

Stone Borough 2021 Irrigation Audit



Key findings

In 2021, 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:

- ◆ One controller operates a total of 20 irrigation zones, irrigating 2.49 acres of greenspace
 - The controller is a basic set and forget controller, not incorporating weather data
 - Most zones run for 30 minutes every other day, not following "cycle and soak irrigation" practices
- ◆ There is a rain sensor on the system, but it is not easily accessed
- ◆ Part of the water source piping is leaking
- ◆ A substantial amount of heads were leaking or not functioning, meaning regular system maintenance is likely not taking place
- ◆ Zones had mixed application rates, leading to some spots being overwatered vs. others being underwatered
- ◆ Coverage gaps existed along the back side of all buildings
 - This leads to wasted water through tendencies of "watering to the dry spot"

Table 2. Financial Implications for Recommended Efficiency Upgrades

Efficiency Upgrade(s)	Estimated Cost	Estimated Annual Cost Savings	Return on Investment
1U.) Implement smart controllers (22% water savings)	\$1,500	\$1,267	~1 year
2U.) Move heads to correct overwatering due to improper spacing (10% savings)	\$1,800	\$576	~ 3 years
3U.) Add heads to correct coverage gaps (10% savings)	\$2,850	\$576	~ 5 years

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

Recommendations

Did you know that a single broken or leaking sprinkler head can waste thousands of gallons of water per week?

There are several items that can be implemented to increase the efficiency of Stone Borough's irrigation system. However, prior to implementing recommended efficiency upgrades (shown in Table 2), the Board should implement the critical repairs seen in Table 1. Water and cost savings shown in Table 2 only apply when the system is operating without deficiencies (broken heads, sunken heads, etc.). Annual cost savings associated with efficiency upgrades are based on City of Lakeville 2022 utility billing rates, historic use trends and audit findings.

Table 1. Critical Repairs and Adjustments

Critical Repair(s)	Estimated Cost	Count	Total Cost
1R.) Repair broken/leaking rotors	\$65/head	47	\$3,055
2R.) Fix leak in water source piping	\$200	1	\$200
3R.) Raise/straighten head	\$15/head	4	\$60
4R.) Move rain sensor	\$50	1	\$50
Total Cost			\$3,365

If turf areas at Stone Borough were watered according to plant requirements, the HOA would save an average of \$3,532 per year!

If Stone Borough does not implement any critical repairs or efficiency upgrades, and waters at the same rate as 2020, the HOA can expect to pay \$7,355 or more for irrigation alone in 2022

