMENSIONAL STANDARDS	
MINIMUM LOT AREA	40,000 square feet
MINIMUM LOT WIDTH	125 feet
MINIMUM SETBACKS	
Front/Street Side	25 feet
Interior Side	15 feet
Rear	25 feet
OCRM Critical Line	50 feet
MAXIMUM BUILDING COVER	40% of lot
MAXIMUM HEIGHT	35 feet

§4.19.4 OTHER REGULATIONS

Development in the CR district shall comply with all other applicable regulations of this Ordinance, including the development standards of Chapter 9.

the number of off-street parking and loading spaces provided for the entire use (preexisting + expansion) must equal at least 75 percent of minimum ratio established in Off-Street Parking Schedule "A" of this Article.

B. Timing of Installation

Required parking spaces and drives shall be ready for use and approved by the Planning Director prior to issuance of a Certificate of Occupancy.

C. Reduction Below Minimums

The Planning Director shall be authorized to reduce the number of required parking spaces by no more than 10 percent (10%) when more than ten (10) spaces are required with the following conditions:

1. The site can support the minimum required number of parking spaces and meet all development standards in this Ordinance including buffers and landscaping requirements; or

2. The reduction is necessary to meet the Tree Protection and Preservation regulations contained in Article 9.4 of this Ordinance.

This allowable reduction excludes medical offices and restaurant uses. Any change in use that increases applicable off-street parking or loading requirements will be deemed a violation of this Ordinance unless parking and loading spaces are provided in accordance with the provisions of this Article.

§9.3.2 OFF-STREET PARKING SCHEDULE A

Unless otherwise expressly allowed, off-street parking spaces shall be provided in accordance with the following table.

USE TABLE	NUMBER OF OFF-STREET PARKING SPACES REQUIRED (MINIMUM)
RESIDENTIAL	
Congregate Living	1 per 3 beds
Farm Labor Housing (Dormitory)	0.5 per bed
Adult/Child Group Home or Residential Care Facility	1 per 3 beds, plus 1 per employee in single shift
Multi-Family	1.5 per 1-bedroom unit; 2 per 2-bedroom unit; 2.5 per 3-bedroom and larger units
Retirement Housing	0.75 per 1-bedroom unit; 1 per 2-bedroom unit; 1.5 per 3-bedroom and larger units
Single Family: Detached and attached, including dwelling groups, duplexes and manufactured housing units.	2 per dwelling unit
CIVIC/INSTITUTIONAL	
Cemetery	1 per full time employee
Court of Law	1 per employee plus 1 per every 3 seats of seating available to the public in the courtroom
College or University Facility	1 per 100 square feet classroom plus1 per 300 square feet office/administrative plus1 per 3 beds
Community Recreation	1 per 250 square feet of gross floor area
Convalescent Services	1 per 5 beds
Historical Sites, Libraries, Archives or Museums	1 per 300 square feet
Adult or Child Day Care Facilities	1 per employee plus 1 per 5 children/adults
Counseling Service	1 per 150 square feet
Hospital	1 per 2 beds plus1 per 300 square feet of floor area of administrative and medical offices
Nature Exhibition or Botanical Gardens	1 per employee in single shift plus 2 spaces per acre
Parks & Recreation	1 per 5,000 square feet of land area plus outdoor recreation requirements
Postal Service, United States	1 per 150 square feet of floor area
Railroad Freight Depot	1 per 2,400 square feet
Recycling Collection, Drop-Off	1 per recycle collection container
Public Assembly: Including Conference Centers, Concert Halls, Religious Assemblies, Professional, Labor or Political Organizations and Social Clubs or Lodges	1 per 5 fixed seats or 1 per every three (3) persons in structures with non-fixed seating of the maximum occupancy load as established by building code. The number of spaces required may be reduced a maximum of 50% if the assembly area is located within 500 feet of any public or commercial parking lot where sufficient spaces are available by parking agreement.
Intermediate Care Facility for the Mentally Retarded	1 per bed plus 1 per employee in single shift

USE TABLE	NUMBER OF OFF-STREET PARKING SPACES REQUIRED (MINIMUM)
Health Care Related Services: Including Home Health Agency, Laboratory, Outpatient Services and Rehabilitation facilities	1 per 200 square feet of gross floor area with a minimum of 4 spaces
Safety Services	1 per 2 employees
Pre-School or Educational Nursery	1 space per 6 students for which the facility is licensed plus 1 per employee
School, Primary	1 space for each vehicle owned and operated by the school plus two per employee (including faculty, administrative, etc.)
School, Secondary	1 space for each vehicle owned and operated by the school plus two per employee (including faculty, administrative, etc.) plus 1 per 8 students
Personal Improvement Education	1 per every 3 students plus 1 per employee
Utility Service, Major	1 space per employee plus 1 per stored vehicle
Utility Service, Minor	None
Zoo	10 plus 1 per employee in single shift
COMMERCIAL	
Agricultural Sales/Service	1 per 500 square feet of floor area plus 4 per acre outdoor sales/display/storage area
Pet Stores, Grooming Salons, or Small Animal Boarding	1 per 300 square feet of floor area
Bar or Lounge	1 per 75 square feet indoor seating area plus1 per 200 square feet outdoor seating area
Bed and Breakfast	1 per guest room
Rooming or Boarding House	1 per guest room
Business or Trade School	1 per 100 square feet classroom plus 1 per 300 square feet business/administrative office
Communication: Including data processing and publishing services	1 per 300 square feet of floor area
Heavy Construction Service, General Contractor, or Special Trade Contractors	1 per 400 square feet indoor floor area plus 4 spaces per acre outdoor storage/display/sales area
Convenience Store	1 per 200 square feet of floor area
Charter Boat or Other Recreational Watercraft Rental Services	1 per rental boat or watercraft plus 1 per employee
Construction Tools, Commercial or Industrial Equipment Rental	1 per 250 square feet of floor area not including storage areas
Heavy Duty Truck or Commercial Vehicle Rental or Leasing	1 per rental vehicle plus 1 per employee in single shift
Banks and Financial Services	1 per 300 square feet of floor area, also see drive-thru requirements
Food Sales and Grocery Stores	1 per 175 square feet
Funeral Services	1 per 4 seats or 1 per employee, whichever is greater

USE TABLE	NUMBER OF OFF-STREET PARKING SPACES REQUIRED (MINIMUM)
Hair, Nail or Skin Care Service	2 per employee or work station, whichever is greater
Hotel-Motel	1 per room plus spaces as required for associated restaurants, bars, and offices
Kennel	1 plus1 per employee
Liquor Sales, Beer or Wine Sales	1 per 200 square feet of floor area
Marina	1 space per 200 sq. ft. of office area plus 1 per 3 wet slips and 1 per 5 dry stack storage
Boat Yard	1 per employee
Office, Medical	1 per 150 square feet of floor area
Outpatient Clinic	1 per 200 square feet of floor area with a minimum of 4 spaces
Office, Business/Professional/Administrative	1 per 300 square feet of floor area
Office, Resort Real Estate	1 per 200 square feet of floor area
Office, Parole or Probation	1 per employee plus 1 per 200 square feet of floor area
Office/Warehouse Complex	1 per employee in shift plus 1 per 2000 square feet of office space
Convention Center or Visitors Bureau	4 per 1000 square feet of floor area
Parking, Lot or Garage	1 per employee
Pawn Shop	1 per 200 square feet of floor area
Personal Improvement Service	1 per 200 square feet of floor area
Recreational Vehicle Park or Campground	1 per employee plus 1 per recreational vehicle and camp site
Recreation and Entertainment, Indoor	1 per 3 seats or 1 per 200 square feet of floor area, whichever is greater
Recreation and Entertainment, Outdoor	1 per 200 square feet of public activity area plus, Swimming Pool-1 per 200 square feet of water surface area Tennis-2 spaces per court Basketball- 5 spaces per court Athletic Field- 15 spaces per diamond or field
Fishing or Hunting Guide Service	5 per employee
Fishing or Hunting Lodge (Commercial)	1 per visitor plus 1 per 5 members
Recreation or Vacation Camp	1 per employee plus 1 per camp vehicle or camp site
Golf Courses or Country Clubs	1 per employee plus 4 per golf green, plus 1 per 4 seats for accessory restaurant or bar use
Repair Service, Consumer	1 per 300 square feet of floor area
Catering Service	1 per 400 square feet of floor area

USE TABLE	NUMBER OF OFF-STREET PARKING SPACES REQUIRED (MINIMUM)
Restaurant, Fast Food	1 per 75 square feet indoor seating area plus1 per 200 square feet outdoor seating area+vehicle stacking spaces per Article 9.3.8
Restaurant, Fast Food (no inside seating)	1 per employee plus1 per 200 square feet outdoor seating area+vehicle stacking spaces per Article 9.3.8
Restaurant, General	1 per 75 square feet indoor seating area plus1 per 200 square feet outdoor seating area
Retail Sales+Service, General	1 per 300 square feet indoor floor area+5 spaces per acre outdoor storage/display/sales area
Shopping Center (mixed retail, office, food sales, restaurant)	1 space per 200 square feet
Nonstore Retailers	1 per employee plus 2 spaces for deliveries
Building Materials or Garden Equipment and Supplies Retailers	1 per 200 square feet of floor area not including storage plus 1 per employee
Services to Buildings and Dwellings	1 per employee plus 1 space for deliveries
Scrap and Salvage Service	1 per employee plus 2 per acre
Self-Service Storage/Mini Warehouse	3 spaces plus 1 space per employee and 1 space per 100 units
Gasoline Service Station	1 per 200 square feet of gross floor area plus vehicle stacking spaces per Article 9.3.8
Truck Stop	1 per employee plus truck space parking plus any parking required in this table when restaurant or motel is included.
Stable (Boarding or Commercial for Hire)	1 per 2 stalls
Vehicle Repair, Consumer	2 per employee or service bay
Vehicle Sales or Vehicle Rental or Leasing	1 per 2,500 square feet of display, 1 per 250 square feet indoor enclosed floor space
Vehicle Parts, Accessories or Tire Stores	1 per 300 square feet of floor area (10 space minimum)
Vehicle Storage	1 per 2 employees
Veterinary Services	3 spaces per each veterinarian or allied professional
INDUSTRIAL	
Repair Service, Commercial	1 per 400 square feet office area plus1 per 2 employees
Dry Cleaning Plant, Carpet Cleaning Plant or Commercial Laundry	1 per employee plus 1 per 3 washing/drying machines if provided for customer use
Photo Finishing Laboratory	1 per 200 square feet of floor area
Manufacturing and Production	1 per 400 square feet of office area plus 1 per 2 employees
Warehouse and Distribution Facilities	1 per 300 square feet office area plus1 per 600 square feet for 1st 12,000 square feet warehouse/storage area plus1 per 900 square feet for remaining warehouse/storage area (over 12,000 square feet)
Wholesale Sales	1 per 600 square feet for 1st 12,000 square feet+1 per 900 square feet for remaining area (over 12,000 square feet)

USE TABLE	NUMBER OF OFF-STREET PARKING SPACES REQUIRED (MINIMUM)
AGRICULTURAL AND OTHER USES	
Animal Production	None
Aviation	1 space per 5 aircraft tie down or storage plus 1 space per 4 seats in waiting room areas
Sightseeing Transportation, Land or Water	1 per 2 seats of sightseeing vehicle
Taxi or Limousine Service	1 per employee plus one per vehicle that provides service
Urban Transit Service	1 per 100 square feet of public waiting area plus 1 per two employees and 1 per transit vehicle
Water Transportation	1 per two seats of transportation vehicle plus 1 per employee
Communications Towers	None
Crop Production	None
Agricultural Processing	1 per employee
Roadside Stands	3 per stand
Horticulture, Greenhouse or Hydroponics Production	1 per employee
Commercial Timber Operations	None
Lumber Mills, Planing or Saw Mills	1 per employee plus 1 per commercial vehicle plus 1 per 400 square feet of floor area
Recycling Center or Waste Related Use	1 per employee
Resource Extraction	1 per 2 employees

§9.3.3 RULES FOR COMPUTING PARKING AND LOADING REQUIREMENTS

The following rules apply when computing off-street parking and loading requirements:

A. Multiple Uses

Lots containing more than one use must provide parking and loading in an amount equal to the total of the requirements for all uses.

B. Fractions

When measurements of the number of required spaces result in a fractional number, any fraction of one-half or less will be rounded down to the next lower whole number and any fraction of more than one-half will be rounded up to the next higher whole number.

C. Area Measurements

Unless otherwise expressly stated, all square-footage-based parking and loading standards must be computed on the basis of gross floor area. Storage areas or common areas incidental to the principle use shall be exempt from this measurement when the following conditions are met:

1. The storage area or common area is a minimum of two hundred fifty (250) square feet; and

2. The applicant has provided documentation that such areas will not be used as space for employees, customers, or residents.

D. Occupancy-Based Standards

For the purpose of computing parking requirements based on employees, students, residents or occupants, calculations shall be based on the largest number of persons working on any single shift, the maximum enrollment or the maximum fire-rated capacity, whichever is applicable and whichever results in the greater number of spaces.

E. Unlisted Uses

Upon receiving a development application for a use not specifically listed in an off-street parking schedule, the Planning Director shall apply the off-street parking standard specified for the listed use that is deemed most similar to the proposed use or require parking spaces in accordance with a parking study prepared by the applicant.

