



2022 URBAN PARKS AND MEDIANS IRRIGATION WATER USE ANALYSIS AND REVIEW

Prepared for:

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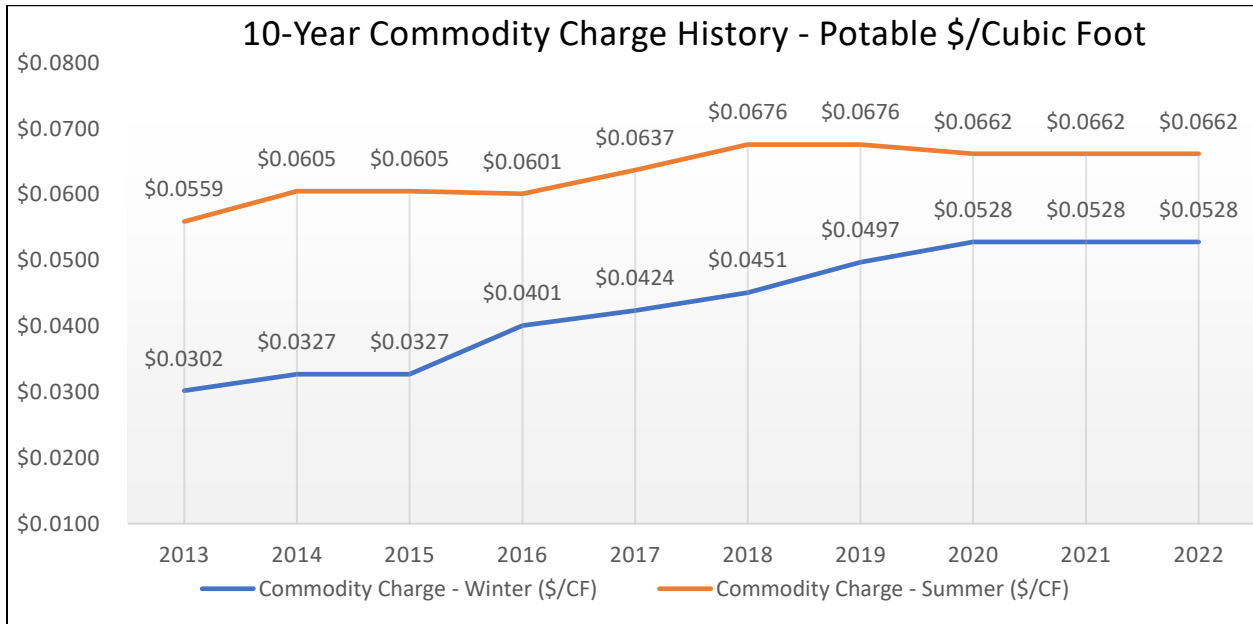
Prepared by:

