Castle Rock Water Commission
Agenda - Final-Amended

Todd Warnke, Chair
Bill Leung, Vice Chair
Angie Brown
Kathryn Gienger
David Hammelman
Kevin McHugh
Tony Rathbun

Wednesday, May 24, 2023 **6:00 PM** **Castle Rock Water**
175 Kellogg Ct., Bldg. 171
Castle Rock, CO 80109

This meeting is open to the public and will be held in a hybrid format in accordance with Town Council Electronic Participation, Connected, and Hybrid Meeting Policy. The in-person meeting will be held at 175 Kellogg Ct. Bldg. 171 Castle Rock CO 80104 or this meeting can be accessed online at: https://crgov.webex.com/crgov/j.php?MTID=mb3153e2317ff49678d1628ed061363cd the Meeting password: CRWCommMtg52423 (27926666 from video systems) or phone in by calling (720) 650-7664, meeting code #25000108626#. One or more Council members may also attend this meeting, during which the items listed herein will be discussed.

6:00 pm CALL TO ORDER / ROLL CALL

COUNCIL UPDATE

COMMISSION COMMENTS

ADMINISTRATIVE BUSINESS

1. WC 2023-051 Approval of the April 28, 2023 Meeting Minutes

   Attachments: Attachment A: April Meeting Minutes

2. WC 2023-052 Recognition of Water Commission Members whose terms are completed as well as an Update on the Interview Process and New Board Members

ACTION ITEMS (HIGH PRIORITY / TIME CRITICAL)

3. WC 2023-053 An Ordinance Amending Chapter 12.12 of the Castle Rock Municipal Code Pertaining to Camping and Waste within Public Stream Riparian Zones and Floodplains, and Providing Penalties for the Violation Thereof [Entire Town]

4. WC 2023-054 Resolution Approving an Amendment to the Intergovernmental Agreement with Parker Water and Sanitation District for WISE Pump Station Expansion and Infrastructure Design [Rueter-Hess Reservoir Water Purification Facility, Parker Water and Sanitation District, Parker, CO]
   Town Council Agenda Date: June 6, 2023

DIRECTOR FOLLOW-UP AND INFORMATIONAL / UPDATE ITEMS

5. WC 2023-055 2023 Rates & Fees Study Deliverables

Attachments: Attachment A: Customer Characteristics Report
Attachment B: Growth Forecast by Year 2023-2028

6. WC 2023-056 Update on Drought Conditions

7. WC 2023-057 Upcoming Town Council Items

COMMISSIONER MEETING COMMENTS

Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/24/2023

Item #: 1. **File #:** WC 2023-051

To: Members of the Castle Rock Water Commission

From: Mark Marlowe, P.E., Director of Castle Rock Water

Approval of the April 28, 2023 Meeting Minutes
Town Council Agenda Date: NA

Executive Summary

Attached are the meeting minutes for the April 28, 2023 Water Commission Meeting.

Proposed Motion

"I move to approve the Minutes as presented"

Attachments

Attachment A: April 28, 2023 Meeting Minutes

Water Commission Mtg.
April 26, 2023

Present: Commissioners Todd Warnke, Kathryn Gienger, Tony Rathbun, Bill Leung, David Hammelman, Angie Brown and Mayor Jason Gray

Absent: Commissioner Kevin McHugh

Guest: NA

Staff: Mark Marlowe, Nichol Bussey, Roy Gallea, David Van Dellen, Paul Rementer, Scott Tait and Maryjo Woodrick.

Visitors: None

Start: 6:00 pm **End: 8:20 pm**

Council Report

Time was allowed for Mayor Gray to share a council update.

Commissioner Comments

Time was allowed for Commissioner Comments.

Approval of the March 28, 2023 Meeting Minutes

It was moved by Angie Brown and seconded by Bill Leung to approve the meeting minutes as presented. The motion passed 6-0

Update on Water Commission Interviews

Mr. Marlowe shared that Mayor Gray, Chair Warnke, and Director Marlowe would be conducting interviews for the Water Commission on May 10th here at the Castle Rock Water (CRW) Admin and Customer Service building. Currently, the team is planning to interview 15 residents (at the time of interviews they spoke with 18 residents). Mr. Marlowe also explained that there are two Commission members that are up for renewal and two vacant seats.

Resolution Approving an Intergovernmental Agreement with Douglas County for the Highway 85 Wastewater Collection and Treatment System *[Located along the Highway 85 Corridor North of E. Happy Canyon Rd. to W. Titan Rd. in northern Douglas County]*

Mr. Marlowe shared that this project has been briefed with the Water Commission previously. It is the Highway 85 Wastewater Collection and Treatment System. Mr. Marlowe explained that this item is the intergovernmental agreement between the Town of Castle Rock and Douglas County. The goal of the project is to help Douglas County put in place a wastewater collection system along the Hwy 85 Corridor (just north of Castle Rock to Titan Rd.). This project will be funded with Douglas County American Rescue Plan Act (ARPA) Funds. In order for this to be a successful project it needs to be completed in phases. The key terms of the IGA with Douglas County are:

- Provide CRW with $26.8 Million in Douglas County ARPA funds to design and construct the system with funds needing to be spent by December 31, 2026;
- Allows CRW to charge a 1% project management fee for these services;
- Dedicates the constructed system assets in the corridor to CRW for long term operation, maintenance, repair and replacement;
- Makes CRW the retail and wholesale wastewater provider in the Service Area;
- Requires CRW to develop rates and fees for the Service Area;
- Allows CRW to charge a 10% extraterritorial surcharge for all aspects of this service; and
- Ensures that new development in the corridor beyond the first 200,000 gallons of wastewater can only occur if renewable water supplies are available.

Mr. Marlowe also explained what benefits the Town of Castle Rock will see:

- Improves water quality in Chatfield Reservoir (drinking water source for CRW) by removing untreated or poorly treated wastewater sources in the corridor (e.g. Louviers);
- Allows all reusable water supplies used in the corridor to be captured for reuse by CRW and Dominion Water and Sanitation District (DWSD) with DWSD only taking those supplies where they are the supplier;
- Creates wastewater solutions for existing communities in the corridor (e.g. Louviers and Sedalia) and existing businesses (e.g. CORE a big employer in the region);
- Improves the economic viability and vitality of this key transportation corridor (good location for primary jobs) by ensuring that wastewater service is available;
- Provides opportunities for additional water quality and environmental projects along Plum Creek utilizing easements obtained from this project;
- Gives the opportunity for consolidation of some of the small underfunded water and sanitation districts into more sustainable systems like CRW; and
- Allows for collaboration on a trail system running from Castle Rock all the way to Chatfield Reservoir by co-locating the sewer system with trails on easements obtained in the corridor.
- Ensures that CRW has oversight of water and wastewater development in this critical CRW water resources corridor;
- Contributes to economies of scale for CRW’s operations over the long term helping to spread our costs amongst a larger customer base;

- Gives CRW more financial resources from the extraterritorial surcharge to accomplish our core mission and vision; and
- Provides ARPA funding for a pump station that will pump reuse water back to CRW's reservoirs in Sedalia and help offset the cost of our Chatfield Pump Back system (at least a $2 to $4 million benefit for our long term water plan)

Phase 1 will focus on:

- Louviers Lift Station
- Louviers Force Main
- Chatfield Basin Water Reclamation Facility
- Titan Road Lift Station

Commissioner Hammelman asked how many additional full time employees will be needed in the first phase of the project? Mr. Marlowe explained it will probably be a full time project for one of our Project Managers and we may need additional project management help, but we will not need additional operational or other staff during the first phase. Once the infrastructure is built additional staff will be needed.

Commissioner Hammelman asked why the small subdivision on the map is being excluded? Mr. Marlowe is not sure as Douglas County made the decision about boundaries for the service area.

Commissioner Warnke asked what the next steps will be? Mr. Marlowe indicated that once the IGA with Douglas County is signed, an IGA with Dominion Water and Sanitation District will be needed. Subsequently, the engineering for the project will begin in earnest.

Bill Leung moved to recommend to Town Council approval of the Resolution as presented. David Hammelman seconded the motion. Passed unanimously 6-0.

Resolution Approving the 2023 Water Master Plan *[Entire Castle Rock Water Service Area]*

Mr. Gallea explained that staff have updated the Water Master Plan. He shared background on the current planning principles for the plan:

- Protect people, property, environment
- Plan for the Future
- Encourage coordination of infrastructure needs
- Operate the water enterprise fund as a business, balancing revenue and expenses
- Provide for effective long-term operation and maintenance
- Ensure water planning is part of a total water management approach

- Identify and implement changes to the water system which will improve long term sustainability through resource recovery and net zero energy use

Mr. Gallea gave an update on the current water distribution system:

- Served 80,000+ residents in 2022 with a Maximum Peak Day of 19.2 million gallons per day (MGD) in 2022
- 6 Treatment Plants
- 454 miles of Potable Water Mains
- 53 miles of Raw Water Mains
- 9 Pump Stations
- 16 Active Storage Tanks
- 119 Active Wells
- 79 Active Pressure Reducing Valves
- 14,800 System Valves
- 4,720 Active Fire Hydrants
- 29,000 Meters

To create the new Water Plan staff used hydrologic modeling to help decide what direction they wanted to go in. From this process the staff recommendations are:

Water Treatment/Water Quality

- Investigate whether the migration to direct potable reuse (DPR) from the current indirect potable reuse (IPR) scenario is the right path forward for CRW, looking at the cost, regulatory, technical and water quality implications to make an informed decision for its customers
- Evaluate water quality continuously, health advisories and maximum contaminant levels and continue to optimize water treatment to address these items as science and regulation develop
- Monitor our drinking water reservoirs and develop programs to ensure raw water quality in these reservoirs is maintained
- Expansion of PCWPF from 6MGD to 12MGD with an estimated cost of $58.8 Million

Distribution System

- Complete Advanced Metering Infrastructure (AMI)
- Ramp up the Rehab and Replacement Plan with priorities being the Prestwick water line replacement in 2023 and Young American rehab and replacement in 2024 and 2025. Young American will be phased due to size and budget constraints of $2 Million/year
- Utilize the interconnect with the Pinery to bring Cherry Creek Project Water Authority (CCPWA) renewable water back to Ray Waterman Regional Water Treatment Center (RWRWTC) for retreatment and distribution

- Integrate Bell Mountain into the Castle Rock Water service with the construction of a pump station, pipeline, and tank in 2023
- Construction of Tank 11B, a new 2.3 million gallons (MG) tank with an estimated cost of $6,600,000
- Replacement of the aging Tank 3 with an estimated cost of $2,200,000

Operations

- Execute the Supervisory Control and Data Acquisition (SCADA) Master Plan with a focus on continuing to improve our cybersecurity
- Fire Hydrant Inspections
- Flushing to maintain water quality
- Valve Inspection
- Leak Detection
- Pressure Reducing Valve Inspections
- Tank Cleaning and Inspections
- Treatment Plant Inspections
- Pump Station Inspection

Tony Rathbun moved to recommend to Town Council approval of the Resolution as presented. Angie Brown seconded the motion. Passed unanimously 5-0-1. Kathryn Gienger abstained.

Resolution Approving the Name Dedication of the Blue Zone Pump Station to Anderson Pump Station *[1760 Meadows Blvd.]*

Mr. Marlowe shared that CRW long time employee Monty Anderson passed away recently, and CRW staff would like to honor him by naming the Blue Zone Pump Station the Anderson Pump Station.

Angie Brown moved to recommend to Town Council approval of the Resolution as presented. Kathryn Gienger seconded the motion. Passed unanimously 6-0.

Resolution Approving Changes to the Castle Rock Water Grease Interceptor Assistance Program *[Town-wide program]*

Ms. Bussey explained that the Grease Interceptor program was created to help owners of older buildings with the cost of adding a grease interceptor. The original program was set up so that CRW would help with up to 50% of the cost of the project with the total being no more than $15,000. The funding would come from three sources, a $5,000 grant from the general fund, $2,500 grant from CRW, and $7,500 loan from CRW. The terms of the loan are a 5-year payback and 2.54% annual percentage rate.

Staff would like to suggest that the program be increased as the costs of equipment and installation has increased. The updated program would change to a max amount of reimbursement of $35,000. The funding would still come from three sources, a $5,000

grant from the general fund, a $10,000 grant from CRW and up to a $20,000 loan from CRW. The terms of the loan would stay the same.

The current budget includes $40,000 for the assistance program. CRW will request a second quarter budget amendment to increase the available funds to $60,000.

Commissioner Gienger asked if we know how many of these “non-compliant” properties exist? Mr. Marlowe explained that PCWRA has a list of those properties, and he wasn’t sure of the exact number but would say about 10 to 20.

Commissioner Gienger would like to see a more even split between the general fund and CRW rather than CRW “footing” most of the costs.

Commissioner Rathbun asked if most of the locations are in the downtown Castle Rock? Mr. Marlowe shared most of them are but there a few in other areas of town.

Kathryn Gienger moved to recommend to Town Council approval of the Resolution as presented. Tony Rathbun seconded the motion. Passed unanimously 6-0.

Resolution Approving the 2023 Town of Castle Rock/Sublette Water Lease Agreement *[Rothe/Sublette Recharge Project, Weld County, CO]*

Mr. Marlowe explained that this is another agricultural water lease agreement for water in the Lost Creek Basin. Sublette is interested in leasing 134 acre feet (AF). The cost of the water is $36.50 per acre foot (AF), which amounts to $4891 in revenue.

Angie Brown moved to recommend to Town Council approval of the Resolution as presented. Bill Leung seconded the motion. Passed unanimously 6-0.

Resolution Approving the 2023 Town of Castle Rock/Colorado Parks & Wildlife Spot Water Lease Agreement *[Chatfield Reservoir, Douglas County]*

Mr. Marlowe shared that this is also a water lease agreement but is a little different. Colorado Parks & Wildlife would like to lease 200 AF. This would be water from our Chatfield Reservoir water. This water costs $385 per AF. The potential revenue for this lease would be up to $77,000.

Angie Brown moved to recommend to Town Council approval of the Resolution as presented. David Hammelman seconded the motion. Passed unanimously 6-0

Update on Customer Characteristics

Mr. Rementer explained that this presentation is a sneak peek of what will be presented next month in the full Customer Characteristics report.

Information Item Pertaining to the Proposed Senate bill SB23-267 Concerning Protecting Water Quality in Chatfield Reservoir and the Watershed

Mr. Van Dellen shared that Chatfield Watershed Authority contracted with lobbyists to identify a funding source and introduce a fee bill during the 2023 Colorado Legislative Session to address a $1.2 million shortfall over the next five years in Authority funding which is needed to address water quality issues at the reservoir and within the watershed.

Senate Bill SB23-267 was introduced on April 4, 2023. The bill proposed that a water quality fee be paid by visitors going to the Chatfield State Park in the amount of $1 per vehicle per day or $3 per annual pass, collected by Colorado Parks and Wildlife and distributed to the Authority on a quarterly basis. The proposed bill is anticipated to generate approximately $250,000 annually and includes a repeal date of January 1, 2029 on the basis of the currently justified needs of the Authority.

Update on Drought Conditions

Mr. Marlowe shared information on how much moisture the Town has received and the average daily temperature so far this year.

Upcoming Town Council Items

This is a standing item that will be used to share information about projects that are being worked on at the time of the meeting but that staff doesn't have information ready yet.

Mr. Marlowe explained that Heather Justus was the alternate board member for the CCPWA and since she no longer works at CRW, staff have nominated David Van Dellen to replace her.

Commissioner Meeting Comments

Time was allowed for Commissioner Comments.

Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/24/2023

Item #: 2. **File #:** WC 2023-052

To: Members of the Castle Rock Water Commission

From: Mark Marlowe, P.E., Director of Castle Rock Water

Recognition of Water Commission Members whose terms are completed as well as an Update on the Interview Process and New Board Members
Town Council Agenda Date: NA

Executive Summary

We would like to thank Todd Warnke, Kathryn Gienger, Kevin McHugh and Angie Brown for serving on the Water Commission.

On May 10, 2023, interviews were held for appointments to the Castle Rock Water Commission. Mayor Jason Gray, Commissioner Todd Warnke, and Mark Marlowe, Director of Castle Rock Water were on the interview panel.

The following recommendations were presented to Town Council on May 16, 2023 for appointment:

David Hammelman (re-appointment)
Angie Brown (re-appointment)
Melanie Penoyar-Perez
Kiki Miller
Cortland Wolfe

Appointments were approved at the May 16, 2023 Town Council Meeting. Terms will start June 1, 2023 and the election of officers will be held at the June 28, 2023 Water Commission meeting.

Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/24/2023

Item #: 3. **File #:** WC 2023-053

To: Members of the Castle Rock Water Commission

From: Mark Marlowe, P.E., Director of Castle Rock Water
David Van Dellen, P.E., Assistant Director of Castle Rock Water

An Ordinance Amending Chapter 12.12 of the Town of Castle Rock Municipal Code Pertaining to Camping and Waste Within Public Storm Drain Systems, Stream Riparian Zones and Floodplains, and Providing Penalties for the Violation Thereof
Town Council Agenda Date: June 20, 2023

Executive Summary

This memo is to request Town Council adoption of an ordinance amending Chapter 12.12 of the Town of Castle Rock Municipal Code pertaining to camping and waste within public storm drainage systems, stream riparian zones and floodplains, and providing penalties for the violation thereof. The Town has experienced an influx of unauthorized camping and temporary shelters within these water areas over the past several years resulting in significant safety concerns, including but not limited to, threats of water contamination, potential for flood risk. Public storm drainage systems, riparian zones and floodplains are subject to dangerous conditions with respect to fast moving water, inundation, flooding and storm drainage which can present an immediate threat to the health and safety of anyone camping or sleeping in these areas. Additionally, with the Town becoming more and more dependent on surface water sources for drinking water supply, it is imperative that our waterways remain free of contaminants, such as human excrement, discarded materials and other foreign substances that inherently come with people camping and sleeping within close proximity of floodplains and storm drainage systems. Finally, with the potential for flash flooding and snow melt runoff in the State of Colorado, there is a potential for loss of life and/or significant bodily injury to individuals occupying public storm drainage systems. Peoples' possessions, camping equipment and other items, can block storm drains, pipes and inlets causing additional risk of flooding and damage to public and private property or public infrastructure. This ordinance will allow for the Town to regulate and protect the Town's water sources and the health and safety of residents and visitors.

Notification and Outreach Efforts

The Town of Castle Rock utilizes patrol officers who interact with people experiencing homelessness within our community and help provide them with resources available to them. These officers have conducted outreach to individuals attempting to utilize Town of Castle Rock open spaces for temporary shelter and encampments informing them of the inherent dangers, environmental risks and prohibitions associated with these activities. Currently, the Town has a policy regarding the

removal of abandoned camps, however, the current code provisions do not address efforts to protect against contamination of the Town's surface water supplies and safety concerns related to unauthorized access to public storm drainage systems. This ordinance will allow for the Town to incorporate additional tools to streamline the process when encountering unauthorized activities that put individuals at risk for their health and safety, threaten the Town's water resources or have the potential to contribute to flooding and the resulting damage to property and infrastructure. Upon approval and passing of the proposed ordinance, proper signage will be placed in restricted areas, as well as patrol officers notifying individuals of the Town's efforts to regulate protect the surface water supplies.

Discussion

The Town is prized for its vast open spaces and preservation of riparian corridors along our streams and waterways. These open spaces are vital to the Town not only for recreation and wildlife refuge, but vital water supplies as well. Over the past several years, the Town has experienced an increase in the level of unauthorized camping along these sensitive areas and within the Town's storm drains which are designed to convey high volumes of runoff during snow and rain events. Unauthorized camping activities may result in refuse accumulation and human waste. There is also a potential for discarding of paraphilia associated illicit drug use. As part of the abandoned campsites policy, the Town has contracted with a remediation company who is qualified to handle hazardous materials and store personal items which have been removed from Town open spaces.

It is important to note that unauthorized camping in public storm drainage systems not only threatens the quality of the Town's water sources, but also poses an extreme threat to the life and safety of the unauthorized campers. Heavy snow melt run off and the amount of rain that may be produced in severe summer storms may result in flooding that may result in drowning. By regulating the unauthorized use of public storm drainage systems, the Town is protecting against the loss of life and/or significant bodily injury.

This ordinance will allow for the Town to better regulate unauthorized camping occurring within and along these sensitive water areas and expeditiously stop such unauthorized uses. This will ensure protection of the public health and safety especially for individuals inappropriately using these areas. It will also help keep items from encampments or camping from damaging or blocking stormwater drainage inlets, pipes and drains leading to flooding and damage of property and infrastructure. In addition, this ordinance provides the Town the means to levy fines to individuals who disobey the rules and put their own health and safety and that of the Town's citizens at risk.

Budget Impact

The Town of Castle Rock hires out contracting services to remove abandoned temporary shelters and encampments following an extensive notification process deeming the site abandoned, allowing individuals to remove personal property and, the process for claiming person property from storage. The cost of these services over the past year has totaled $23,500 not including staff time.

Staff Recommendation

Staff recommends approval of the Ordinance amending Chapter 12.12 of the Town of Castle Rock Municipal Code pertaining to camping and waste within public storm drainage systems, stream riparian zones and floodplains, and providing penalties for the violation thereof.

Proposed Motion

"I move to recommend Town Council approve the Ordinance as introduced by title."

Attachments

Attachment A: Ordinance
Exhibit 1: Municipal Code

Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/24/2023

Item #: 4. **File #:** WC 2023-054

To: Members of the Castle Rock Water Commission

From: Mark Marlowe, P.E., Director of Castle Rock Water
Matt Benak, P.E., Water Resources Manager
Zuzana Howard, Water Resources Program Analyst

Resolution Approving an Amendment to the Intergovernmental Agreement with Parker Water and Sanitation District for WISE Pump Station Expansion and Infrastructure Design *[Rueter-Hess Reservoir Water Purification Facility, Parker Water and Sanitation District, Parker, CO]*
Town Council Agenda Date: June 6, 2023

Executive Summary

The purpose of this resolution (see ***Attachment A***) is to seek Town Council approval for cost adjustments required by the design consultant (HDR) for the design of an expansion to Parker Water and Sanitation District's (PWSD) WISE pump station and associated infrastructure. Castle Rock entered into an intergovernmental agreement with PWSD for this work under approval from Castle Rock's Town Council on December 7, 2021.

During the course of project design HDR recognized additional design efforts that needed to be included for an effective final design. The cost adjustments include:

- Ten (10) additional progress meetings and workshops;
- Transient modeling and mitigation; and additional effort for:
  - Basis of design report and 30% layout drawing additions;
  - 60% plans, specifications, and development of Engineers Opinion of Probable Construction Cost (EOPCC) for the Pump Station, chemical feed system and flow control vault;
  - 90% plans, specifications, and EOPCC for the Pump Station, chemical feed system and flow control vault;
  - Final bidding plans, specifications, and EOPCC;
  - Permitting for the chemical feed system; and
  - Procurement packaging and submittal reviews.

Details of HDR's engineering design services amendment are included as ***Exhibit 1.***

One of Castle Rock's key pieces of its renewable water supply portfolio is water from the Water Infrastructure and Supply Efficiency (WISE) project. The WISE Program is a source of renewable and sustainable water supply for ten (10) South Metro water providers, including Castle Rock and PWSD. Previously, expansions to the associated WISE receiving tank, pump station, and site piping were deferred and the pump station inside PWSD's existing Rueter-Hess Water Purification Facility (RHWPF) was used to pump WISE water. Now, PWSD is in need of its own pump station capacity within the RHWPF and desires to design and construct the deferred WISE infrastructure.

The additional costs associated with this amendment are $228,400 and Castle Rock's portion of the design is 54%, which equals $123,336. The original total cost of the design was $885,600 (Castle Rock's portion being $477,118). This represents a 25.8% increase.

History of Past Town Council, Boards & Commissions, or Other Discussions

On December 1, 2021, staff presented the Intergovernmental Agreement with Parker Water and Sanitation District for the WISE Pump Station Expansion and Infrastructure Design to the Castle Rock Water Commission. Commission recommended Town Council approve the IGA with a vote of 7-0.

On December 7, 2021, the Town Council approved the Intergovernmental Agreement with Parker Water and Sanitation District for WISE Pump Station Expansion and Infrastructure Design.

Discussion

During the course of project design, the design consultant, HDR, recognized additional design efforts that needed to be included for an effective final design. This additional effort includes:

- Ten (10) additional progress meetings and workshops;
- Transient modeling and mitigation; and additional effort for:
    - Basis of design report and 30% layout drawing additions;
    - 60% plans, specifications, and development of the EOPCC for the Pump Station, chemical feed system and flow control vault;
    - 90% plans, specifications, and EOPCC for the Pump Station, chemical feed system and flow control vault;
    - Final bidding plans, specifications, and EOPCC;
    - Permitting for the chemical feed system; and
    - Procurement packaging and submittal reviews.

The number of meetings and workshops doubled from the initial estimate, from 10 to 20.

The hydraulic transient analysis was significantly expanded beyond the initial specifications to include evaluating the future WTP expansion, future Western Loop pump station, and existing Canyon's pump station to confirm that surge mitigation measures are adequate for the planned expansions.

The Basis of Design Report (BDR) was expanded to include drawings for the chemical feed building addition and flow control vault.

All of these additions to the original scope of work will have increased time and cost impacts not only in the preliminary design phase but also when preparing the 60%, and 90% Plans, Specifications, and EOPCC Deliverables.

In 2015, a 42-inch steel pipeline (the Ridgegate Pipeline [RGL]) was designed and constructed to convey WISE water from the primary WISE East-West transmission main to RGL regional partners. At that time, the associated WISE receiving tank, pump station, and site piping were deferred and the pump station inside PWSD's existing RHWPF was used to pump WISE water. Now, PWSD is in need of its own pump station capacity within the RHWPF and desires to design and construct the deferred WISE infrastructure. It is PWSD's desire that the design be completed to allow for this WISE infrastructure be operational no later than June 2024.

The WISE system is controlled independently of the PWSD system and therefore requires its own supervisory control and data acquisition (SCADA) and controls integration to communicate to the WISE backbone SCADA system. Depending on the configuration and hydraulics of the WISE PS to the PWSD system, additional communication and coordination will be necessary between the two agencies to deliver adequate integration and controls.

PWSD is the Operator of the WISE system and will own this infrastructure, but coordination with the South Metro WISE Authority (SMWA) on this project may be required. The Consultant may also be asked to assist in providing updates to the SMWA Board.

Budget Impact

HDR's additional cost of the design project along with the CMAR contingency is $228,400 and CRW has a 54% pro-rata share of this fee for a total additional authorization of $123,336.

Monies for this project will come from 211-4375-443.77-72 Water Resources, CIP - WISE Infrastructure, Project Code <WR WLI>. This account has a remaining budget of $14,171,260 for 2023.

Proposed Motion

"I move to recommend to Town Council approval of the Resolution as presented"

Attachments

Attachment A: Resolution (Not Attached)
Exhibit 1: Amended Agreement (Not Attached)

Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/24/2023

Item #: 5. **File #:** WC 2023-055

To: Members of the Castle Rock Water Commission

From: Mark Marlowe, P.E., Director of Castle Rock Water
Nichol Bussey, Business Solutions Manager
Paul Rementer, Enterprise Fund analyst

2023 Rates & Fees Study Deliverables
Town Council Agenda Date: NA

Executive Summary

As part of the annual rates and fees study, Castle Rock Water (CRW) staff gathers several pieces of information to input into the four enterprise models for calculating rates, system development fees and cost of service. Throughout the study, staff will bring to Commission some of those inputs and deliverables used for this process.

Customer Characteristics Analysis (Attachment A)

As a part of the annual Rates and Fees Study, CRW conducts an in-depth analysis of accounts in service to determine customer characteristics and consumption patterns. We start by looking at the most current billing data for FY2022. From there, we break down the number of accounts by meter size and customer class. We then compare the number of actual permits for the last several years to the number of projected permits in that same year. The Town's Development Services Department provides the number of accounts by customer class for past actuals as well as the forecasted amounts for FY2023 and FY2024.

An average consumption based on the most current three years (2020-2022) by account, meter size, customer class and winter versus summer season is calculated. This average three-year period serves as a comparison to previous three-year periods going back as far as 2012. This takes into consideration weather patterns and rainfall variances from year-to-year. We have added a section in the report showing the monthly rainfall compared to average consumption patterns as one tool to evaluate the effectiveness of water conservation.

These individual three-year average consumption calculations provide the basis for meter equivalency factors. Starting in 2010, the Town implemented actual use meter equivalency factors in assessing the monthly service charges for water, wastewater, and water resources. The average consumption for all ¾" meters serves as the base unit with the average consumption for all larger size meters divided into this base unit to get an equivalency factor by meter size and customer class.

Customer data for the last three years (2020-2022) then determines an average representative customer for each customer class. One customer from each customer class then represents the class average and their consumption patterns are used to calculate a typical customer's annual bill.

In 2020, we started showing the average consumption patterns of atypical customers' consumption patterns compared to the average customer. Atypical can be defined as a customer whose consumption patterns are not typical of an average customer in that same meter size and or customer class due to the nature of their business or varying water needs. We eliminate these from the average calculation as to avoid skewing the average for a representative customer by meter size and customer class.

Billed usage by tier from 2013-2022 by customer class is analyzed to see if customers are staying within their water budget tiered rate structure. The purpose of this data analysis is also to see if customers over time are conserving water and avoiding Tier 3 - Excessive usage and Surcharge (over 40,000 gallons per month).

We also looked at the customers with a 0.67 SFE to see if their consumption patterns are meeting the intent of the program, to use one-third less water than an average ¾" residential customer's usage. Additional information such as 0.67 SFE accounts by irrigated area also help us to understand the larger irrigated accounts that typically consume larger amounts of water and may or may not be meeting the intent of the program. In addition to the 0.67 SFE accounts, we also review consumption patterns for Water Efficiency Plan (WEP) accounts to determine the impact of their required water efficient products on consumption.

Other areas within the study include consumption patterns based on watering schedules, consumption patterns based on water wiser designations, customer class consumption based on irrigated areas, consumption patterns for customers designated as HOAs, bulk water accounts consumption and Town accounts consumption patterns over time. We also compare weather patterns to customer usage across the customer classes to see if there is a correlation between the two.

Like the water fund, we also chart the number of accounts from the latest 2022 billing data plus growth projections for 2023 and 2024 for customers who are receiving water resources and wastewater services. Stormwater Single Family Equivalents (SFEs) is the unit of measure for the stormwater fund, unlike accounts which are the unit of measure in the other three enterprise funds. CRW uses 3,255 impervious square feet for one SFE for this calculation.

Key information found in this report integrates into the development of rates and fees.

Some conclusions that CRW has drawn from this year's customer characteristics analysis include:

1. Actual permits issued in 2022 were significantly lower than projected. While CRW has seen significant growth in recent years, the lower permits in 2022 indicate that near-term growth may be more moderate than previously forecasted. We will continue to model our rates and fees using various growth scenarios in order to appropriately plan the timing of capital project in order to meet the needs of the system.
2. Despite all of our efforts on water conservation, the three year rolling averages do not show that we are making much progress in reducing the average residential customer's water consumption year over year.
3. Overall non-residential customer water use has remained relatively flat based upon three year rolling averages.
4. The Water Wiser program does not appear to be resulting in as much savings in water as we would hope. Water wiser customers appear to actually be using more water during irrigation season than non -water wiser customers. We will continue to evaluate the effectiveness of this program and look for ways to improve it going forward.
5. Residential customers with less than 4,000 square feet of irrigated area have a lower average monthly consumption than our typical residential unit.

Growth Forecast by Year 2023-2028 (Attachment B)

Attachment B shows the preliminary projected growth numbers for 2023-2028 for all customer classes. This information comes from the Town's Development Services Department. These growth numbers are inputs into the rates and cost of service models to forecast the increase in accounts, customer usage and change in future revenues.

Attachments:

Attachment A: Customer Characteristics Analysis
Attachment B: Growth Forecast by Year 2023-2028

CUSTOMER CHARACTERISTICS ANALYSIS

2023 RATES AND FEES STUDY

PREPARED BY:

CASTLE ROCK WATER
BUSINESS SOLUTIONS TEAM

September 2023

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EXECUTIVE SUMMARY

As a part of the annual Rates and Fees Study, Castle Rock Water conducts an in-depth analysis of accounts in service to determine customer characteristics and consumption patterns. We start by looking at the most current billing data for FY2022. From there, we break down the number of accounts by meter size and customer class. We then compare the number of actual permits for the last several years to the number of projected permits in that same year. The Town's Development Services Department provides the number of accounts by customer class for past actuals as well as the forecasted amounts for FY2023 and FY2024.