§9.3.4 LOCATION OF REQUIRED PARKING

A. On-Site Parking

1. Except as expressly stated in this Section, all required off-street parking spaces must be located on the same lot as the principal use and shall be arranged and laid out so as to ensure that no parked or maneuvering vehicle will encroach upon a sidewalk, public right-of-way or property line.

2. Parking lots in Office (O) and Commercial (C) districts containing more than ten parking spaces shall be located to the side or rear of the principal structure's front facade or within a courtyard surrounded by a structure on at least three sides.

B. Off-Site and Shared Parking

Off-site parking is defined as the required parking not located on the parcel which the principal use is located. Shared parking is parking for uses with different operating hours or peak business periods that share required off-street parking spaces. Shared parking may or may not be off-site parking. Off-site and shared parking are allowed provided they meet the following standards. If any one of the following applicable standards cannot be met, Special Exception approval shall be required:

1. A maximum of fifty percent (50%) of the required parking spaces may be off-site however, off-site parking may not be used to satisfy the off-street parking standards for residential uses (except for guest parking), restaurants, convenience stores or other convenience-oriented uses unless approved as part of a mixed use development. Required parking spaces reserved for persons with disabilities shall not be located off site.

2. Shared or off-site parking must be located within 600 feet from the primary entrance of the use served, unless shuttle bus service is provided to the remote parking area. Shared or off-site parking spaces may not be separated from the use that it serves they serve by a street right-of-way with a width of more than 80 feet, unless a grade-separated pedestrian walkway is provided, or other traffic control or shuttle bus service is provided to the remote parking area.

3. An applicant requesting shared parking shall submit a shared parking analysis to the Planning Director that clearly demonstrates the feasibility of shared parking. The shared parking analysis must be approved by the Planning Director and made available to the public. It must address, at a minimum, the size and type of the proposed development, the composition of tenants, the anticipated rate of parking turnover and the anticipated peak parking and traffic loads for all uses that will be sharing off-street parking spaces. Approvals will only pertain to the specific uses addressed in the analysis and any change in use(s) will require a new shared parking analysis.

4. Off-site parking areas serving uses located in Nonresidential zoning districts must be located in non-residential zoning districts. Off-site parking areas serving uses located in Residential or Agricultural zoning districts may be located in Residential, Agricultural or Nonresidential zoning districts.

5. In the event that off-site parking area is not under the same ownership as the principal use served, a written agreement will be required. An attested copy of the agreement between the owners of record must be submitted to the Planning Director for recording on forms made available in the Planning Department. Recording of the agreement with the Register of Mesne Conveyance must take place before issuance of a zoning permit, building permit or Certificate of Occupancy for any use to be served by the off-site parking area. An off-site parking agreement may be revoked only if all required off-street parking spaces will be provided in accordance with this Article.

6. Shared parking areas must be connected by a continuous network of sidewalks and pedestrian crosswalks.

§9.3.5 ACCESSIBLE PARKING FOR PHYSICALLY DISABLED PERSONS

The parking standards of this Article are intended to ensure compliance with the Americans with Disabilities Act (ADA). A portion of the total number of required off-street parking spaces in each off-street parking area shall be specifically designated, located and reserved for use by persons with physical disabilities.

A. Number of Spaces

The minimum number of accessible spaces to be provided shall be a portion of the total number of off-street parking spaces required, as determined from the following schedule. Parking spaces reserved for persons with disabilities shall be counted toward fulfilling off-street parking standards.

Total Parking Spaces Provided	Minimum Number of Accessible Spaces	Minimum Number of Van-Accessible Spaces	Minimum Number of Car-Accessible Spaces
1—25	1	1	0
26—50	2	1	1
51—75	3	1	2
76—100	4	1	3
101—150	5	1	4
151—200	6	1	5
201—300	7	1	6
301—400	8	1	7
401—500	9	2	7
501—1,000	2% of total spaces	1 out of every 8 accessible spaces	7 out of every 8 accessible spaces
Over 1,000	20 + 1 per each 100 spaces over 1,000		

B. Minimum Dimensions

All parking spaces reserved for persons with disabilities shall comply with the parking space dimension standards of this Section, provided that access aisles shall be provided immediately abutting such spaces, as follows:

1. Car-accessible spaces shall have at least a five-foot-wide access aisle located abutting the designated parking space.

2. Van-accessible spaces shall have at least an eight-foot-wide access aisle located abutting the designated parking space.

§9.3.6 PARKING SPACE AND PARKING LOT DESIGN

A. Parking Lot Design

Dead end type of parking layouts that cause or contribute to poor vehicular circulation will not be allowed unless all other site configurations and parking options of the required number of parking spaces have been exhausted.

B. Aisle Widths and Parking Space Dimensions

Drive aisle widths and parking space dimensions shall comply with the standards in the following table. Twenty percent (20%) of the minimum number of required parking for a development may utilize compact and sub-compact vehicle parking dimensions. These dimensions shall be a minimum of 7 feet 6 inches x 15 feet (7’6” x 15’) and clearly marked for compact vehicles only.

x°	Stall Width A	Stall Depth B	Aisle Width C	Skew Width D
60°	8' 0" 8' 6" 9' 0"	19'7" 18'0" 17' 0"	19'0" 18' 0" 17' 0" *One Way	9'3" 9' 10" 10' 5"
45°	8' 0" 8' 6" 9' 0"	18'5" 18'8" 19' 1"	12'0 11'0" 11'0" *One Way	11'4" 12'0" 12'9"
30°	8' 0" 8'6" 9'0"	15' 11" 16'5" 16' 10"	11'0" 10'0" 9' 0" *One Way	16' 0" 17'0" 18' 0"
0°	8' 0" 8' 6" 9' 0"	22' 0" 22' 0" 23' 0"	11' 0" 11' 6" 12' 0" *One Way	N/A (PARALLEL)
90°	8' 0" 8' 6" 9' 0"	18' 0" 18'0" 18' 0"	28' to 32' 25' to 29' 23' to 27' *Two Way	N/A

Note: Two Way drive aisles shall always require a minimum width of 23 feet.

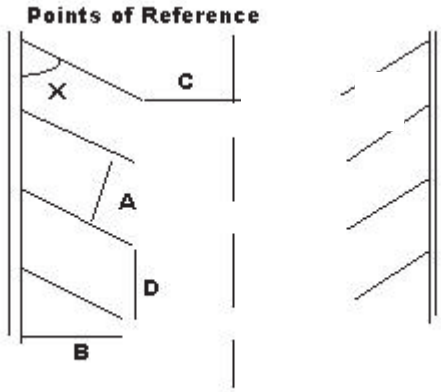


Figure 2

C. Parking Lot Landscaping

See Article 9.5 of this Chapter.

D. Markings and Surface Treatment

1. In paved parking areas, each off-street parking space shall be identified by surface markings at least four inches in width. Markings shall be visible at all times. Such markings shall be arranged to provide for orderly and safe loading, unloading, parking and storage of vehicles. In unpaved parking lots, all parking spaces must have a curb stop (minimum height of four inches) to delineate the location of the space and to prevent the encroachment of parking onto adjoining properties, rights-of-way, or landscaped areas.

2. One-Way and Two-Way accesses into required parking facilities shall be identified by directional arrows.

3. Unpaved parking lots must have an all weather surface such as gravel, slag or other pervious surface, not including asphalt shingles. Entrance and exit drives serving unpaved parking lots accessed from a paved street must be paved from the edge of the street pavement to a distance of 20 feet into the property. No more than 120 percent of the required number of off-street parking spaces may be paved and no more than 70 percent of all developable land within parcels may be paved, unless approved by the Planning Director.

E. Access

1. Required parking spaces shall not have direct access to a street or highway. Access to required parking spaces shall be provided by on-site driveways. Off-street parking spaces shall be accessible without backing into or otherwise reentering a public right-of-way.

2. Parking lot entrance and exit drive curb cuts will not be more than 30 feet in width. Entrances or exits which include a median strip to separate traffic flow in opposite directions may be expanded to 60 feet. Curb cuts shall be allowed in accordance with the following table:

LENGTH OF FRONTAGE	MAXIMUM NUMBER OF DRIVEWAYS
250 feet or less	**1***
251 feet to 1,500 feet	**2**
1,500 feet or more	**3**

* On frontages of 250 feet or less, a pair of one-way driveways may be substituted only if the internal circulation on the site is compatible with the one-way driveways and wrong-way movements on the driveways are rendered impossible or extremely difficult for motorists. Refer to the South Carolina Department of Transportation's Access and Roadside Management Standards Manual for recommended spacing of driveways based on speed of traffic.

3. Entrance and exit drives shall be located at least 100 feet from the edge of the right-of-way of any street intersection. If the subject lot has less than 100 feet of frontage, the Planning Director shall be authorized to alter these requirements. Suitable provisions will be made to prevent ingress or egress at other than designated entrance or exit drives.

4. The Planning Director shall be authorized to require that access to dwelling units comply with the International Fire Code, as adopted by County Council.

5. Shared access between parcels may be allowed with written agreement among all owners of record. An attested copy of the access agreement between the owners of record must be submitted to the Planning Director for recording on forms made available in the Planning Department.

Recording of the agreement with the Register of Mesne Conveyance must take place before issuance of a zoning permit or certificate of occupancy for any use to be served by shared access. Any shared access must meet all dimensional requirements of this Ordinance and any applicable SCDOT requirements.

§9.3.7 USE OF REQUIRED PARKING SPACES

Required off-street parking areas shall be used solely for the parking of licensed, motor vehicles in operating condition. Required spaces may not be used for the display of goods for sale or lease, for motor vehicle repair or service work of any kind, or for long-term storage of vehicles, boats, motor homes, campers, manufactured housing units, or building materials.

§9.3.8 Vehicle Stacking Areas

A. Minimum Number of Spaces

Off-street stacking spaces shall be provided as follows:

Activity Type	Minimum Spaces	Measured From
Bank teller lane	3	Teller Window
Automated teller machine	2	ATM
Restaurant drive-through	5	Order Box
Restaurant drive-through	4	Order Box to Pick-Up Window
Car wash stall, automatic	4	Entrance
Car wash stall, self-service	3	Entrance
Dry Clean Service	3	Pick up Window
Gasoline pump island	2	Pump Island
Other	Determined by Planning Director	

B. Parking Area Design and Layout

Required stacking spaces are subject to the following design and layout standards:

1. Stacking spaces must be a minimum of eight feet by 20 feet in size.

2. Stacking spaces may not impede on or off-site traffic movements or movements into or out of off-street parking spaces.

3. Stacking spaces must be separated from other internal driveways by raised medians if deemed necessary by the Director of Public Works for traffic movement and safety.

4. The Planning Director may require pick-up and drop-off loop drives with sufficient vehicle stacking lanes to prevent vehicle backups into internal

travel lanes and parking lots for school uses, adult and child day care facility uses, public assembly uses, and conference facility uses.

§9.3.9 OFF-STREET LOADING

A. Spaces Required

For every retail sales, service, wholesaling, warehousing, or manufacturing establishment and each bus or truck terminal, there shall be provided sufficient space to accommodate the maximum number of trucks that will be loading, unloading, or standing at any one time.

B. Size of Space

Each off-street loading space shall be of a size commensurate with the buildings to be accommodated. In no case shall required off-street loading space encroach upon off-street parking space required under this Article.

C. Location

All required off-street loading spaces shall be located on the same lot as the building which they are intended to serve.

D. Entrances and Exits

Off-street loading entrance and exit drives shall be located at least 25 feet from any street intersection.

E. Loading Spaces Adjacent to Sidewalks

Where a loading space is adjacent to a public sidewalk or other public pedestrian way, it shall be so located, arranged, and improved with curbs or other barriers, as to provide adequate protection for pedestrians.

F. Maneuvering Areas

All off-street loading spaces shall be provided with adequate off-street maneuvering areas.

G. Landscaping, Buffers and Screening

See Article 9.5 of this Chapter.

§9.3.10 PEDESTRIAN WAYS

A. Where Required

1. Paved pedestrian ways shall be provided in all non-residential development within the Urban and Suburban Areas of the County; and

2. Paved pedestrian ways shall link surrounding roadways with the front entrance and shall provide pedestrian linkages between the proposed development and uses on adjoining lots.

B. Placement

Paved pedestrian ways within publicly dedicated right-of-ways shall conform to the construction details for paved sidewalks contained in Charleston County Road Construction Standards, Appendix A. Alternative surface walkways may

be used outside of right-of-ways when deemed appropriate to surrounding development characteristics by the Planning Director.

ARTICLE 9.4 TREE PROTECTION AND PRESERVATION

§9.4.1 GENERAL

A. Findings

Trees are an essential natural resource, an invaluable economic resource, and a priceless aesthetic resource. Trees play a critical role in purifying air and water, providing wildlife habitat, and enhancing natural drainage of stormwater and sediment control. They also help conserve energy by providing shade and shield against noise and glare. Trees promote commerce and tourism by buffering different land uses and beautifying the landscape. The Tree Protection and Preservation regulations of this Article are intended to enhance the health, safety and welfare of Charleston County citizens.

B. Applicability and Exemptions

1. Applicability

The provisions of this Article in their entirety shall apply to all real property in unincorporated Charleston County, except as otherwise expressly exempted.