Jarod Clayton

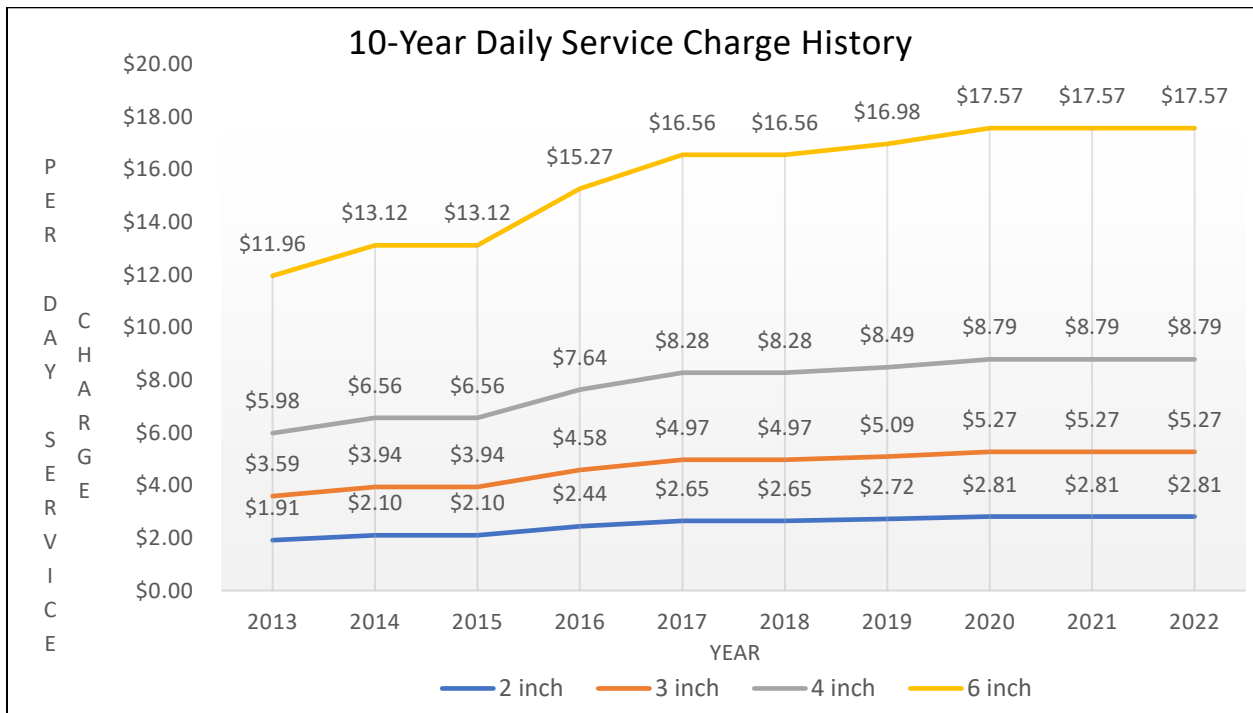
Water Conservation Specialist

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Potable Water Rates. Over the last 10 years the commodity charge for potable water has increased 18% for summer rates and 75% for winter rates. Fortunately, in 2022, all potable water rates remained unchanged from the two previous years and have not increased since 2018.

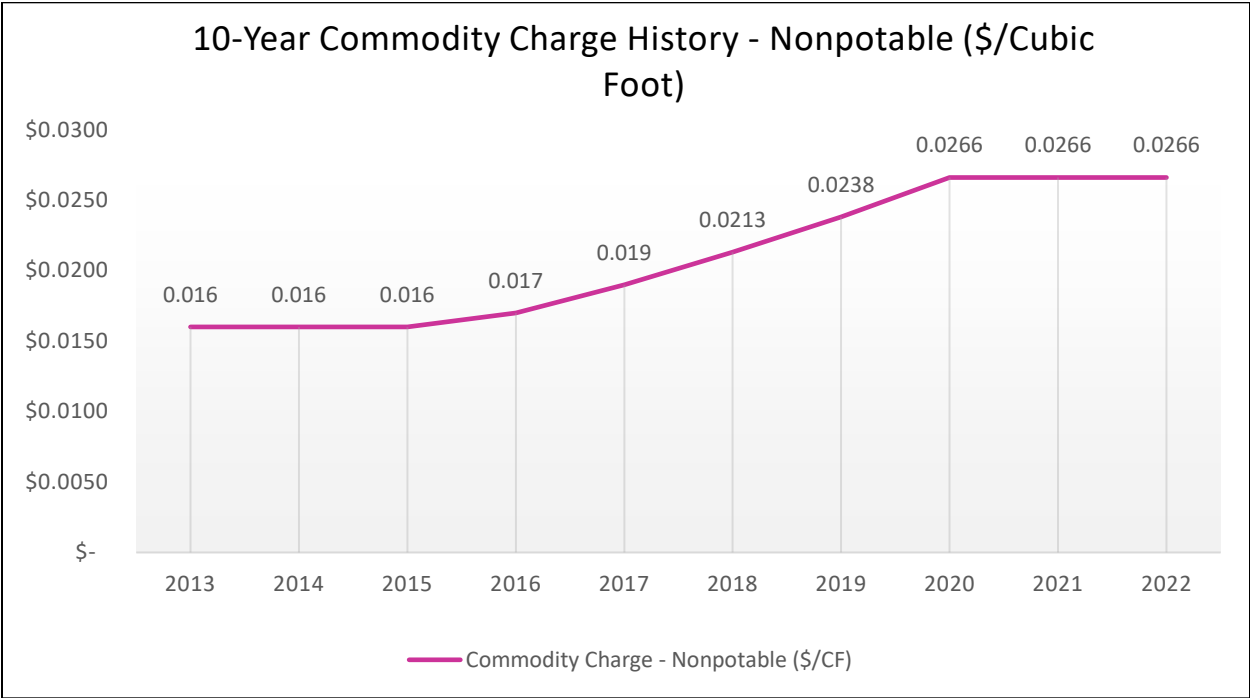


Daily Service Fees. Service fees are assessed daily to all accounts utilizing potable water and are dependent on water meter size. Much like the cost of water, daily service fees have increased significantly over a 10-year span, to the tune of 47%. Because of this, when not in use during the winter months, meters are virtually disconnected by Colorado Springs Utilities and are not assessed a fee.

