



# St. Andrews Church Road Improvement Study

DRAFT Technical Memo #2 – Opportunities and Concepts for Traffic Safety, Operations and Multimodal Improvements along St. Andrews Church Road



**For:**

Calvert-St. Mary's Metropolitan Planning Organization  
St. Mary's County



**Prepared by:**

Sabra & Associates, Inc., a Mead & Hunt Company

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This memorandum provides a **high-level concept(s) for several locations along MD 4** as well as an assessment of potential environmental, right-of-way, and utility impacts, preliminary cost estimates and description of the safety and/or operational benefit.

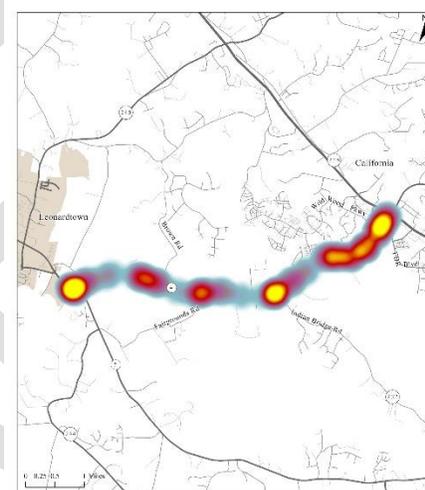
## Background and Purpose of Study

MDOT-SHA classifies St. Andrews Church Road (MD 4) as a minor arterial road from MD 5 (Point Lookout Road) to FDR Boulevard with one lane in each direction and a speed limit of 50 mph. The road is generally a 38' open section asphalt roadway with shoulders on both sides. At multiple intersections, St. Andrews Church Lane widens to accommodate turn lanes. The public right of way ranges from 50' to 60' along MD 4. At FDR Boulevard, MD 4 becomes a primary arterial closed section roadway to Three Notch Rd (MD 235). This section is outside of the study area.

Traffic has more than doubled in the study area since 1999, AADT was 11,850/11,775 (at MD 5 and MD 235, respectively). Twenty years later, annual average daily traffic held relatively constant at MD 5, at 12,050, but grew by 63%, to approximately 19,200, approaching MD 235.

From January 2015 through December 2018 there were 132 crashes along St. Andrews Church Road as illustrated by frequency in Figure 1.<sup>1</sup> Primary crash types include rear-end collisions and left-turn collisions. One fatality was reported during the period, near Point Lookout Road (MD 5).

On October 24, 2019, Department of Land Use and Growth Management (LUGM) hosted two meetings to gather comments from agencies and the public regarding St. Andrews Church Road. The issues raised at each meeting were very similar. Speeding and traffic safety, lack of sidewalks, drainage, and congestion near FDR Boulevard were among the top concerns. Driveway consolidation, improved sight distances, turn lanes, and traffic calming measures were suggested as potential improvements.



*Figure 1. Frequency of Crashes Along St. Andrews Church Road.*

*Bright yellow indicates the greatest frequency of crashes while light blue indicates the least frequency.*

<sup>1</sup> All crash-related data in this memorandum is for indicative purposes only; although a preliminary data assessment for each specific study location is provided, further study to determination causation and verify the appropriateness of the potential design solution is warranted.

## MD 4: Focus Areas & Potential Improvements

Based on an understanding of existing conditions, potential future development and comments from agencies and the public, the project team focused the study on the following areas (from north to south):

- › Area 1: Blacksmith Shop Road intersection with St. Andrews Church Road
- › Area 2: Fairgrounds Road intersection with St. Andrews Church Road
- › Area 3: Indian Bridge Road intersection with St. Andrews Church Road
- › Area 4: St. Andrews Lane intersection with St. Andrews Church Road
- › Area 5: MD 4 between Old St. Andrews Lane & Wildewood Parkway
- › Area 6: MD 4 at FDR Boulevard/MD 4 Sidepath

This section will discuss the challenges at each study area, identify recommended improvements to address those challenges, and present cost estimates and preliminary impact evaluations for those recommended improvements.

