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Sandy Creek Road Corridor Study Recommendations & Implementation Report

Fayette County Public Works

2017 SPLOST No. 17 TAE

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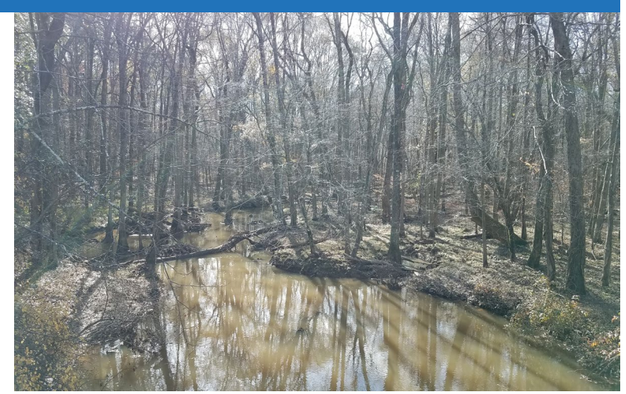

Mission Statement:

The Sandy Creek Road corridor study recognizes the regional and local importance of the corridor. The primary goal of the study is to address, in cooperation with our state, regional and local stakeholders, issues and concerns related to safety, connectivity and capacity; and formulate multi-modal mobility concepts, proposals, recommendations and projects. Additionally, the study will develop proposals and recommendations to protect the human and natural environment as Fayette County and its cities continue to grow. The projects will formulate a complementary infrastructure improvement plan that will improve the corridor aesthetics and enhance the quality of life of the adjoining neighborhoods.

Chapter 5:
Recommendations & Implementation Report

5.1 Introduction - Page 4
This section of the report details the recommendations for the Sandy Creek Road corridor and the implementation plan for the preferred alternative.

5.2 Final Recommendations - Page 4
The section details the final recommendations which are divided into recommendations for the corridor's typical section, specific intersection improvements and bicycle and pedestrian improvements.

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The implementation plan for Sandy Creek Road corridor identifies the projects in terms of project costs, project scheduling, responsible parties for project completion, and funding opportunities.

5.5 Phased Recommended Projects - Page 12
This section lists the recommended projects for Sandy Creek Road.

5.1 Introduction

The section details the recommendations for the Sandy Creek Road corridor and the implementation plan for the preferred alternative. As detailed in previous sections, these recommendations were developed through several analyses, including:

- Review of existing conditions
- Need Assessment analysis for corridor
- Input from citizens, stakeholders, and agencies
- A comprehensive evaluation of potential impacts including safety, traffic operations, environmental, and right-of-way
- Consideration of land use policies and development goals in Fayette County

The needs of the corridor were outlined in the Needs Assessment. The final recommendations for Sandy Creek Road meet those needs while adhering to the goals of Fayette County outline in the 2010 Comprehensive Transportation Plan summarized in Graphic 1.

