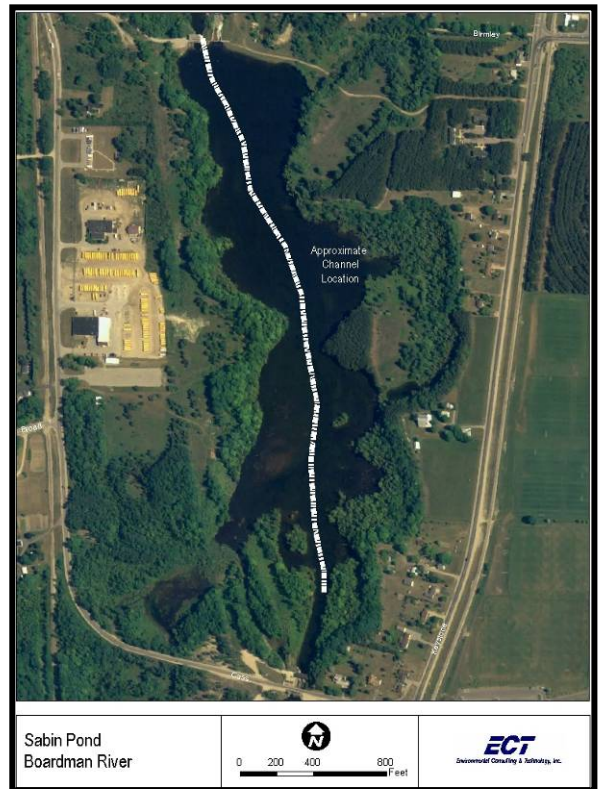
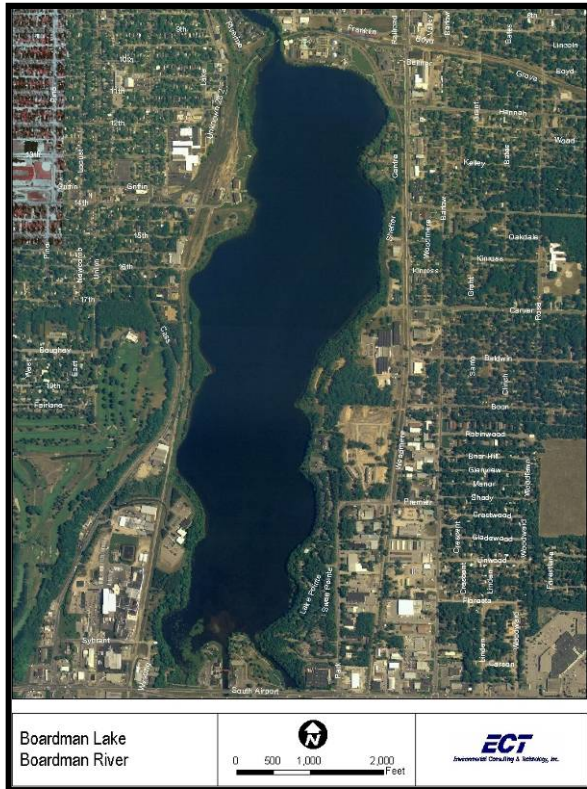


# DRAFT - BOARDMAN RIVER FEASIBILITY STUDY

## Alternative 43 - Retain Union Street Dam, Remove Sabin Dam and Modify Boardman and Brown Bridge Dams

September 10, 2008





# Alternative 43 - Retain Union Street Dam, Remove Sabin Dam and Modify Boardman and Brown Bridge Dams

## Introduction

This fact sheet is a summary of a detailed analysis of the alternative described below. The alternative was selected by the Boardman River Dams Committee for detailed analysis along with five (5) other alternatives. The following information is provided as a summary of the analysis of the alternative. Information on the existing conditions and impacts of this alternative can be obtained by reviewing the complete report on the website. You may notice that the description of the analysis of the alternative sometimes includes at the end of certain sentences an alphanumeric code in parentheses. This code refers to the list of questions that was included in the Request for Proposals.

## Description

This option would consist of retaining Union Street Dam, along with the existing fish ladder and DNR weir operation. The fish ladder would be operated to allow salmonids to pass the dam, but invasive aquatic species would be blocked at the weir and Union Street. Sabin Dam would be removed completely to allow a free flowing river to be restored from Boardman Pond Dam to Boardman Lake. Boardman Pond would be modified to meet MDEQ requirements and the water level maintained at the water level prior to the drawdown. Gates and other water level controls will be used to provide flood control in Boardman Pond. The dams at Boardman Pond and Brown Bridge Pond will be modified to allow passage of Great Lakes fish, including salmon and trout. The Brown Bridge Dam will be modified to allow for cold water at the bottom of the impoundment to be discharged, which may mitigate the impact of warm water discharge into the Boardman River.