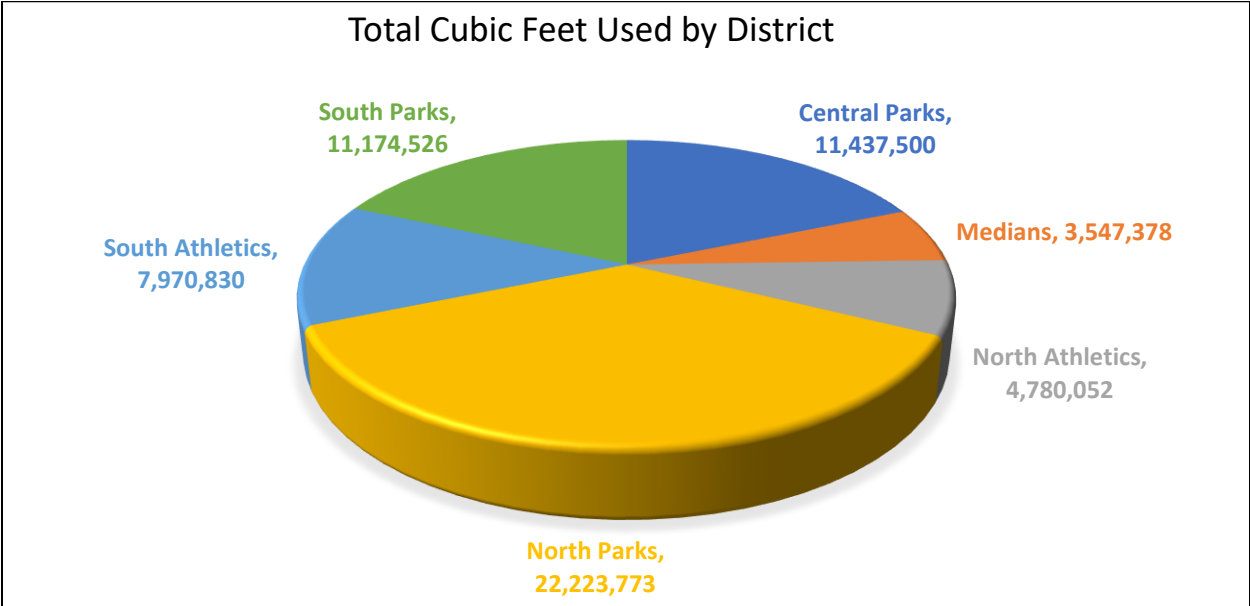


Nonpotable Water Rates. Colorado Springs Utilities nonpotable water system is one of the oldest in the state and was first requested by CDOT to supply water to irrigate along the I-25 corridor during its construction. The current system supplies raw or reclaimed water or a blend of both to 30 customers. In the past ten years, between 10-12% of the total amount of water used in Colorado Springs parks was non-potable.