Graphic 1- 2010 Comprehensive Transportation Plan Goals

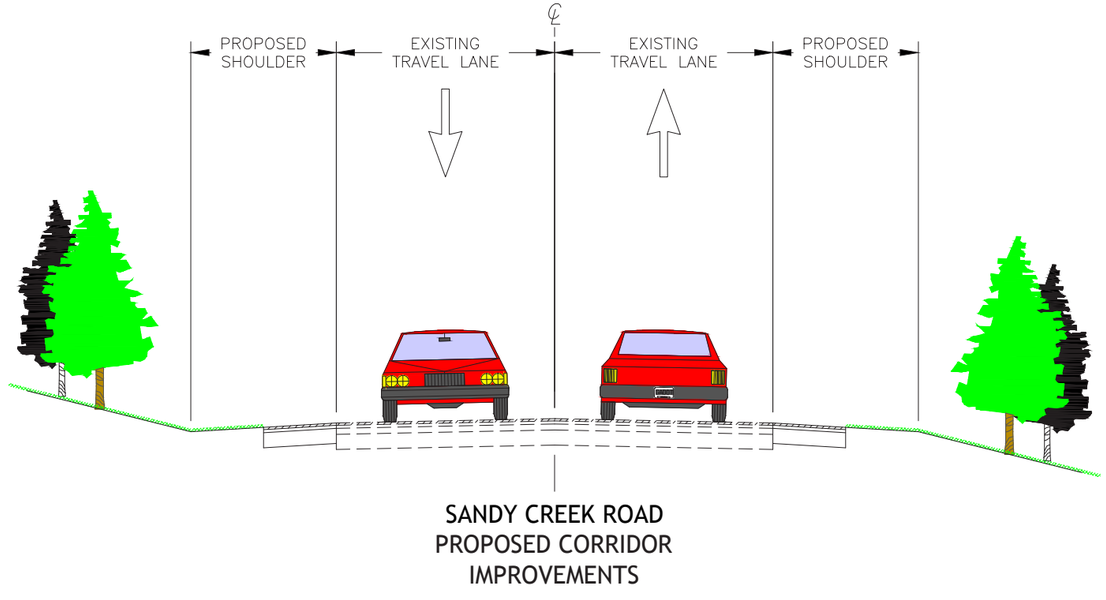
5.2 Final Recommendations

The recommendations for Sandy Creek Road are divided into recommendations for the corridor's typical section, specific intersection improvements, bicycle and pedestrian improvements and quick-response improvements. A corridor transportation system comprised of multiple elements including safety enhancements, roadway capacity, and streetscapes, was developed as part of the final recommendations. These improvements were developed in tandem with Fayette County and local municipalities Future Land Use plans to maximize the effectiveness of the final recommendations with regard to both land use and transportation.

Summary of Corridor Recommendations

The recommended typical section for Sandy Creek Road is to maintain the two general purpose travel lanes, widen shoulder on both sides of the road, and add a shared-use path on one side of the road. The roadway recommendations for Sandy Creek Road include correcting horizontal and vertical curves where needed based on an evaluation of sight distance availability along the corridor, widening the shoulder on both sides of the road, upgrading and adding warning signage to guide drivers along the corridor, and install guardrails where needed. The proposed typical section is shown in the figure below.

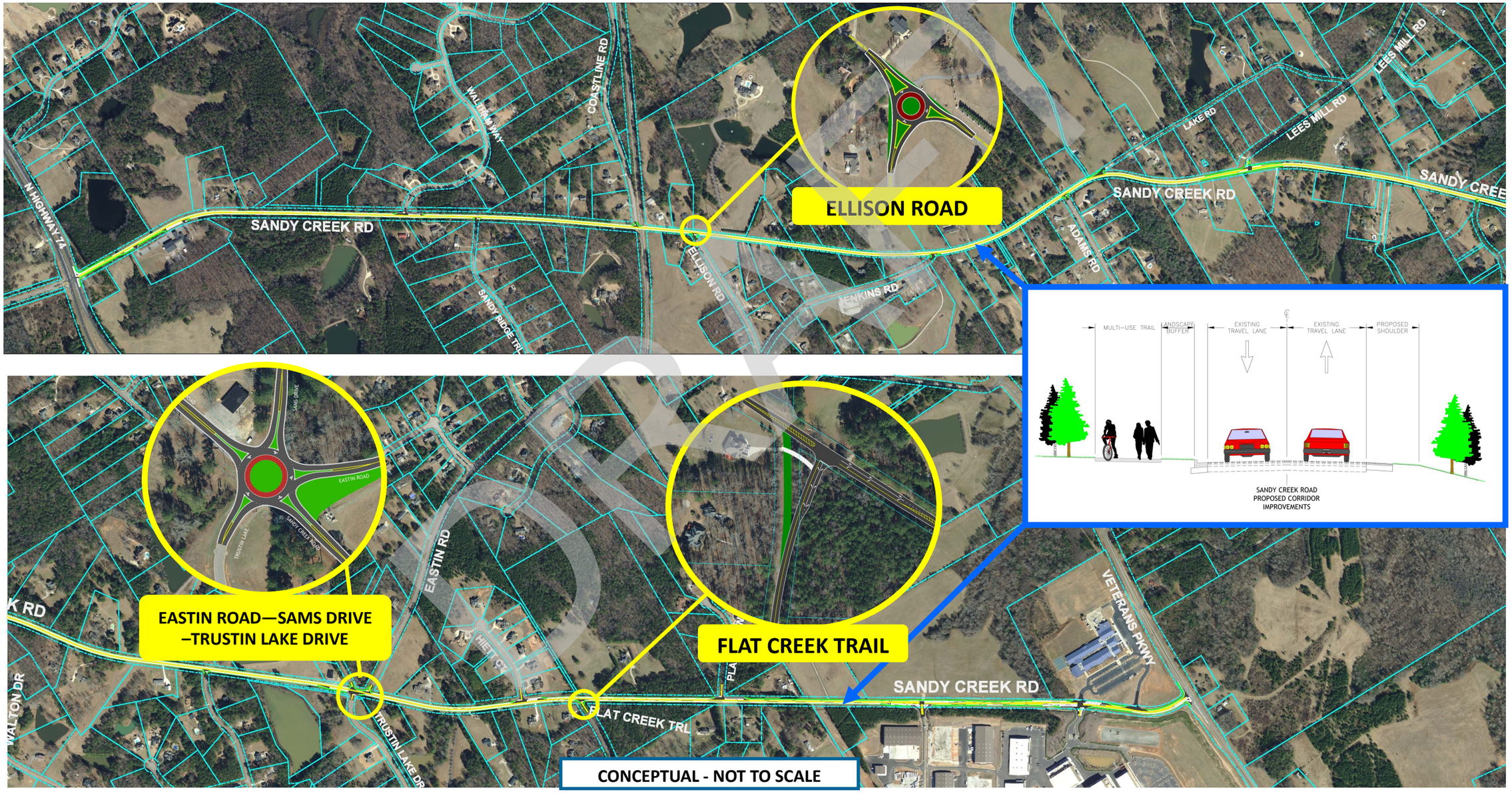
Graphic 2 - Sandy Creek Road Proposed Improvements Typical Section



