

Appendix 10-C: Okatie Highway (SC 170) and West Fording Island Road (US 278) Joint Corridor Access Management Plan

The purpose of this plan is to preserve the throughput capacity of West Fording Island Road (US 278) and Okatie Highway (SC 170) by planning for properly spaced and timed signals, employing access management standards and encouraging linkages (for both motorized and non-motorized transportation) to reduce local traffic from these principal arterials. The area covered by this plan is comprised of Okatie Highway (SC 170) from Old Baileys Road (S-18) to McGarvey's Corner (US 278); and West Fording Island Road (US 278) from the Jasper County line to McGarvey's Corner (SC 170). Given the existing and future deficiencies of Southern Beaufort County's road network, it is important to employ planning tools and policies that help reduce vehicle miles traveled, and maximize the existing capacity of principal arterials such as US 278 and SC 170. Planning tools, such as access management standards, will not increase capacity, but can be used to maximize the existing capacity of the road network, and insure that the system is being used as efficiently as possible.

PLAN GOALS

- 1. Provide for the efficient and safe flow of traffic along West Fording Island Road (US 278) and Okatie Highway (SC 170):** Highway 170 is the lifeline for residents of Northern Beaufort County that work in Hilton Head, Bluffton, and Savannah; and US 278 is the only principal east/west arterial that links Interstate 95 with Bluffton and Hilton Head Island. Therefore, delays and traffic hazards must be minimized for through traffic and a safe thoroughfare must be maintained for local access as well.
- 2. Establish a cohesive and well-linked community for existing and future neighborhoods along West Fording Island Road (US 278) and Okatie Highway (SC 170):** As these corridors continue to develop, they will be used more and more as a means of local access for residents of existing and future subdivisions in the area. Therefore, this plan will address such issues as requiring more direct linkages (both motorized and non-motorized) between residential areas and linking residents to commercial areas.

To further these goals, this Plan proposes the following:

- 1. Provide for consistent access management standards for new development.** Adopting these standards would ensure the following:
 - That through traffic can flow in an efficient and safe manner;
 - That the number of driveway and access road crossings of pedestrians and bicyclists traveling along the proposed multi-use trail is minimized.

2. Work with Jasper County to establish consistent access management standards and parallel roadways within its jurisdiction for West Fording Island Road (US 278) and Okatie Highway (SC 170).
3. Establish a 10-foot wide pedestrian and bicycle trail on the east side of Okatie Highway (SC 170) and on both sides of the West Fording Island Road (US 278) corridor. These trails are proposed to occur outside of the existing SC Department of Transportation right-of-way. This plan proposes locating this trail on an easement established within the 50-foot wide highway buffer.

ACCESS MANAGEMENT STANDARDS

The County's Comprehensive Plan has recognized the importance of mobility for principal arterials such as US 278 and SC 170. Therefore, the operational strategy for these corridors focuses on the following:

- ◆ Maximizing the throughput capacity.
- ◆ Using existing parallel roadways to satisfy shorter trips, and installing additional parallel roadway connections.
- ◆ Using backside connections and interparcel access to minimize the need for travel along principal arterials to access development generated trips from within the local area.

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

Alternative routes, backside access, and interparcel access can reduce the need for local trips to travel along West Fording Island Road (US 278) and Okatie Highway (SC 170). Providing alternative access in conjunction with limiting the number of access points can result in alternative routes than are more time effective than the primary arterial for local travel. With alternative travel for local trips, the corridors will service a higher proportion of longer trips. Limiting access points to West Fording Island Road (US 278) and Okatie Highway (SC 170) will result in less friction from signals and turning vehicles and, therefore, a smoother traffic flow with improved travel time reliability.

Recommended Access Management Standards

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

The recommended access management standards for West Fording Island Road (US 278) and Okatie Highway (SC 170) include the following elements:

- ◆ Signal Spacing
- ◆ Signal Operations to Maximize Throughput
- ◆ Median Openings
- ◆ Number of Driveways
- ◆ Driveway Spacing and Corner Clearance
- ◆ Driveway Design
- ◆ Driveway Linkages
- ◆ Backside Access
- ◆ Deceleration Lanes
- ◆ Driveway Retrofit Techniques

The following sections explain the various access management techniques and establish standards for each technique for application along the West Fording Island Road (US 278) and Okatie Highway (SC 170) corridors. Unless specifically stated otherwise, *SCDOT Roadside Management Standards* should be followed. The recommended guidelines in this document should be utilized in addition to the SCDOT strategies. When they are in conflict, the stricter requirement shall govern.

