

EXECUTIVE SUMMARY

The Fairfax County Department of Public Works and Environmental Services (The County) authorized Kimley-Horn to provide professional engineering services to develop the Little Pimmit Run (LPR) Sanitary Sewer Realignment – Preliminary Engineering Report (PER). The goal of the sanitary sewer realignment project is to eliminate the majority of the six (6) existing sanitary sewer stream crossings along the LPR stream corridor in coordination with the ongoing LPR Stream Restoration Project at Chesterbrook Road. Kimley-Horn analyzed existing data and conditions, determined design criteria, and identified and evaluated four (4) potential realignment projects which eliminate between four (4) and six (6) of these crossings.

ES.1: Data Collection, Alternatives Identification, and Scoring

Kimley-Horn collected and analyzed data to include GIS, survey, as-built drawings, wastewater flow metering data, and CCTV reports and videos. Additionally, several site visits were completed to determine field conditions. Feasible realignment alternatives were developed based on existing topography, location and condition of existing sanitary sewer system assets, tree density, and property encroachment. Additionally, design criteria were identified based on the Fairfax County Public Facilities Manual (PFM) to guide development of feasible alternatives.

ES.2: Realignment Alternatives

Two alternatives, Alternative 1 and Alternative 2, were identified, with an additive, Option A, that can be added to Alternative 1. Both alternatives are located on the west side of LPR and both begin by connecting to existing MH 031-3-006, near Franklin Park Road. Both alternatives extend north along the west side of LPR connecting to existing manholes to integrate with the existing sewer system. Alternative 1 eliminates five (5) stream crossings and was chosen as the recommended project for final design and construction. The following table summarizes Alternative 1.

Alternative 1 extends on the west side of LPR. It begins at existing MH 031-3-006 immediately north of Franklin Park Road and terminates at existing MH 031-2-041, near Kirby Road.

Length	New MH	Interconnections	Stream Crossings Remaining	# of Easements	Construction Schedule
6,500 Feet	15	7	1	22	8 Months

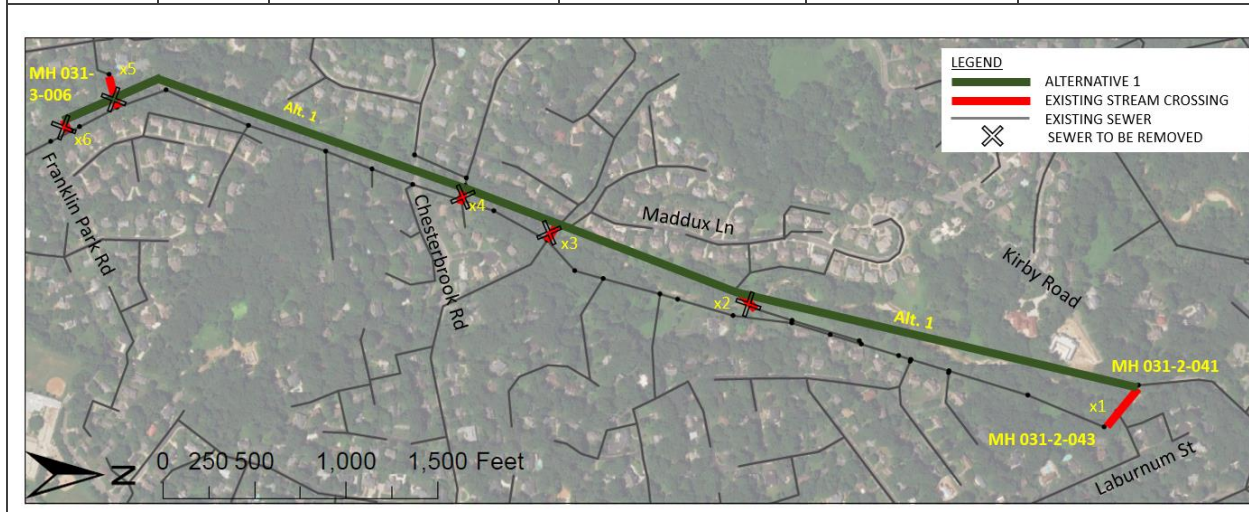


Table ES-1: Alternative 1 Summary

Alternative 2 is approximately 2,500 feet shorter and eliminates one less stream crossing (X2) than Alternative 1. For the most part, the Alternative 2 alignment matches Alternative 1; however, it terminates at Maddux Lane rather than extending to Kirby Road. Considering that Alternative 2 is shorter than Alternative 1, there are less easements required, and a lower total construction cost and duration. In keeping with the project goal of eliminating stream crossings, Alternative 2 was ultimately not selected. In addition to leaving two remaining crossings while Alternative 1 only leaves one, crossing X2 near Maddux Lane has limited access, raising the risk of costly and difficult emergency repairs. The following table summarizes Alternative 2.

Alternative 2 extends on the west side of LPR, beginning at existing MH 031-3-006 immediately north of Franklin Park Road. Alternative 2 terminates at existing MH 031-4-336, which subsequently connects to the existing 21-inch sewer line.