An average consumption based on the most current three years (2020-2022) by account, meter size, customer class and winter versus summer season is calculated. This average three-year period serves as a comparison to previous three-year periods going back as far as 2012. This takes into consideration weather patterns and rainfall variances from year-to-year. We have added a section in the report showing the monthly rainfall compared to average consumption patterns as one tool to evaluate the effectiveness of water conservation.

These individual three-year average consumption calculations provide the basis for meter equivalency factors. Starting in 2010, the Town implemented actual use meter equivalency factors in assessing the monthly service charges for water, wastewater, and water resources. The average consumption for all ¾" meters serves as the base unit with the average consumption for all larger size meters divided into this base unit to get an equivalency factor by meter size and customer class.

Customer data for the last three years (2020-2022) then determines an average representative customer for each customer class. One customer from each customer class then represents the class average and their consumption patterns are used to calculate a typical customer's annual bill.

In 2020, we started showing the average consumption patterns of atypical customers' consumption patterns compared to the average customer. Atypical can be defined as a customer whose consumption patterns are not typical of an average customer in that same meter size and or customer class due to the nature of their business or varying water needs. We eliminate these from the average calculation as to avoid skewing the average for a representative customer by meter size and customer class.

Billed usage by tier from 2013-2022 by customer class is analyzed to see if customers are staying within their water budget tiered rate structure. The purpose of this data analysis is also to see if customers over time are conserving water and avoiding Tier 3 – Excessive usage and Surcharge (over 40,000 gallons per month).

We also looked at the customers with a 0.67 SFE to see if their consumption patterns are meeting the intent of the program, to use one-third less water than an average ¾" residential customer's usage. Additional information such as 0.67 SFE accounts by irrigated area also help us to understand the larger irrigated accounts that typically consume larger amounts of water and may or may not be meeting the intent of the program. In addition to the 0.67 SFE accounts, we also review consumption patterns for Water Efficiency Plan (WEP) accounts to determine the impact of their required water efficient products on consumption.

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Key information found in this report integrates into the development of rates and fees.

WATER ENTERPRISE FUND

NUMBER OF ACCOUNTS BY METER SIZE & CUSTOMER CLASS

Table 1 below shows the number of accounts by meter size and customer class using 12 months of billing data (Jan22-Dec22). This shows that 26,317 customers were receiving water service during this capture period. The FY2021 accounts based on 12 months of billing data (Jan21-Dec21) showed 24,779 customers were receiving water service. There are 1,538 more accounts in FY2022 than FY2021. 321 of these accounts are additional ¾" Residential accounts added from Bell Mountain Ranch. The number of accounts by meter size are key inputs into the system development fees model. The number of accounts then convert into Single Family Equivalents (SFEs) which determines existing versus new system capacities and are then used in the calculations within the Water and Wastewater cost of service models.

TABLE 1: ACCOUNTS BY METER SIZE & CUSTOMER CLASS (FY2022)

Meter Size	Residential	Multifamily	Commercial	Bulk	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	2,435	-	-	-	2	4	7	2,448
3/4"	21,982	14	124	83	214	101	133	22,651
1"	29	25	71	-	112	123	108	468
1.5"	-	55	51	-	165	119	91	481
2"	-	15	27	-	92	41	54	229
3"	-	2	5	-	7	4	15	33
4"	-	1	-	-	2	-	2	5
6"	-	-	2	-	-	-	-	2
Total	24,446	112	280	83	594	392	410	26,317

Chart 1 below shows the growth in residential accounts from 2012-2022 and the projected growth for FY2023 and FY2024. An increase of 550 permits for 2023 and 500 for 2024 is forecasted by the Town's Development Services Department for the residential customer class.

CHART 1: RESIDENTIAL WATER ACCOUNTS

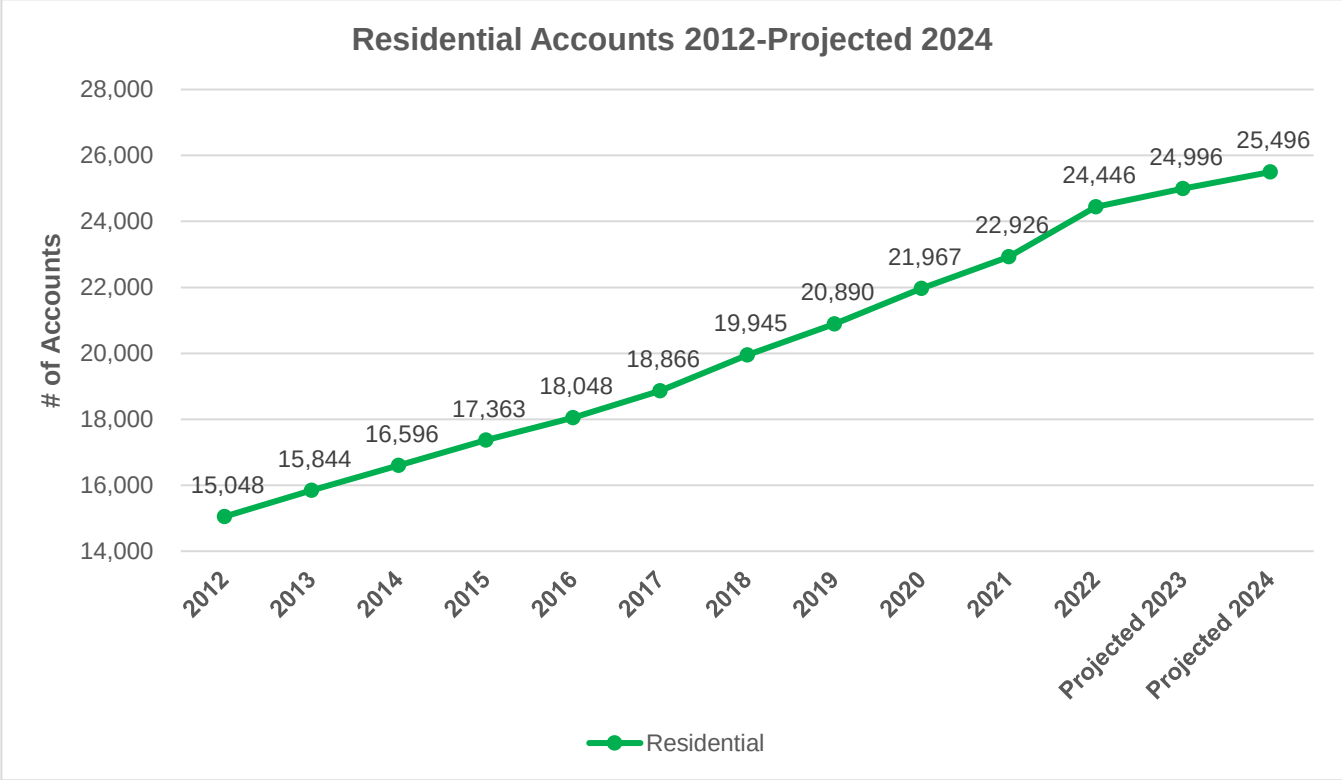
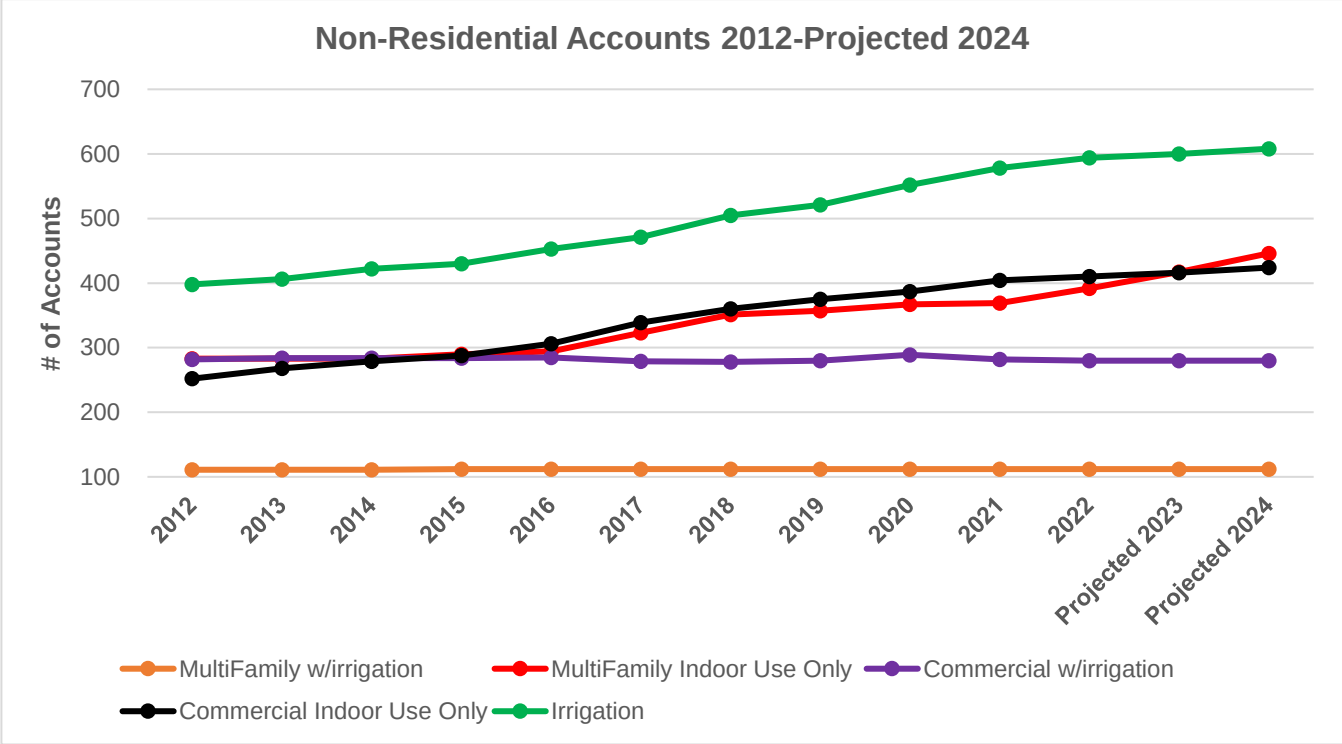


Chart 2 shows the number of non-residential accounts from 2012-2022. Over the past several years, there has been incremental growth in non-residential accounts with irrigation,

commercial indoor use only and multifamily indoor use only showing slight year-over-year increases. Current projections estimate approximately 82 non-residential permits from 2023-2024, which is in line with the moderate growth expectations in residential permits over the same timeframe.

CHART 2: NON-RESIDENTIAL WATER ACCOUNTS



Castle Rock Water projects FY2024 water accounts by using FY2022 billing data plus the projected growth for FY2023 and FY2024. The FY2024 water accounts are projected to equal 27,449 (25,496 for residential and 1,953 for non-residential). These projections do not include existing bulk water accounts, as those are temporary accounts. Growth projections are as follows by customer class:

2023 Projected New Accounts by Customer Class:

550	Residential (1 SFE)
25	Multi-Family
6	Commercial
6	Irrigation
587	Total

2024 Projected New Accounts by Customer Class:

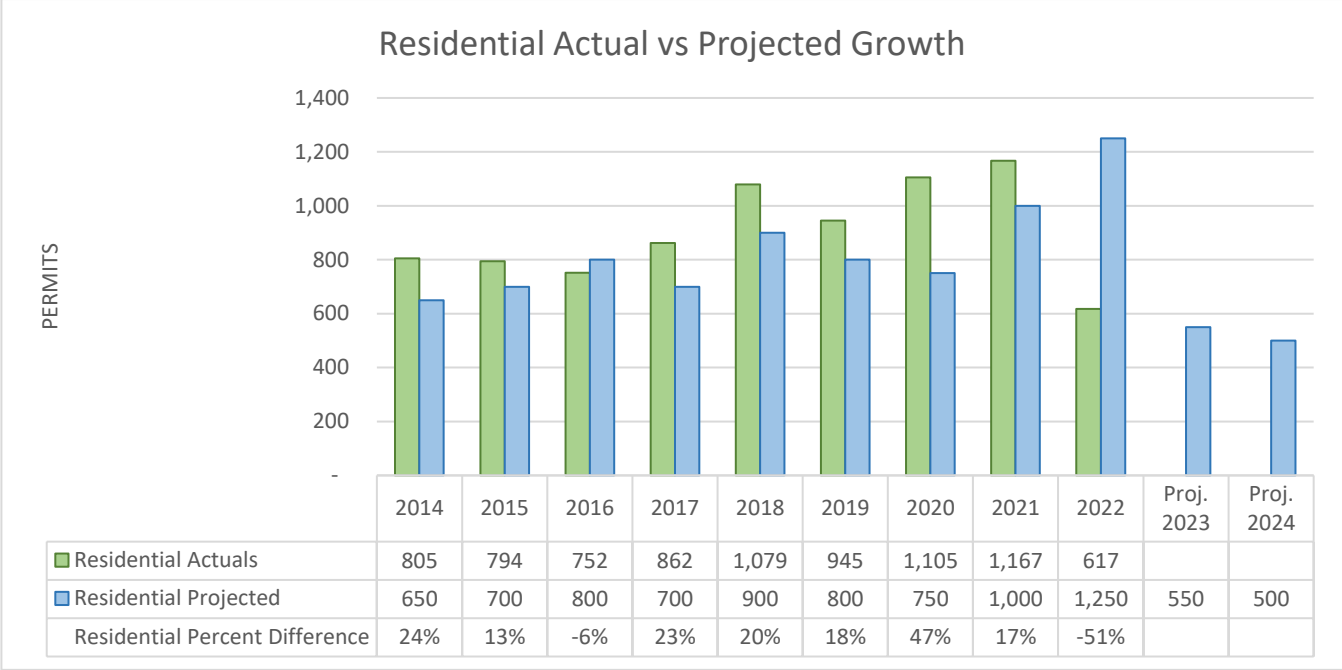
500	Residential (1 SFE)
29	Multi-Family
8	Commercial
8	Irrigation
545	Total

Projections are for 587 new accounts for FY2023 and 545 new accounts for FY2024 for a total increase through FY2024 of 1,132 new accounts.

2014-2024 ACTUAL GROWTH VERSUS PROJECTED GROWTH

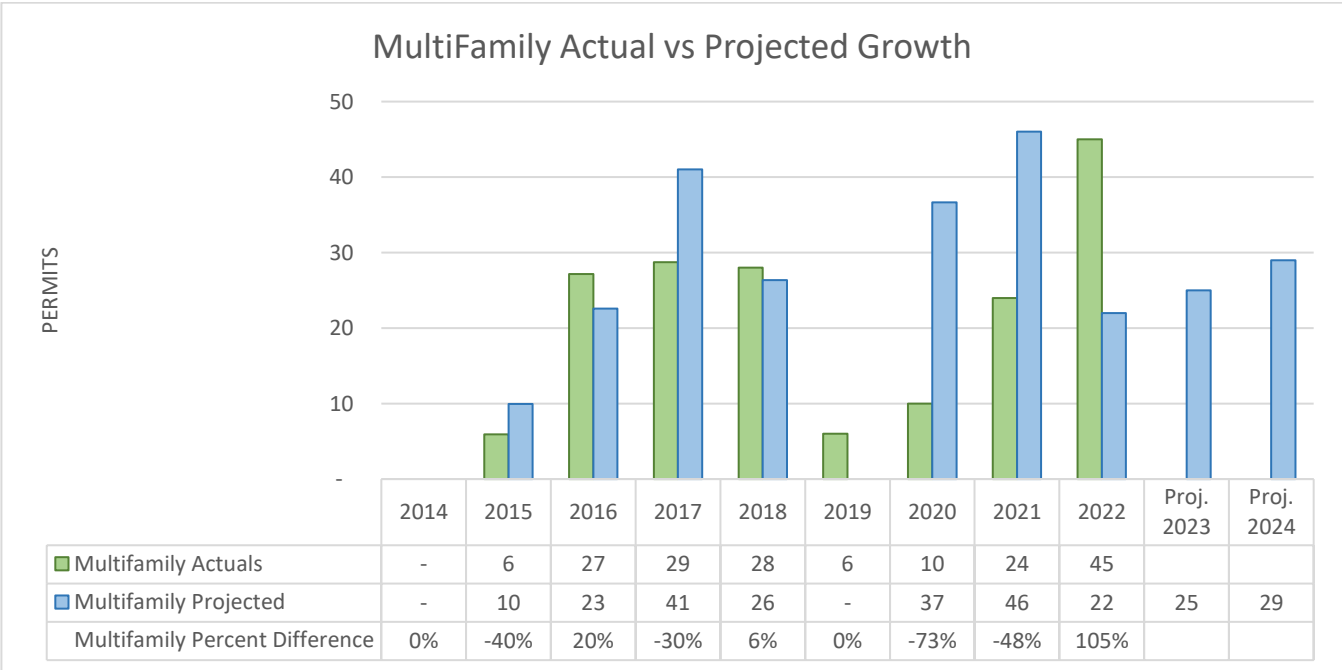
CRW has seen significant growth in accounts throughout the timeline of this analysis, however the lower permit numbers in 2022 indicate that near-term growth may be more moderate than in previous years. The projections received each year from the Town's Development Services Department are important components to the rate models and revenue projections when looking at needed rate or fee increases year over year. When looking at future projections it is also important to look at how closely the past projections have compared to the actual results each year. Charts 3-6 below show the actual number of permits compared to the projected number of permits during the same year. Charts 3-6 break out residential, multi-family, commercial and irrigation, whereas Chart 7 shows all customer classes combined. Multi-family permits shown in Chart 4 are typically master meters serving multiple units. Based on historical trends, the average number of units served per master metered account is approximately 14.

