4.3.3 Hydraulic Modeling

Phase 1 hydraulic modeling was primarily steady-state HEC-RAS based on the most recent FEMA flood insurance study completed at the time.

4.4 PHASE 1 CONCLUSIONS

The preliminary study found that a levee system would cost approximately $625 million and have a benefit/cost ratio (BCR) of 1.0. The preliminary diversion concept without a control structure was estimated to cost $909 million and have a BCR of 0.65. The preliminary economic analyses estimated expected average annual flood damages at more than $64 million, with single event damages ranging from $2.1 billion for a 1-percent chance event to $6.6 billion for a 0.2-percent chance event. On the basis of the preliminary findings, the non-federal sponsors elected to continue the feasibility study.

5.0 FEASIBILITY PHASE 2, SCREENING #1 (May 2009 – Nov 2009)

5.1 PHASE 2, SCREENING #1 ACTIVITIES

5.1.1 General

Phase 2 considered the full array of potential measures to address flood risk in the study area. Coordination began in earnest with federal and state natural resource agencies regarding issues and concerns and potential ways to cooperate on the study. A notice of intent to prepare a draft environmental impact statement (EIS) was published in the Federal Register on May 5, 2009. The study team held public and agency meetings to solicit input on problems and opportunities, project scoping, affected resources and potential effects. A scoping document dated September 14, 2009 was prepared to summarize the potential alternatives and impacts to be considered during the remainder of the study.

In June and July 2009, the Fargo City Commission and Moorhead City Council coordinated with the boards of Cass County, North Dakota and Clay County, Minnesota, to form a Metropolitan Flood Management Committee consisting of their four elected governing bodies plus one member from the Southeast Cass Water Resource Management District and one from the Buffalo-Red River Watershed District. Each of the boards appointed representatives to serve on a smaller Metropolitan Flood Study Work Group (MFSWG) whose purpose was to oversee study activities and make recommendations to the larger elected bodies. The MFSWG first met on August 26, 2009.

During this Phase a cursory technical analysis of all proposed measures was conducted. Screening criteria were developed in partnership with the non-federal sponsors. These criteria were then used to screen the proposed measures and to select those that warranted additional analysis. Using the preliminary technical information, professional judgment was used to assess the measures against the screening criteria. Those measures that appeared to be most viable, either alone or in combination with other measures, were refined and further