2. Exemptions

a. Single family detached residential lots of record shall be exempt from all provisions in this Article except for the Grand Tree documentation, protection and replacement provisions. This exemption does not include applications for Major or Minor Subdivisions for which landscape buffers may be required per Section 9.5.4.

b. The Planning Director shall be authorized to modify or reduce the standards of this Article for commercial nursery operations.

c. This Article shall not restrict public utilities and electric suppliers from maintaining safe clearance around existing utility lines, and existing easements in accordance with applicable state laws. Siting and construction of future gas, telephone, communications, electrical lines or other easements shall not be exempt from the provisions of this Article.

d. Removal of trees for the purpose of conducting “bona fide forestry operations” shall be exempt from the provisions of this Article except for removal of Live Oak species of Grand trees.

e. Removal of trees for the purpose of establishing bona fide agricultural uses, as specified in Section 3.8.2A of this Ordinance, shall be exempt from the provisions of this Article except for the Grand Tree documentation, protection and replacement provisions.

f. Removal of trees for the purposes of maintaining safe clearance for aircraft as required by federal law or the establishment of facilities exclusively dedicated to aviation operations are exempt from this Article.

g. Removal of trees on properties in the Industrial Zoning District is permitted pursuant to the following conditions:

i. Tree removal cannot occur prior to site plan approval;

ii. This exemption shall not apply to Live Oak species of Grand Trees or any protected trees within required buffers and parking lots; and

iii. Mitigation of removed trees, as stated in this Section, is required. Staff shall approve the mitigation of such trees in accordance with Section 9.4.6 of this Ordinance.

3. Partial Exemptions for SCDOT and CCPW

The South Carolina Department of Transportation (SCDOT) and Charleston County Public Works (CCPW) shall be exempt from the provisions of this Article except the following:

a. All trees species measuring 6 inches or greater DBH located in right-of-ways along Scenic Highways as designated in this Ordinance shall be protected and require a variance from the Charleston County Board of Zoning Appeals for removal per Article 9.4.5B and 9.4.6.

b. Grand Tree Live Oak species in all present and proposed right-of-ways and easements shall be protected and require a variance from the Charleston County Board of Zoning Appeals for removal per Article 9.4.5.B and 9.4.6.

c. All Grand Trees other than Live Oak species in all present and proposed right-of-ways and easements not located on a Scenic Highway are protected but may be permitted to be removed administratively when mitigated per Article 9.4.6.

C. DEFINITION OF “TREE REMOVAL”

For the purpose of this Article, the term "tree removal" shall include, but not be limited to, damage inflicted to the root system by machinery; girdling; storage of materials and soil compaction, changing the natural grade above or below the root system or around the trunk; damage inflicted on the tree permitting fungus infection or pest infestation; excessive pruning; excessive thinning; paving with concrete, asphalt or other impervious material within such proximity as to be

harmful to the tree; or any act of malicious damage to a tree. Excessive pruning or thinning shall be pruning or thinning that exceeds more than 25 percent of the leaf surface on both the lateral branch and the overall foliage of a mature tree that is pruned within a growing season. Additionally, one-half of the foliage of a mature tree is to remain evenly distributed in the lower two thirds of the crown and individual limbs upon completion of any pruning.

D. MEASUREMENTS AND DEFINITIONS

1. Diameter Breast Height

Diameter Breast Height is used for measuring all trees greater than 12-inch caliper. The Diameter Breast Height (DBH) of a tree is the total diameter, in inches, of a tree trunk or trunks measured 4½ feet above existing grade (at the base of the tree). In measuring DBH, the circumference of the tree shall be measured with a measuring tape designed specifically to calculate diameter. A standard measuring tape may be used to measure diameter when the circumference is divided by 3.14. If a tree trunk splits at ground level and the trunks and do does not share a common base (separated by earth at natural grade), then each trunk shall be measured as a separate tree. If a multi-trunk tree splits below the 4.5 foot mark and the trunks share a common base, all trunks shall be measured separately, added together, and count as one tree. Any trunk measuring less than 8 inches DBH is not included in the calculation.

2. Caliper

Caliper is the diameter of a tree trunk measured six inches above the ground on trees with calipers of four inches or less. For trees between four-inch and 12-inch caliper, the trunk is measured 12 inches above the ground.

3. Grand Tree

Any tree measuring 24 inches or greater diameter breast height (DBH) except pine tree and Sweet Gum tree (*Liquidamber styraciflua*) species. All Grand Trees are prohibited from removal unless a Grand Tree Removal Permit is issued or if the removal is part of an approved Bona Fide Forestry Operation.

4. Protected Trees

Any tree on a parcel with a diameter breast height of eight inches or greater prior to development and all trees within required buffers or required landscape areas. Limited removal is allowed only when specified by the provisions of this Ordinance.

§9.4.2 ADMINISTRATION

A. Zoning Permit Required

1. Tree Removal

Removal of required trees is prohibited prior to the issuance of a Zoning Permit by the Planning Director. Zoning Permits will be issued only after

a tree plan is approved by the Planning Director, as outlined below.

2. Excess Canopy (Limb) Removal

a. Removal of three or more limbs with an individual diameter of six inches or greater shall require a Zoning Permit.

b. Removal of any size limbs which contribute to more than one hundred continuous linear feet of canopy over public roadways shall require Variance approval from the Board of Zoning Appeals. This requirement shall not preclude the SCDOT, CCPW or other entities from maintaining height clearances of 14' or less and width clearances within designated travel ways and from removing unprotected trees along right-of-ways for road widening projects.

B. Documentation

Tree plans, prepared by a licensed registered surveyor, civil engineer or landscape architect shall be required on all non-exempt parcels before any zoning permits are issued.

§9.4.3 TREE PLANS AND SURVEYS

A. General

Tree plans of the same scale as, and superimposed on, a development site plan or preliminary plat shall include location, number, size (DBH), and species with a scaled graphic representation of each Grand Tree, canopy size and shape, and the trunk location. All required tree surveys shall include the name, phone number, address, signature, and seal of a licensed surveyor, landscape architect, or civil engineer registered in the State of South Carolina. The survey shall include all trees to be protected or preserved, and those scheduled to be removed, including dead and damaged trees. In cases where a previously approved recorded plat is utilized for the purpose of tree plans the name, address, phone number, signature and seal of the licensed landscape architect, civil engineer, forester or surveyor, registered in the State of South Carolina shall be provided. A scaled infrared or high resolution black and white aerial photograph or print of equal quality may be substituted in cases where the Planning Director determines that it would provide the same information as a tree plan. However, all Grand Trees within 40 feet of proposed construction and land disturbance areas and trees within required buffers must be surveyed and mapped.

B. Major and Minor Subdivision Preliminary Plats

Refer to Section 8.4.2.A.4 Preliminary Plat Application in the Subdivision Regulations of Chapter 8 of this Ordinance.

C. Commercial, Industrial and Multi-Family Parcels

1. All tree surveys must show the location, number, size and species of all trees 8 inches or greater DBH (Diameter Breast Height) including those scheduled to be removed.

2. When there are no trees 8 inches or greater DBH, documentation of this fact shall be provided from a registered surveyor, engineer or landscape architect.

[Commentary: Assistance in tree identification and condition should be provided by a forester or qualified arborist.]

D. Single Family Detached Residential Parcels

1. Single family detached residential parcels shall show all Grand Trees within the area of construction and land disturbance and in conjunction with the subdivision regulations of this Ordinance at the time a zoning or building permit application is made.

§9.4.4 REQUIRED TREE PROTECTION

A. General

All Grand Trees and any other trees required to remain on a site as outlined in this Ordinance must be protected during construction and development of the parcel. Tree protection must be shown on all development plans prior to site plan approval. A site inspection of the tree barricades must be scheduled by the applicant with the Planning Department for approval prior to the issuance of permits or the start of development activities.

Prior to issuance of a zoning permit, a pre-construction planning conference for tree preservation is required on site with the Planning Director's representative, the applicants, and any parties deemed appropriate for the purpose of determining if there is a need for additional tree protection techniques and for designating placement of tree barricades, construction employee parking, temporary construction office and dumpsters.

B. Tree Protection During Development and Construction

Protective barricades shall be placed around all required trees in or near development areas on all zoning parcels, prior to the start of development activities. These barricades, constructed of wood or plastic fencing or other approved materials shall be erected in accordance with standards by the Planning Director and placed beneath the canopy drip line or one and one-half feet times the DBH of the tree. Other protective devices or construction techniques may be used as approved by the Planning Director. The barricades shall remain in place until development activities are complete. The area within the protective barricade shall remain free of all building materials, dirt, fill, or other construction debris, vehicles, and development activities. All required trees are also subject to the provisions of Section 9.5.6 of this Chapter and subject to the enforcement criteria of Chapter 11.

C. Partial Exception for Limited Clearing

Limited clearing and grubbing may be authorized by the Planning Director prior to the installation of protective tree barricades on sites that exhibit unusually heavy undergrowth where access to the interior of the site and its protected trees would be otherwise highly impractical. Limited clearing shall be for the

express purpose of accessing the property and protected trees to erect the required tree protection and silt fencing. For the purposes of this Article, limited clearing shall be clearing done with hand tools, push or walk behind equipment or lightweight bush-hog type equipment designed specifically for brush and undergrowth clearing that is not capable of removing vegetation greater than 3 inches in diameter. Under no circumstances will metal tracked bulldozers, loaders, or similar rider/operator types of equipment be allowed on the site until the protective barricades are erected and a zoning permit is issued.

D. Separation of Trees from Pavement, Grading and Structures

Paved areas shall be separated from trees by a minimum distance of the drip line or one and one-half feet times the DBH or as modified by the Planning Director as deemed necessary to protect the root system of the tree. Paved areas shall not constitute more than 25 percent of the protected area beneath a tree. Any paving, grading, trenching, or filling within the remaining 75 percent of the protected area must be approved by the Planning Director and may require specific construction techniques be used in order to preserve the health of the tree. Refer to Chapter 9 exhibits for examples. When grading and construction within the protected area of a tree has been approved, all damaged roots shall be severed clean and inspected by the County Landscape Architect or Inspector prior to the receipt of a Zoning Permit.

E. Quantity and Location of Trees to be Protected

Before the issuance of a Zoning Permit for Commercial, Industrial, Multi-Family, and Civic/Institutional uses, the following number of trees with a diameter breast height of 8 inches or greater shall be preserved and protected in accordance with the provisions of Section 9.4.4.B of this Ordinance. All trees located within required buffers as outlined in Article 9.5 shall be protected.

1. 20 trees per acre; or

2. Any number of trees with a combined diameter breast height of at least 160 inches per acre.

3. Required drainage improvements such as detention and retention ponds and wetlands may be subtracted from the area used to calculate tree preservation requirements.

§9.4.5 TREE REMOVAL

A. Generally

Permits for tree removal may be approved where one or more of the following conditions are deemed to exist by the Planning Director:

1. Trees are not required to be retained by the provisions of this Article.

2. Trees are diseased, dead or dying (as determined by the Planning Director or a qualified arborist);

3. Trees pose an imminent safety hazard to nearby buildings, or pedestrian or vehicular traffic (as determined by the Planning Director or a qualified arborist); or

4. Removal of required trees has been approved by the Board of Zoning Appeals.

B. Variances

Grand Trees and protected trees that do not meet the above criteria may be removed only where approved by the Board of Zoning Appeals, and shall be replaced according to a schedule determined by the Board. The Planning Director will make recommendations to the Board concerning the number, species, DBH or caliper, and placement of such trees.

C. Emergency Provisions

In the event that a tree poses a serious and imminent threat to public safety due to death, disease or damage resulting from emergencies including, but not limited to, fires, flooding, storms, and natural disasters, the Planning Director may waive requirements of this Article. Documentation must later be submitted for review outlining the threat to public safety which initiated the removal. Documentation must include any written findings by a qualified arborist and photographs supporting the tree removal emergency. The Planning Director may require replacement of required trees that are removed where it is determined that death or disease resulted from negligence.

D. Violations and Penalties

Violations and penalties are specified in Chapter 11 of this Ordinance.

§9.4.6 TREE REPLACEMENT

A. Generally

Tree replacement shall be required accompanying development on all non-exempt properties in the manner described below:

1. When replacement canopy trees are required in fulfillment of the requirements of this Article, they shall be no smaller than two and one-half-inch caliper.

2. The Planning Director or Board of Zoning Appeals is empowered to require trees of larger caliper as determined appropriate for site-specific conditions and the circumstances, lawful or illegal, under which removal occurred.

B. Protected Trees Removed in Violation

When trees of 8 inches DBH or greater have been removed in violation of this Ordinance, replacement trees shall be planted in the same general area according to a replacement schedule approved by the Planning Director.

C. Sites with Less Than 160 Inches per Acre Combined DBH

When lots lack a sufficient number of trees to meet the requirement for DBH/number of trees per acre, all trees six inches DBH or greater shall be

preserved and protected in accordance with Section 9.4.4.B of this Chapter during development and must equal no less than 40 inches per acre combined DBH. On lots with less than 40 inches per acre combined DBH, additional trees shall be planted on the lot equaling or exceeding 40 inches per acre combined DBH. Planting schedules shall be approved by the Planning Director.

