



WILDWOOD

MEMORANDUM

To: Mayor Bowlin and City Council Members
From: Rick C. Brown, Director of Public Works / City Engineer
Date: January 6, 2023
Re: Old State Road

Background: At the request of Mayor Bowlin the Department reviewed the southern section of Old State Road from State Route 109 to Old Fairway Drive and provides the following recommendations for safety improvements. This segment of Old State Road, which is under the jurisdiction of the St. Louis County Department of Transportation, is a county arterial roadway. It is about 1.8 miles in length and is about 22' in width and is shown on **Exhibit A**. The posted speed limit is 35 m.p.h.

Existing Conditions: The road was last resurfaced in the summer of 2017 and the pavement appears to be in good condition, although concerns have been raised that the skid resistance of the pavement being a factor in crashes. St. Louis County has emphasized the placement of proper traffic control devices, including placement of warning signs on the five sharpest curves, which are marked with chevron alignment signs (W1-8) and a 25-mph advisory speed. These signs appear to be placed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) as would be standard practice for the St. Louis County Department of Transportation. These signs are newer and are in excellent condition and reflective sheeting has also been installed on the signposts. Given the condition of the signs, nighttime retro-reflectivity is assumed to be very good but has not been verified.

Recommendation #1: Flashing LED Warning Signs

A short-term improvement for consideration is replacing the existing curve (W1-1) and winding road (W1-5) warning signs with flashing LED signs. These signs have flashing LED lights embedded in the border of the sign to increase the conspicuity and visibility of the sign. The LED's are powered through a solar panel and battery, so adequate southern exposure to the sun is necessary. There are a total of eight warning signs where this could be implemented. Assuming a total cost to install of \$4,000 per sign, the total cost would be about \$32,000.



Existing Curve and Winding Road Warning Signs

Typical Flashing LED Warning Sign Installation



Recommendation #2: High Friction Surface Treatment or Pavement Grooving

To address off road crashes, a common practice is to increase the pavement skid resistance. This can be done by grooving the pavement or by placement of a high friction surface treatments. Generally high friction surface treatments (HFST) place a thin layer of specially engineered, durable, high friction aggregates as a topping on a specialty binder. These aggregate systems have long lasting skid resistance, while also making the overlay much more resistant to wear and polishing. HFST restores pavement surface friction characteristics where traffic may have worn down existing pavement surface aggregates. HFST can also compensate for sharp curves that we have on Old State Road. More recently, to increase the pavement skid resistance, MoDOT has utilized pavement grooving, which has been shown to be much more cost effective. The cost for pavement grooving should be in the range of \$150,000 for the areas shown on **Exhibit B**. The use of an engineered HFST may cost 2-3 times more per square yard as compared to pavement grooving. Thus, the total cost for an HFST may approach \$450,000. Placement of a traditional “chip seal” surface treatment should increase the skid resistance as well and would be the least costly option, possibly less than \$100,000.

Recommendation #3: New Guard Rail Installation

Also, to address off road crashes, the installation of new guard rail on the sharpest three curves could be completed. As shown on **Exhibit C**, about 1,750 feet of new guard rail could be installed for an estimated cost of about \$170,000-\$200,000. Some grading would be necessary to provide the proper roadside slope and clearance. The need to for easements would need to be investigated if grading beyond the right of way is necessary.

Recommendation #4: Shouldering

Finally, the elimination of edge drop-offs, removal of nearby trees, and the addition of a minimal (yet substandard) shoulder would provide a significant safety improvement, but at a significant cost. This would require the implementation of grading along the length of the roadway to improve the roadside slopes. Easements would likely be required for most properties. Given time constraints and the magnitude of this improvement, an attempt to calculate a construction cost was not completed.

St. Louis County Design Build Safety Project

City Administrator Steve Cross and I discussed this area of Old State Road during a virtual meeting held on Thursday, January 5th with representatives of the St. Louis County Department of Transportation. At the meeting, County staff conceded they are aware the rate of off-road crashes has increased within this segment of Old State Road and they are exploring options to address the concern. They noted that MoDOT and St. Louis County are currently in the final planning stages of a safety improvement project for St. Louis County. The details of project will be finalized over the coming months, after which the County and MoDOT hope to begin the selection of a design build team to complete the project. Based on past projects, we anticipate that the design build team will be provided a budget with which to address the highest priority crash locations within the County based on the highest resultant benefit cost ratio. Thus, it may be several months before we get an indication whether this section of Old State Road is selected for safety improvements under the design-build project.