CHART 3: RESIDENTIAL GROWTH



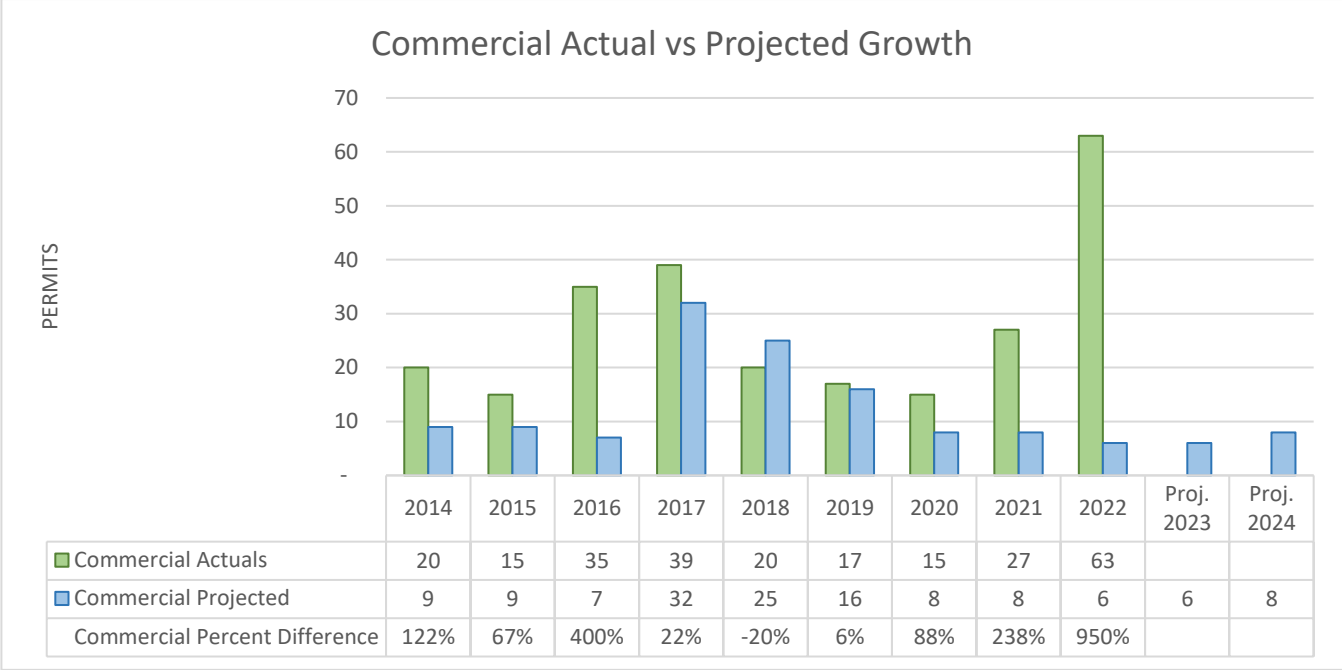
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Residential Actuals	805	794	752	862	1,079	945	1,105	1,167	617		
Residential Projected	650	700	800	700	900	800	750	1,000	1,250	550	500
Residential Percent Difference	24%	13%	-6%	23%	20%	18%	47%	17%	-51%		

CHART 4: MULTIFAMILY GROWTH



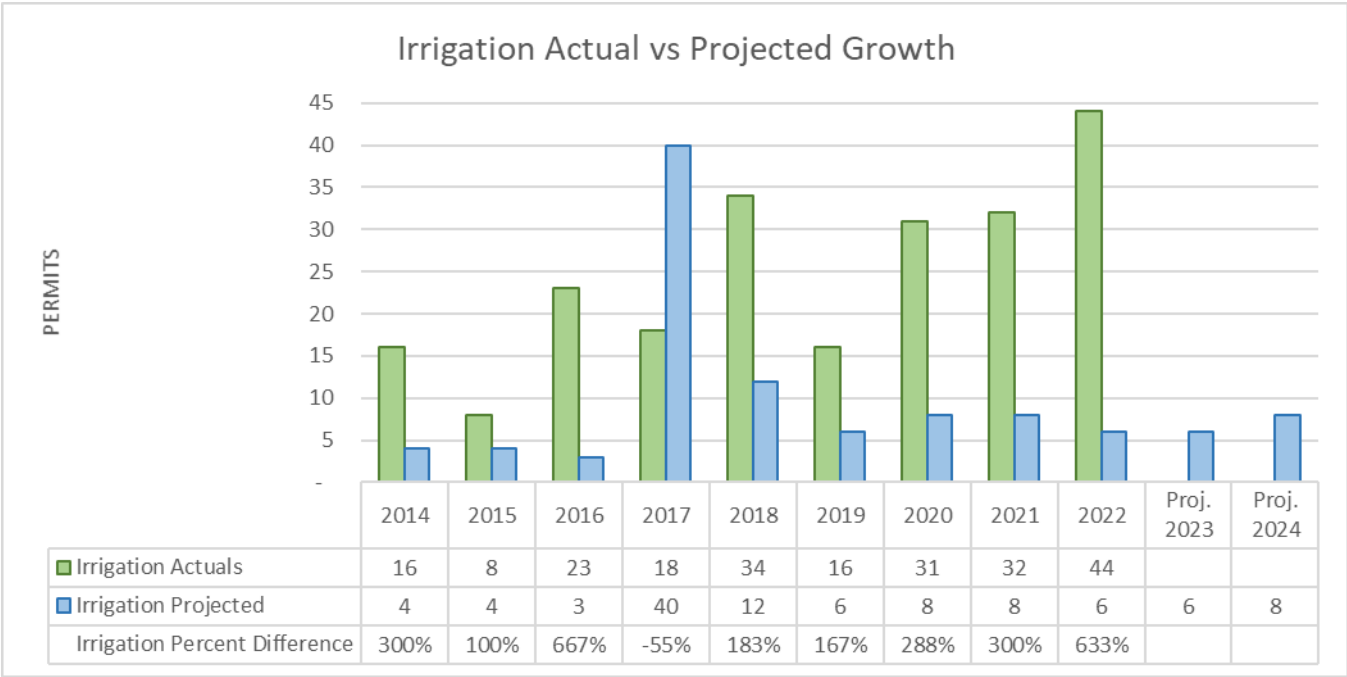
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Multifamily Actuals	-	6	27	29	28	6	10	24	45		
Multifamily Projected	-	10	23	41	26	-	37	46	22	25	29
Multifamily Percent Difference	0%	-40%	20%	-30%	6%	0%	-73%	-48%	105%		

CHART 5: COMMERCIAL GROWTH



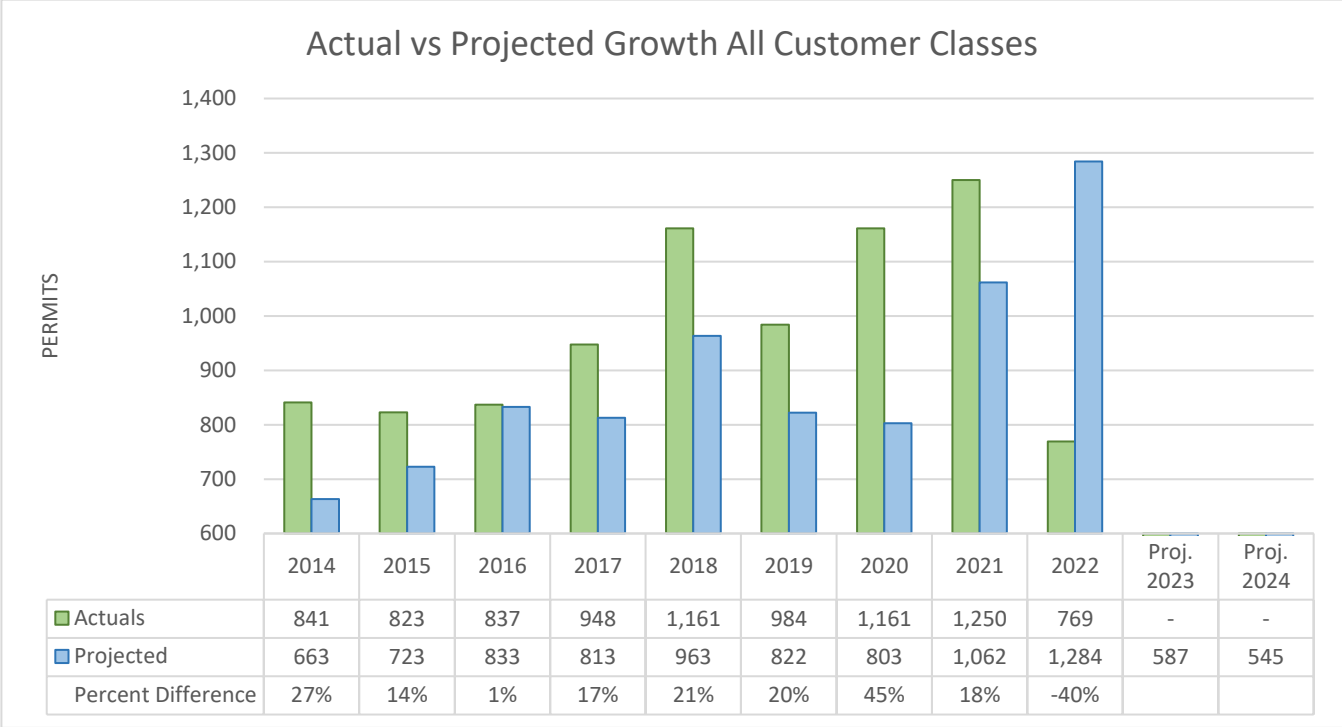
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Commercial Actuals	20	15	35	39	20	17	15	27	63		
Commercial Projected	9	9	7	32	25	16	8	8	6	6	8
Commercial Percent Difference	122%	67%	400%	22%	-20%	6%	88%	238%	950%		

CHART 6: IRRIGATION GROWTH



	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Irrigation Actuals	16	8	23	18	34	16	31	32	44		
Irrigation Projected	4	4	3	40	12	6	8	8	6	6	8
Irrigation Percent Difference	300%	100%	667%	-55%	183%	167%	288%	300%	633%		

CHART 7: All CUSTOMER CLASSES COMBINED GROWTH



	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Actuals	841	823	837	948	1,161	984	1,161	1,250	769	-	-
Projected	663	723	833	813	963	822	803	1,062	1,284	587	545
Percent Difference	27%	14%	1%	17%	21%	20%	45%	18%	-40%		

3-YEAR AVERAGE CONSUMPTION BY CUSTOMER CLASS

Table 2 shows the 3-year average monthly consumption by meter size and customer class for 2020-2022 billing data. Table 2A shows the breakdown of the residential meter sizes shown in Table 2 and their individual applicable 3-year averages. Chart 8 shows the 3-year average monthly consumption for all residential meter sizes, including 5/8" through 1". The most current 3-year period for residential did see an increase over the prior comparison period. This is partially due to the dry irrigation season in 2020. While the prior comparison period also included the higher 2020 consumption, the increases were partially offset by lower consumption during 2019 where we experienced higher rainfall.

TABLE 2: 3-YEAR AVG MONTHLY CONSUMPTION BY CUSTOMER CLASS & METER SIZE (2020-2022)

Meter Size	Residential	Multifamily	Commercial	Irrigation	Multifamily Indoor Use Only	Commercial Indoor Use Only
5/8"	5.10	-	-	14.71	4.76	5.54
3/4"	8.01	20.59	9.44	30.76	3.06	10.60
1"	16.60	31.42	28.20	66.34	17.64	21.96
1.5"	-	68.70	44.04	149.12	47.87	35.22
2"	-	95.26	85.31	253.08	70.83	61.20
3"	-	325.76	130.57	401.06	281.80	79.38
4"	-	404.75	-	792.79	-	1,751.80
6"	-	-	706.64	-	-	-

TABLE 2A: 3-YEAR AVG MONTHLY CONSUMPTION RESIDENTIAL METER SIZES (2020-2022)

Residential Accounts									
Meter Size	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022
5/8"	6.19	5.70	5.44	5.37	5.44	5.26	5.23	5.07	5.10
3/4"	7.70	7.30	7.30	7.48	7.68	7.59	7.81	7.81	8.01
1"	13.14	14.17	21.26	17.86	18.69	17.48	16.75	15.99	16.60
Average	7.73	7.28	7.26	7.43	7.60	7.49	7.66	7.61	7.77

CHART 8: 3-YEAR AVG MONTHLY CONSUMPTION RESIDENTIAL ACCOUNTS

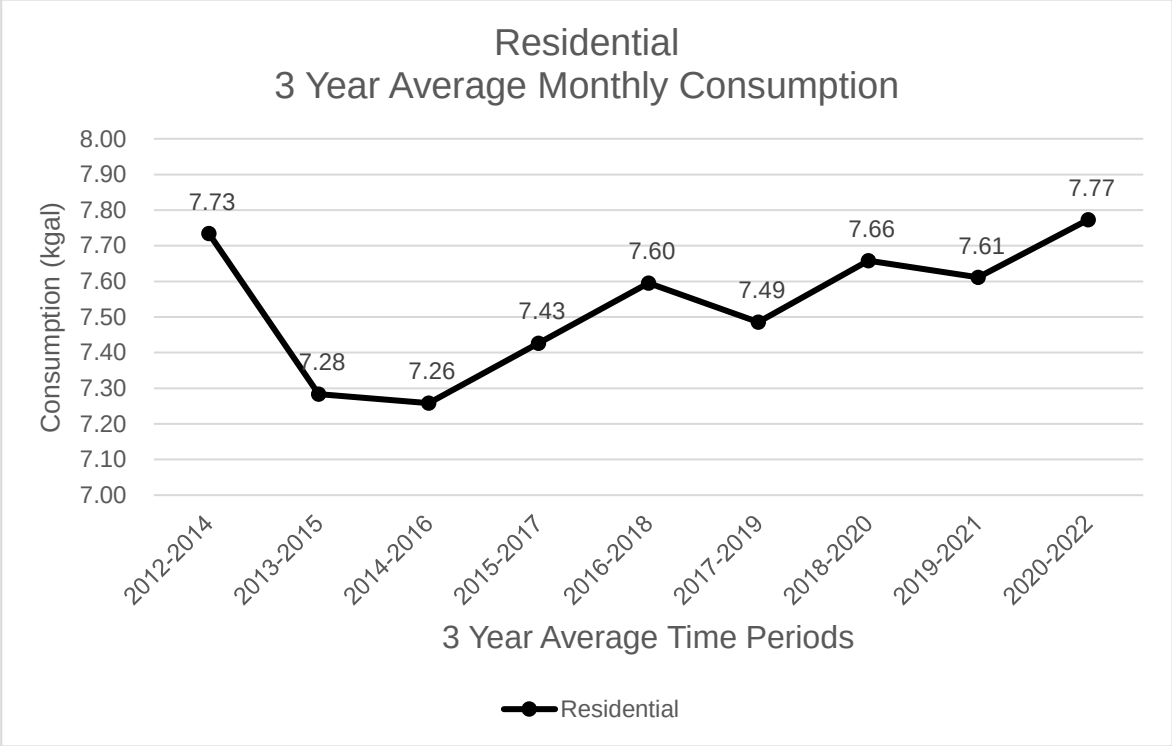
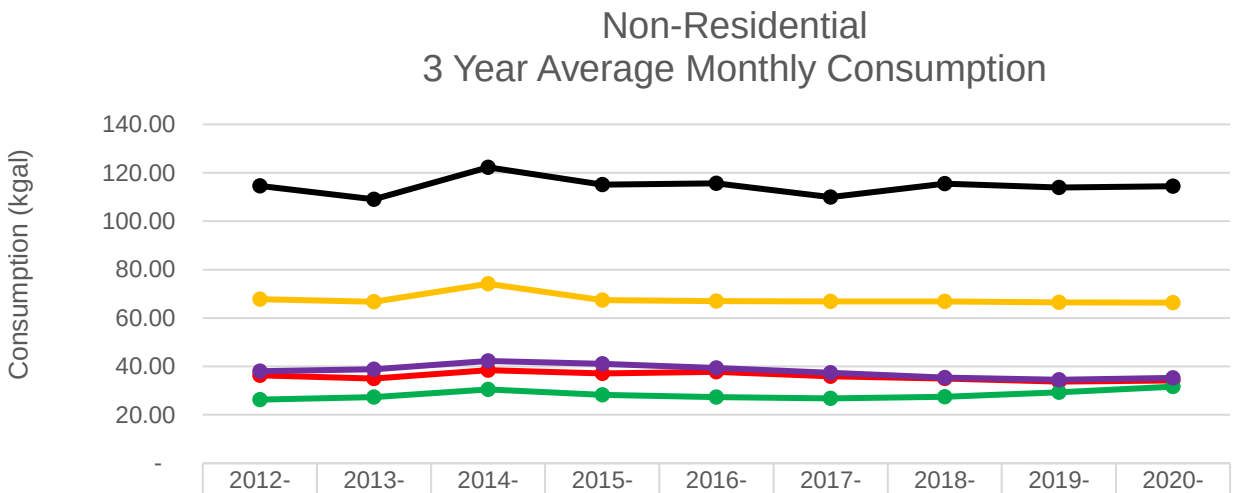


