CITY OF NORMAN, OK

STAFF REPORT

MEETING DATE: 06/28/2022

REQUESTER: Jason Murphy, Stormwater Program Manager

PRESENTER: Shawn O'Leary, Director of Public Works

TITLE: CONSIDERATION OF APPROVAL, ACCEPTANCE, REJECTION, AMENDMENT, AND/OR POSTPONEMENT OF RESOLUTION NO. R-2122-134 AUTHORIZING THE CHAIRMAN TO SUBMIT A HAZARD MITIGATION GRANT PROGRAM GRANT APPLICATION TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).

BACKGROUND:

A Storm Water Master Plan (SWMP) was developed for the City of Norman by PBS&J and accepted by City Council in November 2009. Among other things, this plan delineated the various watersheds in the City, identified stream segments which needed restoration and improvement, and identified projects to provide this restoration including concept designs. As stated in the SWMP, solutions for problems in the Imhoff Creek watershed are by far the most significant compared to solutions in other watersheds. One such stream segment is the Lower Imhoff Creek between Lindsey Street and Imhoff Creek's confluence with the Canadian River.

In the Storm Water Master Plan, Lower Imhoff Creek is divided into two problem areas, or reaches: IC-1 and IC-2. IC-1 is that portion of Imhoff Creek between State Highway 9 and its confluence with the Canadian River. IC-2 is that portion of Imhoff Creek between State Highway 9 and a point some 2,000 linear feet north of Imhoff Road. IC-2 is the focus of the current project (see attached map).

The SWMP recommends design and installation of stream bank stabilization techniques along stream segment IC-2. The identified problem in the SWMP for IC-2 is "4,200 LF of severe bank erosion along both banks beginning at the upstream face of Highway 9 to approximately 2,000 LF upstream of Imhoff Rd. The erosion along the banks has caused property fences and trees to fall into the creek."

As Imhoff Creek adjusted to changing upstream conditions, down cutting and widening resulted in extreme bank and bed erosion, which are characteristic in this portion of Imhoff Creek. Continued development along the length of the stream has exacerbated the runoff problems leading to trees and fences falling into the creek, loss of property and threats to infrastructure including the Imhoff Road bridge. In July of 2021, a critical failure of this bridge due to increasing erosion problems, led to this road being closed until April of 2022 and a repair bill for just under $2 million dollars to the City. In the past, conventional wisdom directed efforts away from form and function toward armoring of stream channel bottoms and slopes to address in-stream erosion problems. This approach

increased water velocity and tended to take problems downstream, which eventually worked back upstream as erosion occurring at the interface of the natural stream and the hard armor surfaces. Utilizing more natural stream restoration techniques, which provide for form and function, has proven to be a more effective method of urban stream repair.

On June 9, 2015, Council approved Contract No. K-1415-134 by and between the City of Norman and Meshek & Associates, LLC, in the amount of $143,000.00. The contract services included:

- Kickoff Meeting and Channel Walk
- Data Collection and Processing
- Easement and Right-of-Way Evaluation
- Hydrology and Hydraulic Modeling
- Ecological Inventory
- Development of Stream Restoration Alternatives and Recommendations
- Council and Public Meetings
- Surveying and Geotechnical Investigations

On June 30, 2017, Meshek and Associates submitted the Lower Imhoff Creek Study Final Report. On July 11, 2017, City staff and Brandon Claborn, Principal Engineer for Meshek and Associates, presented the findings of this report to City Council. The conceptual designs and priority recommendations presented in the report will be used to perform engineering design and construction plans for the Phase I stream improvements through this amendment.

On August 8, 2017, Council approved Resolution No R-1718-21 accepting the Lower Imhoff Creek Study Final Report. The Lower Imhoff Creek Study Final Report recommended several preventative and mitigation recommendations based on the data gathered during this study as follows:

- Implementation of a 5-year Monitoring Plan to evaluate the rate of degradation to channel;
- Provide training to City maintenance staff to learn new techniques for maintaining more natural stream restoration devices such as gabion walls, cross vanes, and others;
- Design and construct stream mitigation improvements in two phases:
    - Phase 1 will begin at Imhoff Road and end approximately 1200 feet downstream of Imhoff Road. This section should be addressed first due to the risk to existing infrastructure. Estimated cost is $3,150,300.00.
    - Phase 2 will begin upstream of Imhoff Road and end at the end of the improved channel. Estimated cost is $4,347,950.00

Construction of the stream mitigation improvements were divided into two phases due to the cost to construct the entire project at one time. Meshek and Associates recommended that Phase I of the improvements be addressed first because the greatest impact to existing infrastructure can be found in this area, including potential impacts to Imhoff Road bridge and several sewer lines. Homes on the east side of the Phase I project area are also located closer to the streambank than those in the Phase II project area.