Steve Cross and I will be available for any questions or comments at the January 9, 2023, meeting of the City Council.

RCB



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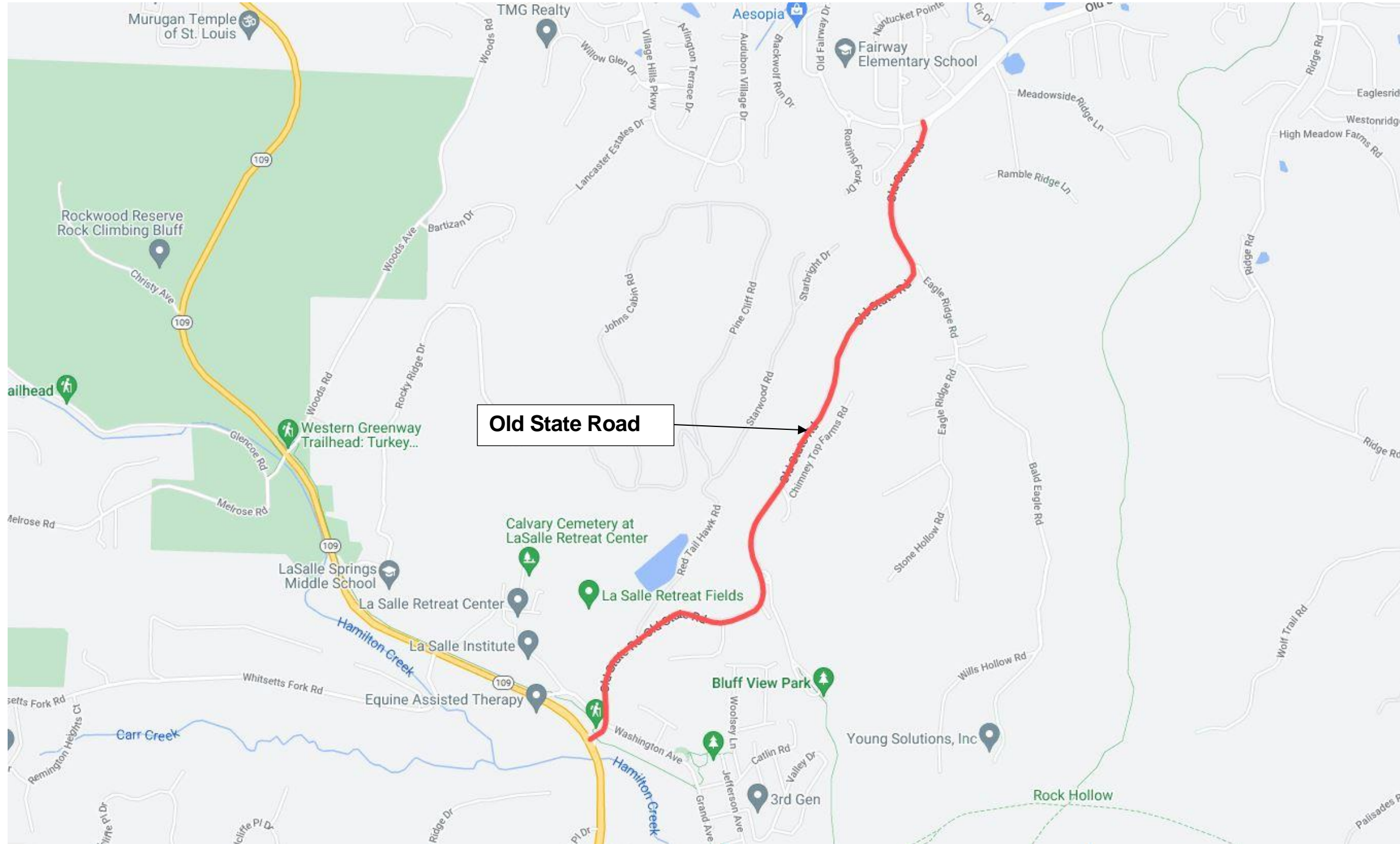