In addition to the proposed typical section and correcting horizontal/ vertical curves, the following intersection improvements are recommended along Sandy Creek Road as well. These recommendations including the recommended roadway and intersection improvements as depicted in Graphic 3.

- Install Roundabout at Sams Drive -Trustin Lake Road - Eastin Road
- Intersection Improvement at Ellison Road
- Intersection Improvement at Flat Creek Trail

Graphic 3 - Sandy Creek Road Corridor Recommendations



- **Roadway Recommendations**

When drivers leave the roadway and meet immediate pavement or shoulder drop-offs, it can be difficult for drivers to recover and safely return to the roadway. Correcting horizontal and vertical curvature and extending shoulders along Sandy Creek Road is a safety measure that can address the corridor's frequency of off-road crashes, particularly between SR 74 and Lees Mill Road.

The results of Sandy Creek Road's Road Safety Audit indicate that the current horizontal and vertical curvature along certain segments of the corridor present sight distance issues at a number of intersections. For horizontal curves, providing superelevation at the curve helps keep vehicles on the road and reduces off-road crashes.

According to the Federal Highway Administration's (FHWA) Highway Safety Manual, crash prediction models indicate that inadequate superelevation increase crashes inside horizontal curves. It should be noted, however, that the increase in driver comfort associated with increasing superelevation may increase driver speeds.

An analysis of the road's profile was performed to identify locations along Sandy Creek Road where the horizontal or vertical curvatures of the road creates inadequate sight distance. When restoring superelevation, a sufficient grade must be maintained along the superelevation transition to provide proper drainage as the cross slope levels. Ensuring reverse curves have appropriate transition distance must be taken into consideration as well.

The likelihood of a driver recovering from an off-road crash is increased if the vehicle is provided a shoulder, the portion of the roadway outside of the travel lane where a driver can reclaim control of the vehicle. This benefit is particularly valuable in horizontal curves where vehicles typically use more of the travel lane than in straight sections of the roadway. Shoulder widths vary from no shoulder on minor rural roads to 12 feet on major roads where the entire shoulder may be stabilized or paved. Per FHWA guidance, if space is only available to one side of the road, widening the shoulder on the outside will most likely provide the greater benefit.

Shoulder rumble strips also improve drivers' ability to stay within the lane by providing both an audible warning and a slight vibration within the vehicle that a driver can feel. On rural two-lane roadways with narrow lane widths, drivers may have a tendency to drift to the outside when meeting other vehicles.

In conjunction with shoulder widening, the judicious installation of roadside barriers, such as guardrails, along Sandy Creek Road can also provide additional safe countermeasure for instances where it may not be feasible to clear obstacles or flatten slopes. When considering the installation of guardrails, proper delineation such as retroreflective panels on the guardrails make the barriers visible to drivers at night when there isn't roadway lighting. It is important to note that adding barriers may increase property-damage-only (PDO) crashes; however, this occurrence is most times offset by the reduction in the severity of all crashes.

