

Morgan Square 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:

- ◆ Two controllers operate a total of 27 irrigation zones, irrigating 2.98 acres of greenspace
 - Controllers are basic set and forget controllers
 - Most zones run for 30 minutes every other day, not following “cycle and soak irrigation” practices
- ◆ Both controllers have a functioning rain sensor
- ◆ 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 water being applied three to four times greater than the needed amount
- ◆ Coverage gaps existed along driveways and grass islands
 - 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)	\$3,000	\$1,752	~2 years
2U.) Move and add heads for proper coverage (10% savings)	\$2,100	\$796	~2.5 years
3U.) Match precipitation rates with rotating nozzles (10% savings)	\$780	\$796	~1 year
4U.) Upgrade existing spray nozzles with high-efficiency spray nozzles (10% savings)	\$4,030	\$796	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 Morgan Square’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	146	\$9,490
2R.) Repair broken/leaking sprays	\$65/head	8	\$520
3R.) Raise/straighten head	\$15/head	14	\$210
Total Cost			\$10,220

If turf areas at Morgan Square were watered according to plant requirements, the HOA would save an average of \$4,933 per year!

If Morgan Square does not implement any critical repairs or efficiency upgrades, and waters at the same rate as 2020, the HOA can expect to pay \$8,721 or more for irrigation alone in 2022