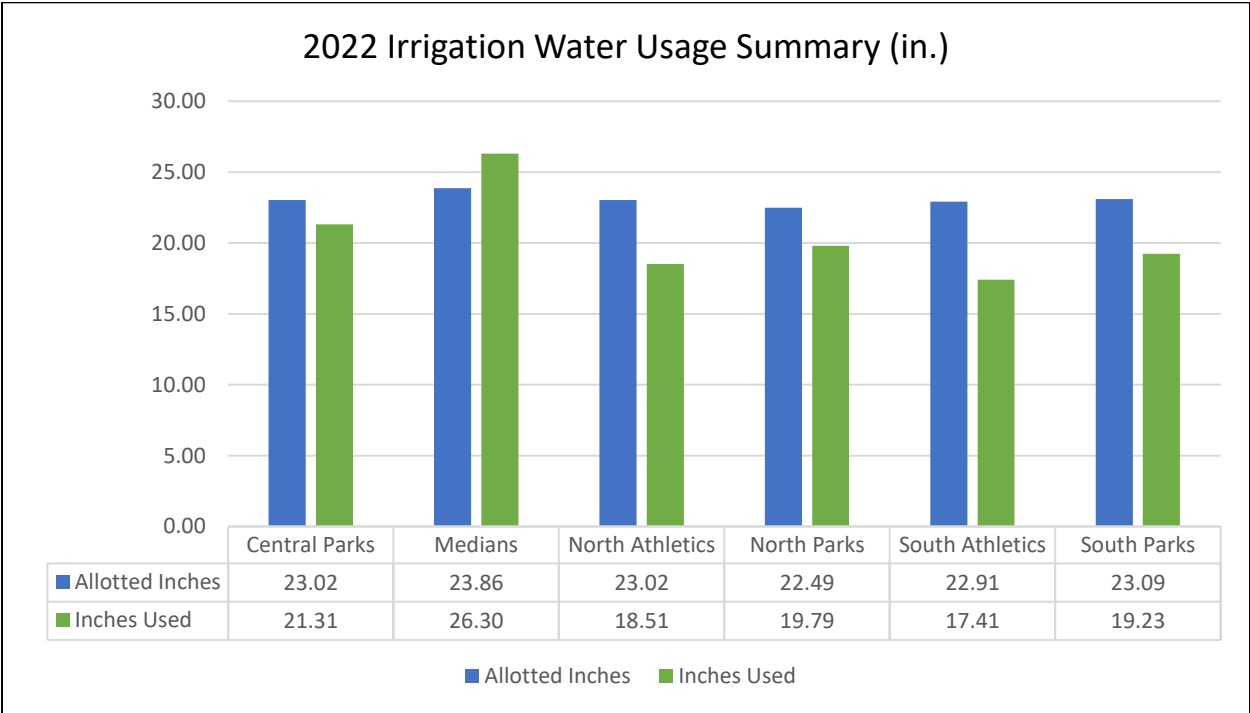
Over the last 10 years the commodity charge for nonpotable water has increased 66%. In 2020 alone, rates increased by 11.76%. Nonpotable water remains attractive for irrigation use due to the lower cost compared to potable water, no assessment of daily service fees, and less restrictions during times of drought. In the years to come, the Parks Department would like to continue to pursue opportunities for increasing use of nonpotable water. Unfortunately, the somewhat limited infrastructure of the non-potable system makes adding additional sites cost prohibitive. At the present time, 97 acres of Parks property are irrigated using non-potable water.