Additional low cost treatments that can improve road safety along Sandy Creek Road include adding advance warning signs, such as intersection warning or chevron alignment signs, and enhancing signing countermeasures via use of highly retroreflective and fluorescent sheeting. Curve warning signage can also be enhance using supplemental beacons and/or messages that activate when a motorist approaches the curve at a high speed. Dynamic curve warning systems typically involve a combination of a speed monitoring device and a variable message sign. The advantage of dynamic curve warning systems is that they have a much greater effect on high-speed vehicles than a static curve warning sign. Given that these systems are costlier that status signs, their implementation should be limited to locations with high crash rates.

- **Intersection Improvement Recommendations**

Recommendation for key intersections are discussed in detailed below. All such improvements are associated with the recommended overall corridor improvements, including the proposed shoulder widening, although some may be implemented in advance of the ultimate corridor wide road improvement project.

1. Ellison Road

Delays and long queues at the intersection of Ellison Road and Sandy Creek Road worsen as traffic volumes increase over time in the area. Ellison Road provides direct access to Burch Elementary School, Flat Rock Middle School, and Sandy Creek High School. During the school year, substantial queuing has been noted by the public as well as bike traffic to and from the access via Ellison Road. Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and accessible pedestrian and bicycle accommodations.

The final recommendation for the intersection of Ellison Road at Sandy Creek Road is a single-lane roundabout. This intersection improvement is suitable to accommodate the traffic volumes forecasted for this three-legged intersection. In addition to the traffic operations and safety improvements, Fayette County's ownership of the property on the southeast corner help offset the overall right-of-way cost for the construction of the roundabout.

The figure below shows the proposed concept for the roundabout at Sandy Creek Road and Ellison Road and the table shows the 2040 traffic operations for the No Build and for the Build conditions.

Graphic 4 - Proposed Roundabout at Ellison Road

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Sandy Creek Road at Ellison Road	F (276.6 s)	C (33.3 s)	C (22.6 s)	B (12.6 s)

2. Eastin Road - Sams Drive - Trustin Lake Drive

Per Fayette County's CTP Assessment of Current & Future Needs Report, Sandy Creek Road at Eastin Road was identified as one of the top crash rate locations in the county. Given the proximity to Sams Drive, public perception is that the road configuration at the intersections is confusing for drivers and safety improvements are needed.

Several alternate intersection designs were evaluated with respect to improving safety, managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and accessible pedestrian and bicycle accommodations.

The final recommendation for the intersection of Sams Drive-Eastin Road – Trustin Lake Drive at Sandy Creek Road is a 5-legged single-lane roundabout. The conversion of a stop-controlled intersection to a single-lane roundabout has been found to reduce the number of crashes at an intersection by up to 72%.

The figure below shows the proposed concept for the roundabout at Sandy Creek Road and Eastin Road – Sams Drive – Trustin Lake Drive and the table shows the 2040 traffic operations for the No Build and for the Build conditions.

Graphic 5 - Proposed Roundabout at Eastin Road - Sams Drive - Trustin Lake Drive

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Sandy Creek Road at Eastin Rd – Sams Dr – Trustin Lake Dr	C (24.4 s) C (22.3 s) E (38.5 s)	C (21.5 s) B (11.2 s) E (46.1 s)	B (12.3 s)	B (11.3 s)

3. Flat Creek Trail

At the intersection of Flat Creek Trail and Sandy Creek Road, the vertical curve east of the intersection limits sight distance. Moreover, overgrown vegetation and a tree obstructs sight distance looking west. Public comments seem to be in agreement that the hill needs to be lowered and turn lanes can benefit traffic operations at the intersection.

The final recommendation for the intersection of Flat Creek Trail at Sandy Creek Road is realigning Flat Creek Trail to intersection Sandy Creek Road at a 90 degree and add turn lanes at the intersection.

The figure below shows the proposed concept for the Sandy Creek Road and Flat Creek Trail realignment and the table shows the 2040 traffic operations for the No Build for Build conditions.

