

The Rice Lake Dam

Objective: General information regarding the man-made dam located on Elm Creek which controls the flow of water through Rice Lake within the Elm Creek Watershed.

Rice Lake Dam FAQs

1. Does the dam control the water level on Rice Lake?

Yes. The dam establishes a normal water level for Rice Lake at an elevation of 891.0 at the top of the dam. The dam is also used to provide downstream flow via a “bypass” to Elm Creek, per the MN DNR permit approvals. That required flow rate is 2.0 cf/s (cubic feet/second). This type of control is passive, meaning precipitation throughout the year provides for water levels on Rice Lake rather than the City “turning a knob” to control water levels.

2. Who manages the dam?

The City of Maple Grove (Public Works department) is responsible for long-term maintenance. The City is limited to, at the request of the lake association, to increase the flow through the bypass during winter months to draw the lake down, provided the MN DNR issues a permit, and returned the flow to at least 2.0 cfs in the spring. The City does not actively manage water levels.

3. What role does the MN DNR play in water management?

a. The MN DNR dictates what the discharge rate is for the flow level downstream on Elm Creek. They also authorize the permit necessary to draw down the lake when needed.

Background

The original dam was built after 1965. Somewhere during the 1970's the dam was modified to its current configuration. (See *Exhibit A* for article in the *Minneapolis Star Tribune* in 1969.)

Dam and Bypass Operation

The dam creates Rice Lake by restricting the flow of Elm Creek. The top of the dam is 891 feet above sea level, so that is the normal lake water level (see *Exhibit B* for an early diagram of the structure). During times of high rainfall or snowmelt, excess lake water cascades downstream over the dam. Surprisingly, that can still result in lake levels several inches higher than the top of the dam as the water just can't get out fast enough. To ensure the downstream creek never runs dry through Elm Creek Park Reserve on its way to the Mississippi, the Minnesota DNR requires a dam bypass mechanism to release at least 2.0 cf/s (cubic feet per second) downstream. The dam is equipped with a 36" diameter pipe with a gate valve to accomplish that bypass function.

To maximize lake water levels, the dam bypass is always set to the minimum flow requirement except during drawdown events when needed for maintenance or to control aquatic invasive plants (by freezing them during the harsh Minnesota winter). During drawdowns, the City of Maple Grove completely opens the dam bypass valve to help draw down the lake's water level. Still, nature maintains the upper hand since rainfall and snow melt can exceed the discharge capacity of the 36" dam bypass pipe. See *Exhibits C and D* below for the location and inner workings of the dam bypass controls (as of 11/5/2014).

Unfortunately, the bypass controls were vandalized in March, 2022 and the gate/sluice plate no longer operates as it should, making it much more challenging to adjust bypass water flow. As a result, the bypass flow during the summer of 2026 has actually been 3.5 cf/s rather than the minimum required 2.0 cf/s.

Summer Water Levels

During summer months, drought and evaporation can result in low water levels and algae blooms on Rice Lake. Despite perceptions to the contrary, the impact of some extra bypass flow due to gate valve vandalism has been small. There is no flow meter on the dam to get an accurate measurement, but it is believed to be discharging 3.5 cfs. Even under extreme worst-case assumptions of zero rainfall and zero water flowing into the lake, the extra 1.5 cf/s flowing past the dam results in just 3.5” of monthly lake level drop. We have been and continue to work with the city to find creative ways to limit the flow further and will but without rain the drop in lake levels is inevitable,

For math geeks:

For the 307 acre lake, a 1.5 cf/s “leak” drops the lake level by 3.48 inches in 30 days:

$$1.5 \text{ cf/s} \times 2,592,000 \text{ s/month} \div 43,560 \text{ ft}^2/\text{acre} \div 307 \text{ acres} = 0.29 \text{ ft} = 3.48''$$

Repair Plans

Due to the March, 2022 vandalism of the dam bypass controls, the City of Maple Grove has issued Capital Improvement funds to make repairs during a 2029-2030 drawdown. Again, repairs to more easily and accurately set the minimum bypass flow to 2.0 cf/s won't solve the summer lake level drops during periods of drought.

