Commercial Site Assessment™ Tier II

Prepared for:

Claret Springs

15115 Cimarron Court
Rosemount, MN 55068

2020 Season

conserva® irrigation

Proud Partner of TORO®

763.434.5414
twincities@conservairrigation.com
conservairrigation.com

Commercial Site Assessment™

Date of Tier I CSA: July 31st, 2020
Certified Technician: Garret Peterson, CLIA, CIT

Date of Tier II CSA: July 31th, 2020
Certified Technician: Garret Peterson, CLIA, CIT

Irrigated Acres: 5.46
Irrigated ft^2: 237,718

Audit System Observations

Irrigation system controller is a Hunter I-Core 30 zone max with 21 zones currently utilized.

- *Program A*: Starts 10:00pm (stacked 3 times), even days, omitting Thursdays, including Zones – 1-11&18.
- *Program B*: Starts 10:00pm (stacked 3 times), odd days, omitting Thursdays, including zones 12-21. Zone 18 running on even and odd days.
- Cycle soak style of running setup for 3 cycles as noted by "stacking" 10:00pm start time.

Controller has a wired Hunter™ weather-based Sensor called Solar Sync™. Controllers with Solar Sync receive weather data daily and adjust runtimes based on that and the regional July Evapotranspiration data. This makes the I-Core a Smart controller geared towards water savings.

Almost all rotors in all zones had a 2.0 nozzle installed. Nozzles of rotors should change depending on area of coverage. For example, if a head covers 90° the nozzle will be a 1.0, a head covering 180° is a 2.0 nozzle, 270° head should be a 3.0, and so on. If all nozzles are the same and the heads turn at a fixed rate, then areas covered by a 90° head will get more water and those covered by a 360° head will get too little. Unfortunately, the "wrong nozzle sizing" heads will have to be completely new rotors since the model of rotor is older and the correct nozzles are no longer possible to acquire.

There are also zones that have poor coverage/spacing. Spray zones along the boulevards are over spraying onto the road to make up for poor spacing and single line uniformity. An opposing zone and swapping nozzles on existing zones would provide better, more even, and efficient coverage. Zone 5 is a rotor zone that covers a turf island adjacent to parking spaces. The amount of water wasted on overspray to keep the small island turf watered is significant. I recommend reducing turf and changing to rotary nozzle sprays or eliminating turf on the island. There were some zones that could also use heads moved out of wooded areas, or to better spots for coverage. Lastly, there were many rotors that needed to have their position in the ground adjusted for proper coverage, ex. crooked, too low, too high, etc.

Microclimates are mostly sun versus shade on this property. Sunny areas, especially by asphalt or other heat radiation need much more water than shady areas like under trees. This is not accounted for on this site for run times and/or design of zones. The easiest solution is to reduce nozzle size in shaded areas, and possibly increase in sunny areas.

Water Rates:

Meter Reading Interval: ☐ Monthly ☒ Quarterly ☐ Other _____

Units Measured As: ☒ 1000 gallons ☐ CCF

Converted Units: ☒ 1 unit = 1000 gallons

WATER RATES	Tier 1	Tier 2	Tier 3	Tier 4
Price per unit (per 1,000 gals)	$1.54	$1.94	$2.41	$3.62
Threshold	0-12,000	12,001-24,000	24,001-48,000	48,000 & over
Sewer Rate per unit (if unmetered):	-			

Historical Water Usage:

Year	Annual Water Usage (gallons)	Annual Water Cost*
2016	1,795,000	$6,497.90
2017	1,904,000	$6,892.48
2018	2,472,000	$8,948.64
2019	1,922,000	$6,957.64
4 Year Average	2,023,250	$7,324.17

*Current Water rates used for best comparison year to year and for future expectations.

