the capacity and alignment of the diversion concept and address potential impacts to the aquatic habitat.

5.5.3.3 The preliminary analyses produced information that supported further screening of the diversion alternatives at this screening step. The following paragraphs discuss conclusions drawn from the preliminary analyses that reduced the number of diversion plans retained for further analysis.

The initial diversion concept presented in May 2009 was a passive diversion channel without an operable river control structure; this concept was not economically justified with a benefit to cost ratio of approximately 0.65. All of the subsequent diversion concepts included a river control structure that dramatically improved performance with a modest increase in cost. Therefore, no diversions lacking a control structure were carried forward.

The Minnesota Short alignment outperformed the Minnesota Long alignment, and there were no significant unique benefits or avoidance of any adverse environmental effects associated with the Minnesota Long alignment, so that alignment was dropped from consideration.

The North Dakota East alignment outperformed the North Dakota West alignment, and there were no significant unique benefits or avoidance of any adverse environmental effects associated with the North Dakota West alignment, so that alignment was dropped from consideration.

5.5.4 Additional Alternative Development

The surviving diversion alternatives were differentiated by 1) their location in either Minnesota or North Dakota, and 2) their capacity. Nonstructural measures were considered as additional features in the areas immediately upstream of the diversions and in the areas near the downstream end of the diversions, where the diversions provided little or no benefit.

5.5.4.1 Minnesota versus North Dakota location: There were several issues related to the location of the diversion that were pertinent to plan formulation:

- Preliminary screening showed that the Minnesota alignment appeared to provide optimal net benefits (noting that additional analysis was needed to capture known but omitted benefits of the North Dakota plans).
- The Minnesota alignment would impact an existing rail yard east of Dilworth, Minnesota.
- Significantly more economic benefits accrue to properties in North Dakota regardless of channel location. That led to a public perception that Minnesota would suffer disproportionate harm if the diversion were located in Minnesota.
- North Dakota alignments cross five tributaries (Wild Rice, Sheyenne, Maple, Lower Rush, and Rush Rivers); Minnesota alignments cross none.