D. Previously Cleared Sites

Where sites were completely cleared of trees prior to adoption of this Article or have been cleared subsequently for activities exempted from this Article, replacement trees shall be planted, the combined caliper of which equals or exceeds 40 inches per acre. Replacement schedules, including number, species, caliper and placement shall be approved by the Planning Director.

E. Tree Fund

The Tree Fund is a fund established to receive monies exacted from tree removal violation fines to include, but not be limited to, removal, damage, destruction, or as defined in Section 9.4.1.C of this Chapter, and as a form of mitigation when planting of the required trees is determined to be detrimental to the overall health of existing trees or impractical for the intended site design. The Planning Director shall impose a Tree Mitigation fee based on the current market retail value of two- to three-inch caliper trees installed to the American Association of Nurserymen Standards. If the applicant disagrees with the amount of the Tree Mitigation fee imposed, they may file appeal with the Board of Zoning Appeals in accordance with the provisions contained in this Ordinance. All Tree Mitigation fees collected shall be paid to the County Treasurer and placed in an account established exclusively for public beautification through the planting of trees in Charleston County.

F. Bankruptcy or Abandonment of Site

When trees have been removed through an approved mitigation program and the project will not be completed for any reason (i.e., bankruptcy, abandonment, change in ownership, etc.), the owners of the subject property are responsible for the mitigation of the removed trees as outlined and agreed or subject to Section 9.4.6E of this Chapter.

§9.4.7 INSPECTIONS AND FINAL APPROVAL

A. The Planning Director shall periodically visit development sites prior to completion to monitor compliance with the tree plan approved for a project.

B. Prior to issuance of a Certificate of Occupancy for a completed structure by the Director of Building Services, the Planning Director shall issue a statement of approval attesting to the developer's compliance with the site plan approved for the project (including landscaping, parking, drainage, etc.). The Director of Building Services shall withhold certificates of occupancy pending verification of compliance. It is the responsibility of the owner or agent to contact the Planning Director regarding the compliance inspection. Such inspections will occur within five working days of contact. Failure to obtain a Certificate of Occupancy prior to occupying or using the building for its intended purpose will result in ticketing and fines. However, the Planning Director shall approve a

delayed schedule for planting materials (provided by the applicant's contractor) when the immediate planting schedule would impair the health of the plants. When a delayed planting schedule is approved, the applicant shall provide a bond equivalent to one and one-half times the projected cost of the planting materials. This is designed to include severe weather, such as droughts, heat waves, and floods.

C. Within three years of the issuance of the Certificate of Occupancy, the Planning Director shall perform a site inspection to verify the health of trees which were retained to meet the requirements of this Article and which may have suffered damage due to insufficient protective measures during development.

D. Each required tree that is determined by the Planning Director to be diseased or injured to the extent it is irreparably damaged shall be approved for removal. The burden of proof of the extent of the disease or injury shall rest with the applicant, who must provide documentation from a qualified arborist. Any tree damaged during or as a result of construction shall be repaired to the satisfaction of the Planning Director and in accordance with accepted ANSI A300 or International Society of Arboriculture practices. Tree damage must be repaired prior to issuance of a Certificate of Occupancy.

E. The owners of a non-exempt property or properties shall be responsible for the maintenance of all required trees. No department or agent of the County of Charleston is in any way responsible for the maintenance of required trees on private property.

ARTICLE 9.5 LANDSCAPING, SCREENING AND BUFFERS

§9.5.1 APPLICABILITY

Unless expressly exempted, the landscaping, screening and buffering standards of this Article shall apply to all new non-residential development and all new major roadways that serve Residential Major Subdivisions (ten or more lots). Minor Subdivisions (those with fewer than ten lots) may be required to provide landscaping, screening or buffering on major roadways when the Planning Director determines that such landscaping, screening or buffering is necessary to ensure that the purposes of this Ordinance are met. When modifications or additions are being made to an existing non-residential building or site, the standards of this Article shall apply to those portions of the subject parcel that are directly affected by the proposed improvements, as determined by the Planning Director, provided that when modifications or additions are proposed that would increase the number of parking spaces, the area of vehicular use areas or gross floor area of buildings by more than 25 percent (above existing), then the entire parcel shall be brought into compliance with all applicable standards of this Article. Before calculating the percentage of area for re-development and improvement, any proposed demolition of structures and parking is subtracted from the existing gross floor area of buildings and number of parking spaces.

§9.5.2 EXHIBITS

Drawings included as exhibits at the end of this Chapter are meant to compliment the language of the Ordinance. In the event of a conflict with the text of the Ordinance, the text shall apply.

§9.5.3 PARKING, LOADING AND VEHICULAR USE AREA LANDSCAPING

A. Parking, Loading and Vehicular Area Perimeters

Unless otherwise expressly stated, perimeter landscaping shall be required around the outer perimeter of all off-street, surface parking, loading and vehicular use areas. Parking areas for the exclusive use of single family or agricultural uses shall be exempt from these requirements. Any off-street parking, loading or vehicular use area that will be entirely screened from view by an intervening building or structure or by a buffer provided to satisfy the standards of this Chapter shall also be exempt from these (parking, loading and vehicular use Area) perimeter landscaping requirements.

1. A perimeter landscape area at least eight feet in depth shall be provided at the perimeter of all off-street parking, loading and vehicular use areas, except where permitted driveway openings are to be provided. Where drainage or other utility easements exist along property lines, the perimeter landscape area shall be located adjacent to the easement.

2. Required perimeter landscape areas shall be planted in accordance with the following minimum standards:

   a. One canopy tree shall be provided for each 50 linear feet of parking, loading or vehicular use area perimeter. These trees may be used to satisfy the interior parking lot landscaping requirements.

   b. A hedge or other landscape material of at least three feet in height (at maturity) shall be planted within the perimeter landscape area to provide a continuous landscape element, or a combination of trees, hedge, other durable landscape material or approved wall, fence or earth berm may be used to form the continuous landscape element;

   c. All portions of the perimeter landscape area not planted with shrubs or trees or covered by a wall or fence barrier shall be planted in grass or ground cover; and

   d. Parked vehicles may overhang a landscaped area if curbing or wheel stops are installed to prevent any damage to plants within the required perimeter landscape area. Landscaping, walls, fences and earth berms will be so located as to prevent their damage and/or destruction by overhanging vehicles.

B. Interior Areas

The following interior parking lot landscaping requirements shall apply to all parking lots except those exclusively serving single family residential or agricultural uses.

1. A minimum of one landscape island shall be provided for each ten parking spaces within an off-street parking area. Required landscape islands shall have a minimum of 325 square feet, variably dependent upon the species of the canopy tree proposed by the designer. Each parking lot bay must terminate with a tree island.

2. Each required landscaping island shall contain at least one canopy tree and there shall be no more than ten parking spaces in a row between tree islands. Interior parking landscape islands that separate double loaded parking bays shall be a minimum of nine feet wide. Canopy trees planted in these islands must be planted in line with the parking stripes (between vehicles) and may be used to satisfy the parking lot tree requirements, however, all parking lot bays must terminate with a tree island. Example shown in Chapter 9 exhibits.

3. Curbs, wheel stops or other approved protective barriers shall be installed around all required landscape islands, as approved by the Planning Director.

4. Landscaping provided to meet the right-of-way buffer standards of Section 9.5.4 of this Chapter may not be used to satisfy interior parking lot landscaping requirements. Canopy trees provided to meet perimeter adjacent use buffer landscaping requirements may be counted to satisfy interior parking lot landscaping requirements.

§9.5.4 LANDSCAPE BUFFERS

A. Right-of-Way Buffers

1. Applicability

Right-of-way buffers shall be required adjacent to road rights-of-way for all uses except for the following: agricultural and residential uses existing on or prior to November 20, 2001. Minor Subdivisions may not have to comply with the requirements of this Section if the Planning Director determines that compliance is not necessary to satisfy the purposes of this Ordinance.

2. Buffer Reductions

The Planning Director shall be authorized to reduce the depth of a required right-of-way buffer as follows:

a. General: A required right-of-way buffer may be reduced by up to one-third its depth when the following circumstance exist:

i. The parcel is located on a corner lot with required right-of-way buffers of thirty-five (35) feet or more; or

ii. The area of all the required buffers, including land use buffers and tree protection area, exceeds thirty percent (30%) of the site.

b. A required right-of-way buffer of thirty-five (35) feet or less, located within the Urban/Suburban Area as defined by the Urban Growth Boundary (UGB) and not located within an Overlay Zoning District may be reduced as follows:

i. When no parking or vehicular use area is located between the building and the right-of-way, the required buffer may be reduced to no less than eight (8) feet (Type A land use buffer) provided the site layout and building elevations meet all applicable sections of Article 9.6, Architectural And Landscape Design Standards.

ii. When no more than ten (10) parking spaces are located between the building and the right of way, the required buffer may be reduced to no less than fifteen (15) feet (S2 buffer) provided the site layout and building elevations meet all applicable sections of Article 9.6, Architectural And Landscape Design Standards.

iii. Buffers required on parcels that are part of redevelopment that preserves existing structures may be reduced up to a depth no less than ten (10) feet (Type A land use buffer) in order to meet the parking and tree preservation requirements of this Ordinance.

The Planning Director may require additional site improvements including but not limited to, enhanced building architecture and materials and/or increased plant material sizes and density when a buffer reduction is granted to provide an attractive streetscape adjacent to the right of way.

3. Buffer Types by Roadway

Landscape buffers shall be required along roadways in accordance with the following table. Streets and roads not indicated in the table shall comply with the S2 buffer requirements. Section 9.5.4 of this Chapter describes buffer types and planting requirements.

4. Development Within Buffer Areas

a. No development may occur within required buffer areas; with the exception of sidewalks and permitted drives and signs;

b. All buffer areas shall accommodate required plant material within the buffer;

c. Drainage swales and stormwater detention ponds may be placed in the buffer only when trees are not endangered and only when they meander through the buffer in a natural manner; and

d. Stormwater detention ponds may not occupy more than twenty-five percent (25%) of the buffer area.

ROADWAY	BUFFER TYPE	ROADWAY	BUFFER TYPE
Abbapoola Road	S4	Magwood Road	S3
Ashley Hall Road	S1	Main Road (Limehouse Bridge to Maybank Hwy.)	S5
Hwy. 61/Ashley River Road (Saint Andrews Boulevard to Sam Rittenberg Boulevard)	S1	Main Road (Bees Ferry Road to Limehouse Bridge)	S4
Hwy. 61/Ashley River Road (Sam Rittenberg Boulevard to Mark Clark Expressway)	S2	Manse Road	S4
Hwy. 61/Ashley River Road (Mark Clark Expressway to Church Creek)	S3	Mark Clark Expressway	S5
Hwy. 61/Ashley River Road (Church Creek to Muirfield Parkway/MacLaura Hall Ave.) [1]	S5	Mary Ann Point Road	S3
Hwy. 61/Ashley River Road (Muirfield Parkway/ MacLaura Hall Avenue intersection to Charleston County Line)[1]	S6	Mathis Ferry Road [1]	S4
Bears Bluff Road	S5	Maybank Highway Corridor Overlay District	[2]
Bees Ferry Road	S4	Maybank Highway [James Island]	S1
Belvedere Road	S4	Maybank Hwy (Main Road to Rockville)	S5
Betsy Kerrison Parkway [1]	S5	Meeting Street	S1
Bohicket Road [1]	S5	Murraywood Road	S4
Botany Bay Road	S4	Old Georgetown Road	S4
Brownswood Road	S4	Liberia Road	S4
Abbapoola Road	S4	Old Georgetown Road in the "Loop" area (designated on the Mount Pleasant Overlay map)	S1
Cane Slash Road	S4	Old Jacksonboro Road	S4
Chisolm Road	S4	Old Pond Road	S4
Chuck Dawley Boulevard	S1	Old Towne Road	S1
Coleman Boulevard	S1	Orange Grove Road	S1
Doar Road	S4	Orleans Road	S1
Dorchester Road	S1	Parkers Ferry Road	S4
Eddingsville Beach Road	S4	Patton Avenue/Fickling Hill Road	S4
Edenvale Road	S4	Peters Point Road	S4

ROADWAY	BUFFER TYPE	ROADWAY	BUFFER TYPE
Fordham Road	S1	Pine Landing Road	S4
Fort Johnson Road [1]	S3	Plow Ground Road	S4
Hamlin Road	S3	Raccoon Island Road	S4
Harborview Road	S1	Rifle Range Road	S3
Highway 162	S4	River Road [1]	S5
Highway 165	S4	Riverland Drive [1]	S4
Highway 17 (Hwy. 41 to County Line)	S5	Rivers Avenue	S1
Highway 17 (east of Isle of Palms Connector to Hwy. 41, not including Old Georgetown Hwy "Loop" Area)	S4	Rutledge Road	S4
Highway 17 in the Old Georgetown Road "Loop" area (as designated on the Mount Pleasant Overlay map)	S1	Saint Andrews Boulevard	S1
Highway 17 (west of the Isle of Palms Connector including bypass)	S1	Savannah Highway [Bees Ferry Rd. to County Line] otherwise S2	S3
Highway 174 (Highway 164 to Edisto Beach) [1]	S5	Seewee Road	S4
Highway 174 (Highway 17 to Highway 164)	S3	South Santee Road	S4
Highway 41	S4	Steamboat Landing Road (Jenkins Hill Rd to Steamboat Creek)	S4
Highway 45	S4	Tibwin Road	S4
Humbert Road	S3	Toogoodoo Road	S4
James Island Bridge/Highway 61 Connector	S3	Venning Road	S3
James Island Expressway	S4	Wappoo Road	S1
Liberia Road	S4	Wescott Road	S4
Long Point Road (SPA Wando Terminal to I-526)	S1	Willtown Road	S4
Long Point Road (Outside of MP-O district) [1]	S4		

[1] Denotes Scenic Road designation that shall require protection under the provisions of this Ordinance of all trees 6 inches or greater in diameter breast height (DBH) which are located within rights-of-way.