On April 27, 2021, City Council approved Amendment No. 1 to Contract No. K-1415-134 with Meshek and Associates to insure that all three recommendations were undertaken. The first two

recommendations have since been completed and the third phase will be addressed through the completion of the following tasks:

- Federal Emergency Management Agency (FEMA) Grant Application and Preparation Services for construction costs and project coordination
- Detailed Topographic Survey
- Environmental (404 permitting)
- Hydrology & Hydraulic Modeling
- Preparation of a Conditional Letter of Map Revision (CLOMR)
- Geotechnical Report
- Preliminary Plans
- Final Construction Plans and Bid Documents
- Erosion Control Workshop
- Bank Erosion Monitoring Site Installation
- Project Management

DISCUSSION:
Due to the importance of this project, Council appropriated $550,000 per year for seven years beginning with the 21/22 budget. With these allocations, design for Phase I is already underway with 90% plans completed and paid for through amended Contract No. K-1415-134. Given the estimated costs of construction for each phase of this project and the limited funds available for stormwater projects in the City's Capital Fund, City staff has been pursuing alternate sources of funding beginning with Phase I. FEMA has a long-term hazard mitigation planning and projects following a Presidential major disaster declaration Hazard Mitigation Grant Program (HMGP). One of the goals of HMGP is to support communities by enabling large projects such as this one. As part of the amendment, City staff worked with Meshek and Associates to complete an application for HMGP program funding for Phase I construction costs and reimbursement of design costs as part of the Pre-Award services listed above.

This is an opportunity to apply for Federal funding assistance, which if secured, would greatly improve the conditions of Imhoff Creek and protect vital infrastructure, including Imhoff Road bridge from future erosion and several sanitary sewer lines, as well as help prevent further loss of resident property as their backyards continue to erode.

The FY 2021 HMGP Program provides Federal funds only for reimbursement of project costs that have already been incurred as a result of work complete in accordance with the Scope of Work. Not all project costs will be reimbursed with HMGP funds because a non-Federal funding match is required.

This grant for Phase I (south of Imhoff Road) fell under the Consolidated Appropriations Act of 2022, which granted a minimum of 90% federal cost share for any emergency or major disaster declared during or having an incident period between January 1, 2020 and December 31, 2021. This grant is itself divided into two phases. The first, Phase A, is design. Phase A total cost of $402,712, including 90% Federal funds in the amount of $364,347.30 and 10% local match of $38,364.70. The attached City of Norman Match Commitment Letter is for the local match of Phase A. The total cost of Phase A has already been paid for by the City and, if awarded the grant, would result in a reimbursement of up to $364,347.30. The construction phase, Phase B, would award grant money in the amount of $2,884,185, of which $2,593,860 is the 90% federal funds and $290,325 is the 10% local match. If

awarded, funds are available in project DR0062, 50595531-46101 for local match for both phases. While this is technically one grant, there are two separate applications and City of Norman Match Commitment Letters, one for Phase A (Design) and one for Phase B (Construction). The match commitment letter for Phase B will not be requested until Phase A is completed. Phase A should be completed by August 2022

If awarded, this grant along with funds already procured from council action, would allow Phase I of the Lower Imhoff rehabilitation to be completed. The remaining balance of funds could be applied to begin design of Phase II, the 2000-foot area above Imhoff Road bridge. The City will continue to search for alternative funding methods, or with currently available Federal ARPA funds that the city has procured, likely have the funding to complete the entirety of the project without a break in the project.

The application and resolution do not commit the City of Norman to accepting funds. Such a commitment will be required if the City of Norman enters into a grant agreement, a decision that would return to Council for approval if the grant is secured. If the City is awarded federal HMGP grants for Phases A and B, construction of improvements in Imhoff Creek will begin around December 2022.

RECOMMENDATION 1:

Staff recommends approval of Resolution No. R-2122-134, authorizing the submittal of Hazard Mitigation Grant Program Grant Applications to FEMA and approval of financing commitment letters of agreement under the program.