Graphic 6 - Proposed Roundabout at Eastin Road - Sams Drive - Trustin Lake Drive

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Sandy Creek Road at Flat Creek Trail	C (23.4 s)	C (23.3 s)	C (19.5 s)	C (18.6 s)

- **Pedestrian and Bicycle Accommodations**

As part of Fayette County's recent Comprehensive Transportation Plan Update, a Master Path Plan for the county was developed, including a set of Path System Guidelines. The guidelines took into account local and national best practices for pedestrian and bicycle facilities and were tailored to the specific shared use needs of Fayette County, i.e. pedestrians, bicyclists and golf carts. Fayette County's Master Path Plan identified recommendations divided into sidewalk, sidepaths, and greenway projects.

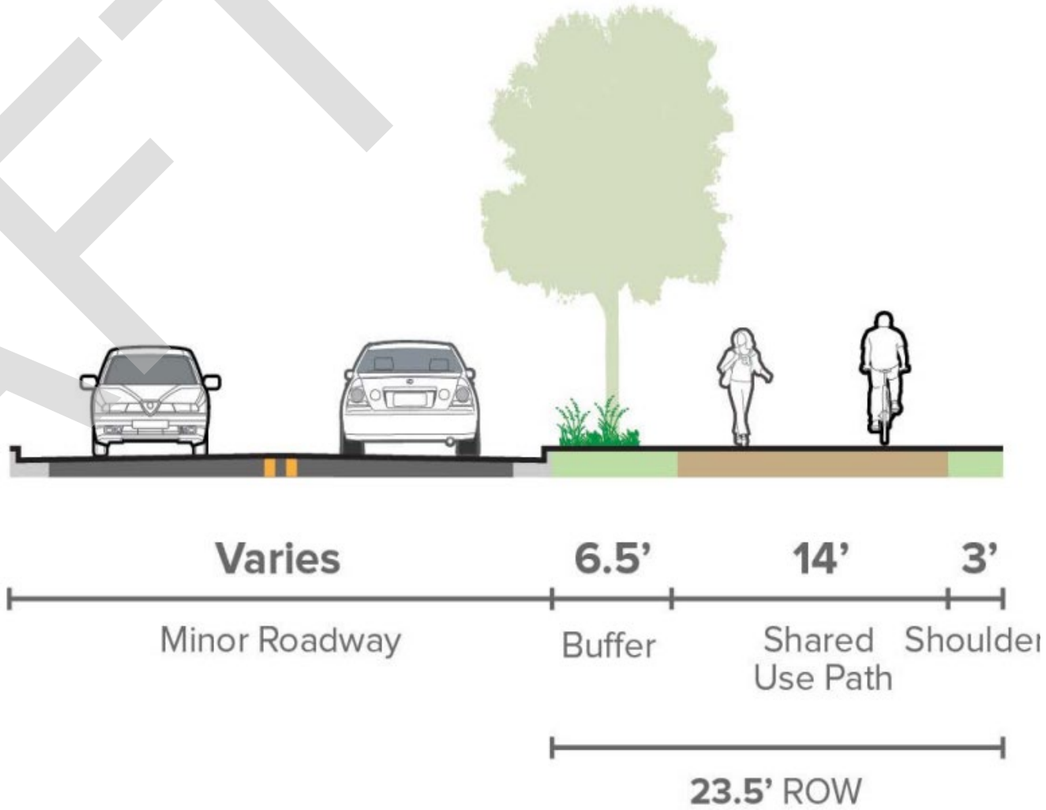
Image 1 - Pedestrian and Bicycle Facilities

The Master Path Plan specifically recommends the addition of a sidepath along the extent of Sandy Creek Road from SR 74/Joel Cowan Parkway to Veterans Parkway. Sidepaths, similar to multi-use paths, are trails that can accommodate pedestrians, bicyclists, and golf carts adjacent and parallel to the alignment of an existing roadway. Fayette County's Path System Design Guidelines should be referenced when determine the geometrics of the sidepath for Sandy Creek Road.

In line with recommendations outlined in Fayette County's CTP, a multi-use path is recommended along Sandy Creek Road from Veterans Parkway to SR 74/Joel Cowan Parkway on the south side of the road. The image below shows the preferred conditions for a sidepath along a minor roadway as outlined in Fayette County's Path Design Guidelines.

Due to cost and ROW considerations, as well as anticipated demand, the multi-use path is recommended along only one side of Sandy Creek Road. An initial determination of the preferred side was made based on adjacent land uses, terrain, and desirable opportunities for crossing Sandy Creek Road. Future development and information obtained from more detailed design should ultimately influence the final decision for the alignment.

