Boardman River Dams and Restoration Project Factsheet
February 2015

PROJECT OVERVIEW

The overall project goals are to remove unsafe dams and restore habitat and connectivity within the Boardman River and the Great Lakes through the removal of Brown Bridge, Boardman and Sabin dams, and the modification of Union Street Dam.

Boardman Dam is subject to a 2007 consent order between the owner, Grand Traverse County, and the Michigan Department of Environmental Quality (MDEQ) to remove the dam because it is non-conforming to Michigan dam safety regulations.

When completed, the project will restore an additional 3.9 miles of cold-water stream and reconnect 160 miles of high quality river habitat to the Great Lakes. Fifty acres of wetlands and almost 50 acres of upland habitat along the Boardman River will be restored. The project is the largest of its kind undertaken in the Great Lakes Basin.

Timeline

2013 Brown Bridge Dam removal completed and restoration begins
2014-15 Engineering, design and permitting for Boardman Dam removal and Cass Road Bridge replacement
2016 Construction of proposed new Cass Road Bridge and excavation of associated channel realignment
2017 Removal of Boardman Dam and associated habitat restoration
2018-19 Removal of Sabin Dam and modification of Union Street Dam
Ongoing River and habitat restoration and monitoring

Phase 2 Cost Estimates* (January 2015)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boardman Dam/Cass Road Bridge design, permitting</td>
<td>$1.2M</td>
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<tr>
<td>Bridge replacement</td>
<td>$3.1M</td>
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<tr>
<td>Boardman Dam removal, restoration</td>
<td>$7.1M</td>
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<td>Sabin Dam removal design, permitting</td>
<td>$325,000</td>
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<tr>
<td>Sabin Dam removal, restoration</td>
<td>$2.1M</td>
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*The above cost estimates are heavily dependent on actual bid costs, which can fluctuate significantly.
Phase 2 Funding

Commitments to date:
- $6.7M (includes Michigan Department of Transportation (MDOT) funding for bridge)
  - MDOT estimated share = $2.6M (requires local match = $457,000)
  - Balance is federal, state, tribal, and private funding through competitive grants

Current Activity

- Continued restoration at Brown Bridge area
- Monitoring and evaluation plan covering river conditions, sediment, hydrology, temperature, fish and aquatic organisms
- A study conducted by the Au Sable Institute in 2014 indicated macroinvertebrate community recovery in virtually all locations
- Data collection including relic river channel location, hydrological analysis and hydraulic modeling for Boardman Dam removal
- Design, permitting, and fundraising

Cass Road Crossing

- Removal of Boardman Dam is being coordinated with a local effort to construct a new bridge to replace the existing Cass Road crossing over the dam – a local initiative would construct the bridge using funds provided by the MDOT
- The new Cass Road Bridge is designed to span the restored floodplain and accommodate trails and terrestrial wildlife corridor
- Cass Road Bridge construction is estimated to impact less than one-tenth of an acre of wetland – overall, the entire dam removal project at the site will result in a net gain of wetlands
  - MDEQ permit application and Michigan Department of Natural Resources (MDNR) Natural Rivers permit application have been reviewed and permits secured for the bridge
  - An environmental assessment (EA) for the proposed Cass Road Bridge over the Boardman River was not required by MDOT because the bridge being replaced is in the same location without a significant increase in through traffic capacity, is not considered historic by SHPO, and doesn’t involve acquisition or negative impact of park property – the project was considered a categorical exclusion which means, based on past experience with similar action, significant environmental impacts are not involved
  - An EA is only needed for Boardman Dam removal which is led by the US Army Corps of Engineers (USACE)
- 2013 traffic counts conducted by Grand Traverse County Road Commission (GTCRC) estimate 5,500 to 6,700 vehicles use the one lane, traffic controlled bridge on Cass Road daily including North Flight EMS, GT Fire Department, GT Metro Emergency Services, TBAYS, BATA, and the TCAPS busing system (only crosses the bridge with empty buses)
- Since the 2013 agreement between Grand Traverse County and GTCRC to proceed with bridge replacement, approximately $300,000 has been spent incorporating the bridge replacement into the design plans for Boardman Dam removal
- The MDOT Local Bridge funding award of up to $3.08M for the Cass Road Bridge is intended solely for replacement and repair of existing, failing infrastructure that is
already utilized by the community – it cannot be directed to another location along the Boardman River; if the funding is not spent here, it will be spent on another failing bridge elsewhere in the state