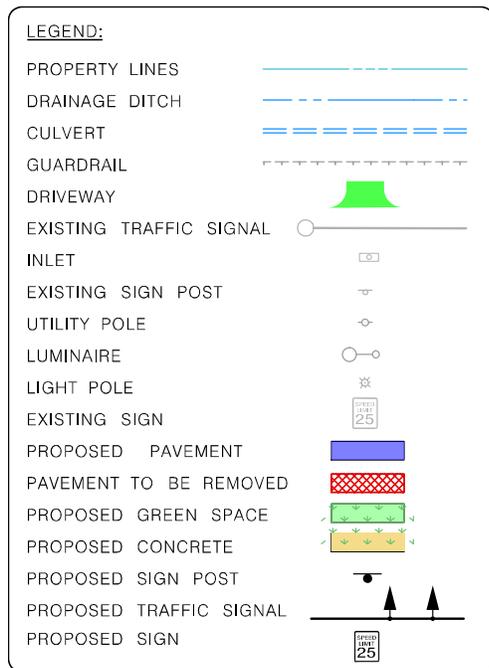


Figure 2. Legend for Proposed Improvement Figures 5 – 7, 9, 12 – 16

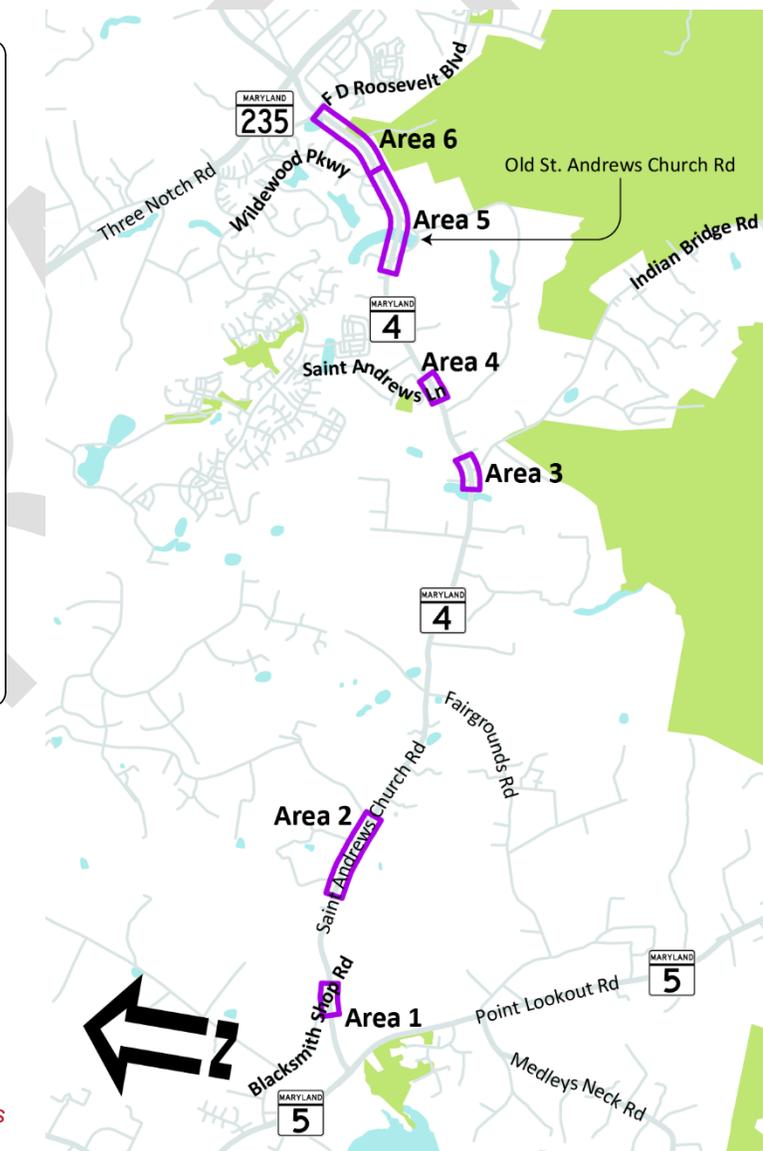


Figure 3. Focus Area Locations

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### Area #1 – Blacksmith Shop Road



Figure 4. Concerns at Blacksmith Shop Road

#### Challenges

Concerns were raised regarding the difficult turning movement from Blacksmith Shop Road to N/B St. Andrews Church Road. This concern is exacerbated by fast-moving vehicles from the south and the lack of an acceleration lane. Sight distance for vehicles turning south on to St. Andrews Church Road has also been raised as a concern.

#### Recommended Improvement

Two countermeasures were considered for this location: **improve horizontal intersection alignment** from Blacksmith Shop Road to St. Andrews Church Road or **create an offset right turn lane** from St. Andrews Church Road to Blacksmith Shop Road. The offset right turn lane was determined to be less desirable as the right-of-way line south of Blacksmith Shop Road extends nearly to edge of pavement on St. Andrews Church Road. Moreover, the offset right turn lane would not address the turning movement concerns.

Improving the horizontal intersection alignment at Blacksmith Shop Road, as shown in Figure 5, would address both the turning movement and sight distance concerns. The Federal Highway Administration (FHWA) Crash Modification Factor (CMF) Clearinghouse indicates that in rural

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areas such as St. Mary’s County, the intersection realignment could reduce angle crashes by 69% on rural two-lane roads and reduce line-of-sight related crashes by 44%. To implement the improvement as shown, approximately 5,000 square feet of right-of-way would be required and it is recommended that one private driveway be closed to better managed access to St. Andrews Church Road. Stormwater management could be performed on-site through removal of the existing roadway pavement and BMPs installed just south of the new intersection. No other environmental factors are likely to require significant mitigation measures. Relocation of two or three utility poles may be required, but this may be done most cost effectively by re-routing lines to the south side of St. Andrews Church Road.



Figure 5. Proposed Improvements at Blacksmith Shop Road

**Cost Estimate and Impact Evaluation**

Estimated Cost	Utility Impacts	Environmental Impact	Private Property Impacts
\$60,000 – \$120,000	Potential impact to one utility pole; likely could be avoided	Net reduction of approx. 1,900 sq. ft. of impervious area.	Realignment would require acquisition of more than 5,000 sq ft from one parcel; and reconfigured driveway access to MD 4 from another parcel.