2025 thru 2029

Capital Improvement Plan

Maple Grove, MN

Project # UT-005
Project Name Rice Lake Dam Repair

Total Project Cost \$1,500,000
Department Utilities
Category Unassigned
Useful Life 25 years

Contact Water Resources Engineer
Type Unassigned
Status Active

Description

The project will complete major repairs to the Rice Lake Dam outlet structure at the time the lake is next drawn down for lake management activities. The operation of the outlet control structure on this dam is essential to the management of Rice Lake and Elm Creek.

Justification

This outlet has been damaged and no longer functions effectively when operated. Due to access restraints repairs would be more efficiently made at the time the next lake drawdown.

Expenditures	2025	2026	2027	2028	2029	Total
Construction/Maintenance	0	0	0	0	1,500,000	1,500,000
Total	0	0	0	0	1,500,000	1,500,000

Funding Sources	2025	2026	2027	2028	2029	Total
Storm Water Trunk Fund (3205)	0	0	0	0	1,500,000	1,500,000
Total	0	0	0	0	1,500,000	1,500,000

Budget Impact

The outlet will need to be continued to be maintained and eventually require further maintenance or replacement.

Exhibit A

Hennepin County Boosts Plan to Restore Rice Lake

By MOLLIE IVINS
Minneapolis Tribune Staff Writer

The Hennepin County Board gave a boost Monday to plans for the restoration of Rice Lake in Maple Grove.

The village of Maple Grove plans to construct a dam on Elm Creek, north of County Road 30, and fill Rice Lake to its original proportions, 425 acres (about the size of Lake Calhoun), of a recreation area.

Maple Grove officials hope the lake restoration project will attract new citizens to the community (pop-

ulation 4,594) and thus increase the property tax base.

THE COUNTY board helped the project along yesterday by giving preliminary approval to the abandonment of County Ditch 24, a legal requirement before the lake can be refilled.

The ditch was built in 1913 to drain the lake so that more land would be available for farming.

A public hearing was held before the board yesterday to convince the commissioners that the character of the area has changed from rural to urban eliminating any need for the ditch.

Art J. Lee, county highway administrator, said the ditch is no longer functioning. The bed of Rice Lake is now a marsh that cannot be farmed, said Raymond Haik, an attorney for Maple Grove.

Haik said there are about 225 acres in the center of the lake bed which are covered by three feet of water and inhabited mostly by ducks.

SEVERAL landowners around the lake bed said the land was too swampy to farm. One farmer said he had lost a horse in the bogs and another said he had lost a tractor.

But Homer Graton, who runs a vegetable farm on the east side of the lake bed, claimed that he would lose 40 or 50 acres he is now farming if the lake area is flooded again.

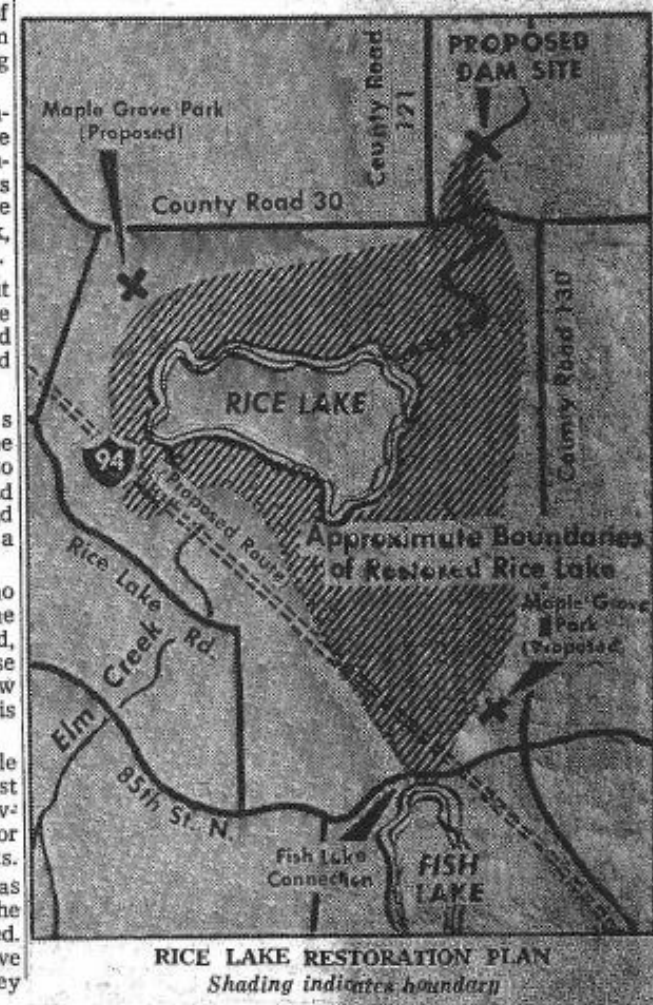
Richard H. Reimer, Maple Grove mayor, said most farmers in the area are having their land rezoned for future housing developments.

