

Workplan Solomon Technical Assistance May 2019

Background

The recent flood risk study update of the Solomon River Tributary indicates that the primary channel may not have enough capacity to convey the 1% annual chance design storm event. This could result in shallow overland flow which could impact numerous existing structures. Figure 1 below depicts the draft 1% annual chance floodplain through the City of Solomon from the Solomon River Tributary.



Figure 1: Draft 1% Annual Chance Floodplain

Given the potential flood risk it was identified by key stakeholders of the City of Solomon, Dickinson County, and Kansas Department of Agriculture (KDA) that additional technical flood mitigation studies would be beneficial to resolving flood risk concerns. On April 23, 2019 representatives of the KDA, City of Solomon, Dickinson County, and Wood Environmental and Infrastructure Solutions, Inc (Wood) met to discuss the identified flood risk areas, identify goals for the project, and possible mitigation options.

Goals

As discussed in the kickoff meeting on April 23, 2019, the primary goal of this technical assistance project will be to identify cost effective mitigation improvements that reduce the flood risk areas within the City of Solomon, reasonably reduce the cost of flood insurance, and do not cause adverse impacts to the community.



Scope of Work

This technical assistance project will analyse 5 improvement alternatives. The improvements that will be analysed include:

- Inline Detention – Upstream of I-70
 - Wood will evaluate adding inline detention upstream of I-70 to reduce flood frequency flows through the City of Solomon and ultimately reduce flood risk areas. This will include evaluating for any upstream impacts and risk.
- Bypass Channel – Upstream of 7th Street
 - Wood will evaluate the construction of a bypass channel at/or just upstream of 7th Street. This bypass channel would take excess runoff to the west along 7th Street and adjacent to Field Road away from the City to confluence with the Solomon River. The intent of this improvement would be to reduce the flood frequency flows and flood risk areas through the City of Solomon.
- Bypass Channel – Upstream of Railroad
 - Wood will evaluate the construction of a bypass channel at/or just upstream of the Railroad downstream of Old Highway 40. This bypass channel would take excess runoff to the west along the Railroad away from the City to confluence with the Solomon River. The intent of this improvement would be to reduce the flood frequency flows through the Railroad, reduce the headwater ponding caused by the railroad, and therefore reduce flood risk areas through the City of Solomon.
- Channel Improvements
 - Wood will evaluate increasing the channel capacity of the Solomon River Tributary and any structures including the Railroad. The intent of these improvements would be to increase the natural channel capacity, reduce the hydraulic water surface elevations and therefore reduce the flood risk areas in the City of Solomon.
- Buyouts
 - Wood will evaluate the cost effectiveness of buying out those structures within the 1% annual chance floodplain both separately and in combination with the prior stated improvements. This is only within the AE zone, and not within the Shaded Zone X – 1% chance flows less than one foot of average depth areas. Note that this will be a simplistic analysis, and would be the basis for recommending a FEMA BCA analysis project, but not the FEMA BCA analysis itself.

In addition to analysing the improvement alternatives, Wood will produce budget level cost estimates for the improvements. The results of the improvements and cost estimates will be published in a technical report.

Estimated Schedule

The following is an anticipated schedule for this technical assistance project.

- Draft Improvement Results/Key Stakeholder Meeting – Week of July 19th
- Final Improvement Results & Report – Week of August 23rd