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**Area #2 – AAA Materials Entrance**

**Challenges**

Residents have expressed concerns that commercial vehicles entering MD 4 are slow moving when entering the roadway and cause hazard to motorists traveling at or above the posted speed.

**Recommended Improvement**

Recommended improvements in this area have two goals: providing more advance warning that slow-moving commercial vehicles may be entering the roadway and mitigating travel speeds on MD 4 to reduce the speed differential between travelling motorists and entering vehicles.

Measures recommended to provide more advance warning are **installation of additional warning signs** that state “Trucks Entering and Leaving” approximately a quarter of a mile in each direction from the AAA Materials entrance and **relocation of the existing eastbound truck warning sign** to the 70 MPH stopping sight distance. **Construction of curbed medians** east and west of the entrance would encourage drivers to obey posted speed limits and provide an opportunity to remove impervious surface. A third measure, **reducing the speed limit**, was not recommended, as a short speed limit reduction would be inconsistent with the rest of the roadway and likely be less effective at mitigating travel speeds than installing curbed medians.



Figure 6. Proposed Improvements at AAA Materials Entrance

**Cost Estimate and Impact Evaluation**

Estimated Cost	Utility Impacts	Environmental Impact	Private Property Impacts
\$100,000 – \$150,000	None	Net reduction of approx. 2,450 sq. ft. of impervious area.	None. Coordination with AAA Materials would be necessary.

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### Area #3 – Indian Bridge Road

#### Challenges

Indian Bridge Road at St. Andrews Church Road has had several head-on crashes, angle crashes, and rear-end collisions in the past three years. Residents have expressed concern that high speeds and limited sight distance impair motorist safety in this area and that traffic crash data does not reflect the urgency of the problem as near misses are common and many vehicles run off the road and into their yard without a report being filed.

#### Recommended Improvement



Figure 7. Proposed Improvements at Indian Bridge Road

Three countermeasures were considered for this location: **improve sight distance by relocating the stop bar on Indian Bridge Road, channelizing right turns and clearing vegetation, and constructing a roundabout to slow traffic through the intersection.** The roundabout was determined to be the less desirable alternative as turning movements are unbalanced and the cost of the improvement would not yield significantly more benefit as a less intensive alternative. Extending the stop bar and channelizing right turns meets the safety need.

The recommended improvement is to channelize eastbound right turns onto Indian Bridge Road thereby allowing the stop bar to be relocated further north to improve sight distance for vehicles turning onto MD 4. Clearing vegetation that obstructs sightlines should be an immediate measures undertaken by St. Mary's County DPW&T. MDOT-SHA has used a similar approach at MD 281 and Muddy Lane in Elkton, Cecil County, which has a similar horizontal profile and traffic volumes as MD 4 at Indian Bridge Road. The FHWA CMF Clearinghouse indicates that in rural areas such as St. Mary's County, increasing line of sight at the intersection by changing right-turn lane geometry could reduce angle crashes by 25% with an overall crash reduction rate of 15%.

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*Figure 8. MD 281 at Muddy Creek Road – Cecil County – Before and After*

### *Cost Estimate and Impact Evaluation*

No physical construction is required for this improvement and it appears that some of the vegetation clearing would occur within the public right-of-way. The estimated cost of this work is less than \$10,000 and no utility or environmental impacts would occur.

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**Area #4 – St. Andrews Lane**

**Challenges**

Concern has been expressed that the undeveloped curb cut and associated lane markings opposite St. Andrews Lane are confusing to motorists. Residents also indicate that westbound motorists misunderstand existing lane markings and drift into the westbound turn lane that serves St. Andrews Lane. There is no present need for the left turn lane, but there is an MDOT-SHA access permit which remains valid and which runs with the land.<sup>2</sup> Should development proceed at this location, a left turn can be restored in a safer manner; but the St. Mary’s County Department of Land Use and Growth Management Department does not expect the project to proceed, due to environmental concerns.



The proposed development on the south side of MD 4 is not expected to proceed.

**Recommended Improvement**



Figure 9. Proposed Improvements at St. Andrews Lane

The recommended improvement is to extend the edge line through the unused curb cut and eliminate the associated left turn bay. No physical construction is required for this improvement.

**Cost Estimate and Impact Evaluation**

Estimated Cost	Utility Impacts	Environmental Impact	Private Property Impacts
Less than \$20,000	None	None	None <sup>2</sup>

<sup>2</sup> LUGM should review the access permit issued by MDOT-SHA to determine if the conditions have been met.

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### Area #5 – MD 4 between Old St. Andrews Lane & Wildewood Parkway

MD 4 between Old St. Andrews Lane and Wildewood Parkway is presently being redesigned by MDOT-SHA to widen the road to allow for left turn and bypass lanes as shown in Figures 10 and 11. These improvements are intended to achieve operational benefit, particularly in the 1,400 feet between the DPW&T landfill entrance and Ballet Caliente Classical School of Dance at 44727 St. Andrews Church Road as well as to address safety concerns at the western leg of Old St. Andrews Church Road.