Reviewed by: Jason Murphy, Stormwater Program Manager
Shawn O'Leary, Director of Public Works
Clint Mercer, Chief Accountant
Anthony Francisco, Director of Finance
Kathryn Walker, City Attorney
Darrel Pyle, City Manager

RESOLUTION R-2122-134

A RESOLUTION OF THE CITY OF NORMAN AUTHORIZING THE MESHEK AND ASSOCIATES, L.L.C. TO SUBMIT, AS AN AGENT FOR THE CITY OF NORMAN, A HAZARD MITIGATION GRANT PROGRAM GRANT APPLICATION FOR TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FOR PHASE I IMPROVEMENTS PLANNED TO LOWER IMHOFF CREEK.

1. WHEREAS, the Federal Emergency Management Agency (FEMA) has a new pre-disaster hazard mitigation program, DR-4438, entitled "Hazard Mitigation Grant Program (HMGP)" and, pursuant to the Consolidated Appropriations Act of 2022, FEMA reimburses a minimum of 90% federal cost share for any emergency or major disaster declared during or having an incident period between January 1, 2020 and December 31, 2021; and

2. WHEREAS, in the City of Norman Storm Water Master Plan, Lower Imhoff Creek between Lindsey Street and Imhoff Creek's confluence with the Canadian River, was identified as a stream segment requiring restoration and improvement; and

3. WHEREAS, the City of Norman Storm Water Master Plan recommends design and installation of stream bank stabilization techniques along IC-2, that portion of Lower Imhoff Creek between State Highway 9 and a point some 2,000 linear feet North of Imhoff Road; and

4. WHEREAS, the City of Norman, pursuant to Contract K-1415-134 and its various amendments, has worked with Meshek and Associates, L.L.C., to design these solutions and to complete an application for BRIC program funding for construction costs and design costs relating to improvements planned for Lower Imhoff Creek, IC-2; and

5. WHEREAS, the City of Norman's improvements to Lower Imhoff Creek, IC-2, are within the bounds of the FEMA BRIC funding opportunity, and the City wishes to apply for reimbursement of funds to cover a portion of the design and construction cost for Phase I of the planned improvements; and

6. WHEREAS, FEMA directs that, upon award, applicants shall commit to an agreement wherein applicants agree to provide ten percent (10%) local share of the project costs, to oversee implementation of the project upon award, and to guarantee annual maintenance for the life of the project.

NOW, THEREFORE, BE IT RESOLVED BY THE NORMAN UTILITIES AUTHORITY:

SECTION 1. The City of Norman hereby finds that it is in the City of Norman's and public's interest in health, safety and welfare of the community to file the HMGP Grant Application with the FEMA to seek reimbursement of design and construction costs relating to improvements planned to the Lower Imhoff Creek, IC-2.

SECTION 2. The City of Norman understands and supports the application that will be submitted and finds:

(a) The City of Norman has legal authority to enter into an agreement with FEMA to receive a grant; and
(b) The City of Norman is able to provide the minimum 10% non-federal cost share specified in the HMGP Grant for this application.

SECTION 3. The City of Norman hereby authorizes and directs the City Manager or his designees, the Director of Public Works or his agents to work with Meshek and Associates, L.L.C., to:

(a) file and sign, for, on behalf of, and as agent of the City of Norman, a HMGP Grant Application, DR-4438, to FEMA for reimbursement of design and construction costs associated with Phase I of the Lower Imhoff Creek project;
(b) provide the assurances, certifications, and commitments required for the HMGP Grant Application; and
(c) represent the City of Norman in carrying out the City of Norman's responsibilities under the assurances provided to FEMA.

SECTION 4. The City of Norman will work with FEMA to meet established deadlines required for entering into a grant agreement to obtain the aforementioned grant reimbursement funding.

PASSED AND ADOPTED this _____ day of _____, 2022.