Length	New MH	Interconnections	Stream Crossings Remaining	# of Easements	Construction Schedule
4,150 LF	10	5	2	14	6 Months

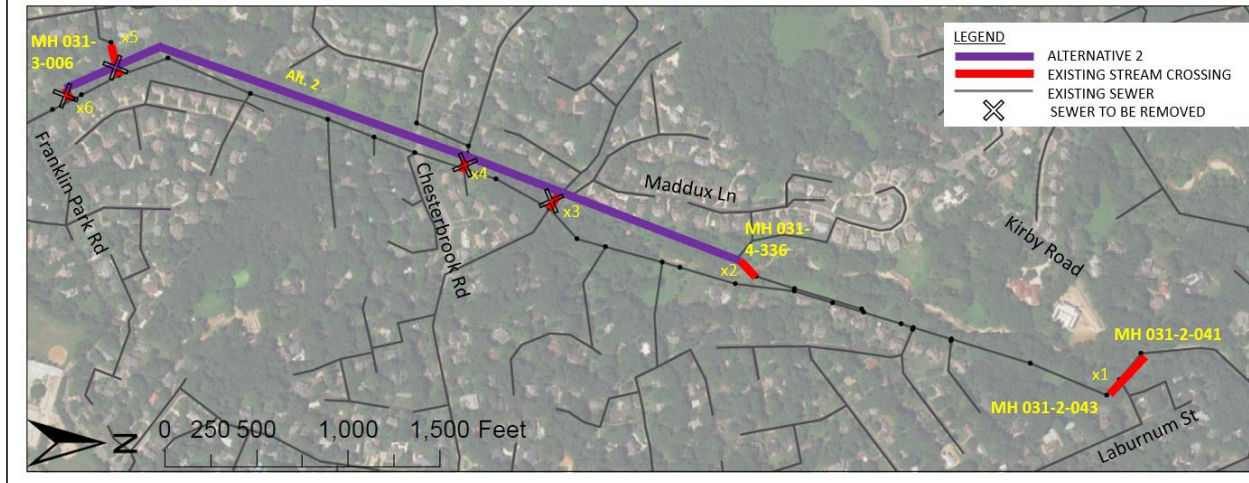


Table ES-2: Alternative 2 Summary

To eliminate the final stream crossing X1, Option A can be added to Alternative 1. Option A only eliminates one stream crossing and is therefore not intended to be implemented as a standalone solution. Option A begins by connecting to MH 031-2-043 on the east side of Little Pimmit Run and loops around the north end of Laburnum Street. Construction of Option A will be challenging due to steep slopes and limited access along the alignment. While including Option A with Alternative 1 eliminates all six stream crossings, Option A was not selected in the recommendation due to high construction costs and long construction duration due to steep slopes and limited access. The following table summarizes Option A.

Option A is intended to eliminate Crossing X1; the 21-inch pipe that extends from MH 031-2-042 to MH 031-2-041. Option A connects to MH 031-2-043 on the east side of the stream. Option A should only be considered in conjunction with Alternative 1.

Length	New MH	Interconnections	Stream Crossings Remaining	# of Easements	Construction Schedule
1,125 LF	5	1	0	4	2-3 Months

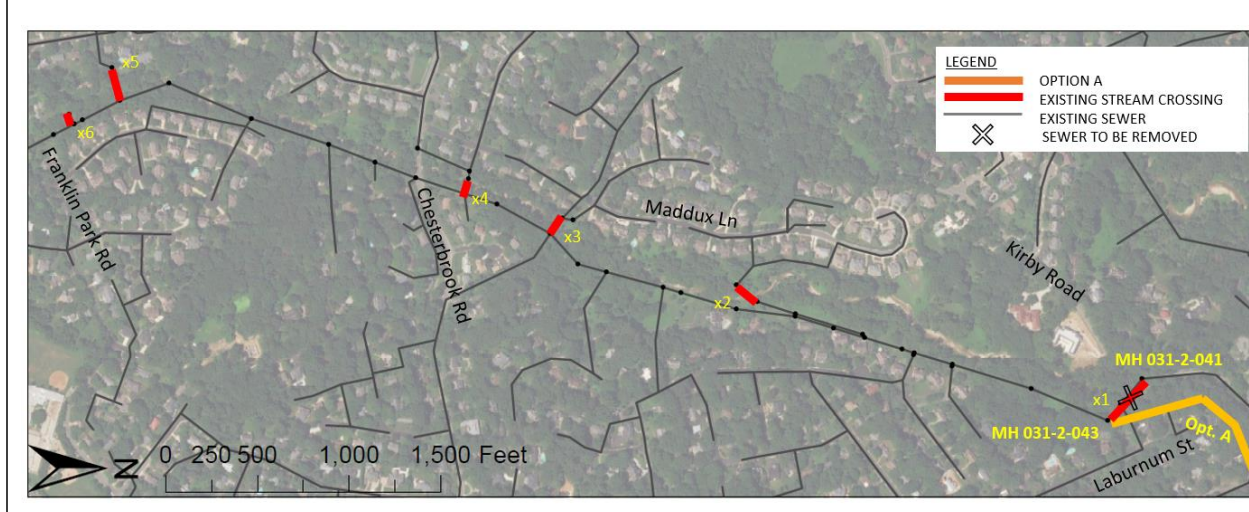


Table ES-3: Alternative 3 Summary

The alternatives were grouped into four feasible project packages, with each project representing a complete alignment that could be taken to final design and construction. The four projects are summarized below.

- Project 1:** *Involves implementing only Alternative 1*
- Project 2:** *Involves implementing only Alternative 2*
- Project 3:** *Involves implementing Alternative 1 plus Option A1 (open cut)*
- Project 4:** *Involves implementing Alternative 1 plus Option A2 (Microtunneling)*

To determine a recommended project, a scoring methodology was applied. Criteria were developed that reflect an important factor in the design, construction, or operation of the proposed sewer realignment project. Following a thorough review with the County, each criterion was assigned a weight reflecting its priority level and importance, with elimination of stream crossings being of highest importance. Each project was independently evaluated for its performance within each criterion and given a total score.

The following table summarizes the final scoring of the Projects.