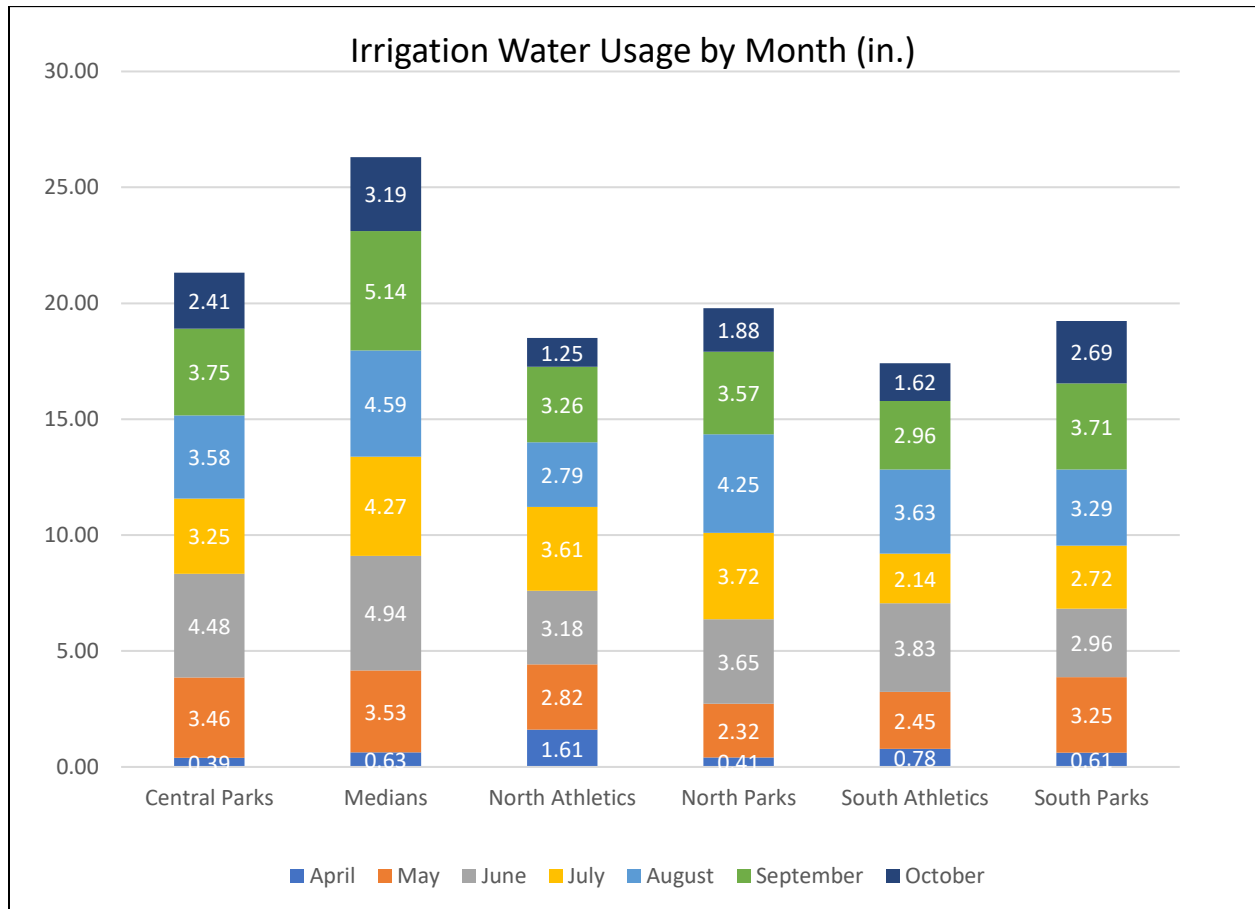
Water Use Analysis. The North Parks District is comprised of 309 acres of irrigated turf and landscaping making it the largest user of water within the park’s maintenance districts. In 2022, the Parks Department used a combined 61.1M cubic feet of water for irrigation use.



As shown in the chart below, actual water usage compared to the water allotment was variable among districts. The Downtown Medians, which make up a small percentage of the total acreage and have the oldest and least efficient irrigation systems, were the only district to exceed the 24” annual water allotment. All other districts were under allotment.