1. Signal Spacing and Future Signal Locations: The placement of traffic signals significantly impacts the ability to move traffic along a roadway. Signals placed too close together can impede the flow of traffic on the roadway. Traffic signals should only be erected if they are warranted for a particular location and, if warranted, should follow specific placement guidelines. The following signal spacing is recommended for West Fording Island Road (US 278) and Okatie Highway (SC 170):

- ◆ Full signalized access – 3,600 feet spacing
- ◆ Directional signalized access – 2,000 feet spacing

A full signalized access location provides signalized access to both sides of the arterial. A directional signalized access provides signalized access to one side of the arterial. By providing access to only one side of highway, signal operations are simplified, allowing more time to through movements.

The signalized access spacing requirements indicated above were used as a starting point and modified to indicate likely signalized access needs as reflected by local development patterns and existing roadway network along West Fording Island Road (US 278) and Okatie Highway (SC 170). The resulting signalized access locations are shown in Figure 1 and are listed below:

US 278 (West Fording Island Road)

- ◆ Location 1 – West Campus Drive (full signal access)
- ◆ Location 2 – Abandoned Railroad ROW approx. 1,400 feet east of West Campus Drive (full signal access)
- ◆ Location 3 – Sun City Boulevard (full signal access)

- ◆ Location 4 – Okatie Center Boulevard N. and S. (full signal access)

SC 170 (Okatie Highway)

- ◆ Location 1 – West Fording Island Road (eastbound 278 off ramp) (directional signal access – west side)
- ◆ Location 2 – West Fording Island Road (westbound 278 off ramp) (directional signal access)
- ◆ Location 3 – Sanders Property 1,190 feet north of Commerce Place E. and W. (full signal access)
- ◆ Location 4 – Tide Watch Drive (existing full signal access)
- ◆ Location 5 – Cherry Point Road (full signal access)
- ◆ Location 6 – S 162 - Pritcher Point Road (full signal access)
- ◆ Location 7 – SC 141 - John Smith Road (full signal access)
- ◆ Location 8 – SC 462 (directional signal access northwest side)
- ◆ Location 9 – Oldfield Commercial approx. 4,000 feet east of SC 462 (full signal access)

The specific access locations, indicated above and shown in Figure 1, are defined as part of the corridor access plan. If a modification to the defined locations is desired to meet the needs of a planned development, the following conditions shall be satisfied:

- ◆ The modified location must meet the warrants for signalization with the proposed development as defined in the Manual on Uniform Traffic Control Devices (MUTCD) by the Federal Highway Administration (FHWA) with the analysis and specific application of traffic signal warrants to be approved by the Beaufort County Traffic Engineer.
- ◆ The modified location shall provide connectivity to adjacent properties to give the properties access to the signalized intersection.
- ◆ The modified location shall not have an adverse impact on existing or future LOS based on comparative analysis of conditions with the recommended signal locations indicated above. The developer shall be required to conduct LOS and signal system progression analysis to demonstrate compatibility of the proposed signal location with operation of the remainder of the signal system.

- 2. Coordinating Signal Operations to Maximize Throughput:** Maintaining throughput capacity along the West Fording Island Road (US 278) and Okatie Highway (SC 170) corridors requires maximizing the available green time along the corridors. Therefore, all signalized intersections shall provide a minimum of 55% of the signal cycle length for through movement green time for West Fording Island Road (US 278) and Okatie Highway (SC 170). Along the corridor as a whole, an average of 65% of the signal cycle shall be allocated for through movement green time for West Fording Island Road (US 278) and Okatie Highway (SC 170). Traffic signals shall be timed and coordinated so that they provide motorists with green lights as they progress down the corridors.