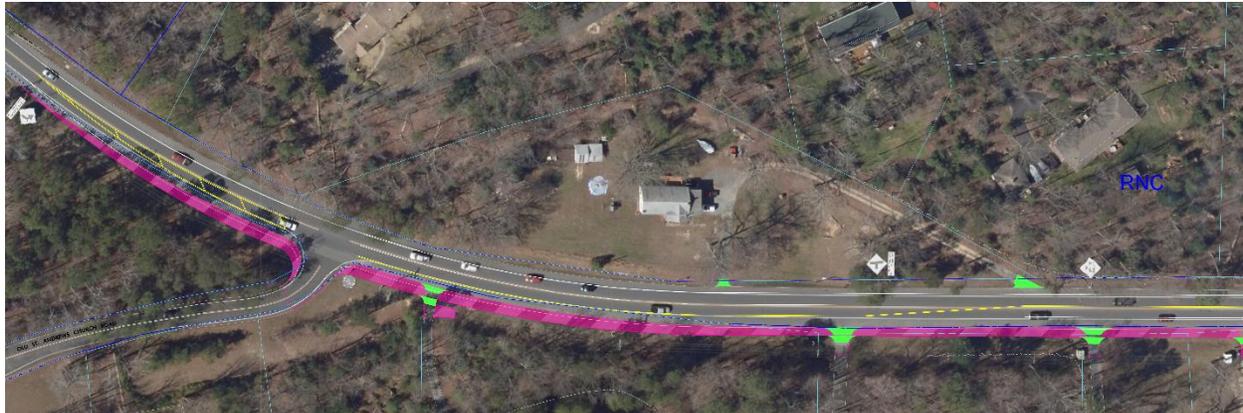


Figure 10. MDOT-SHA Proposed Improvements Near Old St. Andrews Church Road



Figure 11. MDOT-SHA Proposed Improvements near Wildewood Parkway

### Challenges

The County is concerned that as presently designed, the MDOT-SHA improvements do not meet the safety and access management challenges near Wildewood Parkway nor the speeding concerns near Old St. Andrews Church Road. Moreover, the MDOT-SHA plan appears to be in conflict with the St. Mary's County Comprehensive Plan, which calls for “manag[ing] demand for direct access to major roads...designat[ing] St. Andrews Church Road...as a restricted access traffic artery.”<sup>3</sup>

MDOT-SHA estimates that its project will cost approximately \$3.6 million and take 24 months to complete, inclusive of right-of-way acquisition and utility relocation. Approximately two-thirds of

<sup>3</sup> St. Mary's County, Maryland Comprehensive Plan (2010), Goal 11.3.2, Objective A.ii.a

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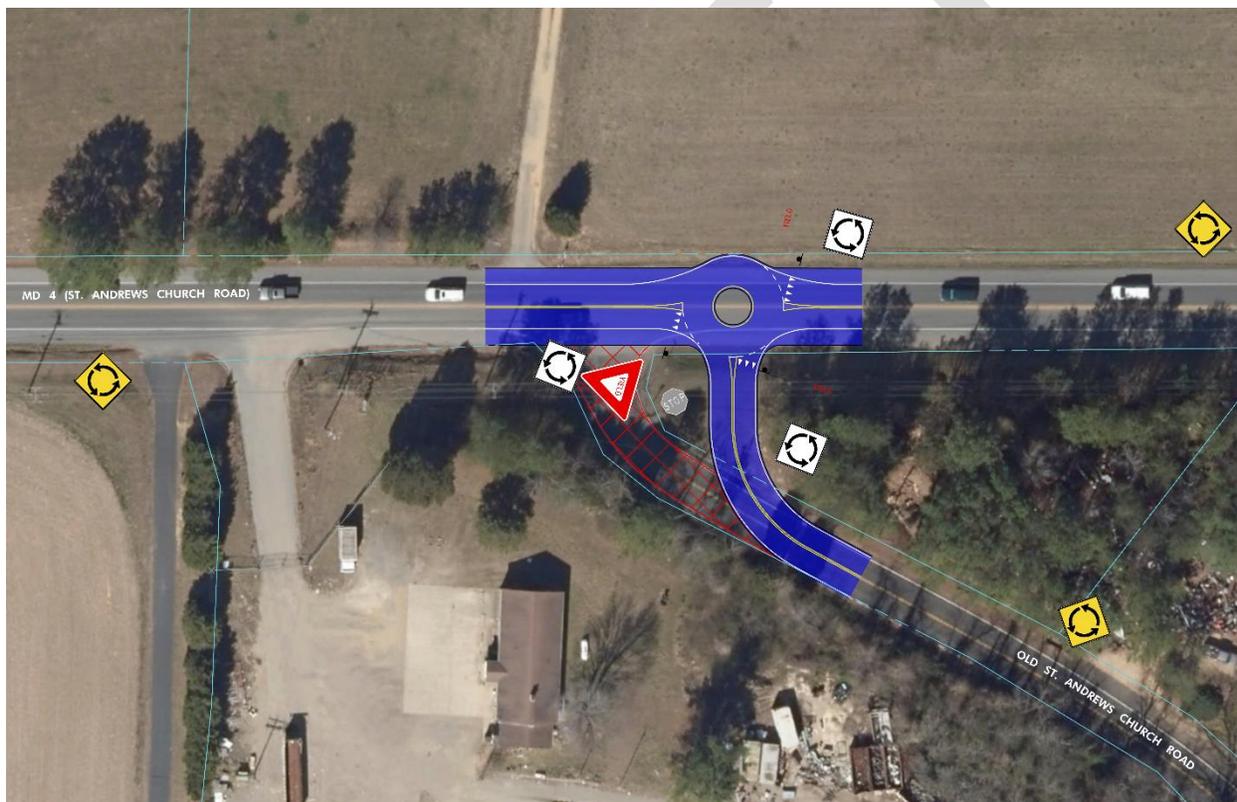
the cost of the MDOT-SHA planned project is to acquire right-of-way and relocate utilities; there may be further expense to widen a culvert just west of Old St. Andrews Church Road.