CHART 9: 3-YEAR AVG MONTHLY CONSUMPTION NON-RESIDENTIAL ACCOUNTS

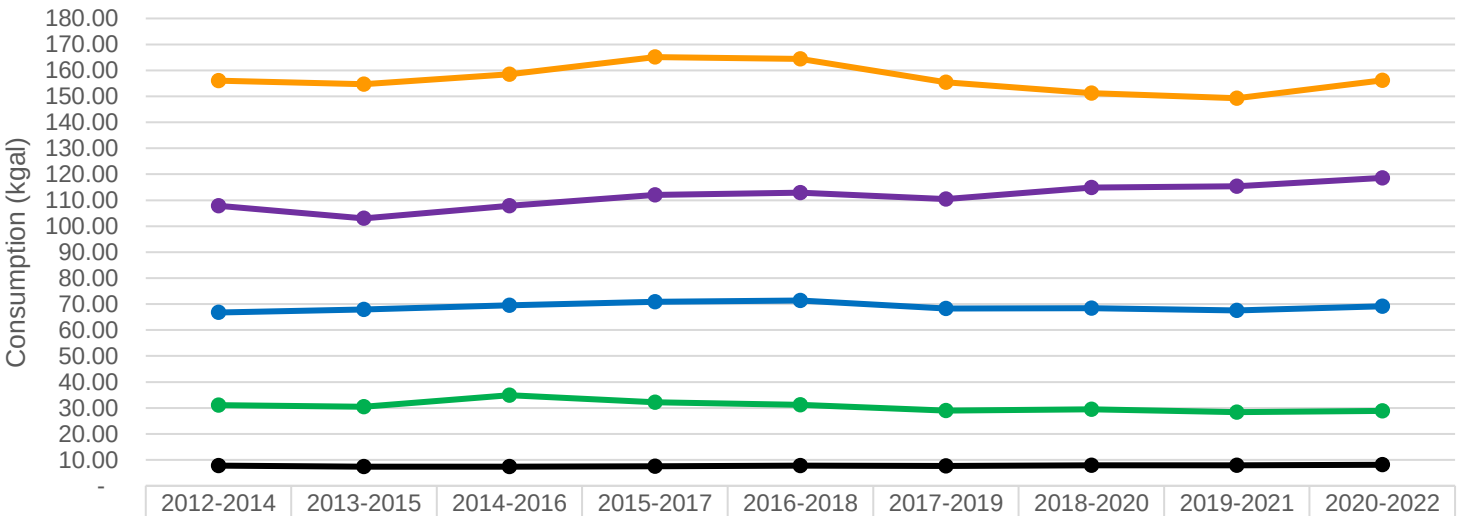


	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022
MultiFamily w/irrigation	67.78	66.76	74.14	67.34	67.02	66.85	66.88	66.40	66.35
Commercial w/irrigation	36.35	35.03	38.45	37.16	37.77	35.93	35.00	33.73	34.15
Irrigation	114.60	109.05	122.26	115.15	115.64	110.01	115.52	113.87	114.40
MultiFamily indoor Use Only	26.29	27.30	30.55	28.19	27.33	26.81	27.41	29.30	31.63
Commercial Indoor Use Only	38.08	38.86	42.25	41.09	39.40	37.43	35.40	34.49	35.27

The 3-year average monthly consumption shown above in Chart 9 is for all non-residential customer classes. All non-residential customer classes have maintained relatively flat average monthly consumption throughout all comparison periods..

In Chart 10 below the 3-year average monthly consumption for the ¾″ to 3″ size of meters for all customer classes have remained virtually flat over the comparison periods.

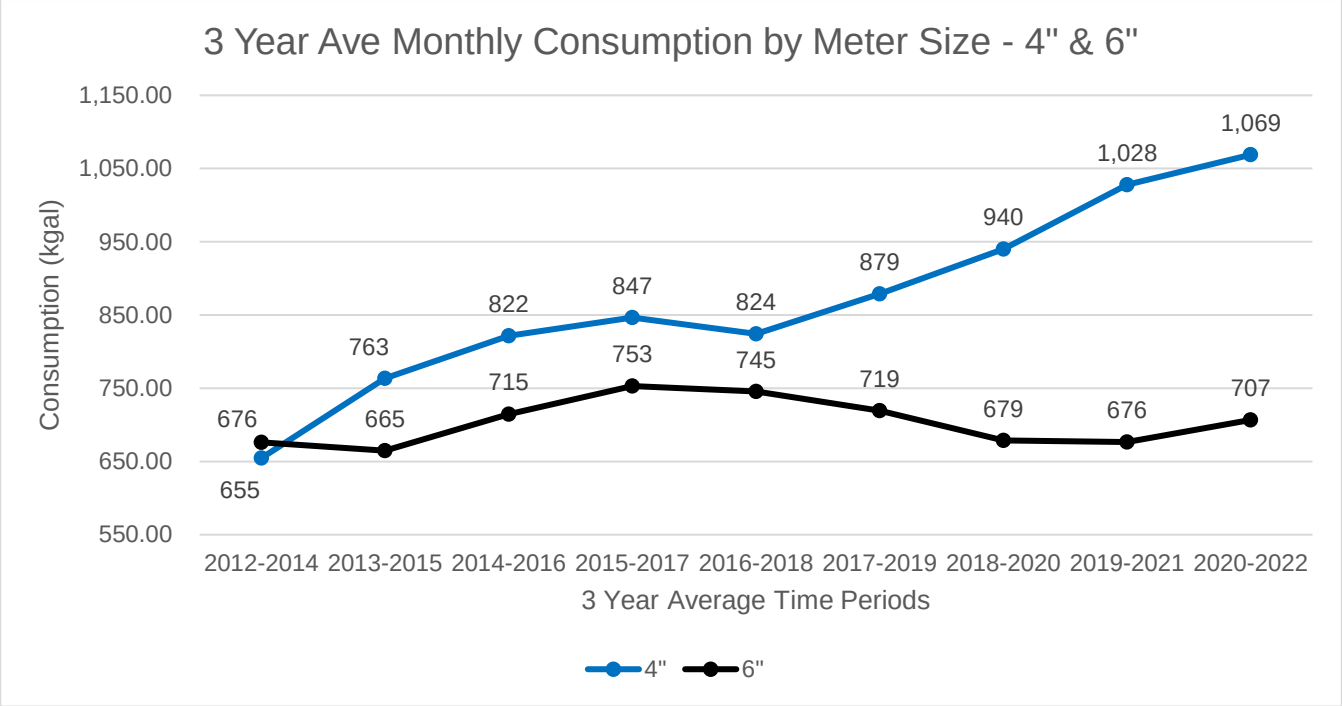
CHART 10: 3-YEAR AVG MONTHLY CONSUMPTION BY METER SIZE ¾″ to 3″ ALL CUSTOMER CLASSES



	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022
3/4"	7.77	7.37	7.37	7.56	7.75	7.68	7.89	7.90	8.11
1"	31.10	30.43	34.90	32.12	31.15	28.96	29.46	28.38	28.83
1.5"	66.75	67.94	69.56	70.92	71.37	68.23	68.42	67.54	69.21
2"	107.82	102.99	107.82	111.99	112.94	110.43	114.90	115.40	118.59
3"	155.99	154.70	158.49	165.12	164.43	155.37	151.24	149.28	156.14

Chart 11 below shows the average consumption for the two 6″ meters in service which saw a downward trend beginning in the 2016-2018 comparison period and continued through the 2019-2021 period but saw a slight increase in the most recent period. We currently have five 4″ meters in service, four active meters and one redundant meter for medical purposes. The increase in the 2013 and forward consumption pattern is a result of the 4″ medical facility meter that was installed in 2013.

CHART 11: 3-YEAR AVG MONTHLY CONSUMPTION BY METER SIZE – 4″ and 6″



3-YEAR AVERAGE CONSUMPTION WITH & WITHOUT IRRIGATION

The data in Table 3 shows the average monthly consumption by meter size for all customer classes combined. This shows that the monthly consumption in many cases more than doubles between the summer "with irrigation" and the winter "without irrigation" seasons.

TABLE 3: 3-YEAR AVERAGE MONTHLY CONSUMPTION BY METER SIZE FOR ALL CUSTOMER CLASSES COMBINED (2020-2022)

Meter Size	With Irrigation	Without Irrigation
5/8"	6.32	3.34
3/4"	10.73	4.36
1"	35.26	17.11
1.5"	83.86	39.78
2"	145.23	59.40
3"	188.52	104.59
4"	992.70	912.90
6"	775.25	605.00

CHART 12: 3-YEAR AVG MONTHLY CONSUMPTION ¾" METERS

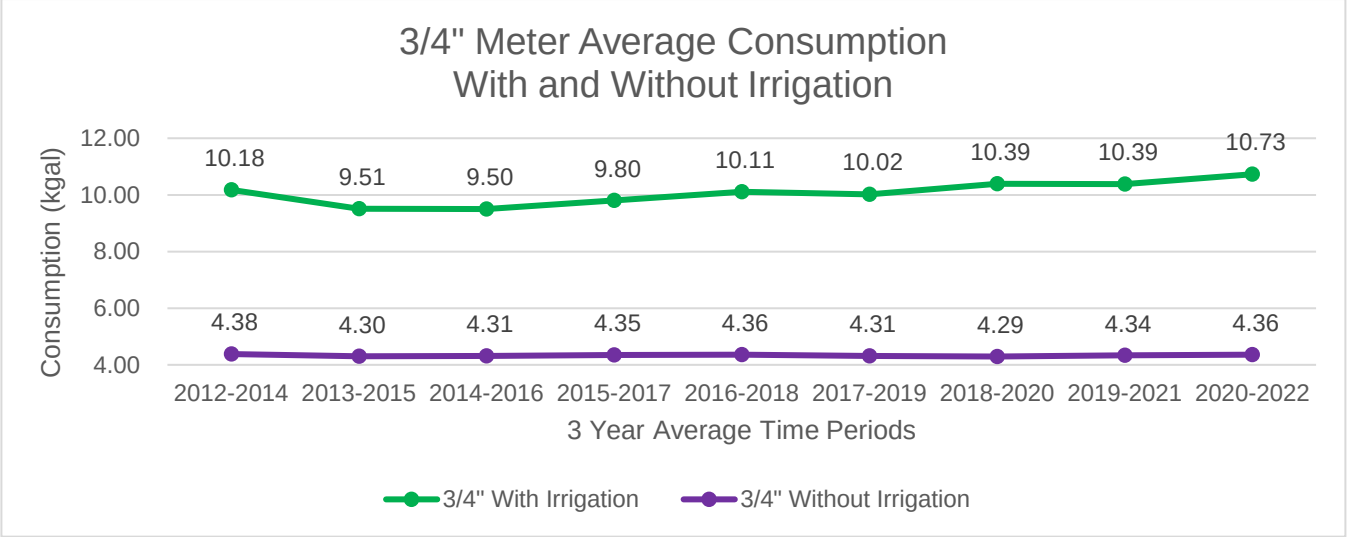


Chart 12 above shows that ¾" meter accounts usage "without irrigation" is very consistent from year-to-year. Approximately 97% of the ¾" meters are residential accounts. This trend indicates indoor water usage from year-to-year for ¾" meters is staying consistent, even with the increase in the number of accounts.

CHART 13: 3-YEAR AVG MONTHLY CONSUMPTION 1" METERS

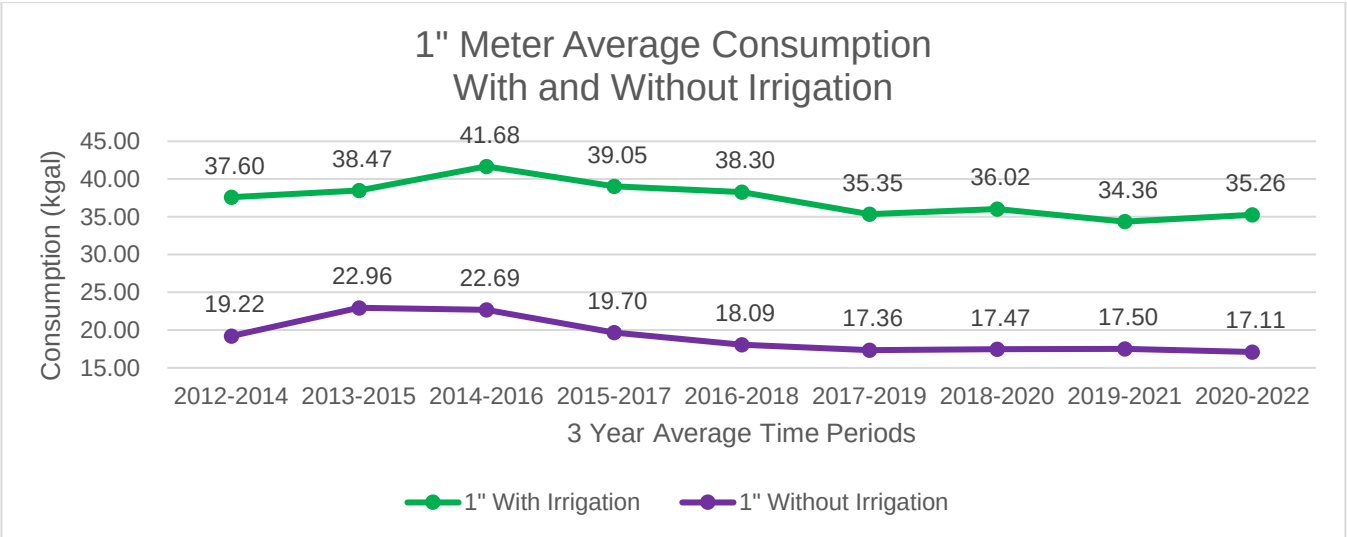


Chart 13 above shows that 1" meter accounts usage both with and without irrigation have relatively flat consumption over the last three comparison periods after showing downward trends beginning in the 2015-2017 comparison period.

Chart 14 below shows the accounts usage "without irrigation" for all 1.5" accounts is relatively flat over the comparison periods until the last three comparison periods where usage trended slightly downward. Despite an increase of 16 accounts over the last year in the 1.5" meter count, this trend indicates indoor water usage from year-to-year for meters this size is steady and, in fact, starting to decrease slightly. We are seeing similar results in 1.5" meter usage "with irrigation" indicating that the outdoor usage for these accounts is trending down even given the number of new accounts.

