

MEMORANDUM

TO: Paul Lykins
 DATE: November 26, 2018
 FROM: David Russell
 PROJECT: Long Point Road Extension
 RE: Potential Locations for Access between US 17 and Billy Swails Boulevard

Introduction

The Long Point Road Re-Alignment and Extension project was intended to increase connectivity and distribute traffic on Long Point Road directly to Billy Swails Boulevard. This direct connection would enable Billy Swails Boulevard to serve as a greater parallel reliever to the adjacent US 17 for north and southbound traffic. Based on a June 2018 Town Council action, the realignment portion in light orange in **Figure 1**, was removed from the project and Town staff was directed to review alignment options for the extension portion (dark orange) between US 17 and Billy Swails Boulevard (red). The extension portion to Rifle Range Road primarily goes through the future park site jointly-owned by the Town and Charleston County and is currently being designed. This memo evaluates alignment options for the extension portion between US 17 and Billy Swails Boulevard.

JMT completed an evaluation to identify potential intersection locations on US 17 for a road connecting to Billy Swails Boulevard. In coordination with the Town, the following guidance was established:

- Use existing rights-of-way (ROW) to minimize acquisition
- Minimize business/residence relocations
- Minimize disruption to existing and proposed neighborhoods
- Consider adjacent intersection queues as well as separation distance required between intersections for (future) signalization on US 17
- Minimize impacts to environmental features and traffic operations.

Road plan in Mount Pleasant moves ahead

A long-planned effort to expand Mount Pleasant's road network would extend Long Point Road to Rifle Range Road and complete the last phase of a north-south roadway between Rifle Range Road and U.S. Highway 17. The two new roads would meet at the edge of a planned town/county park.

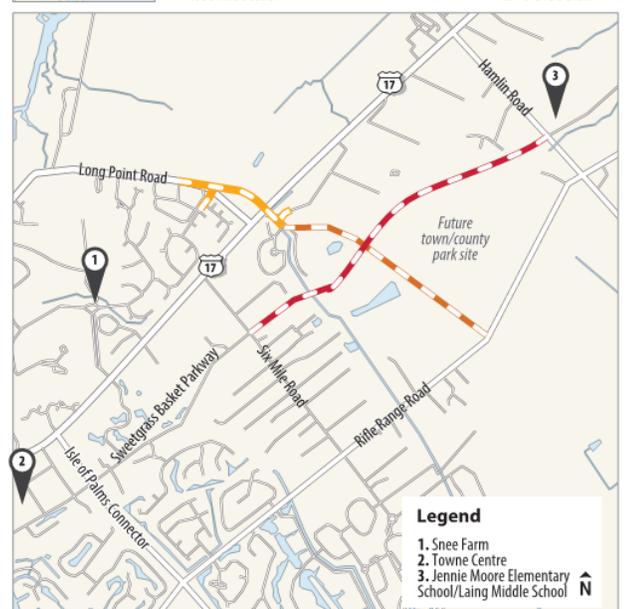


Figure 1: Long Point Road Re-Alignment and Extension

Traffic Analysis

Previously conducted traffic analysis for the Long Point Road Re-Alignment and Extension project considered the Existing Condition, the 2040 No-Build Condition and the 2040 Build Condition, in conjunction with the Billy Swails Boulevard project. The 2040 Build Condition included all phases of the re-alignment and extension project shown in **Figure 1** and added an extension of SC 41 to Billy Swails Boulevard, which is contemplated in the Town’s Long Range Transportation Plan Update as well as the SC 41 corridor improvement project.

Traffic modeling for the Build Condition in **Table 1** reflects removal of the re-alignment portion assumed in previous analyses. Table 1 shows the queue length analysis for the critical traffic movements affecting location of a new full access intersection on US 17. The two critical intersection movements are:

- Southbound through movement at Long Point Road
- Northbound through movement at Hamlin Road

Table 1: Queue Length Analysis for a Full Access Intersection

Intersection	Existing Condition Queue Length (ft)		2040 No Build Queue Length (ft)		2040 Build Queue Length (ft)	
	AM	PM	AM	PM	AM	PM
Southbound through movement at Long Point Road	1,310'	478'	1,645'	2,490'	1,147'	754'
Northbound through movement at Hamlin Road	338'	1,351'	1,807'	5,337'	474'	788'

Based on 2040 Build Condition queue lengths, the queue analysis identified a length of approximately 3,200’ on US 17 where a potential intersection could be located without being impacted by adjacent signalized intersection queues. The majority of US 17 in this area is fronted by residential or small business properties.