The County has proposed to MDOT-SHA an alternative approach to the project area which it believes is more consistent with the Comprehensive Plan and responsible to safety and access management concerns.

### *Recommended Improvements at Old St. Andrews Church Road*

The County proposed improvements would:

- Convert the northern leg of the Old St. Andrews Church Road intersection to a roundabout in order to reduce speeds entering the more residential portions of MD 4.
- Convert the southern leg of the Old St. Andrews Church Road intersection to right out only onto MD 4, eliminating a blind curve left turn.



*Figure 12. Proposed Improvements at West Leg of Old St. Andrews Church Road*

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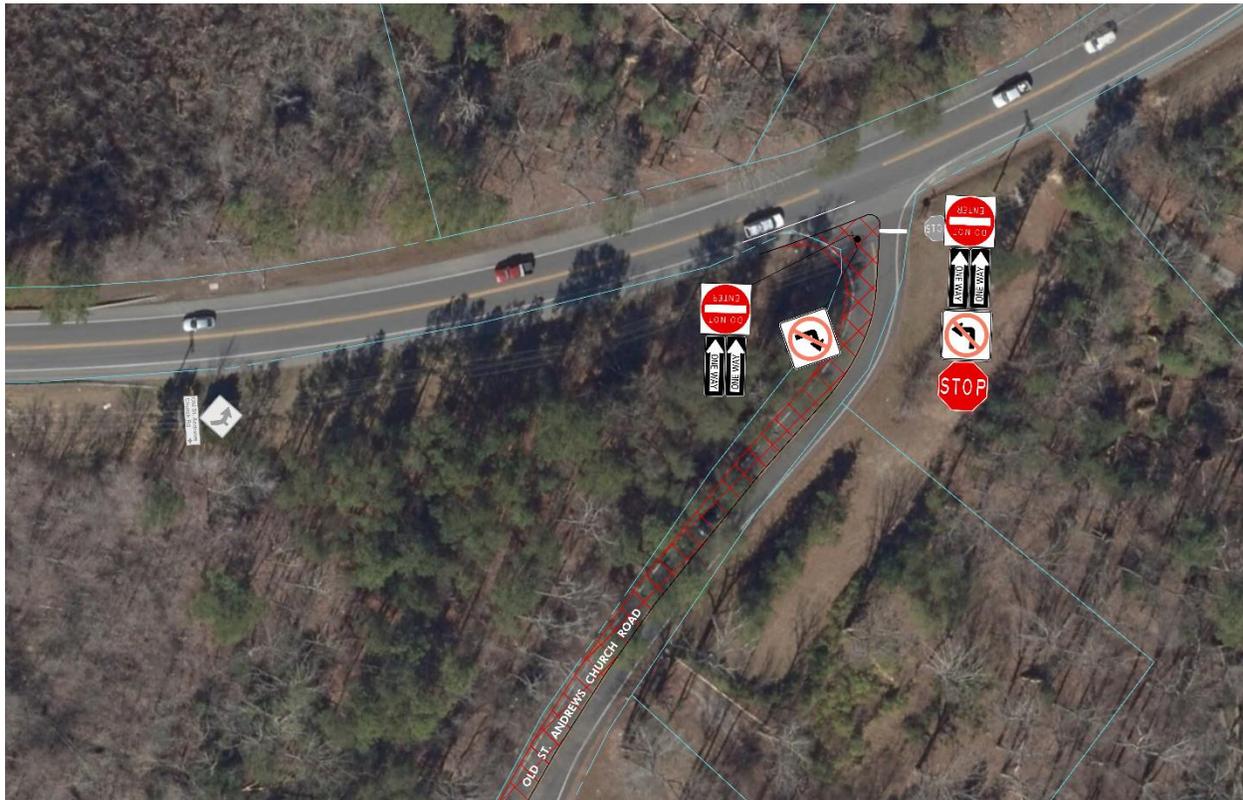


Figure 13. Proposed Improvements at Old St. Andrews Church Road (east leg)

### Recommended Improvements Near Wildewood Parkway

The County-proposed improvements would manage access to MD 4 consistent with the St. Mary's County Comprehensive Plan by:

- Creating a fully signalized intersection at Wildewood Parkway and establishing an interior roadway connecting to the properties listed below,
- Eliminating left turns into
  - 44825 St Andrews Church Road (St. Mary's County DPW&T)
  - 44769 St. Andrews Church Road (Body by Design Collision Center)
  - 44727 St. Andrews Church Road (Ballet Caliente Classical School of Dance)

The FHWA CMF Clearinghouse indicates that in rural areas such as St. Mary's County driveway closures and similar strategies to achieve right-in, right-out can reduce crashes by 45%.

