

Lake Monongalia Restoration Project

In 1870, the rural Minnesota town of New London was established around timber and grist mills powered by the Middle Fork Crow River and New London Dam. The 1500-acre impoundment known as Lake Monongalia literally wraps around the town and has been its focal point for over a century. Visitors are greeted with signs that read, "Welcome to New London – City on the Pond."

The natural ecosystem of the Middle Fork Crow River was forever altered with construction of the original dam. Although milling operations ceased decades ago, a dam remains and Lake Monongalia lives on as an ecosystem in balance with its surrounding human activities. The lake and river thrive with waterfowl and fish species including northern pike, bluegill, crappie, and walleye. Benefits that the lake and river provide to residents include lake front property, fishing, canoeing, and site seeing.

The Minnesota Department of Natural Resources (DNR) owns, operates, and maintains the New London Dam. Since the 1990s, the dam had been on the DNR's wish-list for renovation due to deficiencies including substandard embankment stability, undesirable seepage, and insufficient spillway capacity. In addition, the dam's electric-powered outlet gates were not reliable and put strain on DNR operating staff. Simply removing the dam was not an option as this would reduce Lake Monongalia to mud flats and destroy not only the identity of the town, but a 150 year old ecosystem.

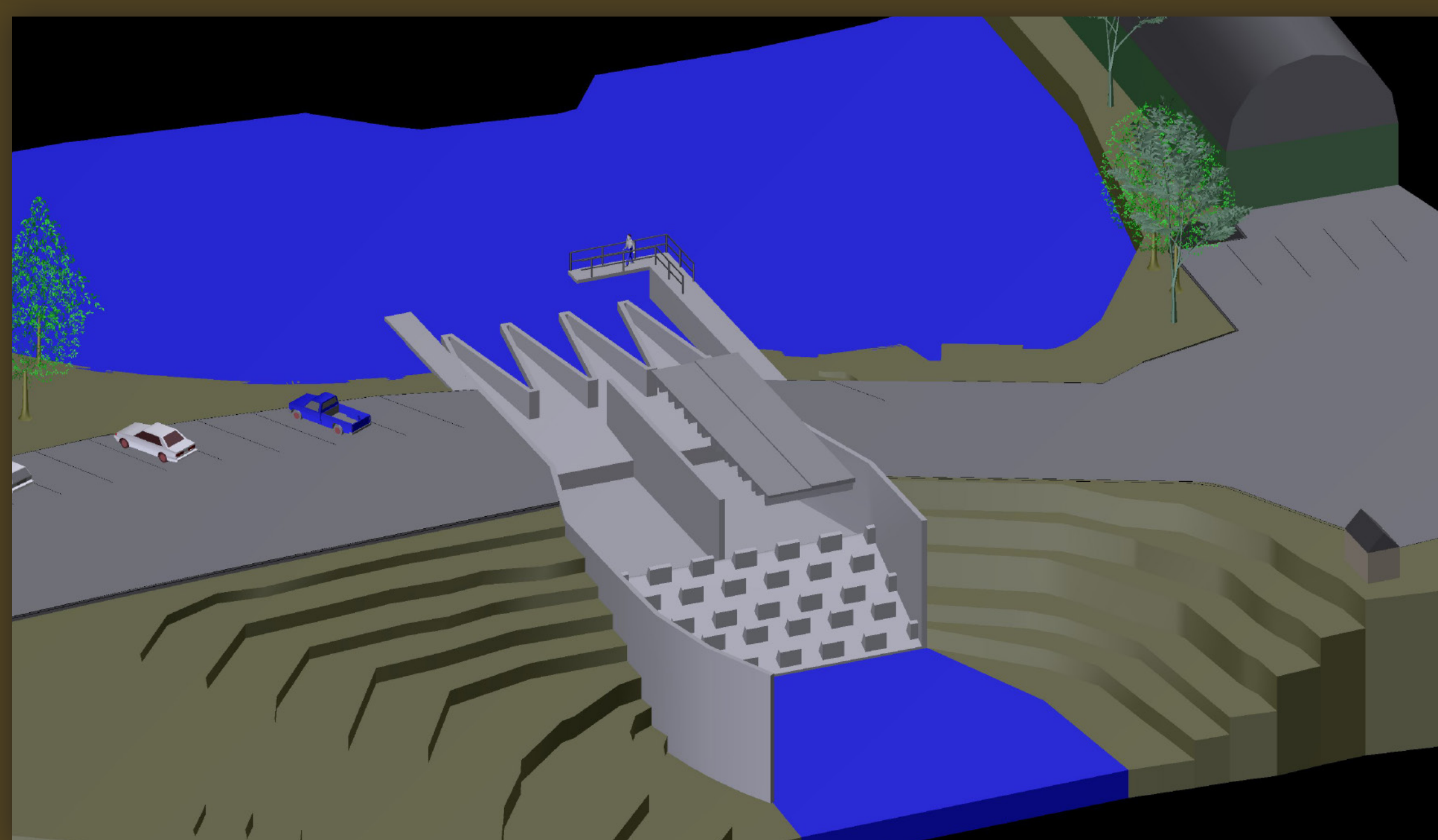
The initial step toward dam reconstruction and preservation of the lake/riverine ecosystem involved a feasibility analysis including stakeholder participation. Multi-jurisdictional resource agencies were represented including fisheries, dam safety, historic preservation, pollution control, and soil and water conservation. Information was disseminated to and comments were received from the public through a series of public meetings and a web site.

The final reconstruction alternative was selected through a process of alternatives identification and refinement. Alternatives were evaluated using weighted criteria including water quality, ecology, lake level regulation, construction disturbance, public perception, operation and maintenance requirements, spillway capacity, and hazard risk.

The selected alternative featured:

- Fixed crest ("labyrinth") spillway capable of maintaining historic lake levels without the need for electrical power or manpower.
- Top-discharging spillway and energy dissipation blocks to improve dissolved oxygen concentrations.
- Supplemental low level outlet to maintain downstream river flows during drought periods.
- Elaborate cofferdam system to maintain normal lake levels during construction.
- ADA compliant path/canoe portage.
- Sustainable designs:
 - Double use of steel sheetpile initially as cofferdam then as foundation support.
 - On site stockpiling and re-use of excavated soil and riprap.
 - Re-use of existing granite blocks as recreation features.

The New London Dam project was awarded the Project of the Year by Minnesota Society of Professional Engineers and a Grand Award by the American Council of Engineering Companies of Minnesota.



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