Exhibit A – Location Map

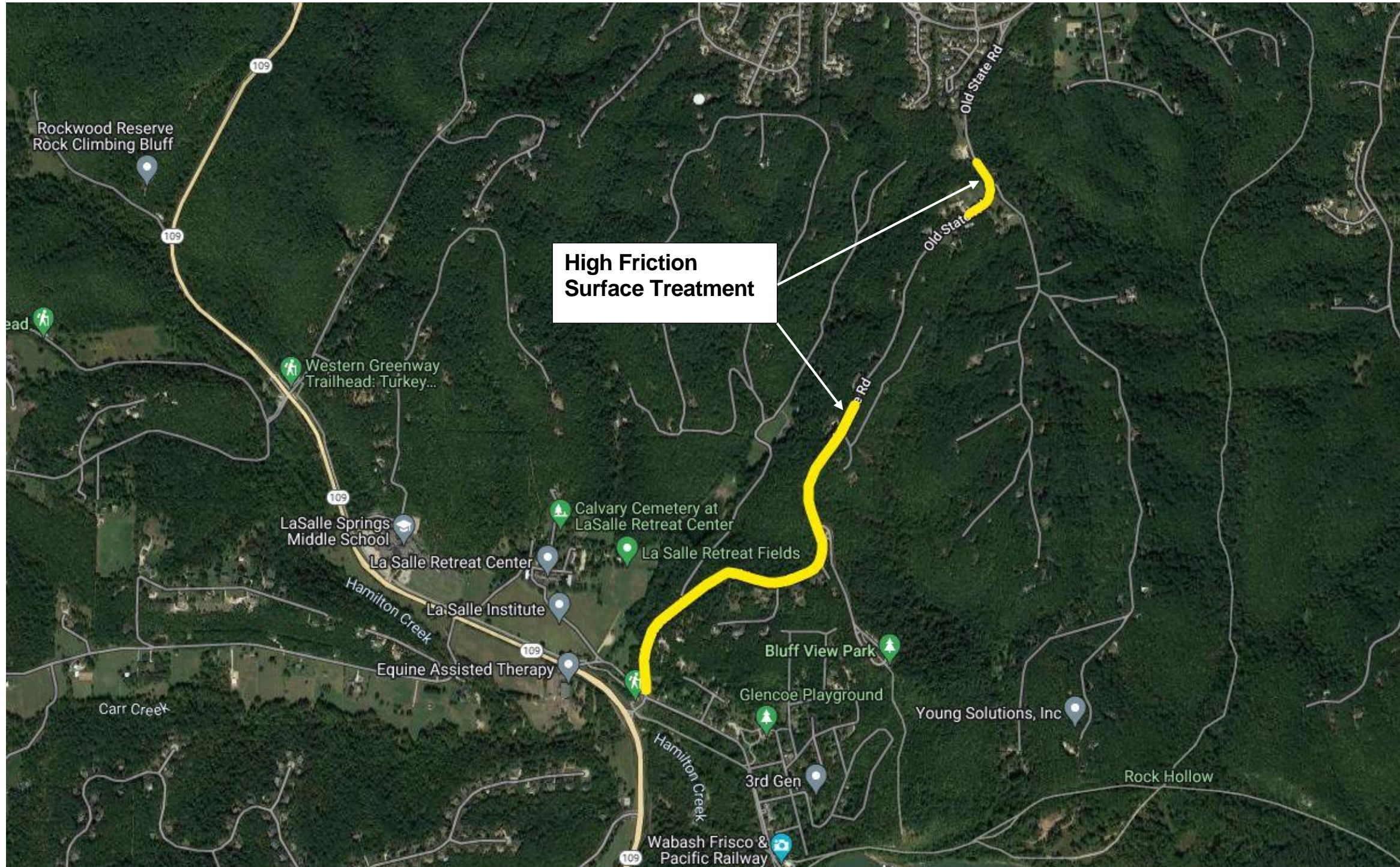


Exhibit B – Proposed High Friction Surface