Bracketts Crossing 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 (VRWJPO) to conduct a Stage I Irrigation Audit. The purpose of conducting the audit was to document system efficiency. Key findings included:

- Overall, the system was reliable and of average efficiency, but efficiency could be improved
- Nine controllers were set to operate a total of 93 irrigation zones
  - Controllers were residential-type, installed directly to homes
- All controllers but Controller 5 had a functional rain sensor
- 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
- Controllers 4 and 5 had zones that were not being run by their respective controllers
- Some sprinkler heads were found to be watering non-maintained vegetation (ex: wooded areas)

Figure 1. Mapped irrigation zones. Controllers installed on residential homes have the capabilities to connect to in-home Wi-Fi.

Recommendations

As the system was found to be running reliably and generally as installed, significant system reconfigurations are not deemed as required for system operation. However, the table at the right presents high level management options that can be implemented to increase watering efficiency and maintain the life of the system. Annual cost savings associated with the implementation of management options are based on City of Lakeville utility billing rates, Bracketts Crossing use trends and audit findings.

Management Option	Estimated Cost	Estimated Annual Cost Savings	Return on Investment
1. Install smart (weather based) controllers (22% savings)	$650-$900 per controller $5,850-$8,100 total	$1,575	3.5-5 years
2. Change nozzles for better water distribution in microclimates (10% savings)	$300-$900 (depending on controller) $4,600 total	$716	6.5 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