CHART 14: 3-YEAR AVG MONTHLY CONSUMPTION 1.5" METERS

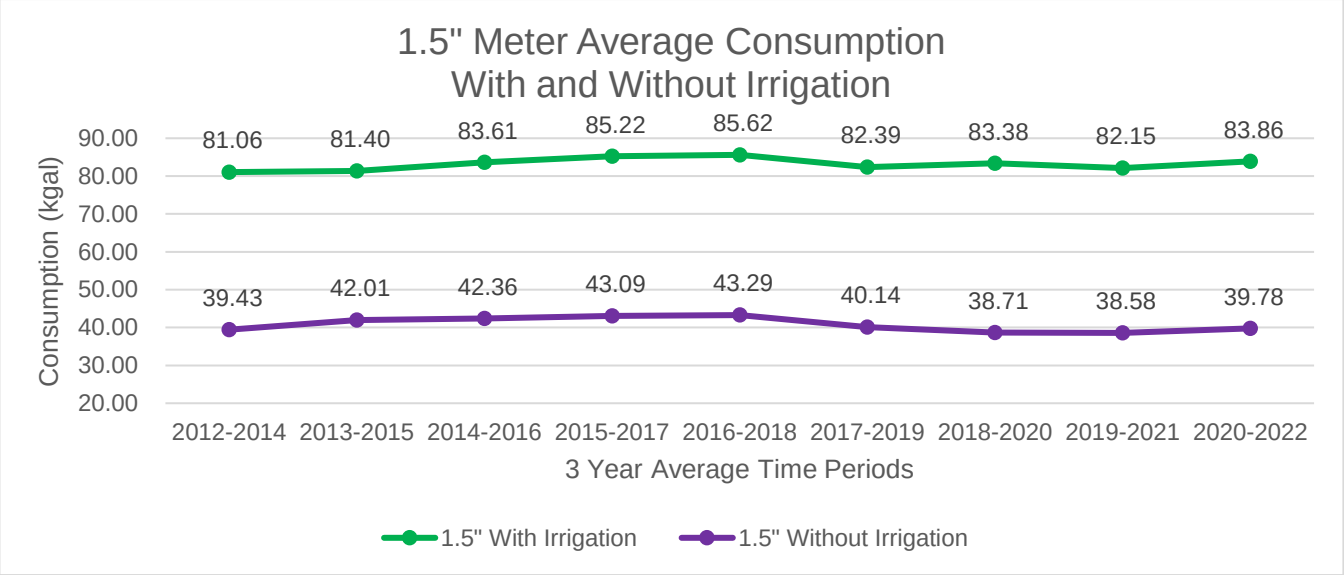


CHART 15: 3-YEAR AVG MONTHLY CONSUMPTION 2″ METERS

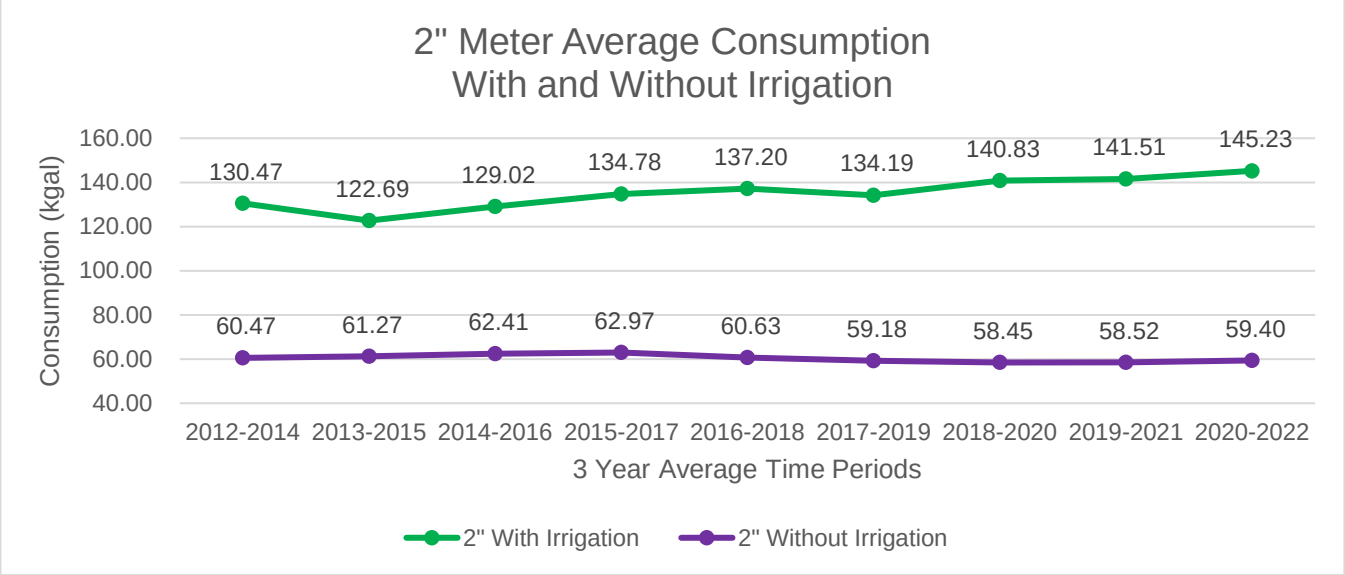


Chart 15 above for 2″ meters shows a relatively flat trend for the meters without irrigation over the past three comparison periods. The meters with irrigation have shown an upward trend over the past three comparison periods. Chart 16 below for 3″ meters shows that for both the meters with and without irrigation both continue on a downward consumption trend over the last few periods.

CHART 16: 3-YEAR AVG MONTHLY CONSUMPTION 3″ METERS

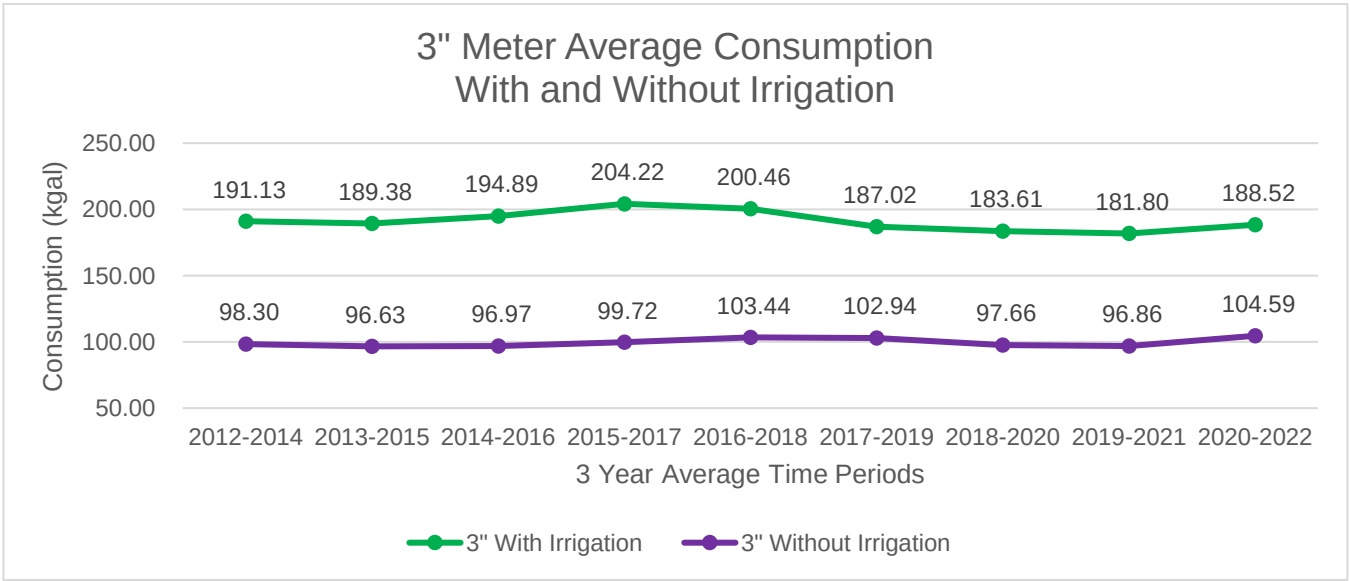
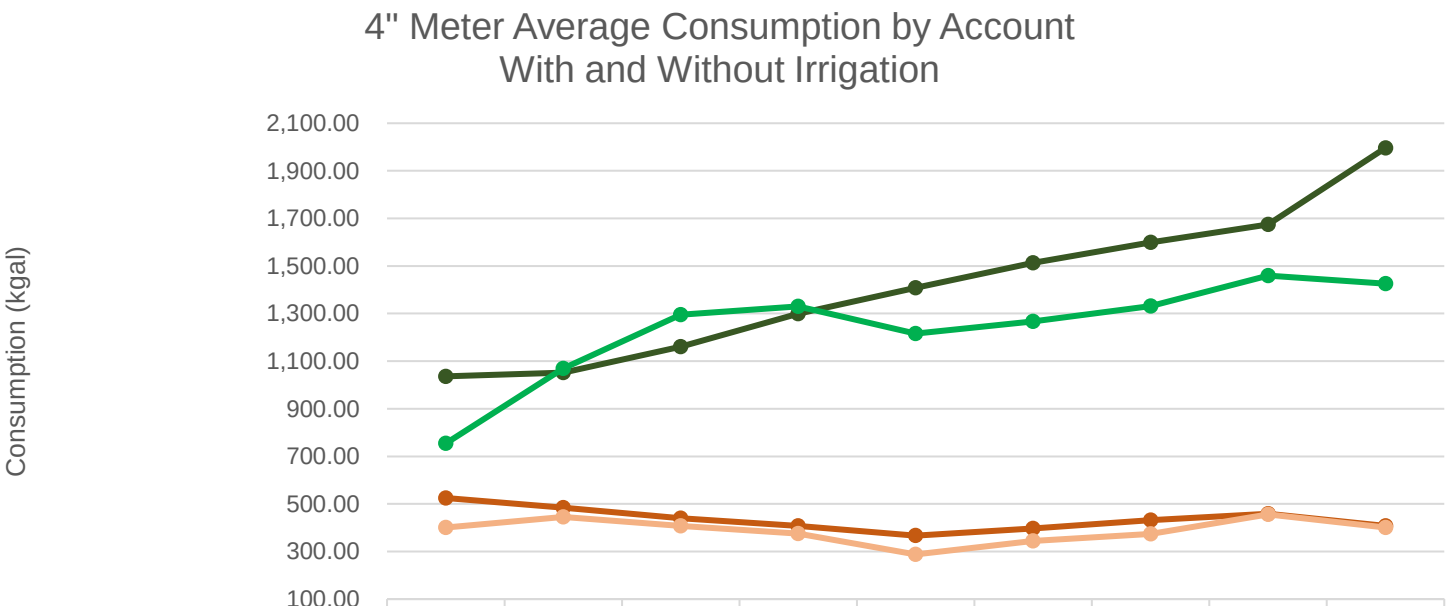


CHART 17: 3-YEAR AVG MONTHLY CONSUMPTION 4″ METERS

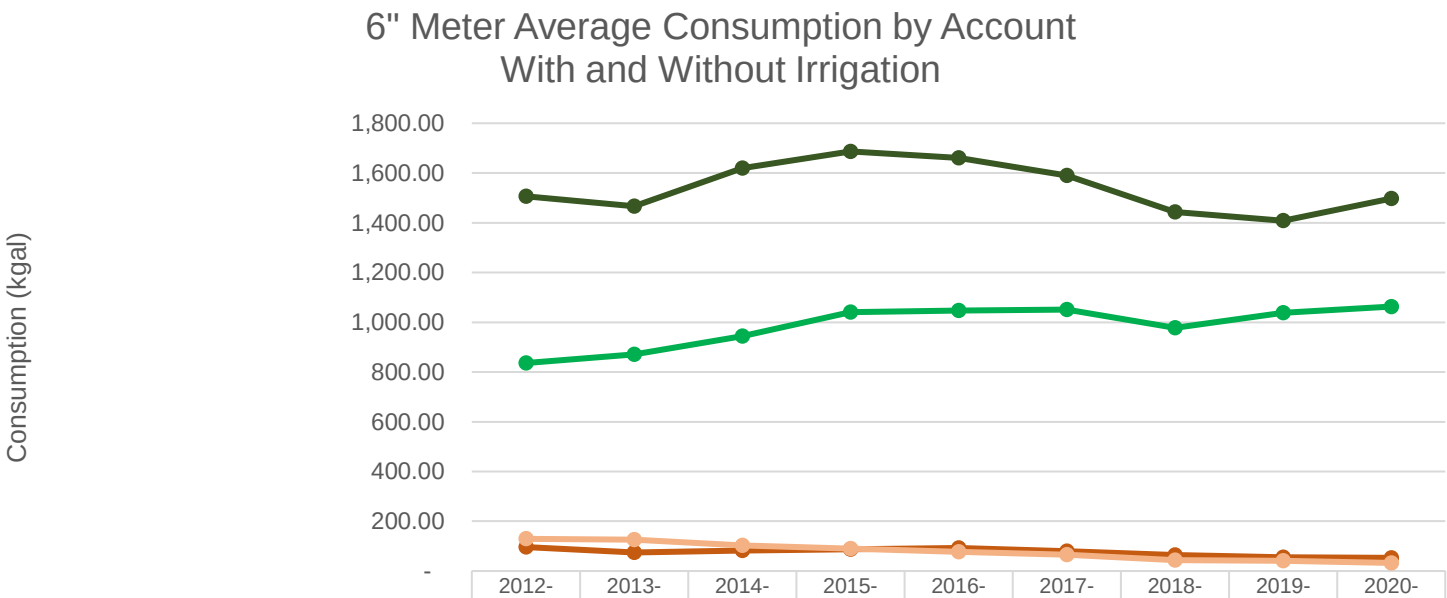


	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022
4" Hospital With Irrigation	1,036.21	1,051.81	1,160.52	1,299.14	1,408.00	1,513.76	1,599.62	1,674.95	1,996.40
4" Hospital Without Irrigation	754.17	1,069.40	1,295.13	1,329.53	1,215.47	1,266.80	1,331.47	1,459.53	1,425.67
4" HOA With Irrigation	524.86	484.10	440.24	407.00	366.64	397.00	431.81	458.76	408.05
4" HOA Without Irrigation	400.67	444.87	407.00	375.13	287.67	344.38	374.19	455.94	400.13

Chart 17 above shows an upward trend when comparing the last four comparison periods for both winter and summer seasons. Since there are only 4 active meters in this category, one meter can skew the average consumption for the entire customer class. As can be seen from Chart 17, customer average consumption patterns with the same size meter are very different.

Chart 18 for 6″ meters shows that the average monthly consumption for these two meters in service has remained fairly consistent over the last few comparison periods. Again, it shows the varying degree of usage by each of the two customers using the same size 6″ meter.

CHART 18: 3-YEAR AVG MONTHLY CONSUMPTION 6″ METERS



	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022
6" Government Acct #1 With Irrigation	1,506.67	1,466.43	1,619.76	1,686.67	1,661.00	1,590.14	1,443.76	1,408.05	1,497.50
6" Government Acct #1 Without Irrigation	836.00	870.67	944.00	1,040.93	1,047.00	1,050.93	978.00	1,037.53	1,063.00
6" Government Acct #2 With Irrigation	96.19	74.76	82.38	87.14	91.90	79.05	64.50	55.50	53.00
6" Government Acct #2 Without Irrigation	129.29	126.43	102.67	90.00	76.67	65.33	43.08	40.83	32.50

EQUIVALENCY FACTORS

There are two different types of equivalency factors. The first is the hydraulic capacity method, which is based on the relative capacity of different meter sizes and meter types utilized to deliver water. The second equivalency factor method takes into consideration the relative potential demands of different customers. Based on the hydraulic demands, a single-family meter size of ¾″ serves as the base for one SFE. The maximum flow rate of water through the meter in gallons per minute (GPM) becomes the unit of comparison. The maximum flow rate demanded by new customers compares to the base demand in order to determine the equivalency ratio. For example, if the base single-family residential customer requires 30 GPM and a commercial customer requires 200 GPM, the equivalency ratio equals 6.67 (200/30). The second method is the actual use equivalency factor based on the relative average monthly water usage of CRW's customers.