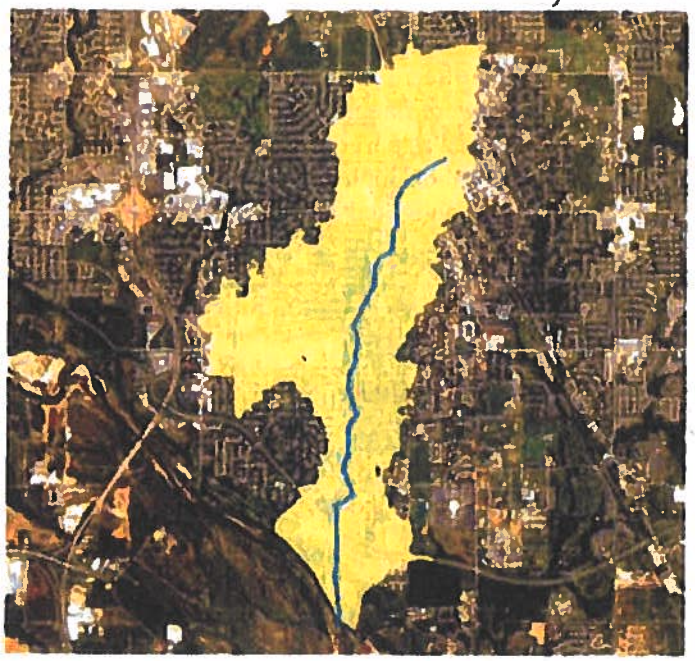
_____
Mayor Pro Tem

ATTEST:

_____
Brenda Hall, City Clerk

LOWER IMHOFF CREEK HYDRAULIC & HYDROLOGIC STUDY PROJECT

Norman, Oklahoma



Prepared For:
City of Norman, Oklahoma

Prepared By:
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Wichita, KS 67202

Meshek & Associates, PLC

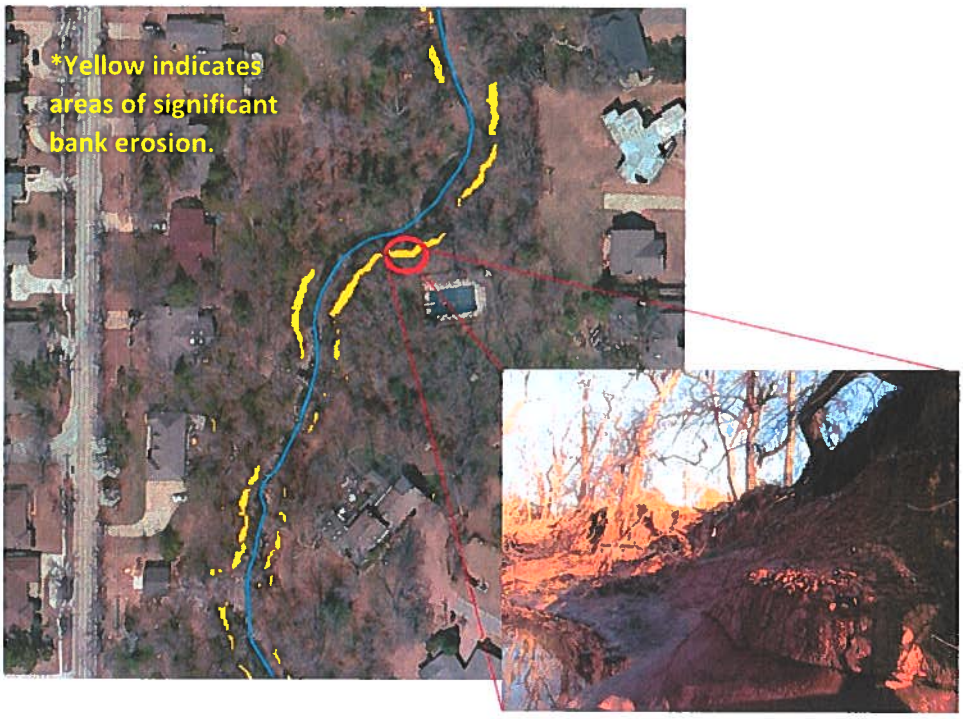
Amec Foster Wheeler

private landowners. Further discussion and details of this recommendation are provided in the Improvement Concepts section of this report.

6. A strong ammonia odor was observed at station 10+39 of the new survey profile established by Lemke. This is approximately 500 feet downstream of the pedestrian bridge.
7. During the field investigation it was noted that it will be difficult to address the problem immediately downstream of Imhoff Drive on the left descending bank without addressing at least 450 ft of channel. The proposed mitigation improvements discussed in later sections of this report include improvements for this whole stream reach to address this issue.

In addition to the field investigation Amec Foster Wheeler also performed a review of the topographic information to highlight potential problem areas. These areas were identified by developing slope grids of the available topography using GIS processes. Areas identified during the field investigation were used as reference points during the analysis. Multiple areas were flagged in which unstable vertical streambanks were present. The conceptual solutions developed as part of this project were then selected to address these locations. Figure 3 below depicts in yellow an example of some of the locations that were identified as problem areas in the analyses. The areas highlighted in yellow indicate locations in which excessive bank erosion and instability exist.