- The Cass Road Bridge design is intended to meet a local need and does not preclude nor interfere with regional infrastructure planning efforts that would address a much larger transportation need

**Fish Passage**

- The overarching goal of the project is to restore habitat and connectivity within the river and within the Great Lakes – this will positively impact a very wide range of animal and plant species and provide significant benefits to the community
- The project Implementation Team (IT) recognizes the interplay between dam removal and wildlife management, and also recognizes that specific management decisions are the responsibility of partner agencies
- Discussion and decisions regarding what fish species to pass will occur prior to the removal of the Sabin Dam planned for no earlier than 2018
- Current management practices will remain in place until a collaborative and inclusive process regarding fish passage is completed

**Recreation and Access**

- Removal of the dams will provide additional parklands with the opportunity for expanded trails for natural education and trail corridors
- The restored river will provide unique paddling opportunities from approximately 24 miles upstream to downtown Traverse City, including whitewater rapids similar to Beitner rapids that will develop in stretches above the former impoundments
- Coldwater habitat and fishing opportunities will be restored in 1.9 miles of river between Boardman and Sabin impoundments

**BOARDMAN DAM REMOVAL**

**Wetlands and Habitat**

- Cass Road Bridge construction is estimated to impact less than one-tenth of an acre of wetland – overall, the entire dam removal project at the site will result in a net gain of approximately 37 acres of wetlands in Boardman and Sabin dam impoundment areas
- The MDEQ permit application has been reviewed and permit secured for the bridge

**Water Quality & Sediment**

- Water quality impacts associated with dam removal include restoring cold-water temperatures and restoring natural transport of sediments, woody debris, and nutrients
- Temporary in-stream sediment traps will be installed within the impoundment area and downstream of the breaching operation to capture the majority of sediments mobilized by the river
- Highly erodible banks and slopes will be stabilized with natural measures such as seeding and planting
Preliminary analyses of long-term sediment transport indicate that while some deposition that predominantly occurs within the river channel is anticipated downstream of Sabin Dam, it is not anticipated to have any adverse impacts on existing infrastructure.

**Water Management and River Flows**

- The key to the design of the drawdown operation is incorporating redundant safety measures
  - The primary drawdown mechanism will be bypass pumping/siphoning around the dam
  - An auxiliary overflow channel will be constructed on the downstream face of the earthen embankment to protect against scour in the event bypass occurs

**Flood Risk**

- The dams situated along the Boardman River were constructed as power generation structures, and were not intended to be used for flood risk management – without proper maintenance these dams actually pose a flood risk because of their aging and deteriorating condition
- Modeling and mapping for a number of significant flood events from Boardman Dam downstream to Lake Michigan are part of the USACE Feasibility Study – no significant changes in flood extents were identified outside of the impoundments
- Additional flooding, sediment transport and hydrologic assessments will be completed as part of the final design process for removal of Boardman and Sabin dams
- Due to severe weather conditions, flooding occurred in spring of 2014 on the Boardman River and many rivers across Michigan, the Manistee River gauging station recorded an all-time record flood event – the peak spring flows on the Boardman River measured upstream of the former Brown Bridge Dam location for 2013 and 2014 were in the top four measured flows since 1997
- The dams provide negligible reduction in peak flows during high flow events because the available storage capacity is small compared to the volume of river flow during high flows
- Preliminary assessment of the flow attenuation capacity of Boardman and Sabin dams indicate that flow reduction is negligible at peak flows

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