[2] S6 for industrial use; S5 all other uses.

5. Buffer Depth and Planting Standards

STANDARD	BUFFER TYPE					
	S1	S2	S3	S4	S5	S6
MIN. BUFFER DEPTH (ft from right-of-way)[1]	15	20	35	50	75	100
MINIMUM BUFFER LANDSCAPING (Plants per 100 linear feet)[2][3]						
Canopy Trees[4]	2	2	4	6	9	12
Understory Trees (at least 50 percent evergreen]	3	4	6	9	12	15
Shrubs	25	30	40	50	60	75
Street Trees (may be counted toward canopy tree req.)[5]	2	2	2	2	2	NA

All trees with a diameter breast height (DBH) of 6 inches or greater within buffers shall be preserved.

[1] Buffers may be traversed by permitted driveways and pedestrian ways.

[2] The retention of natural buffers shall be required along all road or street rights-of-way of S3 designation or greater. The Planning Director shall be authorized to waive/modify minimum buffer planting requirements when an undisturbed natural buffer exists that is the same depth and amount of plant material as that which is required.

[3] Bradford Pears cannot be used to fulfill any of the tree requirements of this Ordinance. Any exotic species which are proposed by the designer are subject to approval of the Planning Director.

[4] When existing overhead utility lines are located such that they may pose interference with required canopy trees, Palmetto trees may be substituted to fulfill the canopy tree requirements. These trees are to be planted at a ratio of three Palmetto trees to one canopy tree and are to be planted in groupings of three.

[5] Street trees are trees planted in rights-of-way for the purpose of fulfilling these requirements. Any planting in rights-of-way must be approved by party(ies) authorized to grant encroachment.

Note: The Planning Director shall be authorized to require the installation of berms within required buffers where deemed necessary to protect the visual quality of a road corridor or ensure land use compatibility.

B. Land Use Buffers

1. Applicability

Land use buffers shall be provided in accordance with the standards of this Section, provided that the Planning Director shall be authorized to modify or waive buffer or landscape planting requirements if it is determined that:

a. Buffers will not serve any useful purpose due to the fact that fences, walls, berms, or landscaping of at least equivalent height, opacity, and maintenance already exist on the adjacent parcel;

b. Buffers will not serve any useful purpose due to the location of uses, vehicles, buildings, structures, or storage, loading, display or service areas; or

c. The area of required buffers would exceed 25 percent of the site proposed for development.

When landscape buffer requirements are modified or waived, the Planning Director may require that additional plant material be added within remaining buffers or elsewhere on the site.

2. Exemptions

Single family development on individual lots shall be exempt from the land use buffer requirements of this Section.

3. Determination of Required Buffers

The following procedure shall be used in determining which of the buffer types in the Land Use Buffer Table (Section 9.5.4.B.4) of this Chapter apply:

a. Determine the type of use proposed for the site that is being developed. This is the "Proposed Use" (Column 1);

b. Determine the residential use type that exists on the adjacent parcel (if residential) or the zoning district classification that applies to the adjacent parcel. This is the "Adjacent Site's Use or Zoning";

c. Identify the type of landscape buffer required along the developing site's boundary (A, B, C, D, E, or F);

d. Refer to Section 9.5.4.B.5 of this Chapter to identify the buffer depth and landscaping standards for the required buffer type.

4. Land Use Buffer Table

Land Use Buffers shall be provided along side and rear yards in accordance with the following minimum requirements:

Proposed Use	Use or Zoning of Adjacent Site											
	Residential Type			Zoning District								Agricultural Use
	1	2	3	R [1]	OR	OG	CN	CT	CR	CC	I	
Residential Type 1	-	A	B	-	A	B	B	B	B	C	D	F
Residential Type 2	A	-	A	-	A	B	B	B	B	C	D	F
Residential Type 3	B	A	-	-	A	A	B	B	B	C	D	F
Civic/Institutional	B	B	A	A	-	-	-	-	-	-	-	-
Commercial Type 1	B	B	B	B	-	-	-	-	-	-	-	-
Commercial Type 2	C	C	C	C	C	B	B	-	-	-	-	-
Industrial Type 1	E	E	D	D	D	D	C	C	C	B	-	-
Industrial Type 2	F	F	F	F	E	E	D	C	C	C	A	-

[1] Applies to undeveloped (vacant) R and AGR zoned property.
Residential Use Types: Type 1 = Single family Detached; Type 2 = Duplex and Single family Attached; Type 3 = Multi-Family and all other residential use types, including manufactured housing parks.
Commercial Use Types: Type 1 = Any commercial use allowed by right in an OR, OG or CN district; Type 2 = all other commercial uses that are allowed in commercial (c) zoning districts (commercial uses are those listed in the "Commercial" rows of Use Table 6.1-(1)
Industrial Use Types: Type 1 = Any industrial or commercial use that is first allowed in an industrial (I) zoning district; Type 2 = Waste-Related uses, Resource Extraction uses and Recycling Centers.

5. Buffer Depth and Landscaping Standards

Standard	Buffer Type					
	A	B	C	D	E	F
MINIMUM BUFFER DEPTH (feet from property line)	10	15	25	40	60	100
MINIMUM LAND USE BUFFER LANDSCAPING (Plants per 100 linear feet)[1][2]						
Canopy Trees	2	3	3	5	7	9
Understory Trees (at least 50 percent evergreen)	3	4	4	7	9	11
Shrubs	20	20	25	30	40	50

[1] The Planning Director shall be authorized to require the installation of fences, walls or berms within required buffers where deemed necessary to ensure land use compatibility or otherwise protect the visual quality of an area.
[2] All trees with a diameter breast height (DBH) of 8 inches or greater within buffers shall be preserved.

C. General

1. Location of Buffers

Buffers shall be located along the perimeter of a lot or parcel and shall extend to the boundary of the lot parcel. They shall not be located on any portion of public right-of-way. Where drainage or other utility easements exist along property lines, required landscape buffers shall be located adjacent to the easement and may be reduced in width by the width of the easement, but in no case shall the buffer width be less than ten feet. Required buffers shall be noted on all plats, plans and permit requests submitted for review and approval under this Ordinance.

2. Plant Material Within Buffers

Plant material within required buffers shall be selected and spaced properly to allow plant material to thrive considering site specific conditions. Plant material to be located adjacent to public drainage easements and right-of-ways shall be selected and placed to not create future access or maintenance impediments including low lying lateral branches. Additionally, plant material within required buffers that contain utility easements shall be selected and sited to minimize pruning for future maintenance and clearance of such utilities. The Planning Director must approve all selections and may require modifications (substitutions and relocation) of plant material on proposed landscape plans when necessary to assure access and ease of maintenance to any easements and right-of-ways and to preserve the public health, safety and welfare.

3. Use of Buffers

The Planning Director shall be authorized to allow on-premises signs, fences, walls, berms, mailboxes, access to community boat ramps, permitted driveways, and sidewalks within required buffers. Other improvements may be allowed within buffers if the Planning Director determines that such improvements will not detract from the intended purpose and function of the buffer or have any adverse affect on adjacent property.

§9.5.5 Landscape Plans

Landscape and Planting Plans submitted to meet the requirements of the Ordinance are to be drawn to the same scale as the Site Plan depicting proposed shrubs and trees at maturity. It is strongly encouraged that all Landscape Plans be prepared by a licensed registered Landscape Architect or Landscape Designer familiar with the growth habits and characteristics of plant material available in the Charleston area. Landscape Plans shall be prepared by a licensed, registered Landscape Architect whenever the area of land disturbance or development activity exceeds one acre or when the total area of proposed building footprint exceeds 5,000 square feet.

§9.5.6 Landscape Material Standards

Landscape and plant material used to satisfy the standards of this Ordinance shall comply with the minimum standards of this Section.

A. Plant Material

1. Existing Plant Material

Vegetation and plant material that exists on a parcel prior to its development may be used to satisfy the landscaping standards of this Section provided that it meets the size and locational requirements of this Article.

2. Size

Unless otherwise expressly stated, all plant materials used to satisfy the requirements of this Ordinance shall meet the following minimum size standards:

PLANT TYPE	MINIMUM SIZE
Canopy Tree	2 1/2 inches caliper and 12 feet in height
Understory/Ornamental Tree	8 feet (height)
Evergreen/Conifer Tree	5 feet (height)
Shrubs	3 gallon and 18" to 24" in height or spread

Note: At least 50 percent of required understory trees shall be evergreens. Any plant material that grows to an ultimate height of less than 18 inches shall be considered a groundcover and cannot be used to fulfill any of the shrub requirements of this Ordinance.

3. Species

Species of plant material used to satisfy the requirements of this Section shall be indigenous to the Charleston County area or are cultivated to survive in the climate of this area. No single plant species shall represent more than 40 percent of total landscape plantings, except for projects whose landscape requirements for canopy trees are lower than ten.

4. Quality

Plants installed to satisfy the requirements of this Section shall meet or exceed the plant quality standards of the most recent edition of American Standard for Nursery Stock, published by the American Association of Nurserymen. Plants shall be nursery-grown and balled and burlapped or container-grown.

5. Additional Landscape Treatment

All required landscape areas, including drainageways and detention/retention ponds, and buffers not dedicated to trees, shrubs or preservation of existing vegetation shall be landscaped with grass, ground cover, or other landscape treatment, not including sand, rock or pavement. All grass areas are to be installed using proper and accepted landscape methods to assure germination and erosion control.

B. Berms and Landscape Structures

Berms and landscape structures shall comply with the following minimum standards.

1. Fences and Walls

Fences and walls used as a screen shall be at least 95 percent opaque, with a minimum height of six feet.

2. Berms

Earthen berms shall have a minimum height of three feet, with a slope not to exceed 3:1, variable dependent upon the plant materials and soil type used. The toe of any berm shall be located at least three feet from the ultimate right-of-way or property line.

§9.5.7 Installation, Maintenance and Replacement

A. Installation

All landscaping shall be installed according to American Association of Nurserymen Standards and sound nursery practices in a manner designed to encourage vigorous growth. Sites for plant material shall be prepared or improved in accordance with American Association of Nurserymen Standards for soil preparation and drainage. Subsurface drainage shall be provided where berms, elevated planting areas or other suitable means for providing proper drainage do not exist.

B. Irrigation

The Planning Director shall be authorized to require the installation of automatic irrigation (sprinkler) systems when deemed necessary to ensure plant survival and proper growth.

C. Maintenance and Replacement

Required trees, shrubs, walls and other landscape features shall be considered as elements of the project in the same manner as parking, building materials and other details are elements of the plan. The land owner, or successors in interest, shall be jointly and severally responsible for the following:

1. Regular maintenance of all landscaping in good condition and in a way that presents a healthy, neat, and orderly appearance. All landscaping shall be maintained free from disease, pests, weeds and litter. This maintenance shall include weeding, watering, fertilizing, pruning, mowing, edging, mulching or other maintenance, as needed and in accordance with acceptable horticultural practices, including ANSI standards for Tree Care Operations and American Association of Nurserymen Standards;

2. The repair or replacement of required landscape structures (e.g., fences) to a structurally sound condition;

3. The regular maintenance, repair, or replacement, where necessary, of any landscaping required by this Section; and

4. Continuous maintenance of the site as a whole

When replacement of trees, plant material or other landscape features is required, such replacement shall be accomplished within one growing season, one year or such time-frame as required by the Planning Director, whichever is shorter.

ARTICLE 9.6 ARCHITECTURAL AND LANDSCAPE DESIGN STANDARDS

§9.6.1 PURPOSE

The purpose of these standards is to promote attractive, well-designed development that is built to human scale; to promote and protect the appearance, character and economic value of new development; to encourage creativity in new development (as opposed to homogeneity or "look-alike" projects); and to foster attractive streetscapes and pedestrian environments, while accommodating safe vehicular movement and access.

§9.6.2 APPLICABILITY

These standards shall apply to all developments that are subject to Site Plan Review.
(See Article 3.7)

§9.6.3 ARCHITECTURAL DESIGN GUIDELINES

The intent of the Architectural Design Guidelines is to assure respect for the character, integrity, and quality of the built and natural environments of the county; it is not intended to stifle innovative architecture. The following criteria shall be used in evaluating applications:

A. General Design

1. Single, large building masses shall be avoided. Structures with walls of more than 1,500 square feet should incorporate fascias, canopies, arcades, building setbacks of three feet or more or other multidimensional design features to break up large wall surfaces on their street facing elevations. Wall surfaces shall be visually divided by such features into areas of 750 square feet or less.