Figure 3: Example of Site Problem Area



Finally during the field investigation it was noted that Imhoff Creek has likely down cut over time. As part of this study in channel field survey was collected and coupled with detailed LiDAR data of the channel surface. This combination of data was used to evaluate the channel profile. Figure 4 below illustrates the stream bed profile from SH-9 through Imhoff Road to the end of the improved articulated block wall using sample points of the channel survey and LiDAR data.

Imhoff Creek - 100-Yr Floodplain

Imhoff Creek - 100-Yr Floodplain

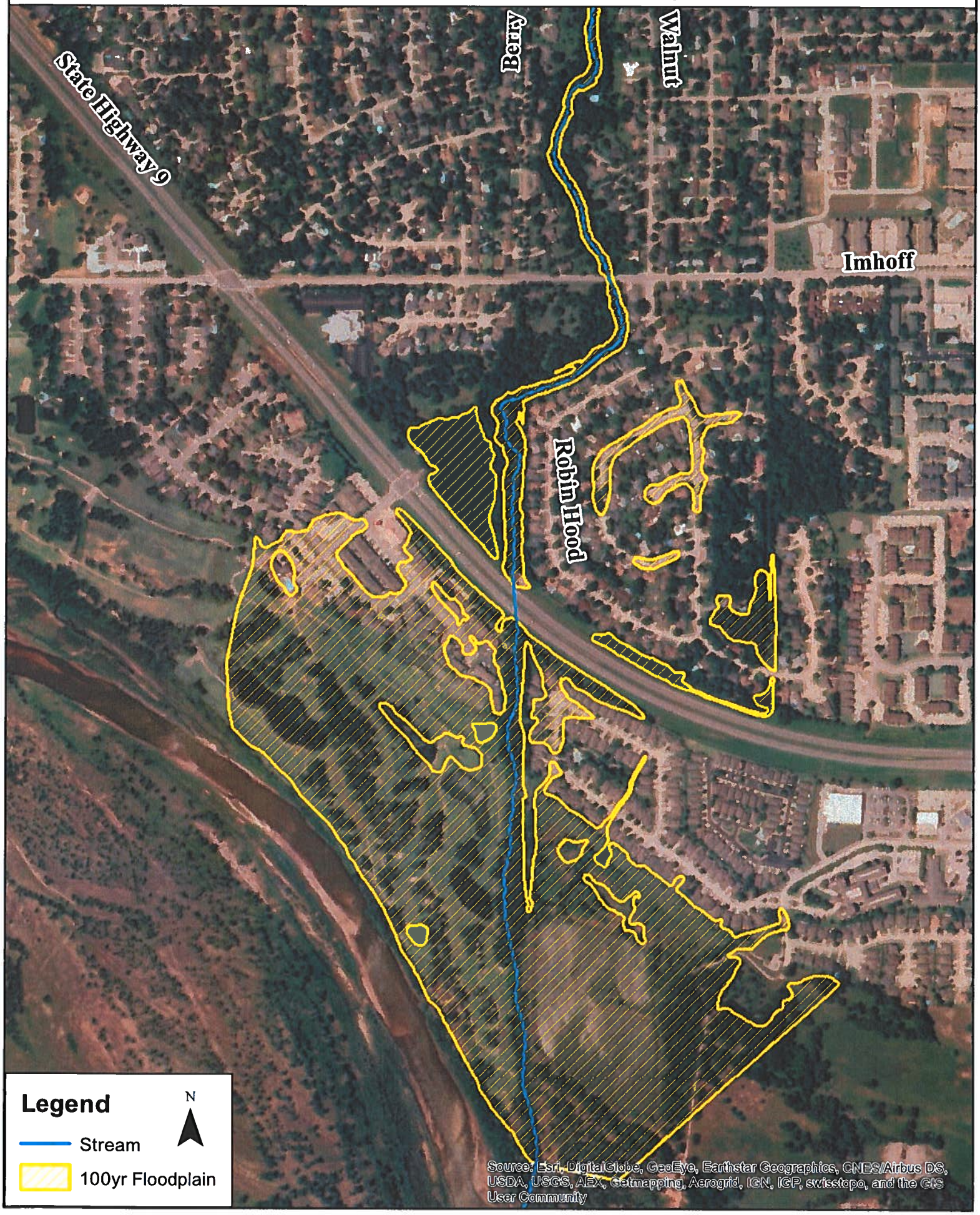