Treatment Areas

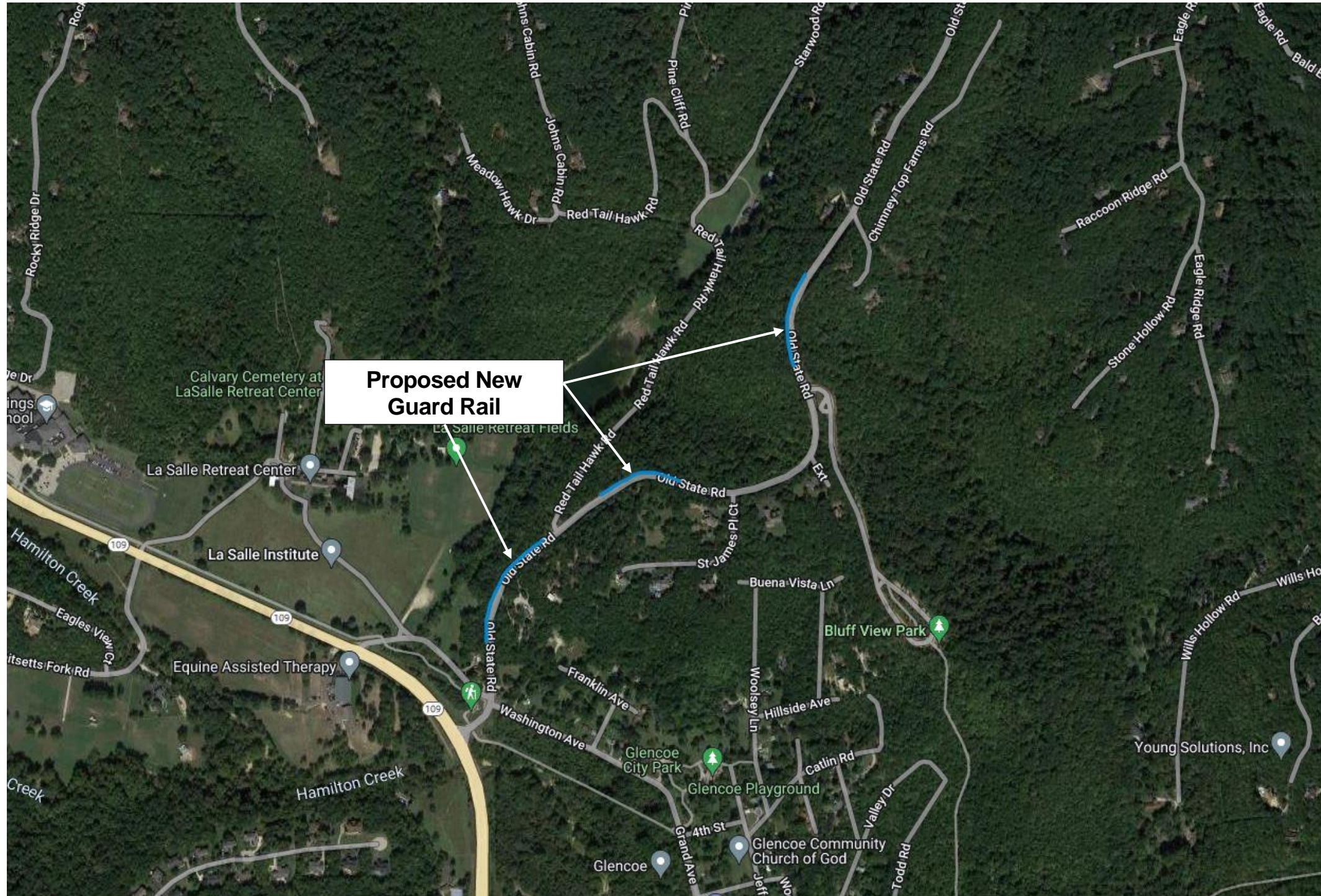


Exhibit C – Proposed New Guard Rail Locations