3. **Median Openings:** The cross-sections of West Fording Island Road (US 278) and Okatie Highway (SC 170) currently consist of four travel lanes and a combination of landscaped or grassy medians and center turning lanes. As these corridors develop, full access will be limited to signalized intersections. Therefore, median openings and center turning lanes that are not located at signalized intersections will be removed and replaced with medians. As development proposals are reviewed along the corridor, applicants are encouraged to provide alternative means of parcel access to connect to proposed signalized intersections.
4. **Driveway Spacing:** A minimum of one point of access to a property will be allowed. Additional access points above the one permitted may be granted provided the continuous roadway frontage of the property exceeds 1,000 feet. Single parcel access is strongly discouraged. Joint access driveways are encouraged for small parcels to adhere to the 1,000-foot spacing. Driveways should be limited to the number needed to provide adequate access to a property. Factors such as alignment with opposing driveways and minimum spacing requirements will have a bearing on the location and number of driveways approved. Refer to Table 1.

Table 1: Maximum Number of Driveways per Frontage

Length of Frontage	Maximum Number of Driveways
1,000 feet or less	1
1,000 to 2,000 feet	2
More than 2,000 feet	2 plus 1 per each additional 1,000 feet of frontage

A minimum spacing of 1,000' shall be maintained between a driveway and a signalized intersection. Within 1,000 feet of signalized intersections, access shall be off the secondary road. Driveway spacing shall be measured from the closest edge of pavement to the next closest edge of pavement.

5. **Driveway Design:** Traffic entering and exiting developments creates potential conflict with vehicles traveling on the roadway. Appropriate driveway design can improve safety and reduce congestion. Driveways should be designed to allow vehicles to enter and exit the roadway quickly and safely with minimum impact to the traffic on the roadway. Driveways should have appropriate turn radii and driveway width. The throat of a driveway must be adequate in depth in order to allow a vehicle to queue as it enters or exits the highway. An access point must also be designed to accommodate appropriate vehicle types. Driveway width and turning radii shall conform to SCDOT's Access and Roadside Management Standards.
6. **Driveway Linkages:** There are several techniques for linking driveways to improve access from the roadway and between parcels. Shared driveways serve two or more adjacent properties that may or may not be comprised of land from each property. Shared

driveways allow for larger driveway spacing and improved management of traffic entering and exiting a development.

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

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

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

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

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

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

Where backside access does not exist, developments should be designed to allow for future backside access through construction of circulation roads to the rear and parking on the side and in the rear of properties. Figure 1 provides recommended locations for backside access and alternative roadway connections.

8. **Deceleration Lanes:** Deceleration lanes on corridors providing access into developments that produce a substantial number of trips can reduce the slowing and stopping of traffic caused by turning vehicles. The purpose of a deceleration lane is to enhance motorist safety and the through movement of vehicles on the corridor. These lanes are desirable features on any road, but offer the most benefit on principal arterials such as West Fording Island Road (US 278) and Okatie Highway (SC 170). These lanes are needed when the

volume of traffic turning at a site is high enough in relation to the through traffic to constitute the potential for disruption.