The County proposal would reduce the need for right-of-way acquisition, stormwater management facilities and utility relocation relative to the proposed SHA improvement. Broadly speaking, a cooperative agreement could advance this project whereby:

- MDOT-SHA would:
  - Construct mainline elements of MD 4, including signal upgrade at Wildewood Parkway (Figure 14) and roundabout at Old St. Andrews Church Road (Figure 12)
  - Locate and construct any stormwater management facilities at a mutually agreeable location on county property

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- St. Mary’s County would construct the interior roadway (extension of Wildewood Parkway) (Figure 14)
- The property owner(s) would dedicate the land necessary for the interior roadway as part of the entitlement process for an upcoming development project on the parcels adjacent to 44727 St. Andrews Church Road



Figure 14. Proposed Improvements at Wildewood Parkway

*Cost Estimate and Impact Evaluation*

<i>Estimated Cost</i>	<i>Utility Impacts</i>	<i>Environmental Impact</i>	<i>Private Property Impacts</i>
\$500,000 – \$750,000	Storm drainage, traffic signal modification, street lighting	0.61 acres of additional impervious surface. Reduction of 0.6 acres of wooded area.	3 private properties, 2 County-owned properties.

**Area #6 – MD 4 at FDR Boulevard/MD 4 Sidepath**

*Challenges*

Between the landfill entrance and FDR Blvd., residents indicate that the right turn lane on to FDR Blvd. is not wide enough and as a result traffic backs up to Wildewood Parkway. Dimensions indicate that the lanes meet design standards; however, observations confirm that vehicles have difficulty making the right turn due to queuing. Residents have also expressed an interest in adding safe pedestrian facilities along St. Andrews Church Road between the residential and commercial areas east of Wildewood Parkway and FDR Blvd. Worn paths exist along the south side of MD 4 indicating that some pedestrian activity occurs in the area.

*Recommended Improvements*

The existing cross section of St. Andrews Church Road is shown in Figure 15. As presently configured, northbound vehicles can proceed straight through towards MD 235 or, from the right lane, turn right onto FDR Blvd. Initially intended as an exclusive right turn lane onto FDR Blvd., the length and width of the turning lane does not permit vehicles to turn right except when moving with through traffic. MDOT-SHA is presently reviewing intersection operations; opportunities to improve the northbound movement include adjustments to signal timing and phasing or widening the easternmost lane to accommodate additional through traffic. The latter is costly and would have impacts to utilities. The former is preferable and will likely become the recommendation of MDOT-SHA. No additional recommendations are made at this time.

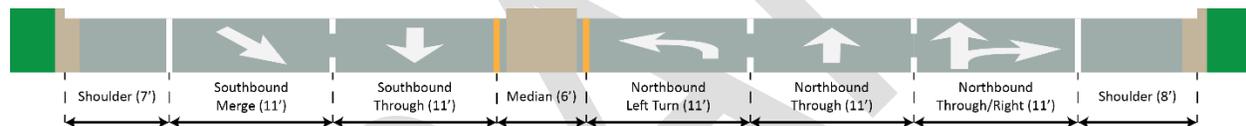


Figure 15. Typical Section, St. Andrews Church Rd south of FDR Blvd

**AWAITING RESULTS OF SIGNAL TIMING INVESTIGATION**

*MD 4 Sidepath – Wildewood Parkway to FDR Boulevard*

The second recommended improvement in this area would also allow for increased vehicle throughput by eliminating the 8’ shoulder and creating a sidepath along the south side of MD 4 between FDR Boulevard and Wildewood Parkway. The 8 – 10’ sidepath would accommodate pedestrians and cyclists, connect residents of the Wildewood community to the Three Notch Trail and shopping areas. Some grading and drainage improvements may be necessary to accommodate the sidepath; impacts to utilities can be avoided by weaving the sidepath through the wide right-of-way.

*Cost Estimate and Impact Evaluation*

Estimated Cost	Utility Impacts	Environmental Impact	Private Property Impacts
\$400,000 – \$600,000	None anticipated	0.61 acres of additional impervious surface. Reduction of 0.2 acres of wooded area.	Up to 5 private properties and 2 public properties.



## Mid-County Connector (Lawrence-Hayden Road)

The 2006 County Transportation Plan called for an extension of Saint John’s Road/Lawrence-Hayden Road to MD 4 as a major collector road of approximately 1.25 miles, intersecting MD 4 at the Indian Bridge Road intersection. This roadway would provide additional access from MD 4 to MD 235, help relieve some congestion along MD 235, and would operate as a cross-County connector. The roadway would also serve residential development expected in the mid-County area.

### Recommended Improvement

It is recommended that a “Mid-County Connector” be constructed in the area shown in Figure 19. The road would be designated as a collector roadway with a design speed of 40 mph. One 12’ travel lane and an 8’ shoulder on each direction are proposed with turning lanes built at appropriate locations. A 4’ roadside flat bottom ditch is proposed for drainage.