Water Use Analysis Cont'd. Below is a more detailed perspective that tells the story of how water was applied over the course of the growing season. We've learned that a variety of factors contribute to making each maintenance district unique, that ultimately impacts monthly and seasonal water usage. These factors can include local weather patterns, specifically temperature differences caused by elevation and the scattered nature of rainfall; special events that impact the ability to irrigate; the date in which systems are activated and winterized; and the subjectivity associated with irrigation scheduling.



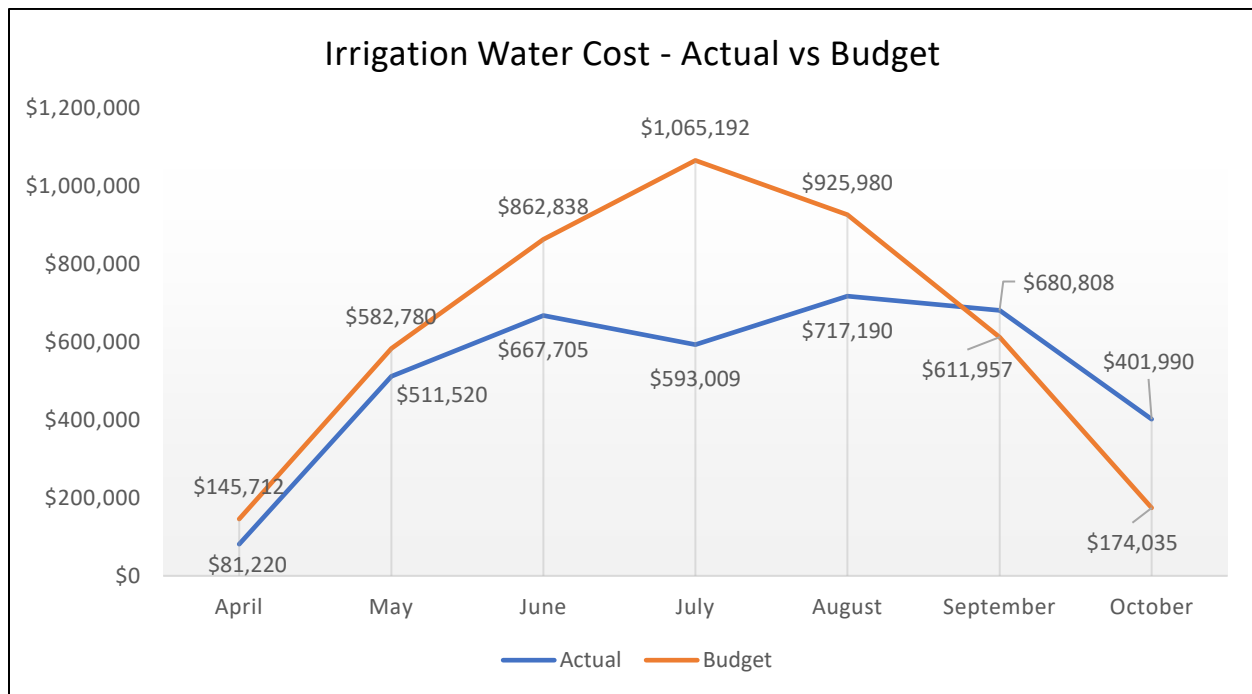
Irrigation Water Budget. The irrigation water budget was developed based on historical water need dating back to 1949, with July being representative of the hottest and driest month, thus the month with the highest budget.

