



AGENDA ITEM SUMMARY # 3

MEETING DATE: July 5, 2022

ITEM TITLE: Consideration of Proposal for Trinitite Trail Culvert Replacement

ITEM SUMMARY: The Town Council has been discussing options for replacement of the culvert over Canvases Back Canal on Trinitite Trail.

Issues with the culvert date back to before 1994 when repairs were performed due to similar issues as today. Replacement of the culvert began in January 2012 and was completed in March 2012. Due to soil settling around the culvert, which created depressions in the road, repairs were performed in July 2012, January 2013, and October 2014.

A February 2017 inspection showed that the culvert itself had not appeared to have settled. However, since the original replacement and subsequent reinforcement of the culvert along with fill on both sides being re-packed and settled, the areas on both sides of the culvert continue to settle and produce impressions in the surface of the street on either side of the culvert.

Several evaluations for structural integrity have been provided in recent years, most recently in February of 2022. The report concluded in part that it is extremely likely erosion/soil migration from under the roadbed as well as around the culvert walls of the canal below the water surface, and to some extent to the sides of the embankments, is occurring. This is to be expected given the inappropriate design evidenced by:

1. small vertical depth from top of culvert to road surface above and
2. relatively large vertical surface over which to distribute effectively and proportionately the tieback forces and
3. age of the culvert bridge.

The report further states that regardless of how well backfill is compacted, a certain amount is likely over time, especially with repeated vehicular loads. This is further impacted by organic materials like tree stumps and other vegetative organic matter involved in the process under the loaded vehicular area and slightly outside of the loaded vehicular area. Even properly compacted backfills can and do settle over time, more so with repeated loading. The unequally applied soil loads on the top and sides of the culvert are likely causing inward culvert wall movement and it's only natural to expect settlement in the locations where it is occurring.

Kimley-Horn was asked to prepare conceptual level structure plans for three different alternatives to replace the existing pipe culvert. The alternatives include a cast-in-place reinforced concrete slab bridge, a cored slab bridge, and a prefabricated buried arch structure.

The scope of services under this proposal include:

Task 1 Preliminary Hydraulic Study and Technical Memo	-	\$8,000
Task 2 Conceptual Roadway Design	-	\$10,000
Task 3 Conceptual Structural Plans	-	\$20,000
Task 4 Preliminary Utility Coordination	-	\$5,000
Total Lump Sum Labor Fee	-	\$43,000

In North Carolina, the procurement of professional services performed by architects, engineers, surveyors, and construction managers at risk is governed by G.S. 143-64.31, sometimes referred to as the "Mini-Brooks Act." Local government can exempt themselves from these requirements under G.S. 143-64.32 which reads "Units of local government or the North Carolina Department of Transportation may in writing exempt particular projects from the provisions of this Article in the case of proposed projects where an estimated professional fee is in an amount less than fifty thousand dollars (\$50,000)."

STAFF RECOMMENDATION: Rather than attempt to maintain what is in place now and experience continued settlement of the road, staff feels it is prudent to determine other, more effective, and lasting means for replacement. Staff recommends approval of the proposal as submitted so the Town Council can consider other options for replacement. It is further recommended that the Town exercise a "Mini-Brooks" exemption by approving the attached resolution.

REQUESTED ACTION: A motion to approve Resolution 2022-07-01 exempting the Town from the "Mini-Brooks Act" for the proposed work and a motion to authorize the Town Manager to execute the attached agreement with Kimley-Horn to provide conceptual replacements for the Trinitie Trail Culvert.

ATTACHMENTS: June 20, 2022, Kimley-Horn "Conceptual Structure Replacement of Trinitie Trail Culvert Professional Services Agreement"

Resolution 2022-07-01

NCGS 143-64.31-32