

March 25, 2024

WSF 2024 Annual Report #5253

DMR Section 205 Flood Reduction Project

This is the fifth annual report. This report covers all activity from April 2023-April 2024.

Project Progress 205 Flood reduction Project

The LPSNRD/City of Lincoln continues to work with UNL Engineering Department on the flume physical model for the Burlington Northern Railroad crossing. Phase 2 of the flume modeling by UNL includes making modifications to the physical model of the flume and channel and installing additional measurement devices to better determine velocities, scour risk, and determine the appropriate rip-rap sizing at the flume and elsewhere in the channel. In addition to providing additional hydraulic modeling accuracy, the phase 2 work is expected reduce overall federal project costs by decreasing the size and amount of riprap, thus saving up to \$1 million dollars for the project. The U.S. Army Corps of Engineers (USACE) provided 65% design plans for the flume in mid-February, with the associated cost estimate received the middle of March. The local sponsor will review the cost and feasibility of multiple options at the railroad bridge, including a flume, multiple large box culverts, and a new bridge. Once a decision is arrived, the local sponsor will enter into an agreement with the BNSF railroad which will help them verify that the design conforms with all Railroad requirements.

The USACE continues the design of the channel from 48th Street to Cornhusker Hwy. The USACE's 95% Design is tentatively to be received in late March, but has not been received at the time of this update. Based on cost the 65% design cost estimate from the USACE for the 205 project, and estimates derived for the local sponsor's responsibilities (bridges, right-of-way, public utility relocations), total project costs are estimated near \$60 Million (\$37M 205, \$20M Local). While the project still provides a favorable cost-benefit ratio, the increased cost are not within the budgetary constraints of both the LPSNRD and City. After several meetings discussing funding options, the local sponsor has directed the USACE to look at design measures to reduce 205 project costs. To date, the USACE has provided limited recommendations to reduce costs that result in still providing the original project benefits.

Local Sponsor Progress

In addition to directing USACE in providing cost-saving alternatives to the 205 project, the local sponsor has also retained Houston Engineering to investigate in detail, feasible design alternatives to reduce costs for both the channel and local projects. Houston has reviewed and updated hydrologic and hydraulic analysis and recommended cost-saving measures to reduce channel footprint while still providing the same flood protection benefits as originally intended. One of the key recommendations is constructing one or two upstream detention basins in-line with Deadmans Run to reduce peak flows during a 100-year event. The detention basin(s) alleviates the need to modify the existing channel (widen) for a majority of the project, and also allows for the 38th and 48th Street bridges to remain in place. Not only does this reduce costs for

bridge replacements, but it also reduces the right-of-way impacts, utility relocations, as well as the large amount excavation and haul off required to enlarge the channel in the USACE design.

33rd Street Bridge

Preliminary design of this bridge has been completed, and is on hold and pending further discussion/decisions with the City and project partners regarding the timeline and replacement of the bridge. This bridge is part of the 33rd and Cornhusker overpass project that is being directed by the City of Lincoln's Railroad Transportation Safety District. It is expected the existing 33rd Street box culvert will be removed as the channel project nears construction completion and will be replaced two to three years later. To maintain traffic continuity, the Baldwin Connector will be constructed prior to removal of 33rd Street.

38th Street Bridge

The LPSNRD and UNL have an interlocal that allows UNL to hire a firm to design the 38th St. bridge which is located on DMR on UNL's East Campus. UNL is under contract with WSP at a cost of \$389,500 to design the bridge. If cost reduction measures are implemented for the 205 project, this bridge may not require replacement.

48th Street Bridge

The city is the lead on this project, and they have hired WSP to design the bridge. The design is about 100% complete. Due to pressures from the public from recent street construction in the neighborhood, and resultant impacts of business, the letting of the 48th Street bridge has been delayed indefinitely. If cost reduction measures are implemented for the 205 project, this structure may not require replacement for the flood reduction project.

Detention Basin(s)

The initial detention basin capturing the west tributary flows at Flemming fields was determined by FYRA (now Houston Engineering) not to provide any benefit to the flows into DMR. However, as described in previous paragraph related to cost-reduction alternatives, Houston has proposed one to two detention basins upstream or within the channel project location to reduce peak flows during a 100-year event. Implementation of one or two of the detention basins will limit the amount of channel widening required for Deadmans Run, and possibly eliminate the need to replace bridges at 48th and 38th Streets, significantly reducing projects costs. The local sponsors will evaluate these design alternatives to determine feasibility.

2024-2025 WSF Budget

Detention Engineering/ Design	\$1,250,000
H&H Update for Floodplain CLOMR/LOMR	\$38,200
Utility Engineering/ Design	\$200,000
ROW Appraisals/ Acquisitions	\$1,000,000
Design of 38 th St Bridge (UNL)*	<u>\$400,000</u>
Total	\$2,888,200

*If needed

WSF portion of local dollars for next year is $\$2,888,200 \times 60\% = \$1,732,920$

Project Timeline*

The most current schedule received by the USACE is provided below:

Final Design	September 2024
Contract Award	October 2024
Project Complete	September 2025

*- Schedule may change due to USACE delays and/ or changes in design.

Submitted by Mark Lindemann



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