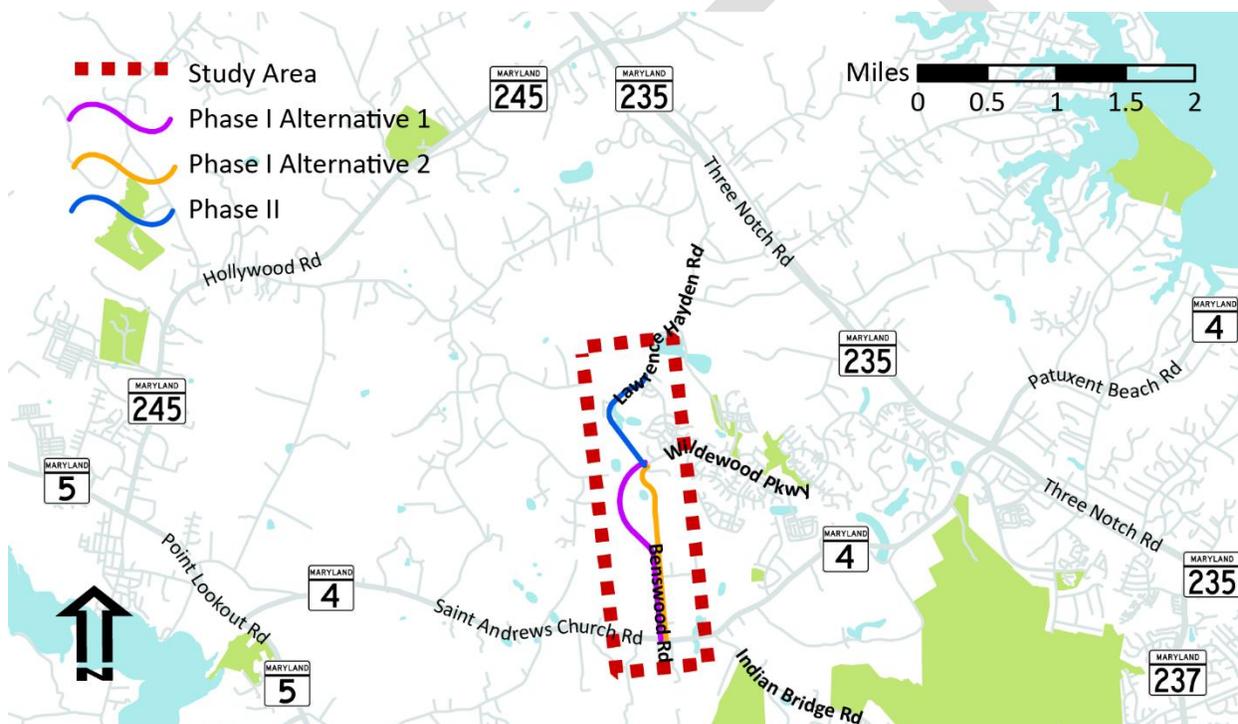


Figure 19. Mid-County Connector Location

The road is proposed to be constructed in two phases and coordinated with development in the area:

- North of Wildewood Parkway, no right of way has been dedicated or reserved for this roadway. With further study and development coordination, the County should note this reservation in the land records as shown in Figure 20.
- South of Wildewood Parkway a significant portion of the right-of-way for the Mid-County Connector has been dedicated or reserved including approximately one mile between MD 4 and the SMECO utility corridor, but the northernmost portion of the reserved right-of-way may be within sensitive environmental areas. An alternative alignment exists to the east which would lessen the crossing of the Western Branch of the St. Mary’s River.

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At MD 4, the Mid-County Connector was envisioned to connect to Indian Bridge Road. While this may be feasible, additional right-of-way would be acquired and several homes stand in the area just north of the Indian Bridge Road intersection. Instead, it would be more practical to connect to MD 4 using the right-of-way known as Benswood Road.