Graphic 7 - Side Path Recommendations (CTP Appendix D: Path Design Guidelines)



5.3 Quick Response Recommendations

The proposed list of short-term improvements for Sandy Creek Road was developed via significant input received through coordination with Fayette County, stakeholders, and public input. The specific recommendations contained in this list are based on the results of the Needs Assessment, baseline travel data, deficiencies identified along the corridor during the Road Safety Audit, and opportunities to implement cost-effective improvement projects over a short period of time. Short-term recommendations along Sandy Creek Road:

1. Clear overgrown vegetation along Sandy Creek Road

An immediate measure for improving sight distance along a corridor is cutting back foliage reducing the line of sight for drivers, especially in horizontal curves. Overgrown vegetation also obstructs various traffic signs, reducing guidance for drivers along the corridor.

2. Maintenance at SR 74/Sandy Creek Road

A request has been made to GDOT to perform routine maintenance at the intersection of SR 74 and Sandy Creek Road. During the Road Safety Audit, pavement deterioration was observed on the northbound right turn approach, possibly from turning trucks.

Although there is a northbound acceleration lane for westbound vehicles turning right on SR 74, many vehicles still stop and wait for break in through lane before proceeding. To improve traffic operations for the westbound approach, a "Keep Moving" sign should be added to alert drivers to the added lane.
It is important to note that there have been discussions of signalizing the median U-turn for the RCUT. Follow-ups with GDOT should occur to check status of the project.

3. Steep Slopes Countermeasures

Between SR 74 and Waltham Way, there are steep drop-offs on both sides of Sandy Creek Road with little to no shoulders for the majority of the stretch. Sandy Creek Road's grade consists of rolling terrain for the majority of the section as well. A high frequency of off-road crashes occurred along this stretch of Sandy Creek Road, including one fatality. The installation of guardrail and object markers at specific locations along this stretch can help reduce crash frequency and frequency along Sandy Creek Road.

4. Sight Distance at Coastline Road

The current location of the southbound stop bar on Coastline Road lessens the intersection sight distance for southbound vehicles looking east because the railroad utility cabinet obstructing the line of sight. A quick response recommendation is to move the stop bar to improve southbound vehicles' sight distance while they are waiting to turn on to Sandy Creek Road.

5. Horizontal Alignment and Advisory Speed Signs near Adams Road

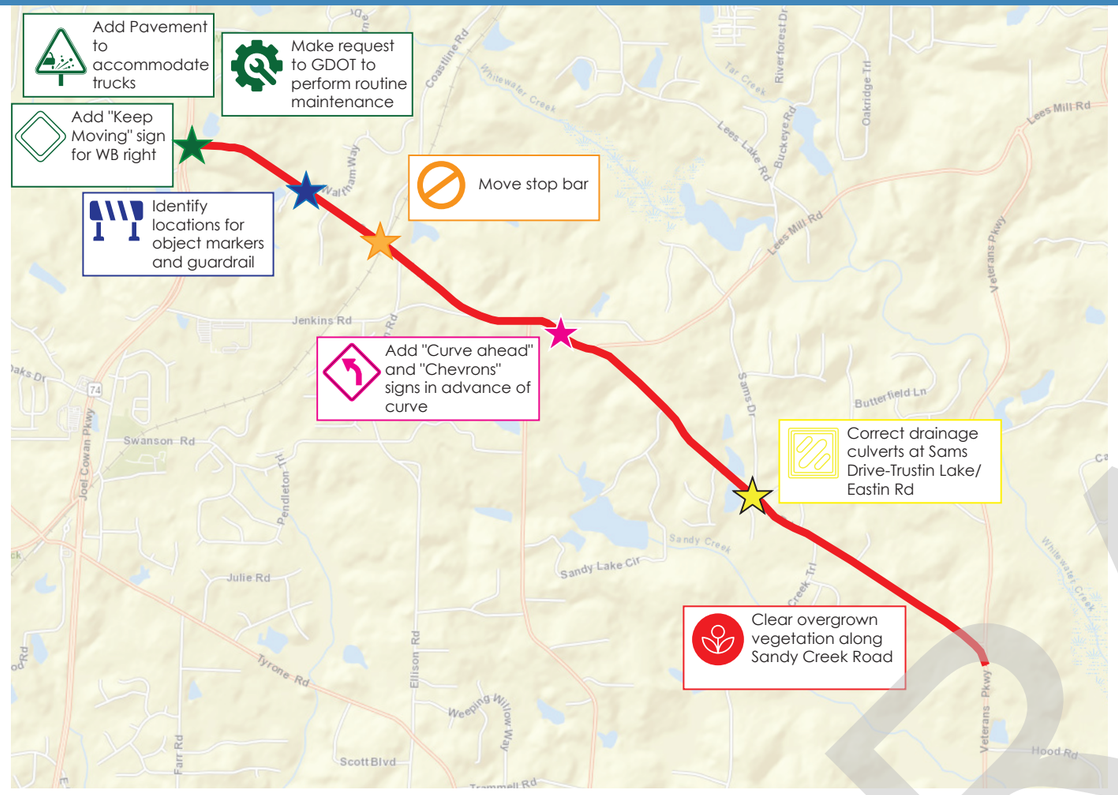
There were several public comments regarding the horizontal curve near Adams Road being unsafe, especially for speeding vehicles. To alert drivers of upcoming curve a combination Turn/Advisory Speed (W1-1a) sign or a combination Curve/Advisory Speed (W1-2a) sign is recommended as drivers approach the intersection.

