A photograph of a house with a dark roof and grey siding. The lawn in front is green and has several sprinklers running, creating a misty spray of water. The text "Sprinkler System Self-Audit." is overlaid in white on the upper part of the image.

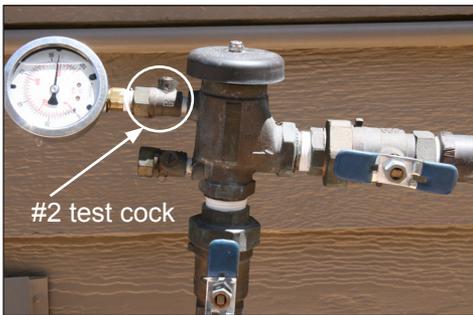
Sprinkler System Self-Audit.

City of
Fort Collins
Utilities



Step 3: Measure Water Pressure

- Locate your backflow prevention device, typically on the side of the house.
- Thread the pressure gauge into the #2 test cock.
- Using the standard screwdriver, slowly open the test cock by turning the screw (below right).
- If you cannot make a connection to the backflow device, use the hose spigot attachment. Thread it as you would a hose and open the spigot to measure pressure.
- Record two pressures:
 1. Static pressure: take a reading with sprinklers turned off
 2. Operating pressure: read the gauge again with a zone running
- Record the pressure readings on the Audit Form.
- Slowly close the test cock and remove the gauge.



Step 5: Calculate Precipitation Rate and Distribution Uniformity

- First add up the total amount of water in all the catch cans. This is the total water in inches over the audited area.
- Divide this number by the number of catch cans (24) for the Total Average.
- Circle the six lowest values and add them together to find the Low Quarter.
- Divide the Low Quarter total by the number of catch cans (six); this is the Low Quarter Average.

Catch Can Data *House*

x0.15	x0.18	x0.12	x0.22	x0.24	x0.20
x0.05	x0.09	x0.09	x0.11	x0.32	x0.12
x0.04	x0.05	x0.06	x0.09	x0.20	x0.13
x0.02	x0.02	x0.07	x0.16	x0.16	x0.12

Street

Run time 5 min. # Catch Cans 24
 Total water (inches) 3.02
 Total# Catch Cans = Total Average 0.125
 Low Quarter (LQ) Total 0.25
 # Catch Cans Low Quarter 6
 Low Quarter Total# LQ Catch Cans = Low Quarter Average 0.04

PR = $\frac{\text{Total Average} \times 60\text{min}}{\text{Run time (RT)}}$
 If RT is 5 min. PR = $\frac{\text{Total Average} \times 60}{5} = 1.50$ in./hr.
 If RT is 10 min. PR = $\frac{\text{Total Average} \times 60}{10} = 0.75$ in./hr.
 PR = $\frac{\text{Total Average} \times 60\text{min}}{\text{Run time (RT)}}$ = $\frac{1.50}{8}$ in./hr.
 DU = $\frac{\text{Low Quarter Average} \times 60}{\text{Total Average}}$ = $\frac{0.32}{0.125}$ or 32 %

Precipitation Rate

- Use the formulas on the bottom of the Catch Can Data Sheet.
- If you ran the spray heads for 5 minutes and the rotors for 10 minutes, use the top two formulas.

Distribution Uniformity

Using your data calculations, enter them into the bottom formula to find DU. Enter the DU in the chart on the bottom of the Audit Sheet.

Step 6: Calculate Run Times

1. Enter the PR for each zone tested on the Audit Sheet under Data.
2. On the Sprinkler Run Time chart, locate the PR in the left hand column. Find the Run Time recommended range, from Low to High.
3. In the Recommendations column under Run Time on the Audit Sheet, record the low and high times.
4. If a zone has partial or full shade, revise the run time under Adjusted Run Time.
5. Since clay soil can only absorb about $\frac{1}{4}$ inch of water per hour, divide the run time into two cycles.
6. Enter these times into the Run Time per Start column.
7. Now you know how long to water to apply $\frac{1}{2}$ inch. Typically, run the system once in the spring and fall and twice during most of the summer. Add a third day when the weather is hot and dry.
8. Enter a Run Time per Start for zones that were not tested by using the Run Times from similar zones (spray or rotor) and adjusting for shade.

Sprinkler Run Time*
To Apply $\frac{1}{2}$ inches (minutes)

Precipitation Rate	Run Time	
	Low	High
0.20	108	120
0.25	87	96
0.30	72	80
0.35	62	69
0.40	54	60
0.45	48	53
0.50	43	48
0.55	40	44
0.60	36	40
0.65	33	37
0.70	31	34
0.75	29	32
0.80	27	30
0.85	25	28
0.90	24	27
0.95	22	25
1.00	21	24
1.05	20	23
1.10	20	22
1.15	19	21
1.20	18	20
1.25	17	19
1.30	16	18
1.35	16	18
1.40	15	17
1.45	15	17
1.50	14	16
1.55	13	15
1.60	13	15
1.65	13	15
1.70	12	14
1.75	12	14
1.80	11	13
1.85	11	13
1.90	11	13
1.95	11	12
2.00	11	12
2.10	10	11
2.20	10	11
2.30	10	10
2.40	9	10
2.50	9	10

Step 7: Take a Soil Sample

- Push the soil probe into the grass without twisting; twist it back and forth to remove a sample.
- It 's easiest to take the sample from a zone where you did the catch can test so the soil is moist.
- With a screwdriver, separate the soil textures while looking for fine hair-like roots in the soil.
- Use a ruler to measure the length of the roots and record on the Audit Form.



Step 8: Program Controller

- Add up all the times in the Run Time per Start column. This is the time it takes to complete one watering cycle.
- Enter a start time into the controller. Preferably, begin watering after midnight. When a complete cycle ends, enter a second start time to water the additional cycle.
- For example, if the entire sprinkler cycle runs for 90 minutes, enter two start times in the controller; one at 2 a.m. and the second at 4 a.m. This waters the entire lawn's first $\frac{1}{4}$ inch, waits a half hour while the water is absorbed and applies the second $\frac{1}{4}$ inch.
- If recommended run times are higher than your current run times, you may have other factors contributing to your efficiency. These are guidelines—you may be able to water less.
- Monitor the appearance of your grass and adjust the run times up or down a few minutes for each zone.



If you have questions while performing the audit, contact Eric Olson at (970) 221-6704 or eolson@fcgov.com.



Resources:

- Audit handouts: fcgov.com/lawn-care-resources
- Water conservation: fcgov.com/conserves



Fort Collins Conserves. It's Our Style.