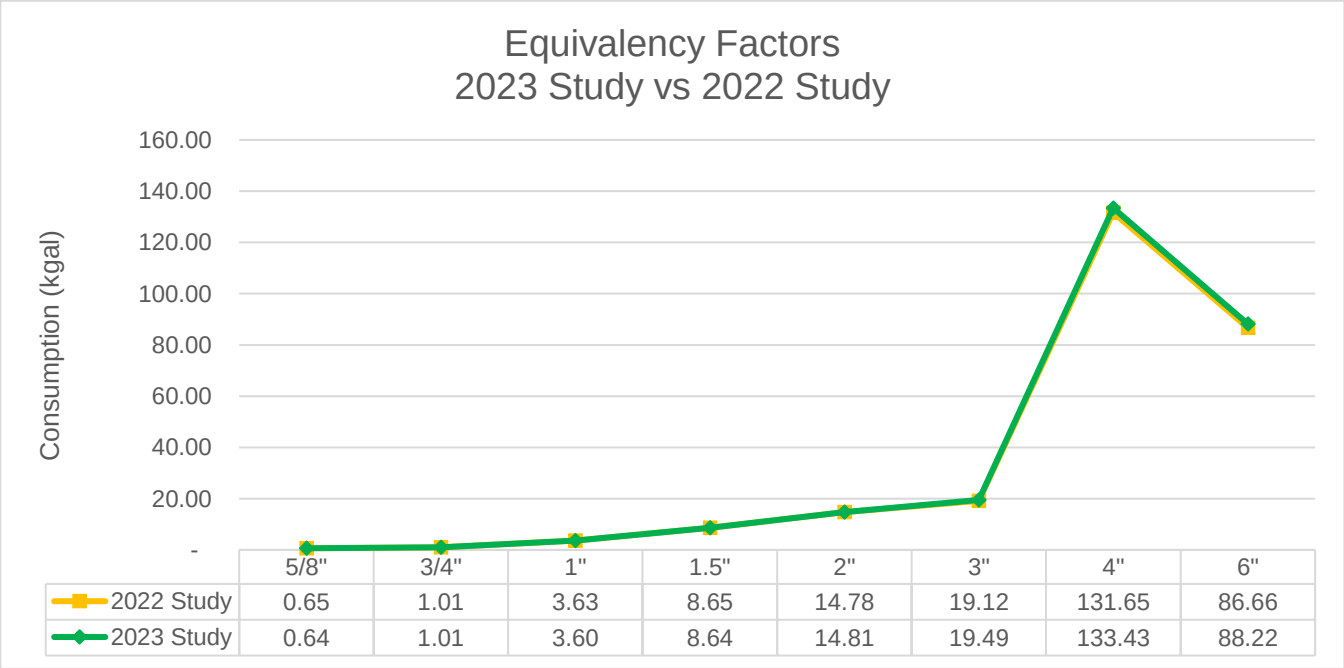
Table 4 calculates equivalency factors by customer class and meter size based on a ¾″ single-family residential customer. The equivalency factor in Table 4 is an input into the system development fees model used to calculate the number of SFEs. This is achieved by multiplying the equivalency factor times the number of meters which then equals to the number of SFEs currently being served by the system.

TABLE 4: 2023 STUDY ACTUAL USE EQUIVALENCY FACTORS (BASED ON 3-YEAR AVG. 2020-2022)

Meter Size	Residential	Multifamily	Commercial	Irrigation	Multifamily Indoor Use Only	Commercial Indoor Use Only	Equivalency Factor
5/8"	0.64	-	-	1.84	0.59	0.69	0.64
3/4"	1.00	2.57	1.18	3.84	0.38	1.32	1.01
1"	2.07	3.92	3.52	8.28	2.20	2.74	3.60
1.5"	-	8.58	5.50	18.62	5.98	4.40	8.64
2"	-	11.89	10.65	31.60	8.84	7.64	14.81
3"	-	40.67	16.30	50.07	35.18	9.91	19.49
4"	-	50.53	-	98.98	-	218.70	133.43
6"	-	-	88.22	-	-	-	88.22

Chart 19 compares the equivalency factors calculated from the most current rates and fees study to the prior year rates and fees study. As seen in the chart, no major variances exist from study to study so there is no methodology change recommended for the 2023 study.

CHART 19: EQUIVALENCY FACTORS 2023 STUDY COMPARED TO THE 2022 STUDY



REPRESENTATIVE CUSTOMER BY CUSTOMER CLASS

Customer data for the last three years (2020-2022) determines an average representative customer for each customer class. One customer from each customer class then represents the class average and their consumption patterns calculate a typical customer's annual bill. The process includes the following steps:

- Calculate the average consumption, total consumption, and consumption for irrigation season and winter season based on the most recent billing data (Jan22-Dec22).
- Select the most common meter size within each customer class and associated average consumption based on customer class and meter size.
- Select one customer per customer class from the data sample with both irrigation and winter period consumption to be a representative customer for each customer class.
- Eliminating customers with atypical consumption from the pool of customers eliminates skewing the average calculation for a representative customer by customer class. See the next section on atypical accounts for more information about the atypical accounts and the consumption patterns of these customers.

Results of the representative customer analysis shown in Table 5 are very similar to those we calculated in the prior year study. Average Winter Monthly Consumption (AWMC) is calculated by averaging the total potable water consumption used by the customer in the months of November-February in accordance with standard operating procedures maintained by Castle Rock Water. This represents the amount of water for indoor use (Tier 1) and the amount of wastewater treated each month. Since new customers do not have an established AWMC, the customer class average for water and wastewater is used.

During this study period, for single-family residential customers, the average AWMC is 4,000 gallons. Irrigation does not typically have winter consumption, however as shown below in Table 5 there is a small amount that is consumed due to leaks, late winterization, or watering prior to the beginning of irrigation season.

TABLE 5: REPRESENTATIVE CUSTOMER BY CLASS
2022 BILLING DATA

Customer Class	Most Common Meter Size	Total Annual Consumption (kgal)	Average Monthly Consumption (Jan-Dec 2022) (kgal)	Average Winter Monthly Consumption (kgal)	Average Irrigation Monthly Consumption (kgal)
Residential	3/4"	95.29	7.94	4.24	10.55
Multifamily	1.5"	808.82	67.40	44.44	83.80
Commercial	3/4"	126.55	10.55	9.61	11.17
Irrigation	3/4"	371.86	30.99	7.23	31.59
Multifamily Indoor Use Only	1.5"	626.94	52.24	50.70	53.34
Commercial Indoor Use Only	3/4"	122.86	10.24	9.60	10.68

ATYPICAL ACCOUNTS

In addition to completing the three-year average consumption comparisons, CRW looks at atypical customers. Atypical can be defined as a customer whose consumption patterns are not typical of an average customer in that same meter size and or customer class due to the nature of their business or varying water needs and demands. We eliminate these from the average calculations to avoid skewing the average for a representative customer by meter size and customer class.

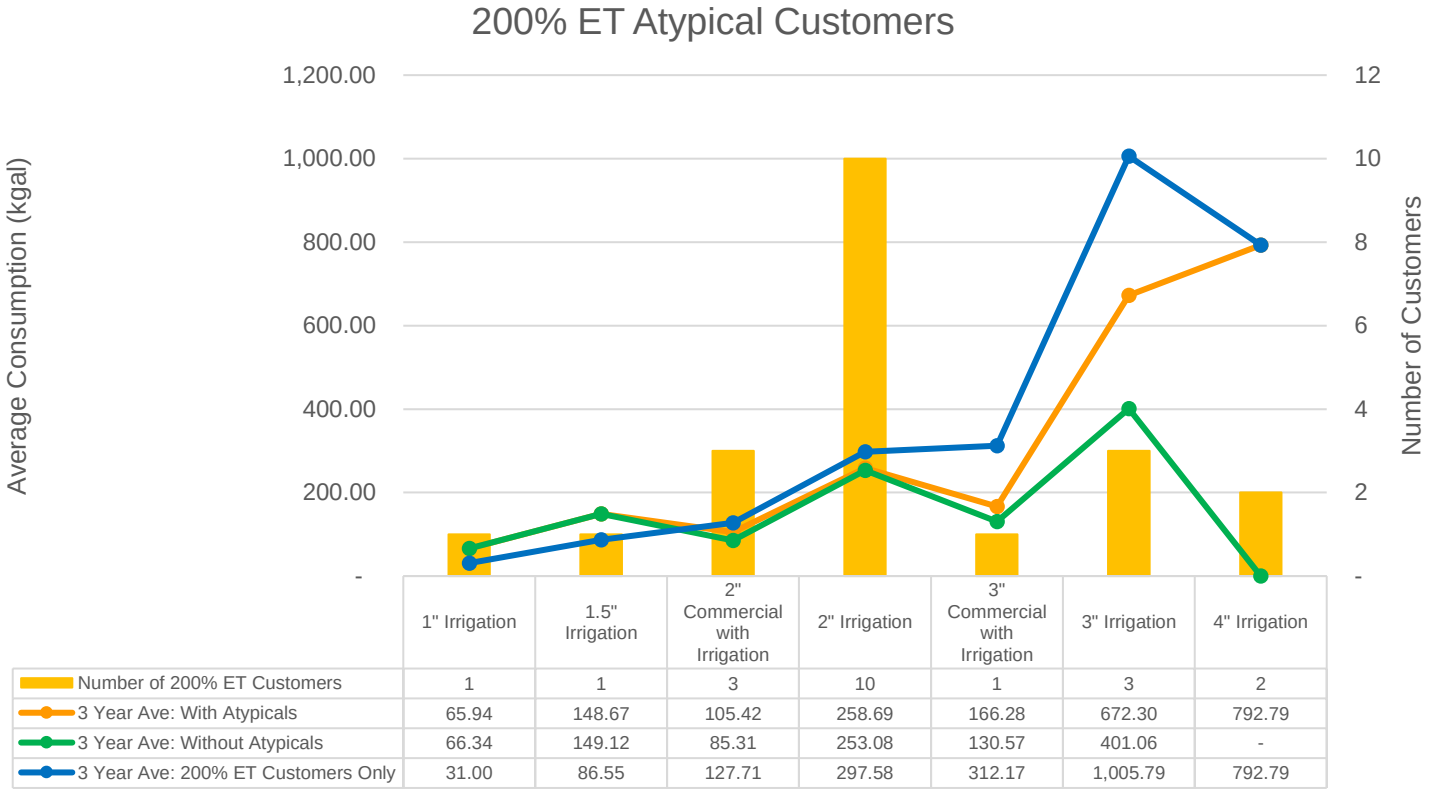
The larger atypical customers that have been removed from the three year averages for the 2023 rates and fees study are 200% ET, carwashes, hotels, outdoor bathrooms, parking garages, sample stations, SFE reservations and swimming pools. Customers designated with a 200% ET are programmed athletic fields, which need more water to accommodate the heavier

use. Charts 20 through 23, shown below, are some of those atypical customers with the larger consumption variances.

After further analysis of the consumption patterns of the following accounts, they were deemed to not be considered atypical accounts as their average consumption patterns were much like those of the other customers in the corresponding meter and or customer class. These account types remain in the average calculations, which are snowbirds, medical facilities other than the hospital, Castle Rock Water Facilities, and the Fairgrounds.

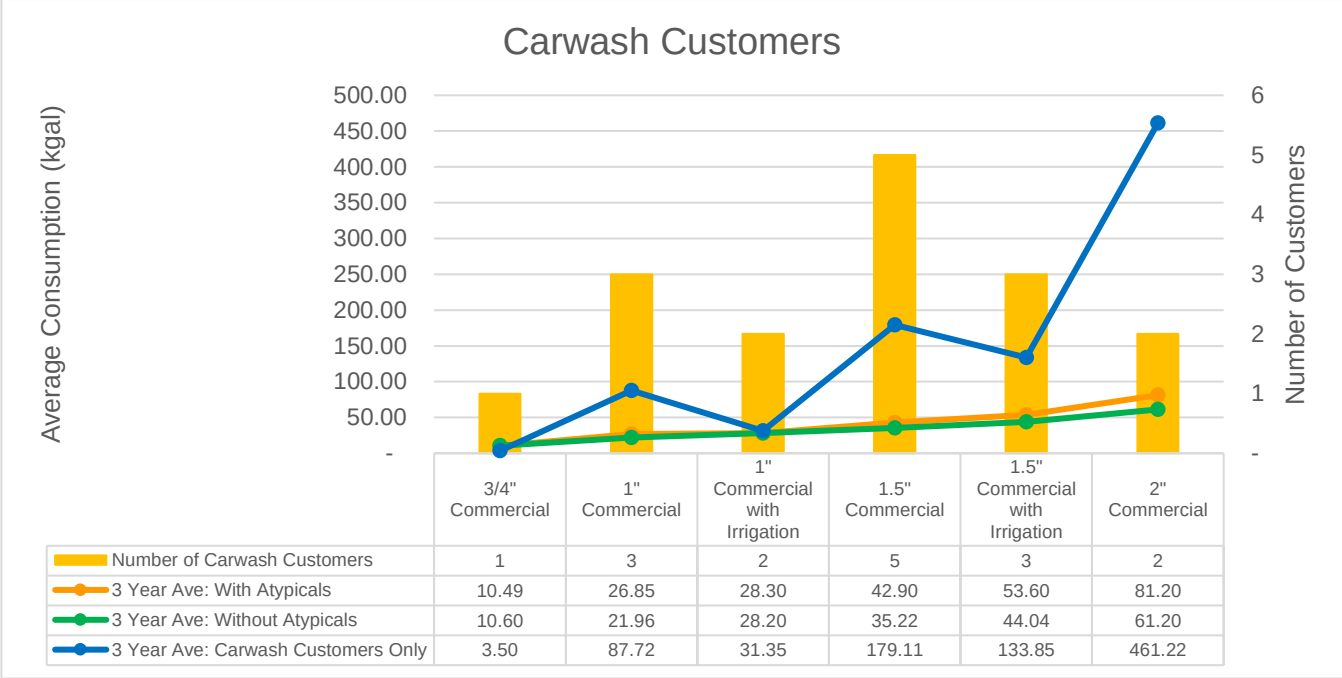
Charts 20 through 23 show the number of customers in each atypical class, the 3-year average with the atypical customers included, the 3-year average without the atypical customers included and the 3-year average of the atypical class by itself.