6. Correct drainage culverts at Sams Drive

During the Road Safety Audit, the drainage culverts near Sams Drive appeared to be in poor condition and clogged with debris. Clearing the culverts and ensuring that they are up to standards is recommended for the drainage system near the intersection.

Graphic 8 shows the locations of the proposed quick response projects along Sandy Creek Road.

Graphic 8 - Quick Response Recommendations On Sandy Creek Road



5.4 Implementation Plan

The implementation plan for Sandy Creek Road corridor identifies the projects in terms of project costs, project scheduling, responsible parties for project completion, and funding opportunities. The development of the implementation plan considered the functionality of each project to make sure that projects had logical termini.

Dependencies between projects were also a point of consideration in the development of the implementation plan. Overall, for the plan to succeed, several agencies must coordinate their efforts, such as Fayette County, City of Fayetteville, ARC, and GDOT.

- **Construction Cost Estimates**

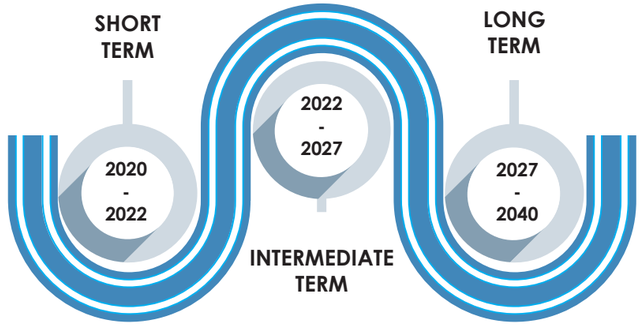
For recommended roadway improvements, construction cost estimates were generated by estimating the quantities of materials and/or equipment required for each improvement. Aerial photography and field surveys of existing conditions along the corridor were used to develop quantities to complete the construction of each project. The quantities were put into a cost estimate tool and then multiplied by a typical unit cost to determine the construction cost.

The detailed cost estimate sheets for roadway projects are included as Appendix C of this document. Aside from projects identified as qualifying projects for the Atlanta Regional Commission's Transportation Improvement Program (ARC TIP), the construction cost estimates do not include the cost of right-of-way or utilities.

- **Project Scheduling**

The proposed scheduling for the recommended projects was based on three generalized timeframes within a 20-year planning horizon. These timeframes are as follows: Short-Term, 2020-2022; Intermediate-Term, 2022-2027; and Long-Term, 2027-2040.

Graphic 9 - Project Scheduling



The proposed short-term projects are lower cost improvements for the corridor that would provide immediate benefits. Potential funding opportunities for these projects existing through Fayette County's maintenance and SPLOST programs. For the intermediate and long-term projects listed in the implementation plan, higher costs and additional analyses are required to fully develop the project scopes for implementation. The planning-level cost estimates are appropriate for corridor-wide planning, but more detailed analyses are needed to set the projects' scope. The securing of local funding for the intermediate and long-term projects will be an important step in project development.

