Dodd Marsh 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, but could be more efficient
- Four controllers were set to operate a total of 86 irrigation zones
  - Controllers were stand alone residential systems, requiring manual scheduling adjustments (non- weather based)
- All controllers 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
- Sprinklers were found to be irrigating over sidewalks, wasting irrigation water on hardscaped surfaces
- Some sprinkler heads were found to be watering non-maintained vegetation (front landscaping)

Figure 1. Mapped irrigation zones. Zones are seen to irrigate greenspace according to single family home property boundaries (with some zones irrigating two home properties).

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 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, Dodd Marsh 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 (depending on controller) $5,800-$8,000 total	$4,155	1.5-2 years
2. Change nozzles for better water distribution in microclimates (10% savings)	$1,200-$4,050 per controller $4,800-$16,200 total	$2,078	2.5-8 years
3. Rebuild zones to define scheduling for varying microclimates (15% savings)	$7,000-$36,000 (depending on controller)	$3,116	2-11 years

Hiring you 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