Hennepin County has pledged \$11,000 to get the Rice Lake project started. Haik said that Maple Grove hopes to get more money

from the county, the state and the federal government.

THE MINNESOTA Highway Department, which will construct Interstate Hwy. 94 near the restored lake, has agreed to elevate its route and build two bridges to allow for the restored lake. The State Highway Department also is planning a 30-acre roadside park by the restored lake, Haik said.

Maple Grove plans one park of about 40 acres and several smaller parks for greater public access to the lake, Haik said.



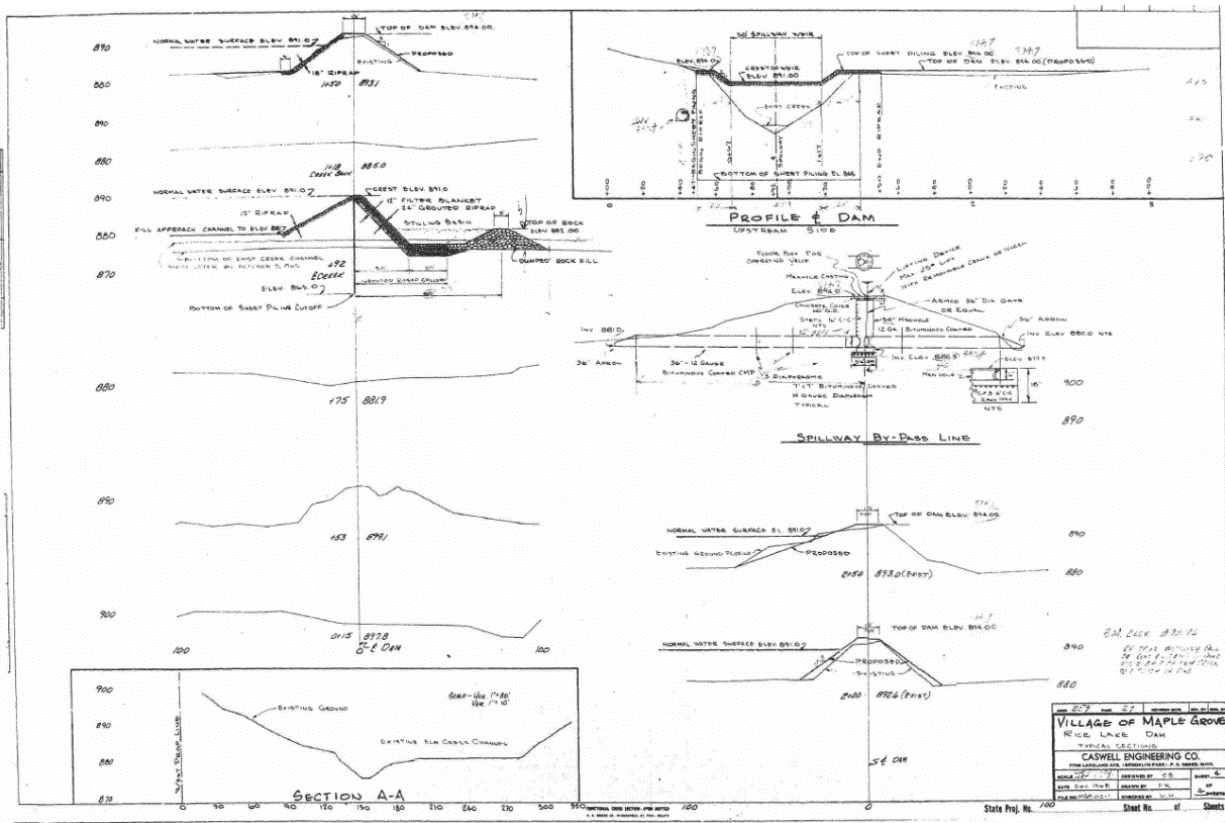


Exhibit C

Aerial view of dam with the bypass manhole to the left of the dam:

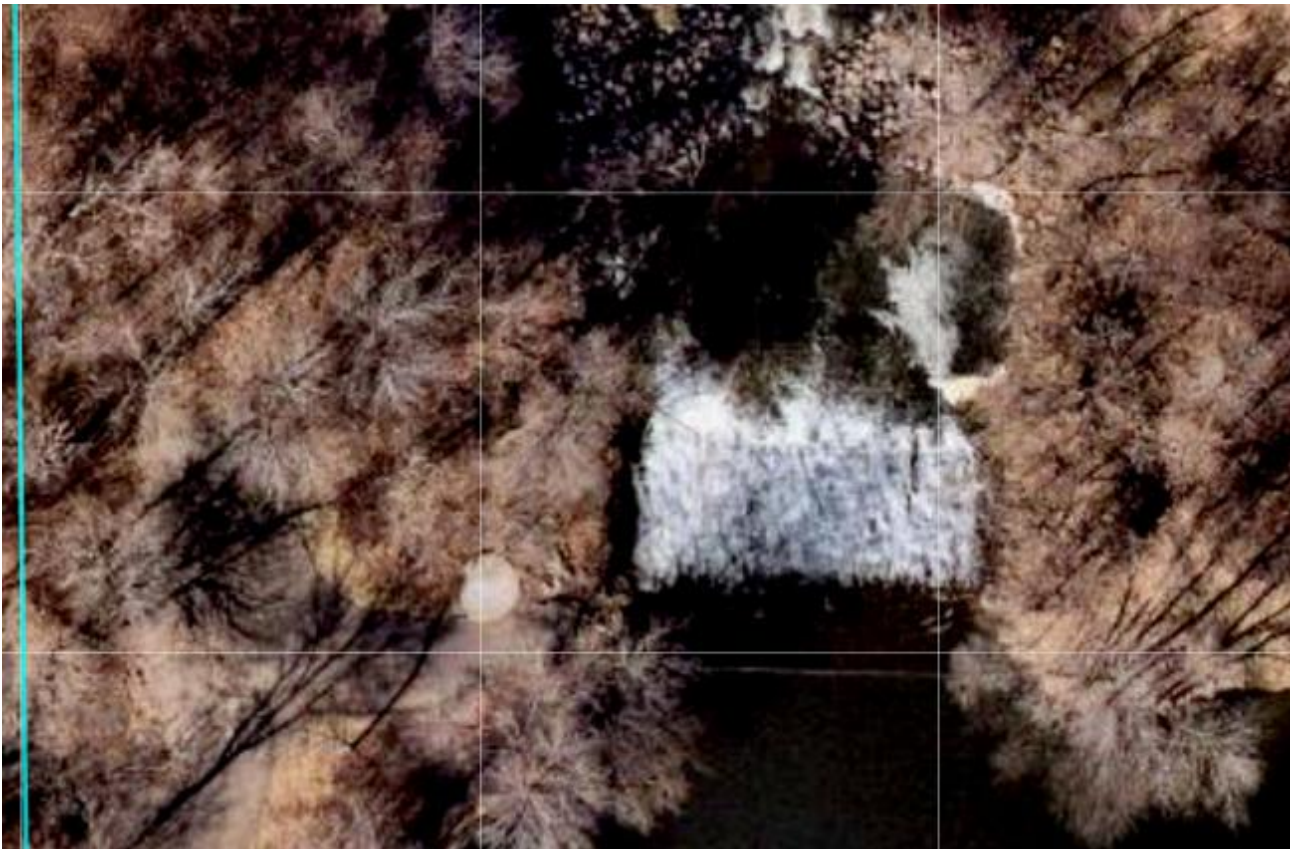


Exhibit D