The graph below represents the total departmental commodity charges, by month, compared with the budget. Budget justifications can then be extrapolated when coupled with institutional insight. The narrative is as follows.

In April, the irrigation systems were in the process of being activated and overnight low temperatures prevented systems from running for fear of freezing. Further, in late-May, an untimely windstorm caused weeks' worth of clean-up that redirected staffs' time away from irrigation related duties.

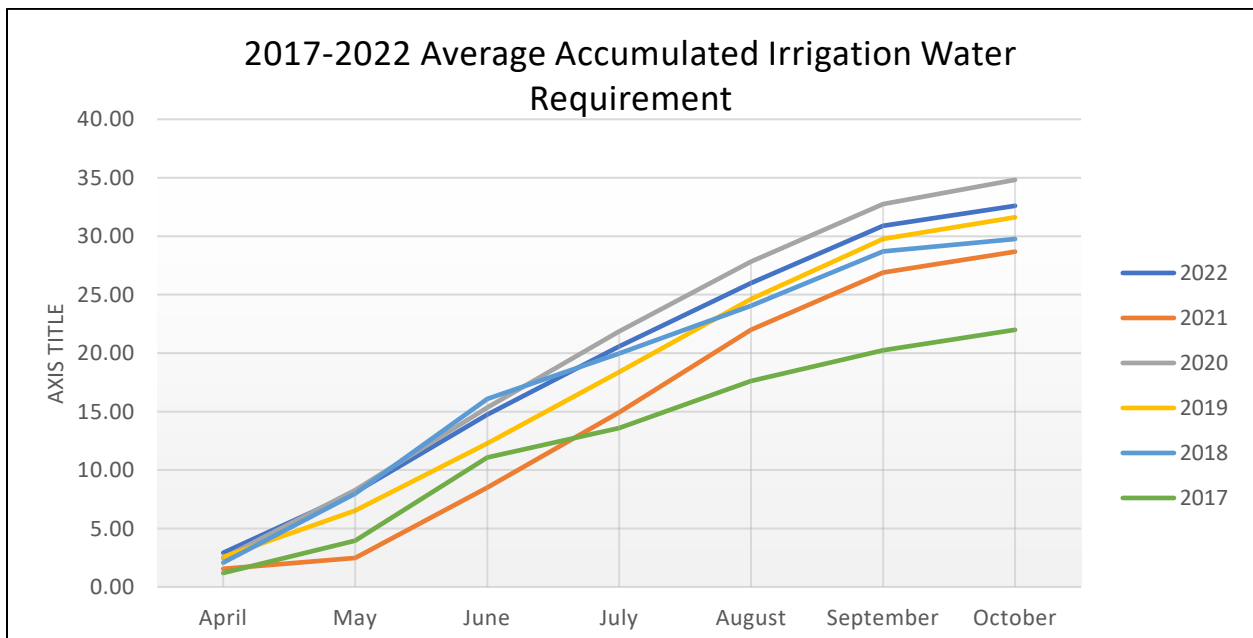
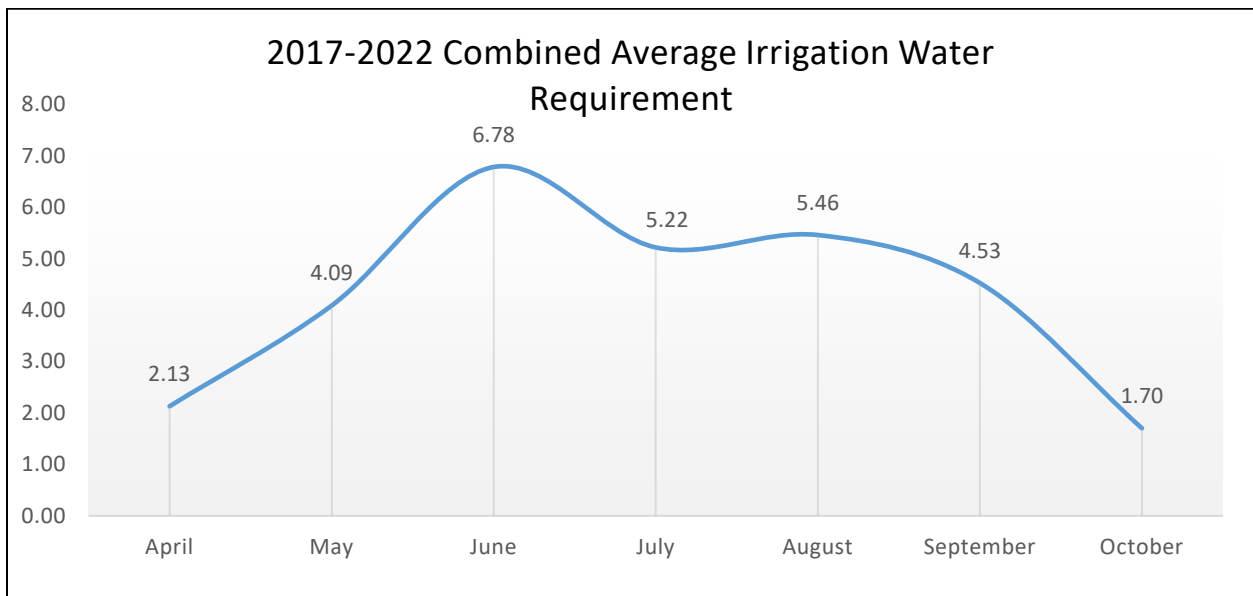
In June, July, and August we received beneficial rainfall that activated rain sensors, keeping irrigation systems off, thus saving water. Water saved during these months could then be applied in September and October when very minimal rainfall and above average temperatures reigned supreme.

The total budget for irrigation water was \$4,37M, and of that budget, 87% or \$3.78M was used in 2022.



Irrigation Water Requirement. Throughout the irrigation season weather data is collected and comprehensively analyzed to determine the amount of supplemental irrigation water needed for the landscapes. The precipitation data is collected from the (1) Air Force Academy, (2) Patty Jewett Golf Course and (3) Colorado Springs Airport to represent northern, central, and southern portions of the city. Evapotranspiration (ET) rates are collected from smart irrigation controllers in similar localities. The irrigation water requirement (IWR) can then be calculated to determine how much irrigation water was needed during a particular time period.

Below is the combined average irrigation water requirement from 2017-2022 for all parts of the city. The graph illustrates a possible change in statistical inference towards June being the month with the highest irrigation water requirement, rather than July. Also illustrated, is the average accumulated irrigation water requirement used for yearly comparisons.



Irrigation System Efficiency Improvements and Water Footprint Reduction Statistics.

New Irrigation Systems

- Panorama Park - \$294,195
- Nevada Medians: \$121,728
- Old Farm Maintenance Shop: \$15,296
- South Monument Valley Park: \$338,767 (to be completed spring of 2023)
- Total Expenditures: \$769,986

Turf to Native Conversions

- Panorama Park – 7.28 acres
- Portal Park: 1.99 acres
- El Pomar Youth Sports Complex: .10 acres
- Total Acres Converted YTD: 87.84

Irrigation Equipment and Turf to Native Conversion Rebates

- Spring: \$29,442
- Fall: \$20,000
- Total: \$49,442