Regarding the greatest likelihood for an *additional* signalized intersection in this area, the SCDOT Roadway Design Manual recommends a minimum spacing of a half mile (2,640 feet). Since 2,640 feet is greater than the Build Condition queue lengths, this distance was used in determining the location for a potential full access signalized intersection. Accordingly, the potential signalized intersection location on US 17 is shown in **Figure 2**.

Concepts Determined Infeasible

Two alignment concepts were briefly reviewed, but not pursued due to significantly greater impacts when compared to the other alternatives.

- **Six Mile Road Connection** – This concept would realign the existing Long Point Road to the existing Six Mile Road intersection. The concept was deemed infeasible due to significant impacts to the Snee Farm neighborhood.

- Church Extension** – This concept would extend Long Point Road from its current intersection at US 17 through the Christ Church property. This concept was deemed infeasible due to significant impacts to the historic portions of the church property.

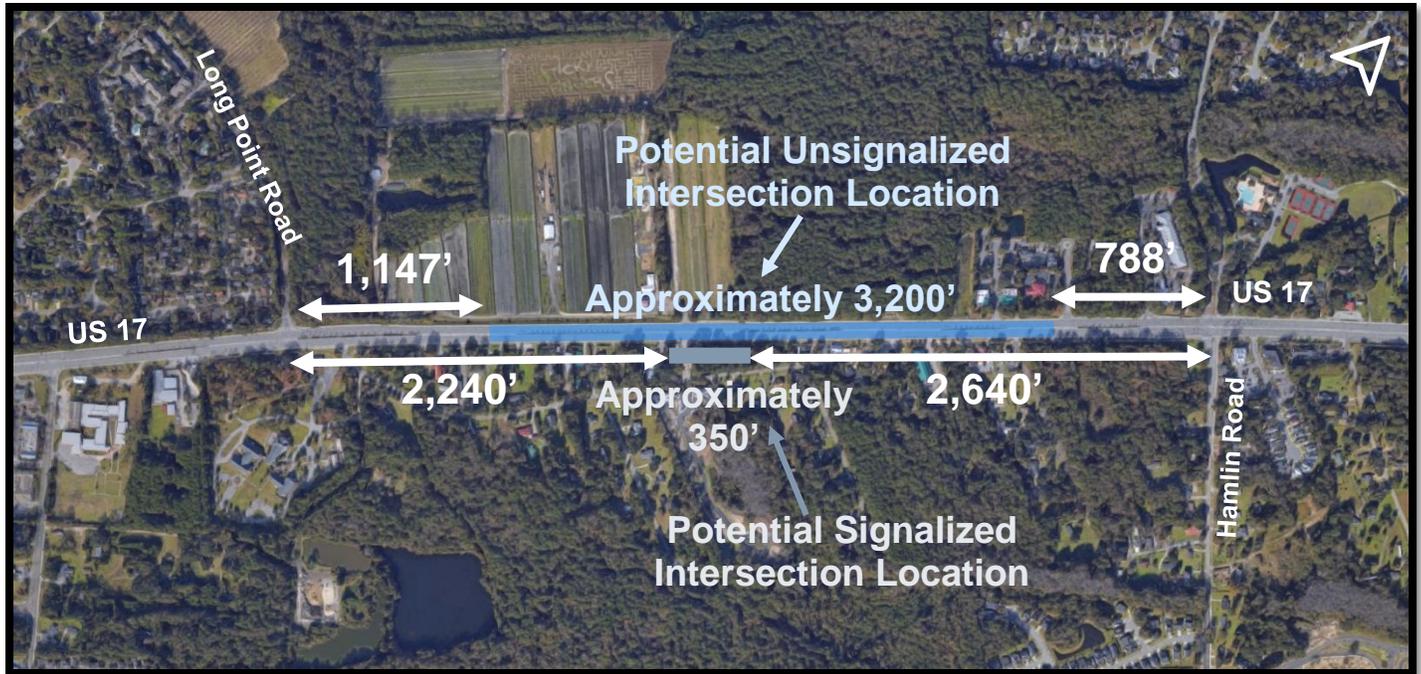


Figure 2: Range of Potential New Intersection Locations

Developed Concepts

Using the updated traffic analysis and guiding criteria, three concepts were developed for intersection locations along US 17. Two of the concepts include full access intersections (all movements permitted), while the third is right-in/right-out only access. A feasibility level display of all three concepts is shown in **Figure 3**.