2. All elevations of a structure shall be in harmony, one with another, in terms of scale, proportion, detail, material, color, and high design quality.

3. The side and rear elevations of buildings shall be as visually attractive as the front elevation, especially where those side or rear elevations are most often viewed by the public. Rooflines and architectural detailing shall present a consistency in quality design.

4. All structures within a proposed development, including gasoline canopies, shall utilize a uniform architectural theme and shall be designed to create a harmonious whole. It is not to be inferred that buildings must look alike to achieve a harmony of style. Harmony of style can be created through property considerations of scale, proportion, detail, materials, color, site planning, and landscaping.

5. The scale of buildings and accessory structures (including canopies) shall be appropriate to the scale of structures located in the surrounding area. Canopies designed as domineering or overpowering architectural features are strongly discouraged.

6. Long, monotonous facade design, including, but not limited to, those characterized by unrelieved repetition of shape or form, or by unbroken extension of line, shall not be permitted.

7. The architectural design and material finish of buildings, signage, gasoline pump canopies, and other necessary structures shall be compatible with one another and with adjacent and surrounding structures where such structures are substantially in compliance with these requirements.

8. Structures which are of symbolic design for reasons of advertising shall not be permitted. A symbol or symbols attached to a building shall not be allowed unless it is secondary in appearance to the structure and landscape, and is an aesthetic asset to the building and surrounding area.

9. The location and dimension of wall signs shall be indicated upon the architectural elevations of proposed structures and shall maintain compatibility with the architectural features of the structure.

B. Building Materials

1. Concrete finishes or precast concrete panels (tilt wall) that are not exposed aggregate, hammered, sandblasted or covered with a cement-based acrylic coating shall be prohibited as an exterior building material along any building elevation visible from public rights-of-way.

2. Unpainted or bare metal panels, regardless of depth or thickness, shall be prohibited as an exterior building material.

3. Corrugated or sheet metal, except stainless steel, copper, or galvanized metal shall be prohibited as an exterior building material along any building elevation visible from public rights-of-way.

4. Mirrored glass with a reflectance greater than 40 percent shall be prohibited from covering more than 40 percent of the exterior walls of any building.

5. Materials shall express their function clearly and honestly and shall not appear as materials which are foreign to the character of the rest of the building.

6. Any building exterior elevation shall consist of architectural materials which are equal in quality, appearance, and detail to all other exterior elevations of the same structure. Nothing in this Section shall preclude

the use of different materials on different exterior elevations of the same structure so long as those materials maintain the architectural unity and integrity of the entire structure.

7. Shingles, metal standing seam, tile, or other roofing materials with similar appropriate texture and appearance shall be utilized. Flat roofs will not be discouraged where they are appropriate to the design theme of a structure.

C. Building Color

1. Color shades shall be used to unify the development.

2. Color combinations of paints shall be complementary. In no case shall garish colors be permitted. In general, no more than three different colors per building shall be allowed.

D. Multiple-Building Developments

Each individual building within a development shall feature predominant characteristics including, but not limited to, consistent rooflines, use of compatible proportions in building mass and outdoor spaces, complementary relationships to the street, similar window and door patterns, and the use of complementary building materials in terms of color, shades, and textures. Monotony of identically designed multiple building projects shall be avoided. Variation of detail, form, and siting shall be used to provide visual interest. The use of different textures, shadow lines and contrasting shapes may also be used to provide visual interest.

E. Building Orientation

1. To the maximum extent feasible, primary facades and entries should face the adjacent street. Except in industrial districts, a main entrance shall face the adjacent street or a connecting walkway with a direct pedestrian connection to the street without requiring pedestrians to walk through parking lots or cross driveways.

2. Where it is reasonably practical, proposed structures shall not impede scenic rural views from the main road, from existing structures, or from natural settings.

3. Structures shall be oriented so that loading areas are in no manner visible from Residential districts, from existing rights-of-way or from planned future public rights-of-way. Loading areas may be oriented toward adjoining developed properties which are commercially zoned or toward adjoining properties eligible for future commercial development if and only if they are entirely screened from view by the use of fencing which is compatible with the overall architectural scheme of the project and/or are appropriately landscaped.

4. All corner developments shall have buildings located close to the corner with majority of parking to the side and rear.

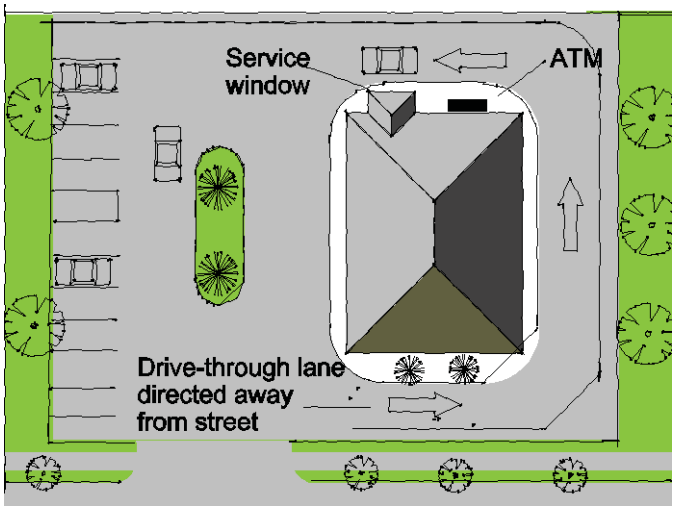
5. All buildings shall be sited so that a direct relationship with the primary street is established. The architecture, landscaping and building siting must work in concert to create a unified appearance.

6. Gas Stations.
Buildings shall be sited so that gasoline pump dispensers are located to the side of the building or located behind the buildings so that the building is between the pumps and the primary street frontage. If located on a corner lot, the building would have to be situated in the corner of the lot at the intersection.

F. Mechanical Equipment and Trash Receptacle Screening

Locations of all mechanical equipment and dumpsters shall be shown on all site plans. All mechanical equipment and trash receptacles shall be shielded and screened from public view, Mechanical equipment shall be shielded with walls, fencing or landscaping that screens the equipment entirely. Dumpsters shall be screened with a minimum 6-foot opaque fence or wall on all four sides and located toward the side or rear of the principle structure.

G. All order boxes, menu stands, pickup windows, service/teller windows, and required vehicle stacking associated with drive thru services shall be located to the side or rear of buildings. For the purpose of this Section, the side or rear shall mean the area behind a projected line running parallel from the front (street facing) side(s) of the structure to the side property lines. This concept is depicted in the graphic below:



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§9.6.4 LANDSCAPING DESIGN GUIDELINES

The purpose and intent of Landscaping Design Guidelines is to reduce the visibility of paved areas from adjacent properties and streets, moderate climatic effects, minimize noise and glare, and enhance public safety by defining spaces to influence traffic movement. Landscaping will reduce the amount of stormwater runoff and provide transition between neighboring properties. The following criteria shall be used in evaluating applications:

A. General Design

1. Landscaping shall be required between buildings and sidewalks, and parking lots and driveways. The scale of the proposed landscaping shall be in proportion to the building.

2. Landscaping does not only include trees and plantings but also paving, benches, fountains, exterior lighting fixtures, fences, and any other item of exterior furniture. All items of the landscape are to be selected not only for their functional value but [also] for their aesthetic value and must compliment [complement] the whole.

3. All utility lines in the suburban areas such as electric, telephone, CATV, or other similar lines serving individual sites as well as all utility lines necessary within the property shall be placed underground. All junction and access boxes shall be screened with appropriate landscaping. All utility pad fixtures and meters should be shown on the site plan. The necessity for utility connections, meter boxes, and the like, should be recognized and integrated with the architectural elements of the site plan. All properties shall comply with the County's Right-of-Way Management Ordinance where applicable.

4. Ease of pedestrian access between proposed developments and adjacent developments shall be a required consideration in the development of a proposed project's site and circulation plans.

B. Parking/Drives

1. Parking areas and driveways shall be paved with material which is appropriate to the comprehensive design scheme of the project and to the intensity of use to which parking areas and driveways will be subject.

2. Buildings shall be sited so that the majority of parking is located to the side and rear of the building. The placement of the major portion of a proposed development's parking area to the rear of a main structure's corridor facade, or within a courtyard surrounded on three sides by a proposed structure, is strongly encouraged. The rationale for this guideline is to promote good proportional spatial definition for the corridors to be accomplished through a reduction in the distance required for a building's setback.

3. Drive-through access shall be integrally designed with the building and not dominate the design. Only single lane drive-throughs are allowed. Multi-lane drive-throughs are only allowed for banks (or similar financial institutions), post offices or utilities.

C. Site Lighting

Site lighting shall be from a concealed light source fixture and shall not interfere with the vision of vehicular traffic. A lighting plan with photo-metrics shall be stamped and signed by a registered professional engineer and comply with the following criteria:

1. Maximum average foot-candles shall not exceed 5 foot candles as depicted on photometric plans with a maximum not to exceed 12 foot candles close to light sources. Maximum foot candles under gasoline canopies and outdoor sales lots shall not exceed 30 foot candles.

2. All exterior lights shall be arranged and installed so that the direct or reflected illumination does not exceed one-half foot candle above the background measured at the lot line of any adjoining residential or agricultural parcel and public right-of-way.

3. Lighting shall enhance the overall aesthetics of the site.

4. Security lighting shall be provided, particularly at pedestrian walkways.

5. Lighting shall be integrated with architectural design of the buildings.

6. Light sources (light bulbs) shall not be visible. They shall be shielded to reflect down onto the ground and not out onto the streets or neighboring property.

ARTICLE 9.7 WETLANDS, WATERWAYS AND OCRM CRITICAL LINE

§9.7.1 WETLAND BUFFERS AND SETBACKS

A. Intent

The buffer standards of this Article are intended to provide a natural vegetated area between the furthermost projection of a structure, parking or driveway area, or any other building elements, and all saltwater wetlands, waterways and OCRM (saltwater) critical lines. The purpose of these required buffers is to provide a visual, spatial, and ecological transition zone between development and the County's saltwater wetlands and waterways, and to protect water quality and wildlife habitat.

B. Wetland, Waterway and OCRM Critical Line Buffer Depth and Setbacks

1. Standards

The following minimum wetland/waterway buffers/setbacks shall be required:

Minimum Buffers/Setbacks (feet)	RM	AG-15	AG-10	AG-8	AGR	RR-3	S-3	R-4	M-8	M-12
OCRM Critical Line Buffer	35	35	35	35	35	35	15	15	15	15
Setback from OCRM Critical Line	50	50	50	50	50	50	35	35	35	35

Minimum Buffers/Setbacks (feet)	MHS	MHP	OR	OG	CT	CN	CR	CC	I
OCRM Critical Line Buffer	15	15	35	35	35	35	35	35	35
Setback from OCRM Critical Line	35	35	50	50	50	50	50	50	50

2. Reduction of OCRM Critical Line Setbacks

The Planning Director shall be authorized to reduce OCRM Critical Line setbacks to a distance not less than the buffer depth, when deemed necessary by the Director to accommodate reasonable development of the parcel and when it is determined by the Director that the setback reduction will not have a significant adverse impact on public health or safety.

3. Reduction of Buffers and Setbacks on Parcels Created Prior to April 21, 1999

When the application of buffer/setback requirements contained within this Ordinance render a parcel that existed prior to April 21, 1999, unbuildable, the Planning Director shall be authorized to reduce front, side and rear yard buffers/setbacks as necessary to make a parcel buildable. The Planning Director cannot reduce any front and/or rear yard buffer in an amount which would result in the placement of a structure closer to either the front or rear property line than any structure on an adjacent property. Any further reduction in any required buffer shall be made by appeal to the Board of Zoning Appeals.

C. Measurement

Required OCRM critical line buffers and setbacks shall be measured from the OCRM critical line, whether the critical line or wetland/waterway is located on, adjacent to, or near the subject parcel.

D. Lot Width

The minimum lot width standards of the underlying zoning district shall apply at the required buffer or setback line.

§9.7.2 PROHIBITED ACTIVITIES

The following activities are specifically prohibited in a buffer area:

A. Removal excavation, or disturbance of the soil, except for minimal disturbance associated with the planting of shrubs or trees for landscaping;

B. Grassed lawns requiring regular maintenance such as herbicides; pesticides, fertilizers and frequent mowing;

C. Gardens, fences, or structures, except for permitted crossings;

D. Paved or other impervious surfaces; and

E. Destruction or addition of plant life which would alter the existing pattern of vegetation.

ARTICLE 9.8 HISTORIC PRESERVATION

§9.8.1 INTENT

The standards of this Section are intended to safeguard the integrity of historic structures, sites, and their context, and to protect public views of these resources along public rights-of-way.

§9.8.2 APPLICABILITY

The standards of this Section shall apply to all sites (existing and future) listed on the National Register of Historic Places.

§9.8.3 DEMOLITION

No demolition of a historic structure or site may occur until a Special Exception has been approved in accordance with the provisions of this Ordinance.

§9.8.4 MOVING

No relocation of a historic structure or site may occur until a Special Exception has been approved in accordance with the provisions of this Ordinance. Relocation should not be considered, except as a final alternative to demolition.