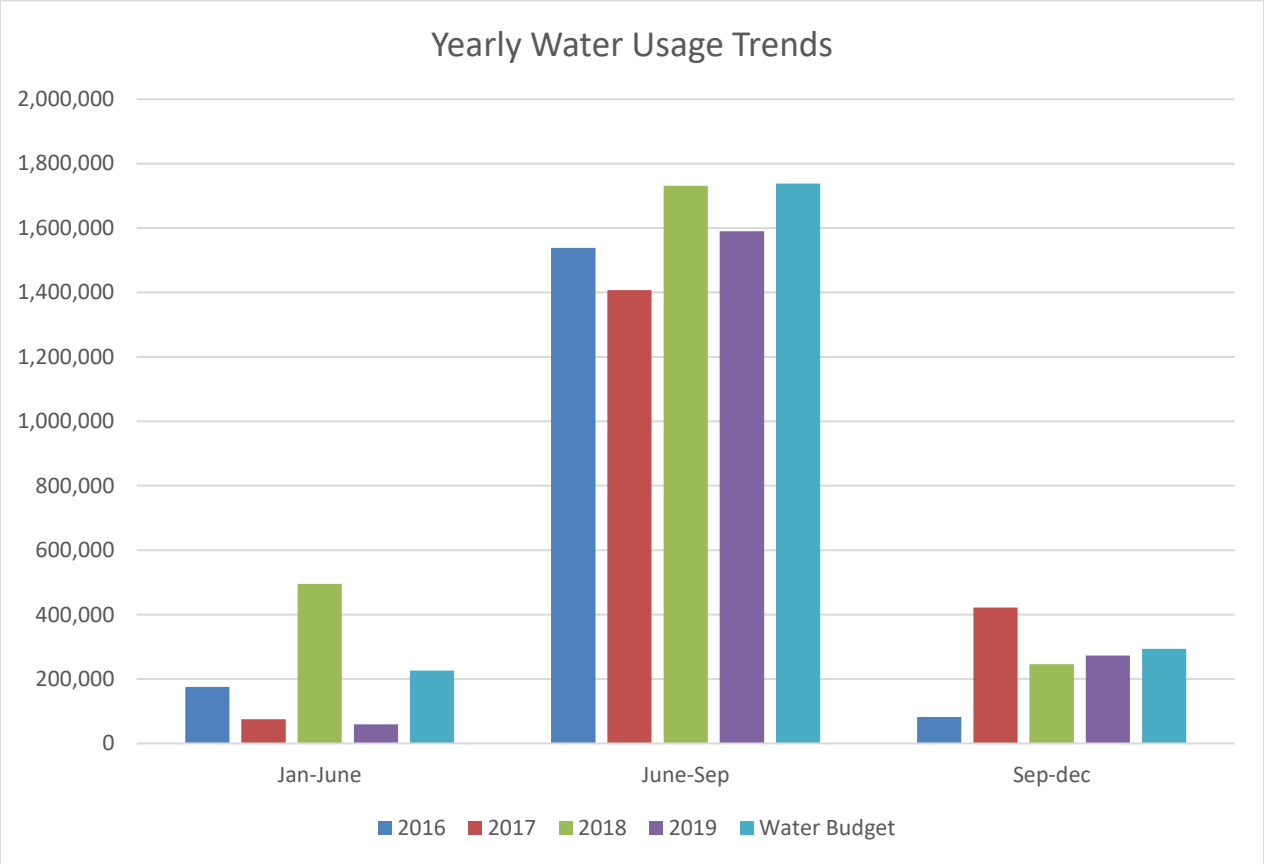
Water Usage Analysis

Water use seems to be consistent around 1,900,000 to 2,000,000 gallons for the last four years. The grass root profile and health are doing well with this amount of watering. This is likely thanks to the smart control system. Though, as mentioned in the previous page, there is still room for improvement.