Concept 1

Concept 1 provides a connection at the Fulton Hall Lane intersection on US 17 approximately 2,250' northeast of the existing Long Point Road. The concept would connect with Billy Swails Boulevard by extending Children Road or Fulton Hall Lane to the proposed Billy Swails Boulevard alignment. It would connect with US 17 using Old Georgetown Road and Fulton Hall Lane and could include a full access signalized intersection on US 17 at or near the existing median opening. A new alignment alternative for this concept would require relocation of the existing median opening about 400' further north. This would likely require closing of the old median opening and movement restrictions at the adjacent median opening to the north.

The existing ROW alignments for this concept is anticipated to have no relocations, although there are potentially significant impacts to the existing neighborhoods and the approved Phase 2 development plan for the Fulton subdivision. The new alignment alternative could involve one relocation and would also impact existing neighborhoods and the approved Phase 2 development plan for the Fulton subdivision.

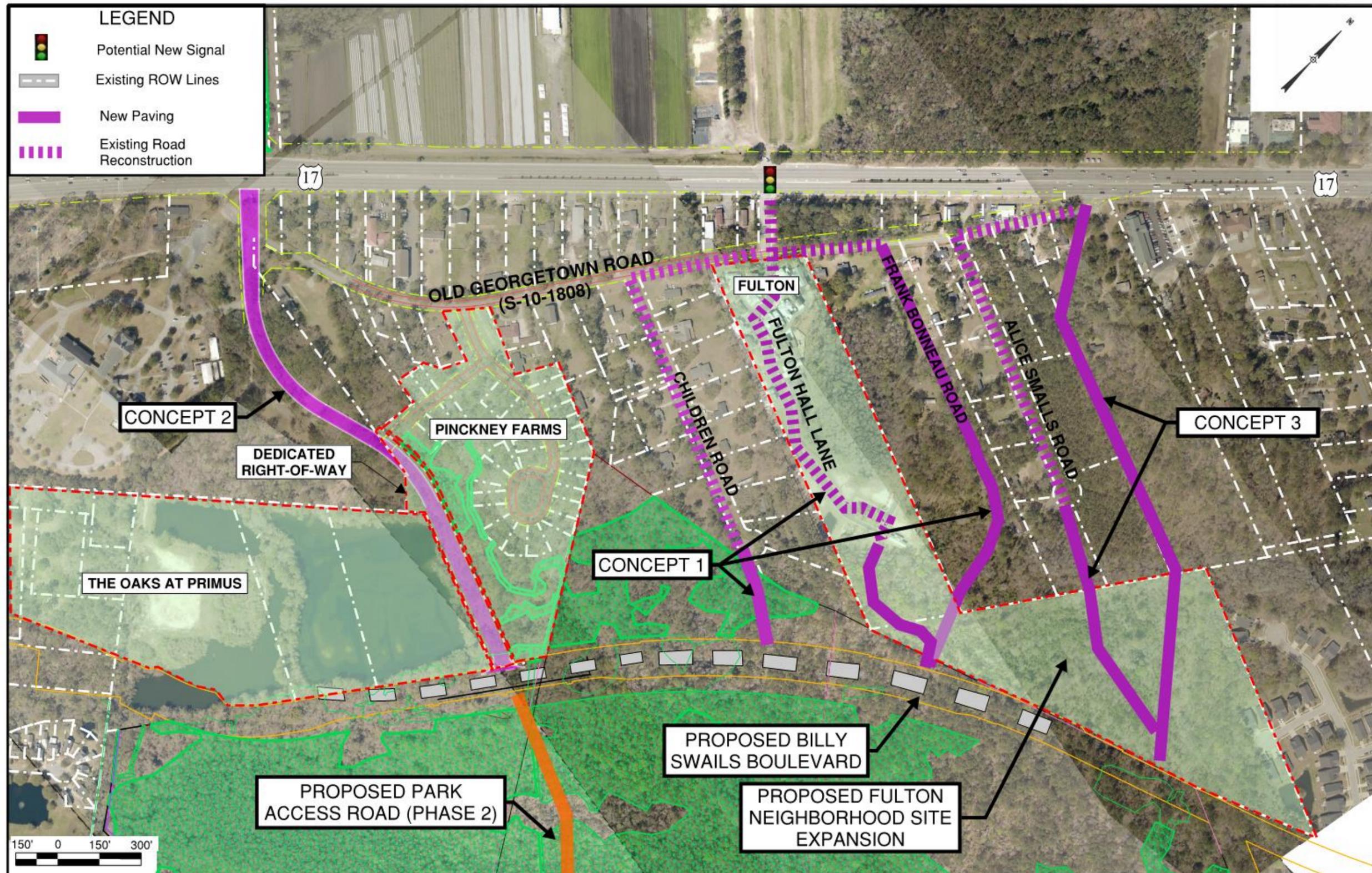


Figure 3: Feasibility Level Concepts

Concept 2

Concept 2 provides a connection approximately 400 feet northeast of the existing Long Point Road intersection at the south end of Old Georgetown Road. This concept would connect with Billy Swails Boulevard using the previously considered Long Point Road Extension alignment shown in **Figure 1**. Due to the proximity of the existing signalized intersection at Long Point Road, this intersection would remain right-in/right-out only.

Concept 2 is anticipated to have no relocations and approximately half the roadway would be constructed in ROW previously dedicated during approvals for the Pinckney Farms subdivision. This concept aligns with the roadway currently being designed through the future park from Billy Swails Boulevard to Rifle Range Road and maintains the potential for a future re-aligned Long Point Road at a relocated, signalized intersection.

Concept 3

Concept 3 provides a connection approximately 1,800' southwest of Hamlin Road at the northern end of Old Georgetown Road. The concept would connect with Billy Swails Boulevard by extending Alice Smalls Road to the proposed Billy Swails Boulevard or by creating a new road running parallel to Alice Smalls Road. The remainder would follow the Old Georgetown Road alignment to the existing intersection of Old Georgetown Road and US 17. This would not be a full access, signalized intersection based on the SCDOT minimum distance between signalized intersections.

This concept is anticipated to have no relocations at this time, although there would be impacts to parcels along Alice Smalls Road where existing homes are present and a substandard right-of-way exists. Both the Alice Smalls Road alignment and a new parallel road would require acquisition of additional right-of-way. Either option would impact the approved Phase 2 development plan for the Fulton neighborhood shown in **Figure 4**.

