Fieldstone Creek 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 found to be well-built and had an overall efficiency above average
- Two controllers were set to operate a total of 43 irrigation zones
- The eastern controller did not have a functional rain sensor and was programmed inefficiently
- One 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 leaking or broken sprinkler heads were found
- Sprinklers were found to be irrigating over sidewalks, wasting irrigation water on hardscaped surfaces
- Some zones had sprinkler heads that were found to be watering non-maintained vegetation

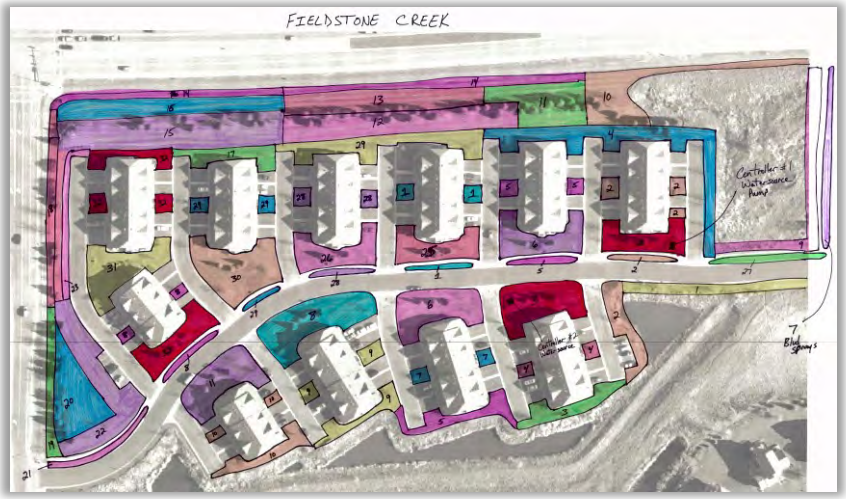

Figure 1. Mapped irrigation zones. Zone configuration did not take into account proximity to non-maintained vegetation in several areas.

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, Fieldstone Creek 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) $2,600-$3,600 total	$5,933	< 1 year
2. Fix broken/ malfunctioning sprinkler heads (10% savings)	$560	$2,697	< 1 year
3. Correct rotor sprinklers watering over sidewalks on eastern controller (10% savings)	$6,000	$2,697	2.25 years
4. Rebuild zones to define scheduling for varying microclimates (15% savings)	$2,000-$3,500 (depending on controller) $5,500 total	$4,045	1.25 year
5. Reprogram East Controller to increase efficiency (15% savings)	$600	$4,045	< 1 year
6. Install functional rain sensor on East Controller (8% savings)	$225-$275	$2,157	< 1 year

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