§9.8.5 NEW CONSTRUCTION; EXTERIOR ALTERATIONS

No new construction located on a historic structure or site or significant exterior alteration of a historic structure or site may occur until a Special Exception has been approved in accordance with the provisions of this Ordinance. The applicant must demonstrate that all proposed renovations are consistent with the National Register of Historic Places (NRHP) such that the structure shall remain listed on the NRHP following the completion of the proposed new construction and exterior alterations.

§9.8.6 NEARBY DEVELOPMENT

Subdivision plats for multi-family, manufactured housing park, office, commercial, or industrial development or residential subdivisions proposed to be located within 300 feet of a historic structure or site should be reviewed to determine their impact on the historic site. The Planning Director shall require that potential negative impacts be minimized through the location of vehicular access points, screening/buffering and other site design tools.

ARTICLE 9.9 TRAFFIC IMPACT STUDIES

§9.9.1 APPLICABILITY

A traffic impact study shall be required with applications for zoning map amendments, preliminary plats and planned developments that are projected to generate 100 or more peak hour vehicle trips, based on trip generation rates from the latest edition of the Institute of Transportation Engineers Trip Generation manual. The Planning or Public Works Director shall also be authorized to require traffic impact studies when it is determined that a proposed development is likely to have a significant impact on transportation capacity, transportation levels of service or traffic safety in the vicinity of the proposed development.

§9.9.2 STUDY SCOPE

When a traffic impact study is required, the type and scope of the study shall be determined during a scoping meeting with the Planning and Public Works Directors. The meeting may also involve representatives of or request assessments from other agencies and departments. The elements to be determined during the scoping session shall include:

A. Type of Study
The possible types of reports include: a letter report, full traffic impact analysis report or special report (e.g., sight distance survey).

B. Definition of Impact Area
The points of access and key streets and intersections that may be affected by development of the subject tract constitute the impact area. Traffic recorder and turning movement assessment locations shall be determined.

C. Period of Analysis
Periods of analysis may include: daily traffic, a.m., p.m. or weekend peak hour.

D. Analysis Scenarios
Scenarios for analysis include: existing conditions, opening year conditions with and without development, and 10 years after opening with and without development.

E. Process
Process for determining trip generation and distribution including: trip generation category, diversion assumptions and distribution assumptions.

F. Growth Rate Assumption
The rate of growth assumed in background traffic assumptions.

G. Pipeline Development
Developments in the area that have been approved or are under review.

§9.9.3 TRAFFIC STUDY ELEMENTS

A letter report or special report shall include those elements agreed upon in the scoping meeting. A full traffic impact study shall include the following elements:

A. Existing Condition Survey

1. **Street System Description**
The street system shall be described including geometric features, lane usage, traffic control, signage, sight distances and adjacent uses and curb cuts.

2. **Traffic Volumes**
Existing traffic volumes shall be provided for the impact area including both AADT (Average Annual Daily Traffic) and "Design" peak hour volumes. AADT may be derived from current counts of the South Carolina Department of Transportation (if available) and peak hour volumes shall be done from field counts. Data shall be adjusted for daily and seasonal variations. Turning movement counts for the peak hour shall be provided for critical intersections. Peak hour periods shall be as determined at the scoping meeting.

3. **Capacity Analysis**
Existing capacity of signalized and unsignalized intersections.

4. **Other**
   Other items may be required at the discretion of the Public Works Director depending upon the type and scale of the project. These may include but are not limited to: queue length analysis, pedestrian counts, accident data, traffic speeds (both 50th and 85th percentile), and stopping sight distances.

B. Future without Development

Capacity analysis is to be provided for opening year and plus ten-year for key intersections (and roadway segments where appropriate) without the development but including any planned developments. The analysis shall be based upon the Highway Capacity Manual or other methodologies approved in advance by the Public Works Director.

C. Future with Development

1. Projections of the daily and peak hour traffic generation of the project shall be made using the latest edition of the Institute of Transportation Engineers Trip Generation manual unless the Public Works Director determines that locally derived data will provide more accurate forecasts. Data from similar facilities may be used where the information is not available from the Institute of Transportation Engineers.

2. The projected trips shall be distributed onto the road network as agreed in the scoping meeting.

3. Capacity analysis for opening year and plus ten-year for key intersections (and roadway segments where appropriate).

4. Special analysis as may be required to determine warrants for signalization, minimum safe sight distances, gap analysis, turning radius requirements, queue length analysis, turning lane length analysis, curb cut locations or similar requirements.

D. Mitigation Plan

Where the analysis indicates that the project will create deficiencies in the impact area, improvements shall be recommended which shall include projected cost estimates. The design of improvements shall be in accordance with specifications of the Public Works Director and, where appropriate, the South Carolina Department of Transportation. Where a Decision-Making Body determines that a mitigation plan is not adequate to address the traffic impacts of the project, it may serve as a basis for denial of the rezoning, preliminary plat or planned development request.

E. Consultants

The Public Works Director may require that a mutually agreed upon independent consultant be hired by the County to perform required traffic impact studies or to review all or part of a study prepared by the applicant's consultants. The Public Works Director is authorized to administer the contracts for such consultants.

1. The Public Works Director shall determine the scope of services to be performed by the independent consultant and receive a cost estimate of such services.

2. The applicant shall provide an amount equal to the estimate to the Public Works Director, who will deposit the amount in an escrow or special account set up for this purpose. Any funds not used for the independent consultant shall be returned to the applicant in a timely manner without interest.

3. The Public Works Director may require additional fees for the independent review if: the Decision-Making Body expands the scope of the required review; the applicant substantially amends the application; additional meetings involving the consultants are requested by the applicant; the consultant's appearance is requested at Planning Commission or County Council meetings beyond what was initially anticipated; or the consultant's attendance is required at meetings with regional, state, or federal agencies or boards which were not anticipated in the earlier scope of services.

ARTICLE 9.10 VISION CLEARANCE

§9.10.1 MAJOR ROADWAYS

Corner lots on major roadways shall have no structure or obstruction that obscures travel vision from 30 inches to ten feet above ground level in a triangular area formed by measuring from the point of intersection of the front and side lot lines a distance of 40 feet along the lot lines and connecting the points to form a triangle.

§9.10.2 COLLECTOR STREETS

On Collector Streets, the triangular area formed by measuring from the point of intersection of the front and side lot lines is 30 feet.

§9.10.3 SUB-COLLECTOR STREETS

On Sub-Collector Streets, the triangular area formed by measuring from the point of intersection of the front and side lot lines is 20 feet.

§9.10.4 PRIVATE DRIVES AND PRIVATE LANES

On private driveways of commercial or industrial activities, the triangular area formed by measuring from the point of intersection of the drive edge is 15 feet.

ARTICLE 9.11 SIGNS

§9.11.1 GENERAL PROVISIONS

A. Purpose and Intent

This Article provides comprehensive regulations for signage in Charleston County designed to promote public safety and welfare by reducing visual clutter along highways, facilitating the efficient transfer of information, and thus enhancing traffic flow and the ability to locate needed goods and services.

B. Administration and Enforcement

1. Building and Electrical Code Standards

All permanent signs must meet the structural and installation standards of the Standard Building Code and electrical standards of the National Electrical Code as enforced by the Charleston County Building Inspection Services.

2. Permit Required

No signs, shall be erected unless a zoning permit has been issued by the Planning Director in accordance with the procedures of this Ordinance**,** except real estate signs, political signs, and campaign signs 32 square feet or less in size.

3. Fees

An applicant for a zoning permit shall pay such fees as determined necessary for application processing. These fees are due upon submission of an application and shall be determined by County Council.

4. Documentation of Signs

Upon request, the owner of any existing sign shall provide the Charleston County Planning Director with evidence that documents the size, location and date of construction of all existing signs on the premises.

C. Prohibited Signs

Except as otherwise permitted by this Ordinance, the following sign types shall be prohibited:

1. Flashing Sign;
2. Animated Sign;
3. Sign Imitating Traffic Devices (Signal);
4. Sign Imitating Traffic Sign;
5. Sign in Marshes;
6. Sign in Right-of-Way;
7. Snipe Sign;
8. Vehicle Sign;
9. Roof Sign;
10. Off-Premises Sign (except Billboards, Shared Signs and Bona Fide Agricultural Use Signs as defined by this Ordinance).

D. Address Numbers

All permanent, free-standing, on-premises signs shall contain address numbers of at least four inches in height. The area devoted to required address numbers shall not be included in the calculation of maximum sign area.

E. Illumination

All lighted On-Premises signs shall comply with all dimensional standards set forth in this Ordinance. Additionally, all non-LED internally illuminated signs on property not adjacent to commercial or industrial uses shall have an opaque background on the sign face with a maximum of 80 watts per bulb and no more than one bulb per foot in height of the sign face. See section 9.11.2.I for

illumination requirements for LED message board signs.

F. Signs in Disrepair

Signs in disrepair shall be repaired, renovated, or removed from the premises within 60 days following notice by Planning Director.

G. Abandoned Signs

Signs advertising a person, business, service, event or other activity that is no longer available or other signs that contain inaccurate or outdated information shall be considered abandoned. Remedial action shall be taken within 30 days after a sign becomes abandoned. If no remedial action is taken, the Planning Director shall give notice to the owner of record who shall have 30 days to remove the sign prior to any further enforcement action being pursued. This provision shall apply to all abandoned signs, including those abandoned before April 21, 1999.

H. Signs Interfering with Vehicular Vision

1. In the area near the entrance of a driveway, no sign shall obscure the travel vision from 30 inches to ten feet above ground level in triangular areas formed by measuring from the point of intersection of any front lot line and driveway, a distance of 15 feet along the front lot line and driveway and connecting the points to form a triangle.

2. No sign or structure shall be erected so as to interfere with the vision of vehicles operated along any highway, street, road or driveway, or at any intersection of any street, highway or road with a railroad track. Signs determined by the Planning Director to be in violation shall be removed or relocated immediately upon notice.

3. Signs shall also comply with the site triangle standards, as illustrated in Chapter 9.

§9.11.2 FREE-STANDING SIGNS

TABLE 9.11.2 FREE-STANDING ON-PREMISES SIGNS

ZONING DISTRICT			
Requirement [1] [2]	**Agricultural**	**Residential**	**Non-Residential**
Maximum Area	10 (32 with Special Exception) sq. ft.	10 sq. ft.	Bldg. Size (sq. ft.) — Sign Size 0 sq. ft. to 2,500 sq. ft. = 50 sq. ft. 2,500 sq. ft. to 25,000 sq. ft. = 100 sq. ft. 25,000 sq. ft. to 100,000 sq. ft. = 150 sq. ft. 100,000 sq. ft. + = 200 sq. ft.
Maximum Height	12 ft.	6 ft.	20 ft. OR Districts: 6 ft.
Minimum Height	None	None	None
Maximum Width (height of sign with face)	N/A	5 ft.	Ratio—Longest side: Shortest side 5:1 (ft.)
Maximum Length	N/A	5 ft.	Ratio—Longest side: Shortest side 5:1(ft.)
Setbacks (Front/Int)	5/5 (ft.)	5/5 (ft.)	5/5 (ft.)
Max. No. Sign Faces	2 per sign	2 per sign	2 per sign
Max. No. Signs	2 per major frontage	1 per major frontage	1 per major road frontage

[1] Sign regulations for the CT Zoning District can be found in Section 4.18.4.
[2] Sign regulations for properties located in overlay districts can be found in Chapter 5.

A. Maximum size, height, width, length, number of sign faces, number of signs per establishment and required minimum height and setbacks are based upon establishment size and shall conform with Table 9.11.2.

B. A maximum of one reader board shall be allowed per zoning lot for single or multi-tenant structures containing office, commercial, or industrial uses if attached to permanent free-standing signs. The area of the reader board shall be included in the site's total sign area allowance.

C. All new free-standing signs are to be designed as monument signs, pedestal style signs, or pole mounted signs.

D. All pedestal style signs shall have a pole skirt.

E. The predominate exterior sign materials used for free-standing signs shall complement those found on the principal structure as reviewed and approved through the site plan review process. Materials, design and color of the sign do

not need to be the same as those found on the principle structure to be considered complementary.

F. Signs that are located in parking lots (such as directional signs) may be internally lit when constructed with routed letters or an opaque background.

G. The hanging or attachment of objects is not permitted unless they are shown on the drawings approved for sign construction and meet all the requirements of this Ordinance.

H. When calculating the sign area of a “monument sign”, “pedestal sign”, or “pole sign”, the internal structural framework supporting the sign or other solid structural features (not containing copy or any graphic, word, symbol, insignia, text sample, model, device, or combination thereof which is primarily intended to advertise, identify or notify, exclusive of a frame or border) shall not be used in the calculation of the maximum area of the sign. Signs may be mounted on a base or foundation that will not be included in the square footage; however, the base for monument signs must be as wide as the sign.

I. **Light Emitting Diode (LED) Message Board Signs**
An LED Message Board may be permitted as part of a free standing sign provided that documentation has been submitted demonstrating that it complies with all applicable sections of this ordinance and the following standards:

1. The sign is within the Urban/Suburban Area of the County, as defined by the Urban Growth Boundary (UGB), and is located on a parcel that:

    a. Is zoned Community Commercial (CC) or Industrial (I) and is adjacent to (shares side property boundaries) one or more parcels in the Community Commercial (CC) or Industrial (I) Zoning District; or

    b. Contains a legally established Civic/Institutional Use as its principal use, provided that if the parcel shares one or more side property boundaries with parcels that are zoned Single-Family Residential (R-4) or Special Management 3 (S-3) or that contain single family detached residential uses, the proposed LED sign shall comply with the Special Exception procedures contained in this Ordinance and all other requirements of this Ordinance.

