

Boulder Village 2020 Irrigation Audit



Key findings

In 2020, Conserva Irrigation was hired by the City of Lakeville and the Vermillion River Watershed Joint Powers Organization (VRWJPO) to conduct a Stage 2 Irrigation Audit. The purpose of conducting the audit was to document system efficiency. Key findings included:

- ◆ Four controllers operate a total of 57 irrigation zones, irrigating 9.18 acres of greenspace
 - Controllers were basic “set and forget” controllers (non-weather based) requiring manual adjustments
- ◆ All controllers had a functional rain sensor
- ◆ Zone layout did not account for microclimates (differing conditions across the landscape including sunlight/shade, vegetation, soil type, slope and wind), leading to inefficient water distribution
- ◆ Front yards had gaps in coverage due to curving landscaping, sidewalk corners and driveways, leading to overwatering to overcompensate for observed dry spots
- ◆ Sprinklers were operating at pressures greatly exceeding the recommended operating pressure, resulting in water loss from misting

Table 2. Financial Implications for Recommended Efficiency Upgrades

Efficiency Upgrade(s)	Estimated Cost	Estimated Annual Cost Savings	Return on Investment
1U.—3U. Install smart (weather based) controllers (22% water savings)	\$950-\$1,575 each (depending on controller) \$5,100 installation \$15 monthly wireless hotspot cost	\$3,713	~ 1.5 years
5U.-6U. a), 8U.-9U., 11U. Match all system head types, cap unneeded heads, raise/straighten heads, install new rotor zone (10% savings)	\$ 2,835 total	\$1,688	~ 1.5 years
6U. b) Rebuild zones to account for varying microclimates (15% savings)	\$ 5,490	\$2,531	~2 years
7U. Add heads to pick up coverage gaps in front yards (10% savings)	\$5,200	\$1,688	~3 years

Table 1. Critical Repairs and Adjustments

Critical Repair(s)	Estimated Cost	Count	Total Cost
1R.) Replace damaged 4” spray nozzle	\$60/head	2	\$120
2R.) Replace damaged 5” spray nozzle	\$50/head	104	\$5,200
3R.) Convert damaged spray nozzles to	\$25	4	\$100
4R.) Move head	\$15/linear ft	198’	\$2,970
5R.) Repair poly line leaks	\$90/leak	6	\$540
Total Cost			\$8,930

Recommendations

There are several items that can be implemented to increase the efficiency of Boulder Village’s irrigation system. However, prior to implementing recommended efficiency upgrades, the Board should implement the critical repairs in Table 1. Water and cost savings shown in Table 2 only apply when the system is operating without deficiencies (broken heads, poly line leaks, etc.). Annual cost savings associated with efficiency upgrades are based on City of Lakeville 2021 utility billing rates, historic use trends and audit findings.

Ensuring your irrigation contractor performs 3-4 maintenance checks annually will alert you to broken equipment more quickly

If turf areas at Boulder Village were watered according to plant requirements, the HOA would save an average of \$6,802 per year!