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

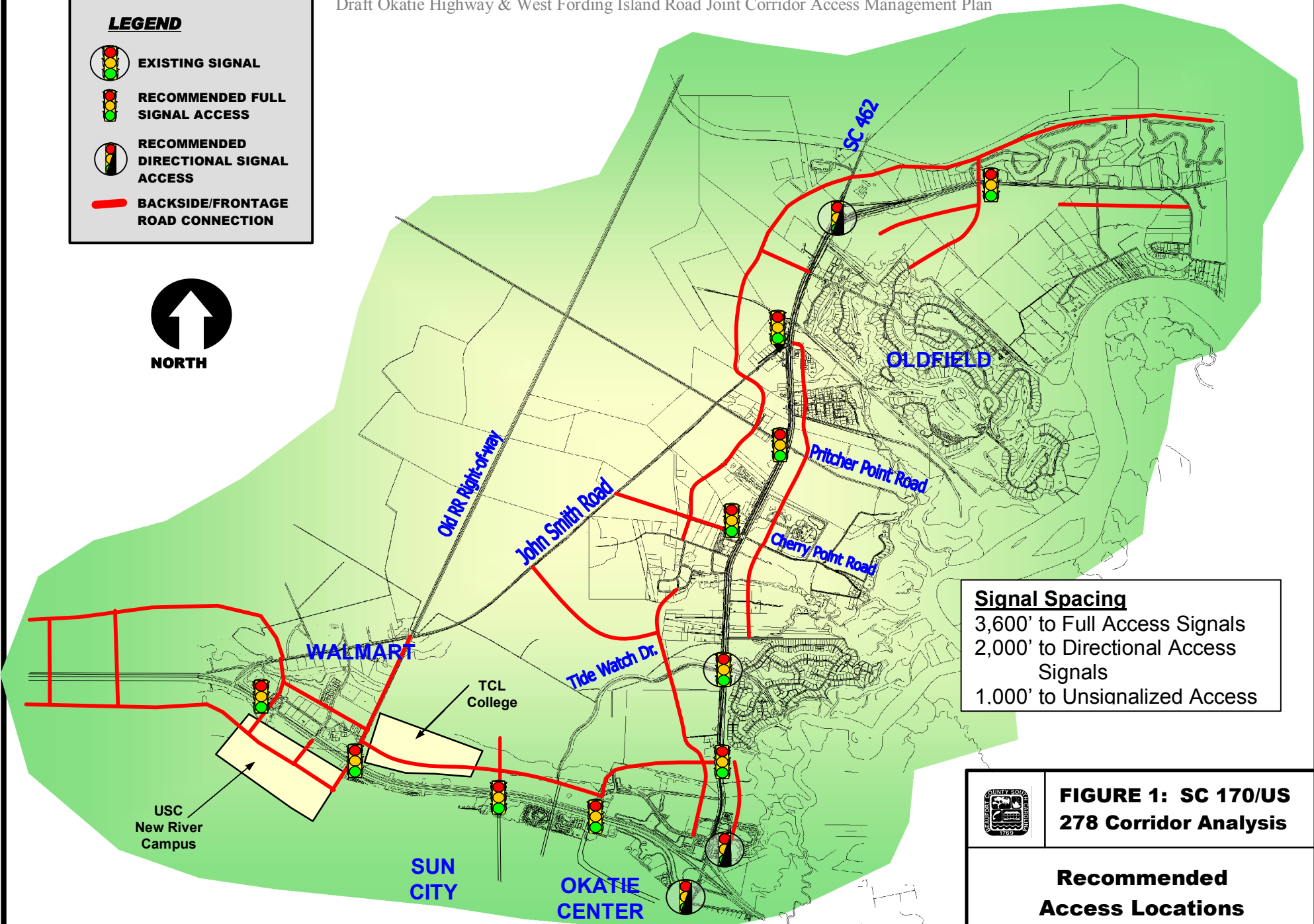
DEVELOPMENT OF A PEDESTRIAN/BICYCLE TRAIL

This plan proposes the development of a 10-foot wide pedestrian and bicycle trail to be located on the east side of Okatie Highway (SC 170) and on both sides of the West Fording Island Road (US 278) corridor. Where feasible, the location of this trail is proposed to be within a 15-foot wide easement that is in turn located within the required 50-foot highway buffer. This arrangement benefits the property owners along the corridor by making use of an area of their property that cannot be used for development. Locating this trail in an easement rather than acquiring additional right-of-way does not cause development to be pushed further away from the highway. It is proposed that the entire trail be developed at one time rather than piece-meal fashion when development occurs. Funding sources may include future federal transportation enhancement funds and state gas tax funds (County C funds).


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

LEGEND

-  EXISTING SIGNAL
-  RECOMMENDED FULL SIGNAL ACCESS
-  RECOMMENDED DIRECTIONAL SIGNAL ACCESS
-  BACKSIDE/FRONTAGE ROAD CONNECTION



Signal Spacing
 3,600' to Full Access Signals
 2,000' to Directional Access Signals
 1,000' to Unsignalized Access

 **FIGURE 1: SC 170/US 278 Corridor Analysis**

Recommended Access Locations and Parallel Roads