## Impacts of Retaining Union Street Dam, Removing Sabin Dam and Modifying Boardman and Brown Bridge Dams

### ENVIRONMENTAL:

## Fish and Wildlife Populations

- Fish and wildlife, including but not limited to eagles, swans, nesting ducks, shorebirds, insects, ruffed grouse, hex hatches, cold and warm water fish, fur bearing mammals, and deer will be impacted in different ways depending on the habitat requirements of the species. (A2) Primary changes to fish and wildlife habitat from removal of a dam will be the loss of impounded water and its lake-like, slower-moving water and warmer water habitats and the transition to the Boardman's historic cold water riparian habitats similar to those found along the free-flowing unimpounded sections of the river.
- Wildlife species living in or dependent upon lake-like conditions will lose habitat, and population, those that prefer riverine, flowing-water habitat, or that will benefit from the reconnection of riverine habitats by removal of an impoundment, will gain.
- Reptiles and amphibians: Habitat for Blanding's turtles will decrease, while habitat for wood turtles will increase due to cooler water temperature and increased flowing-water or riverine habitats; both are species of special concern. The leopard frog population at Brown Bridge pond will likely not change although the reduction in water levels that occurred fall 2007, if continued, may affect their habitat and ultimately their population.

- Birds: Nesting loons on Boardman Pond will not be impacted by the modification and may benefit from the increased food base in Boardman Pond and Brown Bridge Pond.
- Wildlife populations may be exposed to additional concentrations of contaminants from Great Lakes fish that are allowed to access the Boardman River.
- Migratory fish passage will be managed at the weir and Union Street Dam and certain species of fish (salmonids) will be allowed to migrate into the Boardman River. (A13 A16 and D15)
- Fish populations in Grand Traverse Bay may increase due to access to additional habitat created by implementing fish passage projects.
- The adverse environmental impact to cold-water fisheries of the Brown Bridge Dam may be mitigated by the bottom draw (B3). The portion of Boardman River below Brown Bridge Dam may develop an improved trout population due to cooler water temperatures. The cold water fish populations in the remaining portion of the Boardman River will not be significantly impacted. (A18 and C20)
- A cold water fishery will develop in the new stream channel formed in the area of the existing Sabin Pond.
- The warm water fish population in Sabin pond will be replaced with a cold water fish population.
- Control of invasive aquatic species will be maintained by the weir and dam at Union St. and not be significantly impacted. (A10)

#### Threatened and Endangered Species

- Existing use of Boardman Pond and Brown Bridge Pond by threatened and endangered species will not be significantly impacted.
- Opportunities for threatened and endangered species that rely on cold water habitat and wetlands will be realized downstream from Brown Bridge Pond.
- Sabin Pond has not been identified as habitat for threatened or endangered species. (A1)
- Loon nesting will not be affected by the modification of the Boardman dam.
- Contaminants from Great Lakes fish may affect certain wildlife populations, including, but not limited to, loons and bald eagles.

#### Plant communities and habitat

| <u>Habitat Type</u>                                    | <u>Existing Acres</u> | <u>Proposed Acres</u> |
|--|-----------------------|-----------------------|
| New River Channel (from Boardman Lake to Boardman Dam) | 0                     | 7                     |
| Existing River   | 113                   | 113                   |
| Impoundment/Lake                                       | 673                   | 633                   |
| Riparian Habitat                                       | 56                    | 73                    |
| Wetlands   | 112                   | 123                   |
| New Upland Habitat                                     |                       | 5                     |
| River Upstream from Brown Bridge                       | <u>288</u>            | <u>288</u>            |
| <b>Total</b>   | <b>1,242</b>          | <b>1,242</b>          |

- Plant communities and habitat will not be significantly impacted at Brown Bridge Pond.
- Plant communities and habitat will not be significantly impacted at Boardman Lake.
- The wetlands at Sabin Pond will change from emergent and floating-leaved plant communities to emergent and riparian wetlands along the new river channel and there will be a net increase in the total acreage of wetland types. Ground water seeps along the edge of the new river will support wetland communities.

New upland plant communities and habitat will develop along the shores of the former Sabin Pond impoundment.

- Wetlands at Brown Bridge Pond will not be affected by the modification.
- Wetlands at Boardman Pond will not be affected by the modification. (A3)
- Wetlands along the river beyond the influence of the dam removal and modification will not be significantly impacted and the wetlands in the deltas will continue to expand as sediment is deposited in the delta. (A14)

#### Hydrology and Hydraulics

- The flow of water will not be impacted by this alternative.
- The flow of water above Brown Bridge Pond will not change and depth of water in Brown Bridge Pond will not be changed. (A24)
- The size and extent of floodplain and flood control will not be altered at Brown Bridge Pond or Boardman Pond. The floodplain at Sabin Pond will be lowered as a result of lowering the water level of the impoundment.