5.5 Phased Recommended Projects

The following table lists the recommended projects for Sandy Creek Road, including the projects' description, benefits, construction cost estimate, and time frame. The implementation of projects may take place across multiple segments of the corridor or efforts may focus in one segment as resources allow. Implementation is prioritized by safety, traffic operations benefits, and potential to serve as a catalyst for continued corridor improvement.

Table 1 - Phased Recommended Projects

PROJECT ID	PROJECT NAME	PROJECT DESCRIPTION	BENEFITS	CONSTRUCTION COST ESTIMATE	TIME FRAME
SC-1	ROUTINE MAINTENANCE ALONG SANDY CREEK ROAD	CLEAR OVERGROWN VEGETATION ALONG SANDY CREEK ROAD	SAFETY	TBD	SHORT - TERM
SC-2	MAINTENANCE IMPROVEMENTS AT SR 74	GDOT ROUTINE MAINTENANCE AT SANDY CREEK ROAD AND SR 74; ADD "KEEP MOVING" SIGN FOR WB RIGHT; ADD PAVEMENT TO ACCOMMODATE TRUCKS.	SAFETY, OPERATIONS	TBD	SHORT - TERM
SC-3	SAFETY ENHANCEMENTS BETWEEN SR 74 AND WALTHAM WAY	IDENTIFY LOCATIONS FOR OBJECT MARKERS, GUARDRAIL, AND SIGNAGE ALONG SANDY CREEK ROAD.	SAFETY, OPERATIONS	TBD	SHORT - TERM
SC-4	SIGHT DISTANCE AT COASTLINE ROAD	MOVE STOP BAR BACK TO IMPROVE SIGHT DISTANCE AT INTERSECTION	SAFETY, OPERATIONS	TBD	SHORT - TERM
SC-5	CURVE WARNING SIGNAGE NEAR ADAMS ROAD	ADD STRIPING, "CURVE AHEAD" AND "CHEVRONS" SIGNS IN ADVANCE OF CURVE EAST OF ADAMS ROAD.	SAFETY, OPERATIONS	TBD	SHORT - TERM
SC-6	DRAINAGE CULVERTS AT SAMS DRIVE-TRUSTIN LAKE/EASTIN RD	CORRECT DRAINAGE CULVERTS AT SAMS DRIVE-TRUSTIN LAKE/EASTIN RD	SAFETY	TBD	SHORT - TERM
SC-7	MULTI-USE TRAIL FROM VETERANS PARKWAY TO SR 74	MULTI-USE PATH ALONG THE SOUTH SIDE OF SANDY CREEK ROAD FROM VETERANS PARKWAY TO SR 74	BIKE-PEDESTRIAN IMPROVEMENTS	$260,000 PER LINEAR MILE	INTERMEDIATE - TERM
SC-8	INSTALL ROUNDABOUT AT SAMS DRIVE -TRUSTIN LAKE ROAD - EASTIN ROAD	INSTALL 5-LEGGED ROUNDABOUT AT SAMS DRIVE, TRUSTIN LAKE DRIVE, AND EASTIN ROAD	SAFETY, OPERATIONS	$1,650,000	INTERMEDIATE - TERM
SC-9	INTERSECTION IMPROVEMENT AT ELLISON ROAD	REALIGN INTERSECTION AND INSTALL ROUNDABOUT OR ADD TURN LANES AT INTERSECTION	SAFETY, OPERATIONS, CAPACITY	$1,200,000	INTERMEDIATE - TERM
SC-10	INTERSECTION IMPROVEMENT AT FLAT CREEK TRAIL	REALIGN INTERSECTION AND INSTALL ROUNDABOUT OR ADD TURN LANES AT INTERSECTION	SAFETY, OPERATIONS, CAPACITY	$325,000	INTERMEDIATE - TERM
SC-11	SANDY CREEK ROAD CORRIDOR SAFETY IMPROVEMENTS	THE PROJECT WOULD INCLUDE INSTALLING GUARDRAILS AND CORRECTING HORIZONTAL AND VERTICAL CURVES WHERE NEEDED, AND WIDENING THE SHOULDER ALONG BOTH SIDES OF SANDY CREEK ROAD FROM SR 74 TO VETERANS PARKWAY	SAFETY, OPERATIONS	$2,225,000	LONG - TERM