2. The sign is not located within any of the Overlay or Special Purpose Districts as described in Chapter Five of this Ordinance.

3. The sign is monument style, maximum ten (10) feet in height and the electronic message board constitutes no more than twenty-five percent (25%) of the overall allowable sign area as defined by Table 9.11.2.

4. The electronic message board will exhibit low intensity lighting and low intensity, night dimming red or amber text (no graphics) on a black background associated only with the business of the subject parcel and the text will not scroll, fade, or move except on and off.

5. The copy will not change at intervals less than eight (8) seconds on LED signs that front on roads with a speed limit of forty-five (45) mph or greater and fifteen (15) seconds on roads with a speed limit less than forty-five (45) mph. On corner or double frontage lots, the required time interval will be based upon the speed limit of the road which the parcel is addressed.

§9.11.3 SPECIAL SIGNS

TABLE 9.11.3.ASPECIAL SIGNS

Type	Maximum Size	Maximum Number	Maximum Height	*Minimum Setback*
Subdivision/Multi-Family I.D. Signs	32 sq. ft.	2 per entrance	12 ft.	5 ft.
Directional	3 sq. ft.	Unlimited	4 ft.	N/A
Flags	60 sq. ft.	3 per zoning lot	35 ft. or 15 ft. above highest point of roof	N/A
Civic/Institutional	100 sq. ft. 32 sq. ft. in Residential or Agricultural uses	1 per zoning lot	12 ft. Sign must have opaque background except the marquee. Marquee cannot exceed 25% of total sign size	5 ft.
Home Occupations	3 sq. ft.	1 per zoning lot (free standing or wall mounted)	3 ft.	5 ft.

Maximum size, number, location and height of special signs shall conform with Table 9.11.3.A and the following standards:

A. Flags Used As Signs

1. A permit shall be required for the installation of all flag poles or flag display devices erected on lots zoned for multi-family, office, commercial, or industrial use or occupied by a multi-family, office, commercial, or industrial use.

2. Applicants must submit with the permit application a scaled site plan giving the location of all flag poles and complete dimensional and installation engineering data.

3. Applicants must provide documentation of minimum clearance from electric, telephone or cable TV lines as certified by the proper utility prior to issuance of permit, or installation.

4. Maximum size and number of flags used as signs, and height of flag poles shall conform with Table 9.11.3.A of this Chapter.

5. The American flag and the flag of the State of South Carolina are exempt from the provisions for maximum size of flags and maximum size of flagpoles in Table 9.11.3.A of this Chapter.

B. Sandwich Board/Sidewalk Sign

A permit may be issued for a maximum of two sandwich board signs per lot or business provided the signs comply with the following criteria:

1. The sign is located within the Commercial zoning districts on the subject parcel or in front of the business being advertised.

2. It is a maximum of three (3) feet in height with a maximum of nine (9) square feet per sign face.

3. The sign is erected only during the hours of operation of the subject business and must be removed daily after close of business.

4. The sign is not located within any right of ways or within any pedestrian ways which would impede or interfere with vehicular or pedestrian use of roads, sidewalks or seating areas.

C. Shared Free Standing Signs

1. Off-premises shared free standing signs are allowed in the Commercial and Industrial zoning districts for the advertisement and identification of two or more businesses or residential developments located on separate parcels.

2. One shared sign is allowed at the location of a jointly shared curb cut/entry drive.

3. Multiple businesses may participate on multiple shared signs; however, a business that participates on a shared free standing sign shall not be allowed to erect a single tenant on-premise free-standing sign.

4. Participating businesses must either share a property boundary on at least one (1) side or be part of an approved multi parcel development.

5. The size of a shared sign face may be one and one half (1.5) times the size allowed by the accumulated building square footages of the subject businesses advertised as defined in Table 9.11.2. Shared free standing signs must meet all other setback and dimensional standards for Non-Residential Free Standing Signs including all architectural standards and overlay district requirements of this Ordinance.

D. Off-Premises Bona Fide Agricultural Use Signs

Off-premises signs advertising products from Bona Fide Agricultural uses, related activities and farm identification may be permitted on properties located in Agricultural or Commercial zoning districts, subject to the following requirements:

1. A maximum of one (1) off-premises sign is permitted per Bona Fide Agricultural use;

2. The applicant shall submit a plan drawn to scale showing the proposed location of the sign on the property on which the sign is to be placed;

3. The sign shall comply with the setback and dimensional requirements of Table 9.11.2. Free-Standing On-Premises Signs, of this Ordinance. The applicable requirements of Table 9.11.2. shall be determined based on the Zoning District of the property where the sign is to be located;

4. The sign shall be located outside of any right-of-ways and easements, shall comply with the requirements of Article 9.10, Vision Clearance, of this Ordinance, and shall not be internally or externally illuminated;

5. The applicant shall submit a signed letter of intent and supporting documentation indicating that the primary use of the property being advertised is a Bona Fide Agricultural use as defined in this Ordinance and that the products and events advertised are grown, produced, and/or will occur on the Bona Fide Agricultural use property; and

6. The applicant shall submit a signed letter of agreement from the property owner of the parcel on which the sign is to be located stating that the property owner will allow the sign to be erected at the location indicated on the site plan;

7. The sign shall comply with all other applicable sections of this Ordinance; and

8. Off-Premises Bona Fide Agricultural use sign permits shall be assigned to the property on which the sign is to be located.

E. Home Occupation Signs

One (1) sign per property on which a legally established Home Occupation use exists may be permitted provided that the sign complies with the requirements contained in Section 6.5.11.J, Home Occupations. —

F. TEMPORARY SIGNS

TABLE 9.11.3.B TEMPORARY SIGNS

Type	Maximum Size	Maximum Number	Maximum Height	Minimum Setback
Real Estate Signs	48 sq. ft.	1 per 1500 ft. frontage Maximum: 3 per lot	12 ft. 6 ft. height in residential zoning districts	5 ft.
Grand Opening and Special Sales Event Signs	50 sq. ft.	2 per zoning lot including banners, balloons (max. 2 square ft.), pennants, streamers allowed	20 ft.	5 ft.
Permitted Temporary Special Event Signs	100 sq. ft., 50 sq. ft. in Residential and Agricultural districts and no internal illumination	1 per zoning lot	12 ft. 6 ft. height in residential zoning districts	5 ft.

All Temporary signs, unless expressly exempt, require a Zoning Permit and shall comply with all other regulations of this Ordinance. Maximum size, number, duration, location and height of temporary signs shall conform with Table 9.11.3.B and the following standards:

1. Portable signs are permitted in accordance with standards of the National Electrical Code and anchoring provisions of the International Building Code where applicable.

2. A site plan and letter of intent indicating the type, amount and location of balloons, pennants, streamers, banners and portable signs must be submitted for review. The application will be reviewed to insure that all proposed signage will not pose any pedestrian or vehicular danger as determined by the Planning Director.

a. Special Sales Event Signs

i. A legally established business may submit an application for temporary signs for the advertisement of one Grand Opening and five Special Sales Events per calendar year.

ii. Permitted Signs for Grand Openings or Special Sales Events shall be removed no later than ten consecutive days after being installed.

b. Permitted Temporary Special Events

i. A permitted Special Event is allowed one Special Event sign per event.

ii. Signs for permitted Special Events shall be removed no later than ten consecutive days after being installed.

c. **Real Estate Signs**

i. Signs 32 square feet or less do not require a Zoning Permit.

ii. All signs shall be removed no later than 15 days after the property is sold.

iii. Signs shall face a maximum of two directions, and may be mounted back-to-back or V'ed.

iv. Where signs are V'ed, the space between panels shall not exceed 3 feet at the point at which panels are closest, and the interior angle formed by signs shall not exceed 60 degrees. For purposes of these requirements, V'ed signs shall be counted as one sign.

v. Where signs face two directions, whether back-to-back or V'ed, both signs must be the same standard size.

d. Political Signs

i. A Zoning Permit shall be required for temporary political signs greater than 32 square feet in size. Signs greater than 32 square feet shall be treated as permanent free standing signs, subject to §9.11.2, along with applicable County Building Code regulations to ensure that the signs are adequately designed to be safe and meet current wind load standards to mitigate potential danger to the public.

ii. All signs shall: comply with the §9.11.1.H (Signs Interfering with Vehicular Vision); not interfere with the effectiveness of an official traffic sign, signal, or device; not obstruct or interfere with drivers' views of approaching, merging, or intersecting traffic; and not create any other public safety hazards.

iii. Political signs that are not in compliance with this Section will be subject to enforcement measures, as stated in Chapter 11 of this Ordinance and as allowed by Section 7-25-210 of the S.C. Code of Laws. Additionally, the land owner, along with the candidate, political party, and/or political organization explicitly listed on a sign, will be designated as the sign owners or the responsible parties for the purpose of enforcement action.

e. Campaign Signs

i. A Zoning Permit shall not be required for campaign signs 32 square feet or less in size. Signs greater than 32 square feet shall be treated as permanent free standing signs, subject to §9.11.2, along with applicable County Building Code regulations to ensure that the signs are adequately designed to be safe and meet current wind load standards to mitigate potential danger to the public.

ii. Campaign signs shall only be posted during the period of 45 calendar days prior to a legally scheduled election and shall be removed within 15 calendar days after a legally scheduled election.

iii. All signs shall: comply with the §9.11.1.H (Signs Interfering with Vehicular Vision); not interfere with the effectiveness of an official traffic sign, signal, or device; not obstruct or interfere with drivers' views of approaching, merging, or intersecting traffic; and not create any other public safety hazards.

iv. Campaign signs that are not in compliance with this Section will be subject to enforcement measures, as stated in Chapter 11 of this Ordinance and as allowed by Section 7-25-210 of the S.C. Code of Laws. Additionally, the land owner, along with the candidate, political party, and/or political organization explicitly listed on a sign, will be designated as the sign owners or the responsible parties for the purpose of enforcement action.

f. Nonconforming Signs

Refer to Chapter 10, Nonconformities, of this Ordinance.

§9.11.4 WALL/FACADE SIGNS

TABLE 9.11.4 WALL/FACADE SIGNS

Building Length Facing Street	Setback	Maximum Size (sq. ft.)
50 feet or less	0—99 ft. 100—399 ft. 400 or more ft.	50 100 150
More than 50 feet	0—99 ft. 100—399 ft. 400 or more ft.	Bldg. Frontage x 1 Bldg. Frontage x 2 Bldg. Frontage x 3

A. A maximum of two signs shall be allowed per wall/facade, with a maximum of four per building. Total area of all signs shall not exceed square footage of Table 9.11.4.

B. Maximum size of wall/facade signs is dependent upon building frontage and setback, in accordance with Table 9.11.4.

C. The hanging or attachment of objects is not permitted unless they are shown on the drawings approved for sign construction and meet all the requirements of this Ordinance.

D. Awning Signs

1. The use of awnings for the purpose of providing signage will be considered a wall sign. The awning signage must meet all dimensional and intensity standards applicable to wall signs in this Article.

2. For purposes of the subsection, an awning sign is a sign used for the purpose of providing signage and must be located above a display window or entryway.

3. Text or graphic shall be limited to the face of an awning.

§9.11.5 BILLBOARDS (Outdoor Advertising Structures)

A. Outdoor Advertising of America Standards
All Billboards shall be constructed in compliance with Outdoor Advertising of America Standards.

B. Location and Setbacks
Billboards shall be allowed in those zoning districts indicated in Chapter 6.

TABLE 9.11.5-D BILLBOARDS

Maximum Length	48 ft.
Maximum Width	14 ft.
Maximum Area	672 sq. ft.

Maximum Height	40 ft.
Minimum Setback (*from property boundary and above ground utility*)	25/20 ft.
Location Criteria Minimum distance to nearest billboard Minimum distance to nearest on-premises sign ***(excluding signs located on the subject parcel)***	 1,000 ft. 500 ft.

C. Orientation

1. Signs shall face a maximum of two directions, and may be mounted back to back or V'ed.

2. Where signs are V'ed, the space between panels shall not exceed three feet at the point at which panels are closest, and the interior angle formed by signs shall not exceed 90 degrees.

D. Compatible Size Signs

Where signs face two directions, whether back to back or V'ed, both signs must be the same standard size.

E. Nonconforming Signs

Refer to Chapter 10, Nonconformities.

F. Digital or Electronic Billboards

Digital or Electronic Billboards may be permitted in the Industrial Zoning Districts, provided that documentation of compliance with all applicable sections of this Ordinance and documentation that the billboard meets the following standards have been submitted:

1. All messages, images or displays on a digital or electronically changing billboard shall remain unchanged for a minimum of (8) eight seconds;

2. There shall be no appearance of flashing or sudden bursts of light, and no appearance of video motion, animation, scrolling, movement of flow of the message, image or display;

3. The digital or electronic billboard shall automatically provide day and night dimming to reduce the illumination intensity of the sign from one hour after sunset, to one hour prior to sunrise; and

4. Proof of approval of the digital or electronic billboard by the South Carolina Department of Transportation.