#### Stream Channel

- The stream channel of the Boardman River will not be impacted in the vicinity of Brown Bridge Dam and in the vicinity of Union Street. The impoundment at Sabin Pond will be replaced with approximately 1.0 mile of new stream channel. Approximately 7 acres of new river channel will be created in the area formerly occupied in Sabin Pond.
- Channel erosion will occur along the banks of the new river in the area occupied by Sabin Pond until the banks are stabilized with vegetation.
- Tributaries to the Boardman River upstream from Brown Bridge Pond will not be impacted.

#### Sediment

- Contaminated sediment that exists in Boardman Lake, Brown Bridge Pond and Boardman Pond will remain.
- Contaminated sediment in Sabin Pond will be managed in accordance with MDEQ guidelines, which typically requires removal and/or stabilization of contaminated sediment.
- Base load sediment levels in the river channel will not be restored.

#### Water Quality

- Water quality will not be significantly altered and the warm water impact of the Brown Bridge Dam may be mitigated by the bottom draw system. (A9)
- The regional wastewater treatment plant will not be impacted.

#### Ground water

- There will be no significant impact on water supplies and septic systems of properties adjacent to the impoundments. (B10, A15)

### **SOCIETAL:**

- The property boundaries of private properties adjacent to Boardman Pond will not be significantly impacted (D3). The property adjacent to Brown Bridge Pond and Sabin Pond is primarily in public ownership. (D1)
- There will be no significant change in the risk to property owners due to storm events and flooding. (D2)

## Recreation

- Recreational uses may change as a result of fish passage at the dams. Angling for salmon and steelhead will increase and will provide for additional recreational opportunities.
- Recreational uses of Sabin Pond will shift from uses associated with an impoundment to those associated with a river. (A19 D5)
- The river segment downstream of Sabin Pond may improve and offer an enhanced fishing experience if hydraulic changes result in classification as a top quality stream.
- The river segment upstream of Boardman Pond may offer an enhanced fishing experience due to fish passage into this reach.
- A whitewater park may be feasible downstream of the Union Street dam and may be feasible in the new river segment downstream from Boardman Pond Dam. However, a whitewater park in this segment may negatively impact fishing for some portion of the river segment. (B14)
- Recreational use patterns of users of the Boardman River may change due to the new river segments that will be created. Users interested in a quiet paddling experience may avoid the new river segments, while paddlers who enjoy a strong current may seek out the new river segments.
- The safety concerns associated with an impoundment will continue to exist at Boardman Lake, Boardman Pond and Brown Bridge Pond. Steep slopes and fast current may pose a hazard to certain recreational users depending on their experience with river paddling.(D13)
- The County's Natural Education Reserve will be impacted to the extent that an impoundment will be replaced with a new river segment. Educational programs that depend on an impoundment may continue at Boardman Pond, while educational programs at Sabin Pond can be redesigned to include river ecology and restoration ecology. (D17)

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## Community

- The economic gains for restoring a portion of high quality trout stream will be realized. (C12)
- The taxpayers in the County and City will be responsible for paying to maintain the remaining dams. (C26)
- The restored river channel will require maintenance during the restoration period, but will eventually become stable and not require maintenance.

## Historic Value

- The dams and powerhouses are not eligible for designation as historic structures; therefore, the repair, removal and modification of the dams will not have an impact on historic properties.

## ECONOMIC:

### Cost

- The cost of this alternative is estimated to be between \$5,000,000 and \$7,700,000, which includes annual maintenance of the dams.

### Economic Benefit

- Visitors to the Boardman River are estimated to contribute annually \$4 million dollars to the local economy. The increase in visitor expenditures has not been determined.

### Property Value

- There are approximately 4,000 parcels of land with an assessed value of \$331 million with ½ mile of the Boardman River. Residential properties within a ½ mile of the current Sabin Pond may see an eventual increase in property values due to dam removal. (C1)
- The current property boundaries will not be affected by this alternative. (C3)

### Funding

- The repair, modification, removal and maintenance of the dams are the responsibility of the owners of the dams. (C6,C7)

### Energy

- This alternative allows hydroelectric energy to be produced at Brown Bridge and Boardman Pond, but the opportunity will not be available at Sabin Dam. (C28, D4)

### Jobs

- This alternative may have a positive impact on job growth in various economic sectors due to the potential for whitewater paddling and increased angler interest in the Great Lakes species of fish in the Boardman River. (C18, C22)

## ENGINEERING:

### Infrastructure

- This alternative will have no significant impact on transportation or other infrastructure. (A17)
- There will be no significant impact on structure crossings within and downstream of the project area to the termination in Grand Traverse Bay. (B11)
- The risks and liabilities associated with the dams may change if this alternative is implemented. The City and County are responsible for maintenance of the dams and assume the risks and liabilities of the ownership of the dams; therefore, by eliminating one of the dams the risk and liability may be reduced. (D20)