

Little Falls Dam Reconstruction Feasibility Study Public Release Summary
Wisconsin Department of Natural Resources - Willow River State Park
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The Feasibility Study was commissioned to propose preliminary design solutions and costs to address the spillway capacity and structural integrity of the Little Falls Dam at Willow River State Park. It is a technical document that contains a considerable amount of information regarding the Dam. Recent inspections from 2011 to 2014 which included climbing into gate bays and diving up and down stream resulted in a list of dam deficiencies that need to be addressed for safety and compliance. A team of ten engineers from the State of Wisconsin and a private consulting firm, Ayres and Associates, has evaluated the historical record, present condition and supporting inspections and documents. A number of alternatives are presented that address the concerns about the dam.

The Little Falls Dam is a large, high hazard dam located on the Willow River in Willow River State Park. From left to right, looking downstream, the dam is a 117 foot multiple arch buttress section; a 22 ft. wide, 12 ft. tall Tainter gate; 43 ft. wide powerhouse section; three 12 ft. wide, 9 ft. tall Tainter gates and a 72 ft. concrete ogee overflow spillway.

The Little Falls Dam has structural problems and insufficient flood flow capacity. The dam is high hazard because residential land use downstream could be flooded in a dam failure and potentially cause loss of life.

The current issues with the Little Falls Dam include:

- Inadequate spillway capacity
- Three of four gates are in poor condition; two of four gates are completely inoperable
- Seepage along multiple arch buttress section indicating poor dam foundation
- Seepage at powerhouse and gate two indicating structural movement and poor dam foundation
- Ogee spillway is the oldest section of the dam; cannot be adequately inspected at full pool; built on a questionable timber crib and experiencing uncontrolled seepage at the contact point between the right abutment and the bedrock indicating a possible foundation problem and a continually deteriorating probable failure point

The purpose of the Feasibility Study is to provide alternatives to address the Little Falls Dam based on these five criteria:

- Address spillway capacity
- Provide structural integrity
- Maintain the current reservoir normal pool elevation
- Provide a cold water draw
- Little or no need for active operation

Eight (8) alternatives are addressed in this document. Two (2) of the alternatives are for full dam replacement. Five (5) alternatives are for partial dam replacement with varying sizes, number and types of gates and one (1) alternative is for dam removal and restoration. The preliminary cost estimates included in the Feasibility Study are for dam structure work only and do not include additional costs such as road reconstruction, sediment management, Department of Facility Development fees or any post-project costs including but not limited to lake bed and river channel stabilization and fish, habitat or environmental reestablishment. The total budget, depending on the chosen alternative, could range from \$2.5 million to over \$15.0 million.

The DNR will use all available inspections and studies, historical information, economic impact studies, stakeholder/public input and natural resource program technical information to develop a Strategic Analysis Paper which will be used to provide information to the DNR administration when determining the solution for the dam.