

MEMORANDUM

TO: Honorable Mayor and City Council
FROM: Joseph E Tebrugge PE, Director of Engineering
DATE: October 5, 2022
SUBJECT: Streams Lakes Meander Feasibility Study

The August 9th, 2021 City Council Planning Session discussed the Streams Lakes which is the length of Springbook#1 between Creekside Drive and the Wheaton Sanitary District plant that was widened in 1969 and 1970. During the August 9th planning session, Council directed Staff to hire a specialist to investigate possible improvements to the current sedimentation condition of Springbrook#1.

All moving water carries a sediment load, which is a naturally occurring phenomenon. There is no way to stop sediment transfer and it will always be a part of the flowing water in Springbrook#1. In natural streams, this sediment load coupled with the forces on the flowing water is what shapes the channel. However, in the case of Sprinbrook#1, which is a manmade channel, and which was artificially widened in the Stream Lakes area, the sediment transport is not in equilibrium with the flow of water. Due to this, the laws of nature continually work against the current channel, reshaping it towards a natural condition. Based on the current channel shape, this causes siltation in the channel from Kelly Park to the Wheaton Sanitary District Plant outfall including a very large sedimentation issue in the Streams Lakes.

The Wheaton Sanitary District has obtained a grant for streambank stabilization through the Wheaton Sanitary District property. This streambank stabilization would stabilize the current elevation of the stream bed of Springbrook#1 through the Sanitary Plant. Since it is documented that Springbook#1's channel had partially sedimented in through this reach it was of interest to the City whether this stabilization work would preclude the possibility of converting the Streams Lakes into a naturalized channel in the future. The focus of the study was kept to the Stream Lakes area alone to answer this question.

Previous studies have been performed on the Streams Lakes in the past and it has been determined that:

- 1) There is no way to improve the channel to create a sediment forebay to making dredging the Lakes easier and/or less expensive.
- 2) There is not room to keep the lakes and to create a second, disconnected channel.
- 3) There are 3 options moving forward
 - a. Continue to dredge the Streams Lakes



WHEATON MAYOR PHILIP J. SUESS

CITY MANAGER MICHAEL DZUGAN

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- b. Convert the area into a **Naturalized Channel** designed to mirror natural forces and prevent the sedimentation issue in this area
- c. Stop dredging and allow it to fill in

The City hired Engineering Resource Associates to perform the Streams Lakes Meander Feasibility Study to receive more clarity on option 3(b).

The Stream Lakes Meander Feasibility study included survey of the area, review of the existing conditions, analysis of the Springbrook#1 flow regime, analysis of a proposed channel to match the existing forces of the Springbrook#1 flow regime, preliminary engineering drawings, and an initial engineering estimate.

RESULTS

The results of the Streams Lakes Feasibility Study are as follows:

- 1) The Wheaton Sanitary District project does not preclude the City moving forward with any future possible solutions and the WSD project should be supported.
- 2) It is possible to create a Naturalized Channel through the Streams Lakes area.

This proposed natural channel would have minor meandering with more slope than what currently exists in the area. The channel will narrow the flow of the water and allow the sediment transport to continue through this area instead of causing the sedimentation issue in the Lakes. The proposed channel would be flanked by a naturalized floodplain terrace planted with native grasses and remove the 5,100 linear feet of broken concrete sidewalk. The native planting would decrease goose activity in the area and as such decrease the fecal coliform pollution that current exists in the area. Additionally, the project would improve dissolved oxygen in the water using rock substrates. Both high Fecal Coliform and low Dissolved Oxygen are current identified water quality impairments by the IEPA for this stream reach that do not meet water quality standards and are required to be improved.

There are funding opportunities available through the IEPA 319h Grant (60% max), the DuPage River Salt Creek Workgroup (DRSCW), and the DuPage County Water Quality Improvement Program (20% max) to reduce the total cost to the City of Wheaton. The initial engineering estimate for the cost of construction alone is approximately 3 million dollars.

The Streams Lakes Meander Feasibility Study is attached.