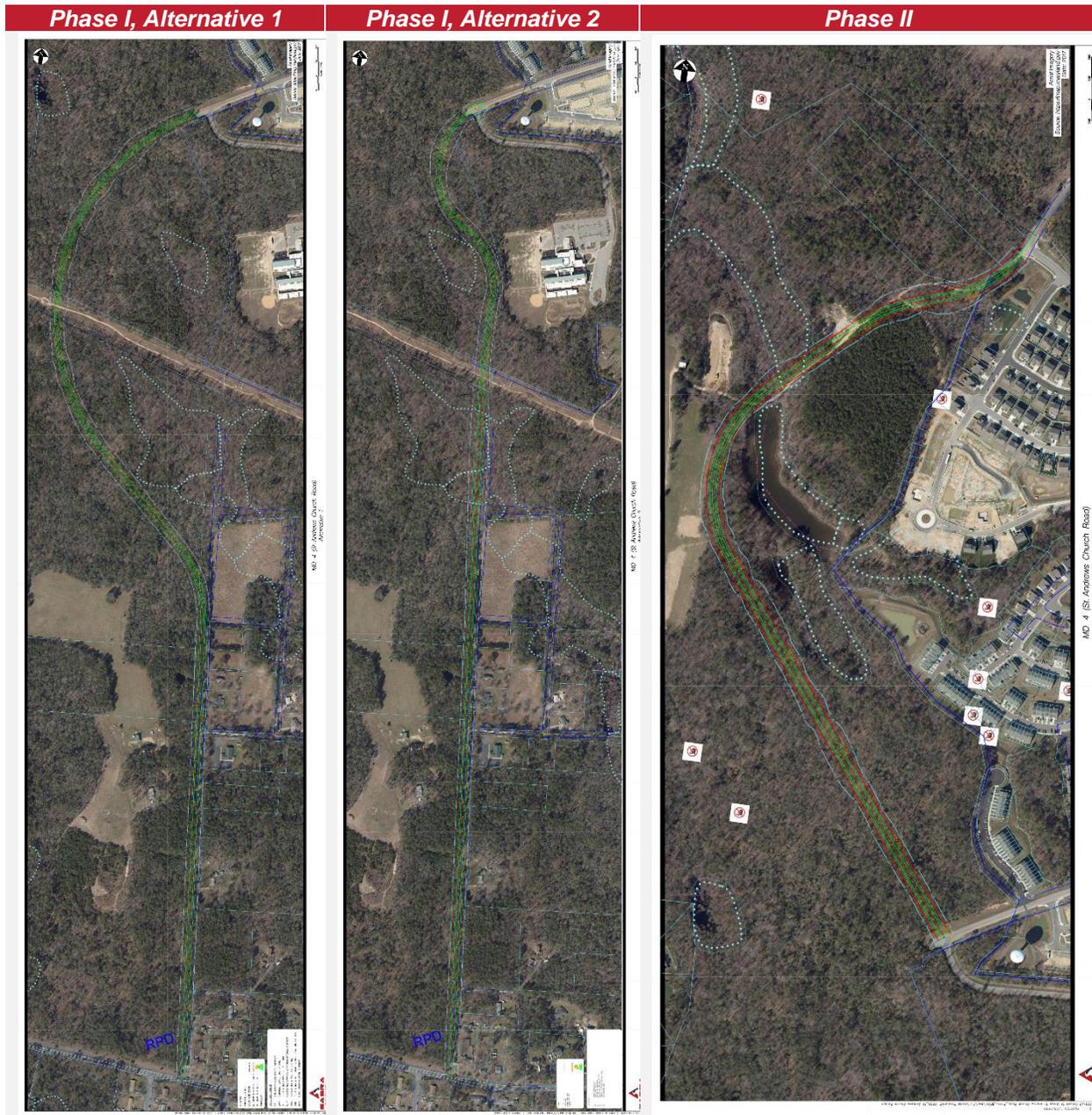


Figure 20. Phases and Alternatives for the Mid-County Connector

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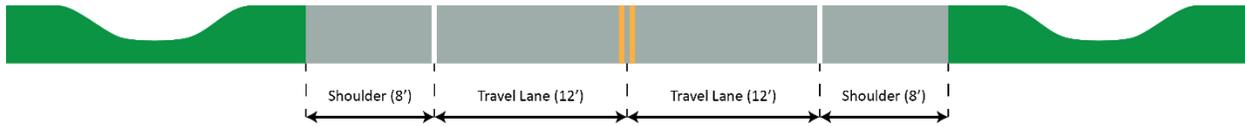


Figure 21. Mid-County Connector Proposed Typical Section

Additional study is warranted for this project, which is estimated to cost between \$11 – \$13 million (2020 dollars) over the two phases. The project should proceed primarily as an Adequate Public Facilities project with the County taking the lead on project planning, design and right-of-way coordination now. When future development begins in the corridor, APF fees and/or developer responsibility agreements should be used as a primary funding source for the road.

*Cost Estimate and Impact Evaluation*

<i>Alt</i>	<i>Estimated Cost</i>	<i>Forest Impacts</i>	<i>Stream/Wetland Impacts</i>	<i>Private Property Impacts</i>
Phase I, Alt 1	\$8.0 – \$8.5 million	14 acres	0 acres	7.3 acres across TBD number of parcels
Phase I, Alt 2	\$7.6 – \$8.3 million	11.5 acres	2 acres	5.2 acres across TBD number of parcels
Phase II	\$3.7 – \$4.1 million	9.8 acres	.14 acres	5.64 acres across TBD number of parcels

## Additional Issues for Consideration and Review

It is recommended that three issues of concern raised by agencies and the public be referred to the appropriate public agency for review:

- **Speed limit study, active warning and enforcement.** Speeding (or apparent speeding) of traffic is a significant concern for residents. While 50 mph may be appropriate for a rural roadway, there are sections of St. Andrews Church Road which change in character to be more residential. The St. Mary's County Sheriff's Office should consider these areas for speed enforcement. MDOT-SHA should consider lowering the speed limit in certain areas and adding appropriate traffic calming measures, especially near curves and crests.
- **Nuisance runoff.** As described above, residents indicate a drainage problem between Hood Lane and Brown Road and between St. Andrews Lane and Indian Bridge Road. A brief visual inspection does not indicate that the drainage concern is related to waterways crossing St. Andrews Church Road but may be related to the roadway crown or from nearby development. MDOT-SHA and the St. Mary's County DPW&T should investigate these issues.
- **Roadway lighting.** Residents have expressed concern that roadway lighting is inadequate and may contribute to traffic crashes near curves and crests. A brief visual inspection identifies roadway lighting to be present at the intersections of Indian Bridge Road, Fairgrounds Road and Wildewood Parkway within the study area. MDOT-SHA should conduct appropriate lighting studies and consider improvement if warranted.