DEPARTMENT OF
PUBLIC
WORKS

MEMORANDUM

Date: October 7, 2025
To: Utilities Committee
From: Laura Jungwirth, Director of Public Works
Pete Neuberger, Deputy Director of Public Works/City Engineer
Subject: Northland – Bellaire Flood Study Update #3

On November 20, 2024, The Appleton Common Council authorized the Department of Public Works (DPW) to contract with stormwater consultant Brown and Caldwell (B&C) for the 2024D Northland Creek and Bellaire Watersheds Stormwater Evaluation in response to significant flooding that occurred following severe rainfall events in July 2024. The study limits are approximately bounded by I-41 to the north, STH 441 to the east, Mason Street to the west, and Packard Street to the south.

DPW staff have been coordinating closely with Brown and Caldwell and are providing the following summary of progress, along with ongoing and upcoming tasks anticipated for this contract.

Completed Tasks

- Tasks reported as completed at June 24, 2025 Utilities Committee Meeting
    - Kickoff meeting held December 11, 2024.
    - Reviewed location and description of July 2024 and historic flooding reports with DPW.
    - Updated the previously developed system models to reflect current industry standard rainfall distributions and depths.
    - Merged previously developed Northland model and Bellaire model into one combined model incorporating both watersheds.
    - Performed field site visits to verify previously modeled existing conditions, including flow paths.
    - Reviewed and updated model based on existing/surveyed storm sewer information from Town of Grand Chute.
    - Performed subwatershed-level inlet capacity calculations.
    - Ran sensitivity analyses for two different antecedent moisture conditions.
    - Ran sensitivity analyses for concept-level scenarios using 10-year and 100-year storm events to narrow potential improvement locations and practices for more detailed evaluation.
      Began alternatives evaluations using sensitivity analysis findings.

        - The most detailed evaluations to date involve combinations of storage and conveyance components in the Central Northland Watershed Area.
        - Conducted an initial utility conflicts evaluation of the Central Northland Watershed Area for potential storm sewer improvements.
        - Adjusted potential sewer inverts and sizes to avoid known potential conflicts.
- Obtained existing and proposed conditions modeling for planned improvements by the Town of Grand Chute upstream of the City portion of Northland Creek watershed.
- Discussed with Parks and Recreation Staff potential Memorial Park South Pond (MPS Pond) expansion limits relative to park use goals.
- Performed initial modeling of MPS Pond expansion with nearby conveyance in Northland Avenue.

Ongoing Tasks

- Model storage and conveyance improvement alternative components that could potentially be coordinated with, or follow, a possible MPS Pond expansion.
- Analyze utility conflicts related to above alternative components.
- Update cost estimates for previously studied conveyance alternatives involving construction of a large storm sewer from Bellaire and Northland Watersheds to the Fox River

- Update and refine estimates for previously studied Bellaire Drainage Area flood storage alternative components at various locations within the public right-of-way.

Future Tasks

- Anticipated Utilities Committee Update #4 in January 2026
- Continue to analyze storage and conveyance improvement components within the watersheds.
- Develop a prioritized list of potential inlet capacity improvements based on the subwatershed-level capacity calculations and other system information.
- Continue to refine potential improvements, check and adjust for potential significant utility conflicts.
- Develop 2D SWMM water quantity models within four to-be-determined priority areas to further enhance model output level of detail.
- Combine potentially viable (based on constructability and cost effectiveness) components into combined alternatives and present to Utilities Committee with recommendations for approval, anticipated Spring 2026.
- Develop WinSLAMM water quality models to identify potential stormwater pollution reduction measures that could be incorporated into the stormwater quantity project alternatives under consideration.
- Develop design refinements for selected combined alternative to help resolve utility conflicts in preparation of future design phases.
- Prepare a technical memorandum documenting the procedures, recommended improvements, and conclusions for all tasks under this project.