Figure 15: Floodplain Comparison - Upstream Imhoff Road

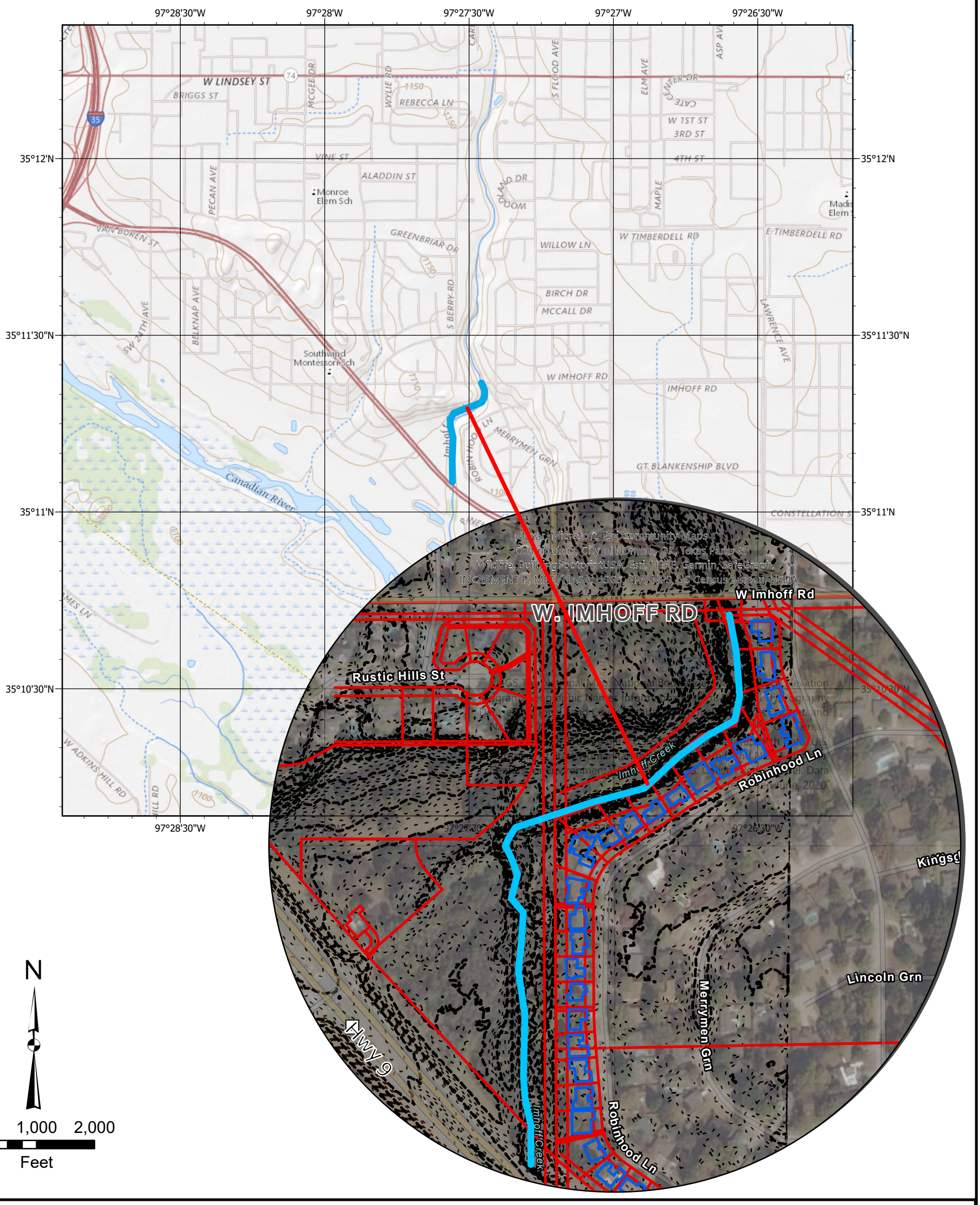
Figure 16: Floodplain Comparison - Downstream Imhoff Road

COST ESTIMATES

The following provides "concept level" estimated costs for the recommendations and improvement options described previously.

LOCATION MAP

Imhoff Creek
City of Norman, OK
Section 07, T-08-N, R-02-W
Section 12, T-08-N, R-03-W
Cleveland County, Oklahoma



MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550, TULSA, OK 74119/ 2000 N. CLASSEN BLVD, N150, OKC, OK 73106

FIGURE 1 LOCATION MAP	CITY OF NORMAN, OK IMHOFF CREEK		
	JOB NO: 15NOR01	DRAWN BY	HCW
		DATE	8/26/21