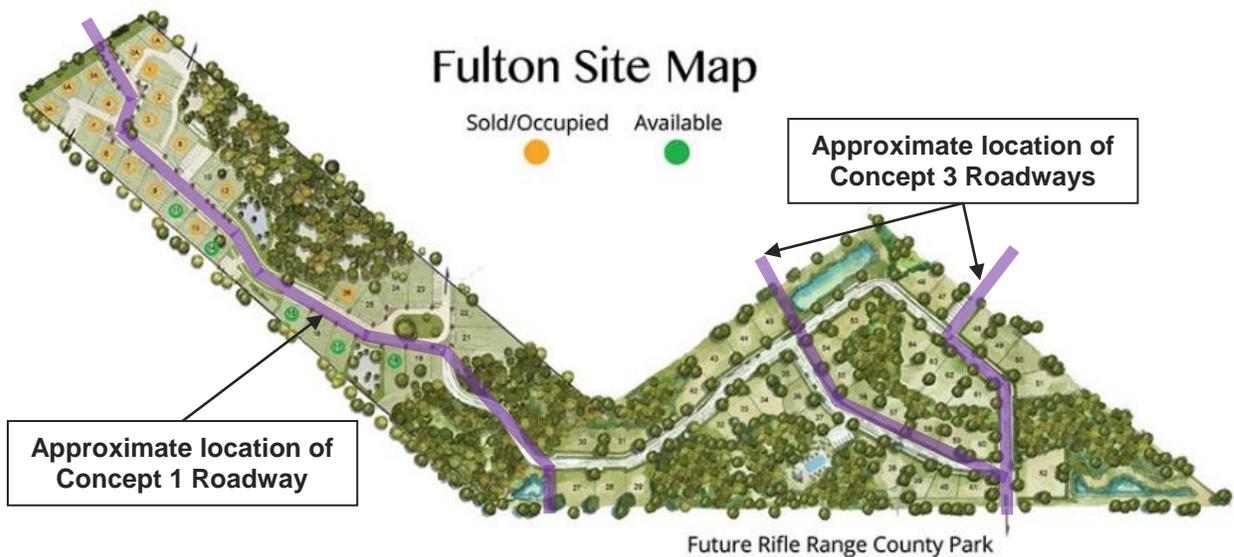


Figure 4: Fulton Neighborhood Site Map

Concept Evaluation

Relocations/Neighborhood Disruption

Most of the three concepts anticipate no relocations of existing homes or businesses. There is the potential for one relocation with the new alignment alternative for Concept 1. However, because most of the alignments utilize existing rights-of-way to minimize new ROW acquisition, disruption to existing/planned residential neighborhoods becomes a concern. Concepts 1 and 3 would have impacts to the residential houses along Children Road, Fulton Hall Lane, Frank Bonneau Road and Alice Smalls Road, as well as the platted lots in Phase 2 of the Fulton neighborhood. Concept 2 does not bisect existing/planned neighborhoods, but goes between the boundaries of two neighborhoods.

Acquisitions

While it is uncertain with concept level alignments what right-of-way may be required for the desired roadway cross-section, it is possible to assess the potential acquisitions by the number of properties that front an alignment. The Children Road and Fulton Hall Lane alignments in Concept 1 have high potential for acquisitions based on existing and approved platted lots. Concept 2 would require acquisition from 3 parcels, two of which are owned by Christ Church. Concept 3 has the highest potential acquisitions along both Alice Smalls Road and within Phase 2 of the Fulton neighborhood.

Environmental

Concept 1 will impact approximately 0.13 additional acres of wetland between Children Road and Billy Swails Boulevard. Concept 2 and Concept 3 are anticipated to avoid any additional environmental impacts.

Traffic Operations

As previously noted, the optimal alignment selection would enable a full access signalized intersection at US 17. The spacing of the Fulton Hall intersection in Concept 1 utilizing existing ROWs would likely permit signalization, but the proximity of Old Georgetown Road and pathing from that point to Billy Swails Boulevard entails more circuitous routing, driveway friction and additional stop controlled intersections. The new alignment alternative for Concept 1 provides one half mile spacing for signalization, but would require modifications to the existing median openings on US 17. Concept 2 would be restricted to right-in/right-out at US 17, but has more direct routing to Billy Swails Boulevard and connects to the intersection of the park roadway connecting to Rifle Range Road. Concept 2 would also permit signalization if re-alignment of Long Point Road occurs in the future. Concept 3 would be full access, but not signalized due to its proximity to the Hamlin Road signalized intersection. Additionally, the close, skewed geometry of Old Georgetown Road complicates operations as well the potential for a new alignment intersection.

Table 2 provides an evaluation matrix for the three concepts and identifies whether, comparatively, there are High, Medium or Low anticipated impacts for each criteria.

Table 2: Concept Comparison Matrix

Evaluation Criteria	Alignment		
	Concept 1	Concept 2	Concept 3
Relocations	0-1	0	0
Neighborhood Disruption	Med/High	Low	Med/High
Potential ROW Acquisitions	High (15-30)	Low (3)	High (15-30+)
Wetlands	Low	Low	Low
US 17 Access	Signalized/full access	Right-in/Right-out only*	Unsignalized/full access
Billy Swails Access	Requires additional intersection	Connects to Phase 2 park access roadway	Requires an additional intersection

* Concept 2 would permit signalization if re-alignment of Long Point Road occurs in future

Recommendation

Based upon the analysis of opportunities and constraints for the three concepts presented above, the original Long Point Road extension alignment (Concept 2) is the preferred concept. It is the least impactful to the built/planned environment and retains the highest potential benefits for the future roadway network.