Claret Springs

Water Budgeting

Month	2016 Usage	2017 Usage	2018 Usage	2019 Usage	Avg Usage	Water Budget
Jan-June	175,000	75,000	495,000	59,000	201,000	225,668
June-Sep	1,538,000	1,407,000	1,731,000	1,590,000	1,566,500	1,737,646
Sep-Dec	82,000	422,000	246,000	273,000	255,750	293369
Total(gal)	**1,795,000**	**1,904,000**	**2,472,000**	**1,922,000**	**2,023,250**	**2,256,683**



System Components:

Water Source				Deficiency?
#1	Location	Behind 15115 Cimarron Court		
	Source	City 2”		
	Anti-syphon			
		Brand	Wilkins Zurn - 975XL	
		Size	2”	
		Inspection Date	6/2020	
		Visual Inspection	Fair Condition, no leaks	
	Deduct Meter			
		Brand	Census – T2	
		Size	2”	
		Serial Number	71534452	
		Reading	17,667,691 Gallons	
		Visual Inspection	Like New	
	Hydrometer			
		Brand	N/A	
		Size	N/A	
		Master Valve	N/A	
		Visual Inspection	N/A	
	Notes:	No Master Valve		

Recommend Critical Repairs and Adjustments

	Zones																				
Head Type	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***	***14***	***15***	***16***	***17***	***18***	***19***	***20***	***21***	***Total***
Total # Rotors	25	30		32	35	24	31	24		26		33	28	29	10	34	36	32	41	39	20	**529**
Total # Sprays			24						40		29											**93**
Rotating Nozzles																						
Mini Rotors																						
High Pop Rotors																						
6" Sprays																						
12" High Pop Sprays																						
Mixed Head Types																						
Zone GPM	58	60	80	60	70	50	60	60	78	56	64	74	70	52	50	20	74	78	74	76	54	**-**
Repairs	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***	***14***	***15***	***16***	***17***	***18***	***19***	***20***	***21***	***Total***
Damaged Rotors	1			1	1							1								1		**5**
Damaged 4" Sprays																						
Damaged 6" Sprays																						
Damaged High Pop Rotor																						
Damaged High Pop Spray																						
Line Leaks																						
Wrong Nozzle Sizing	3	1		6	7	2	3	2		2		1		3		2	3		2		2	**39**
Damaged Nozzles																						
Raise/Straighten Heads					3	2	4	3		1		6	2	3		3	5	3	5	5	2	**47**
Design Changes	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***13***	***14***	***15***	***16***	***17***	***18***	***19***	***20***	***21***	***Total***
Move a head for better coverage												2	4	1			2	1		1		**11**
Cap unneeded head																4		1				**5**
Poor coverage/spacing					X				X		X											

Completed Critical Repairs and Adjustments

Repairs	Price (each)	Count		Total
R1.) Installed 5" Rotor	$ 65.00	5		$ 325.00
R2.) Broken Nozzles	$ 20.00	19		$ 380.00
R3.) Move Head (per foot)	$ 15.00	11 heads for a total of 30'		$ 450.00
R4.) Cap Head/line	$ 35.00	5		$ 175.00
				$ 1,330.00

Recommended Efficiency Upgrades

System Efficiency and Design Upgrades	Price (each)	Count		Total
U1.) Option 1 - EPA Water Sense spray heads phase out - pressure regulated and check valved spray heads with rotary nozzle	$ 60.00	93		$ 5,580.00
U2.) Option 2 - Toro Precision™ Spray Nozzle Swap Out	$ 20.00	93		$ 1,860.00
U3.) Option 3 - Hunter MP™ Rotary Nozzle Swap Out	$ 25.00	93		$ 2,325.00
U4.) New rotors to replace the rotors with "wrong nozzle sizing" that do not match coverage area and are too old to just replace the nozzle	$ 65.00	49		$ 3,185.00
U5.) Raise / Straighten Heads	$ 15.00	47		$ 705.00
U6.) Add Zone	$ 1,900.00	2		$ 3,800.00
				$ 7,690.00 (without options 1-3 included)

In summary, completing the recommended critical repairs and upgrades will result in substantially more efficient water usage and healthier plant material.

Next Steps:

- ☐ Fix critical repair issues
- ☐ Upgrade all nozzles with High-Efficient Toro PSN™ Nozzles and/or Hunter MP™ rotary nozzles
- ☐ Update rotor nozzles/heads to match coverage areas
- ☐ Addressing coverage/spacing issues on boulevards
- ☐ Reduce or eliminate turf on parking island
- ☐ Annually maintain and monitor property