

Rock Island 2019 Irrigation Audit



Key findings

In 2019, BNR Irrigation Services was hired by the City of Lakeville and the Vermillion River Watershed Joint Powers Organization to conduct a Stage I Irrigation Audit. The purpose of conducting the audit was to document system efficiency. Key findings included:

- ◆ The system was found to be installed poorly and performed below average in terms of water efficiency
- ◆ Two controllers were set to operate a total of 21 irrigation zones
- ◆ Both controllers had functional rain sensors
- ◆ Zone layout did not account for microclimates (unique conditions across the landscape including sunlight/shade, vegetation, soil type, slope and wind), leading to inefficient water distribution
- ◆ Several zones had leaking or broken sprinkler heads
- ◆ A mixture of rotor and spray type sprinkler heads were found, which have varying precipitation rates
- ◆ Some zones had sprinkler heads that were found to be watering non-maintained vegetation



Figure 1. Mapped irrigation zones. Zones did not take into account varying microclimates that were present across the landscape.

Recommendations

As the system was found to have very low water efficiency, recommendations included a full system reconfiguration. However, the table at the right also presents alternative management options that can be implemented to increase watering efficiency. Annual cost savings associated with the implementation of management options are based on City of Lakeville utility billing rates, Rock Island use trends and audit findings.

Management Option	Estimated Cost	Estimated Annual Cost Savings	Return on Investment
1. Install smart (weather based) controllers (22% savings)	\$1,000-\$2,200 per controller \$2,000-\$3,600 total	\$916	2-5 years
2. Fix broken/malfunctioning sprinkler heads (10% savings)	\$500	\$417	1.25 years
3. Change nozzles for more efficient precipitation rate in varying microclimates	\$2,500-\$5,000 per controller \$5,000-\$10,000 total	\$417	12-24 years

Hiring your irrigation contractor to perform 3-4 maintenance checks during the irrigation season will allow you to fix broken/misaligned heads more quickly

The VRWJPO has a service contract template to ensure your contractor is optimizing maintenance checks