CHART 20: 200% ET ATYPICAL CUSTOMERS



	1" Irrigation	1.5" Irrigation	2" Commercial with Irrigation	2" Irrigation	3" Commercial with Irrigation	3" Irrigation	4" Irrigation
Number of 200% ET Customers	1	1	3	10	1	3	2
3 Year Ave: With Atypicals	65.94	148.67	105.42	258.69	166.28	672.30	792.79
3 Year Ave: Without Atypicals	66.34	149.12	85.31	253.08	130.57	401.06	-
3 Year Ave: 200% ET Customers Only	31.00	86.55	127.71	297.58	312.17	1,005.79	792.79

CHART 21: CARWASH ATYPICAL CUSTOMERS

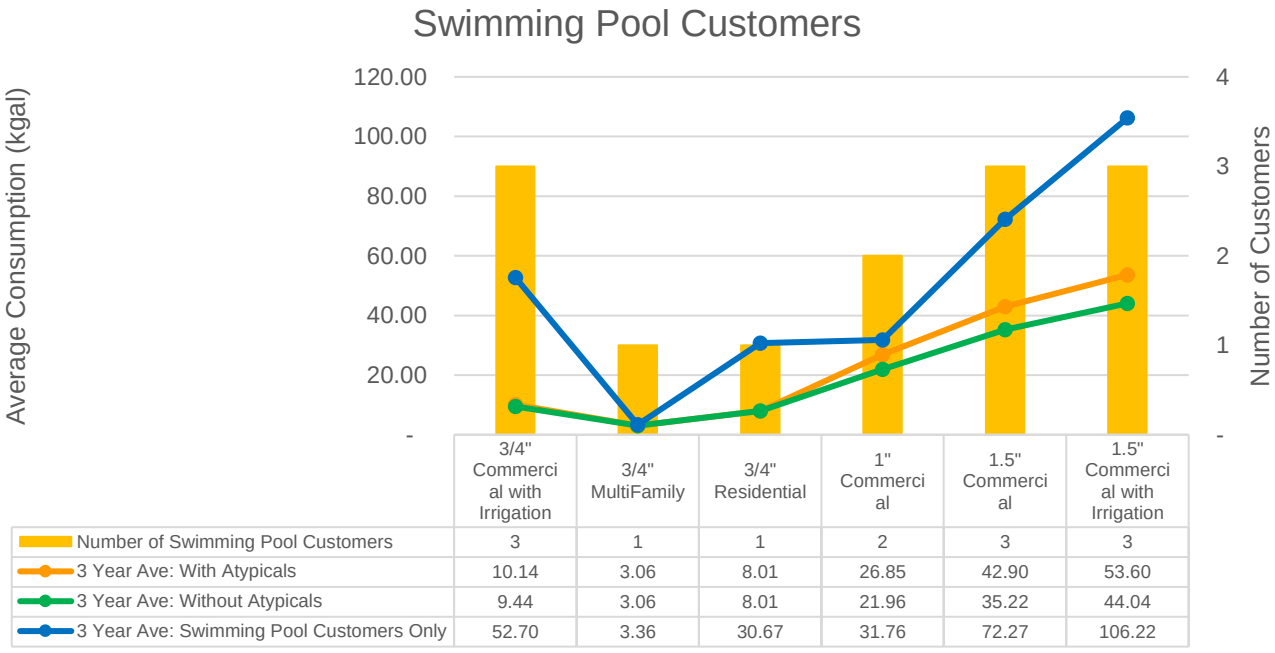


	3/4" Commercial	1" Commercial	1" Commercial with Irrigation	1.5" Commercial	1.5" Commercial with Irrigation	2" Commercial
Number of Carwash Customers	1	3	2	5	3	2
3 Year Ave: With Atypicals	10.49	26.85	28.30	42.90	53.60	81.20
3 Year Ave: Without Atypicals	10.60	21.96	28.20	35.22	44.04	61.20
3 Year Ave: Carwash Customers Only	3.50	87.72	31.35	179.11	133.85	461.22

CHART 22: HOTEL ATYPICAL CUSTOMERS

	3/4" Commercial with Irrigation	1" Commercial	1.5" Commercial with Irrigation	2" Commercial	2" Commercial with Irrigation
Number of Hotel Customers	1	1	1	1	6
3 Year Ave: With Atypicals	10.14	26.85	53.60	81.20	105.42
3 Year Ave: Without Atypicals	9.44	21.96	44.04	61.20	85.31
3 Year Ave: Hotel Customers Only	11.00	39.56	106.19	144.00	156.60

CHART 23: SWIMMING POOL ATYPICAL CUSTOMERS



	3/4" Commercial with Irrigation	3/4" MultiFamily	3/4" Residential	1" Commercial	1.5" Commercial	1.5" Commercial with Irrigation
Number of Swimming Pool Customers	3	1	1	2	3	3
3 Year Ave: With Atypicals	10.14	3.06	8.01	26.85	42.90	53.60
3 Year Ave: Without Atypicals	9.44	3.06	8.01	21.96	35.22	44.04
3 Year Ave: Swimming Pool Customers Only	52.70	3.36	30.67	31.76	72.27	106.22

CONSUMPTION BY TIER

To compare the total water usage by tier over time, Table 6 and Table 7 were prepared from actual billing data for January 2022 through December 2022. Charts 24-28 compare the total water usage by tier for each customer class for 2013-2022. Surcharge revenue funds the water conservation programs such as the rebate program in the Water Resources Fund.

TABLE 6: BILLED USAGE BY CUSTOMER CLASS BY TIER JANUARY 2022-DECEMBER 2022

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	112,841	50,726	17,814	181,381	-
Commercial w/ Irrig	65,900	32,163	34,091	132,154	-
Irrigation	-	350,242	59,910	410,152	-
MultiFamily	118,494	16,596	10,977	146,067	-
MultiFamily w/ Irrig	50,421	18,364	15,654	84,439	-
Residential	988,956	904,490	221,325	2,114,771	17,260
Total Kgals	**1,336,612**	**1,372,582**	**359,771**	**3,068,965**	**17,260**
Tier % of Total	44%	45%	12%	100%	

TABLE 7: BILLED USAGE BY SEASON BY CUSTOMER CLASS BY TIER JANUARY 2022-DECEMBER 2022

Winter Season

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	46,503	-	17,773	64,276	-
Commercial w/ Irrig	25,237	-	8,547	33,784	-
Irrigation	-	-	729	729	-
MultiFamily	48,452	-	10,977	59,429	-
MultiFamily w/ Irrig	20,467	-	3,353	23,820	-
Residential	389,386	-	82,665	472,051	1,661
Total Kgals	**530,044**	-	**124,044**	**654,088**	**1,661**
Tier % of Total	81%	0%	19%	100%	

Irrigation Season

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	66,338	50,726	41	117,105	-
Commercial w/ Irrig	40,663	32,163	25,544	98,370	-
Irrigation	-	350,242	59,181	409,423	-
MultiFamily	70,042	16,596	-	86,638	-
MultiFamily w/ Irrig	29,954	18,364	12,301	60,619	-
Residential	599,571	904,490	138,660	1,642,721	15,599
Total Kgals	**806,568**	**1,372,582**	**235,727**	**2,414,876**	**15,599**
Tier % of Total	33%	57%	10%	100%	

CHART 24: COMMERCIAL CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2013-2022

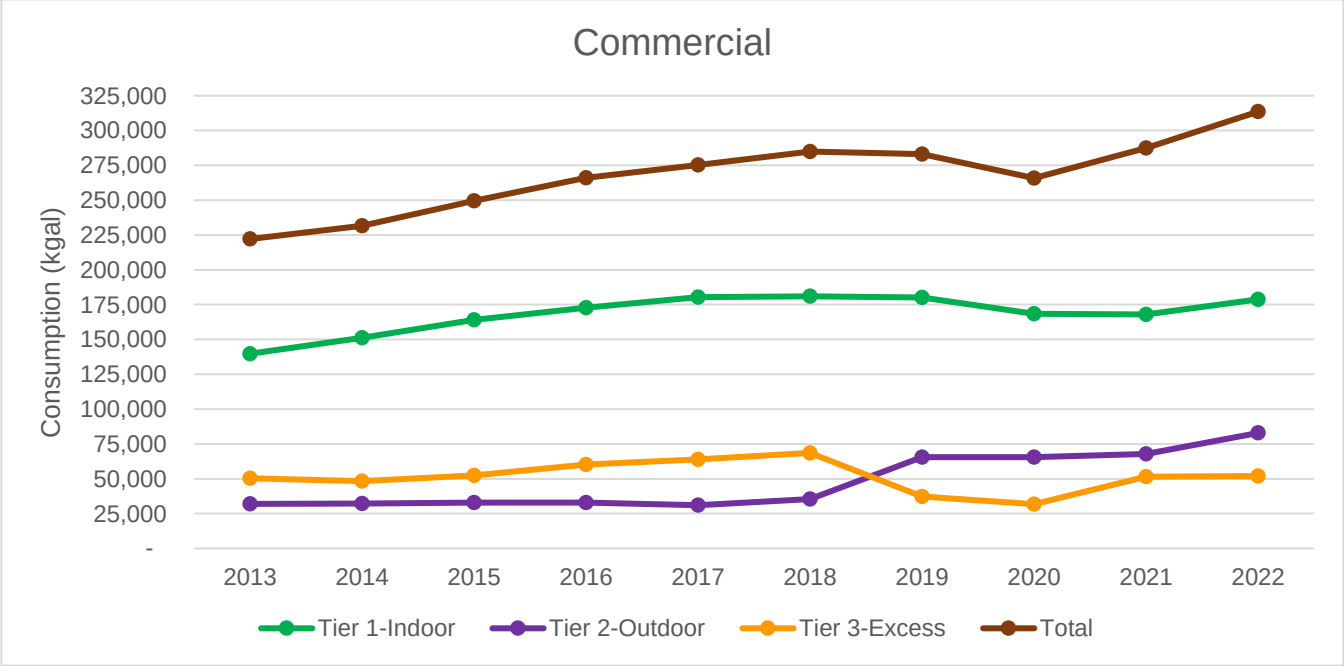


CHART 25: MULTIFAMILY CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2013-2022

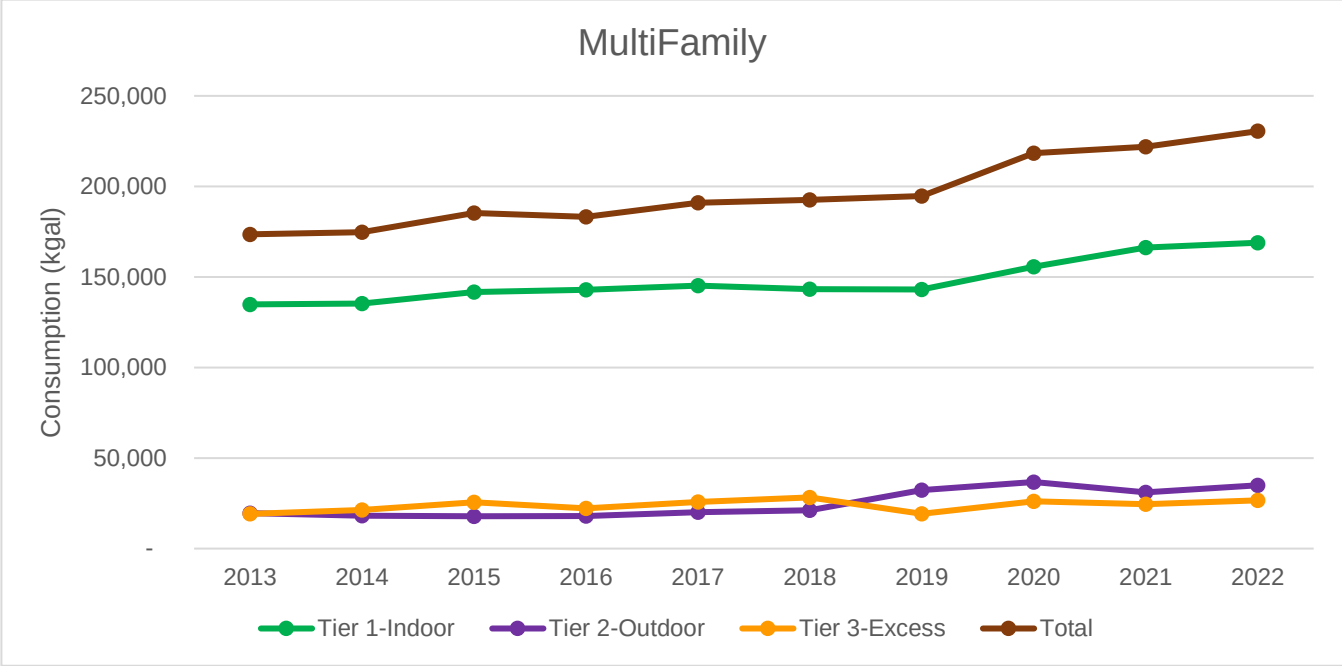


CHART 26: IRRIGATION CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2013-2022

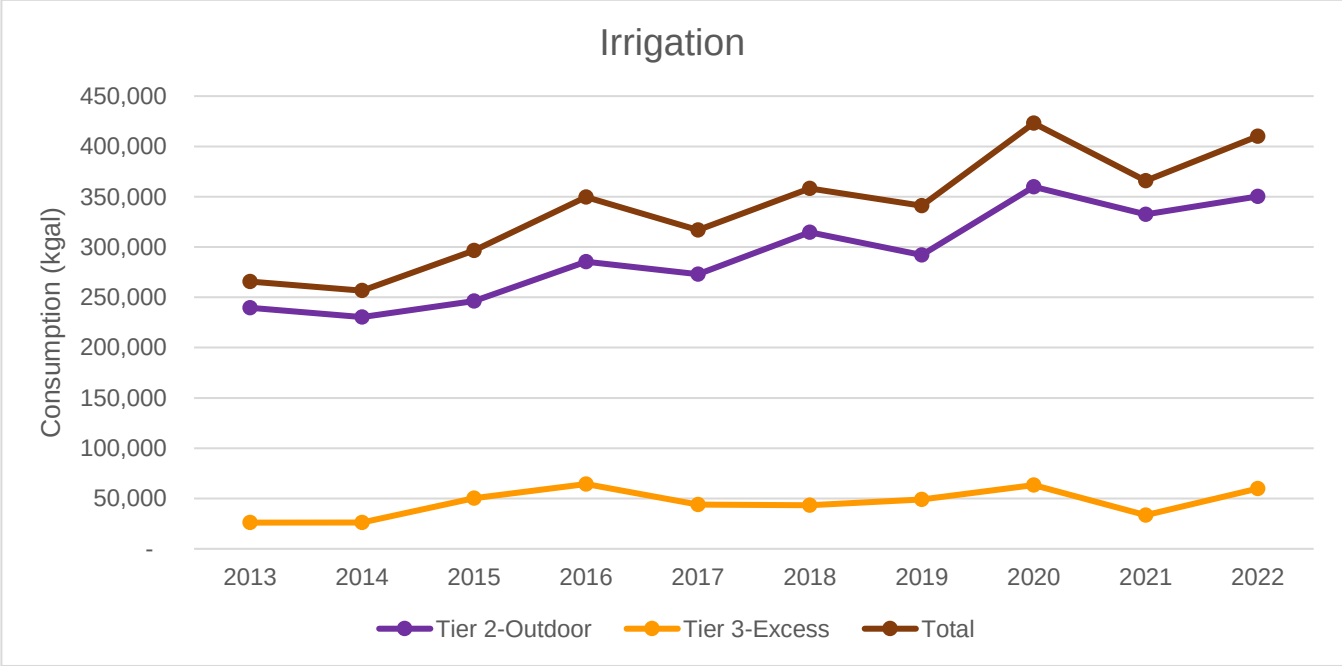


CHART 27: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2013-2022

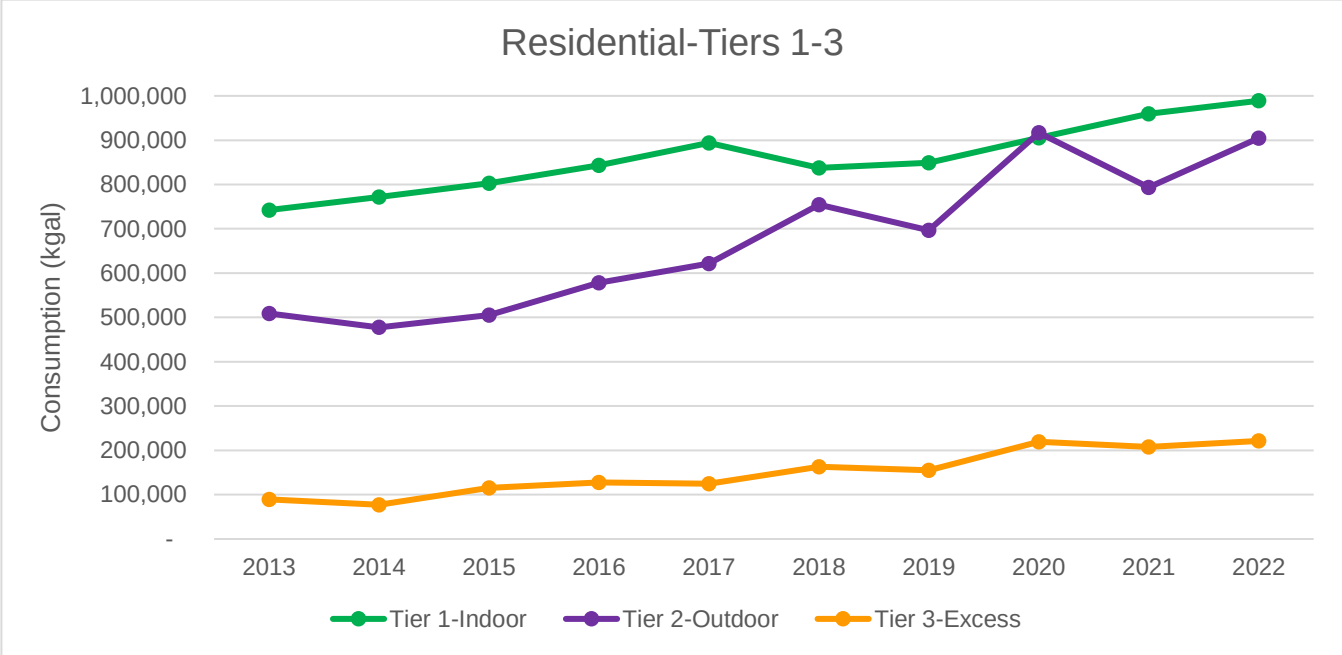
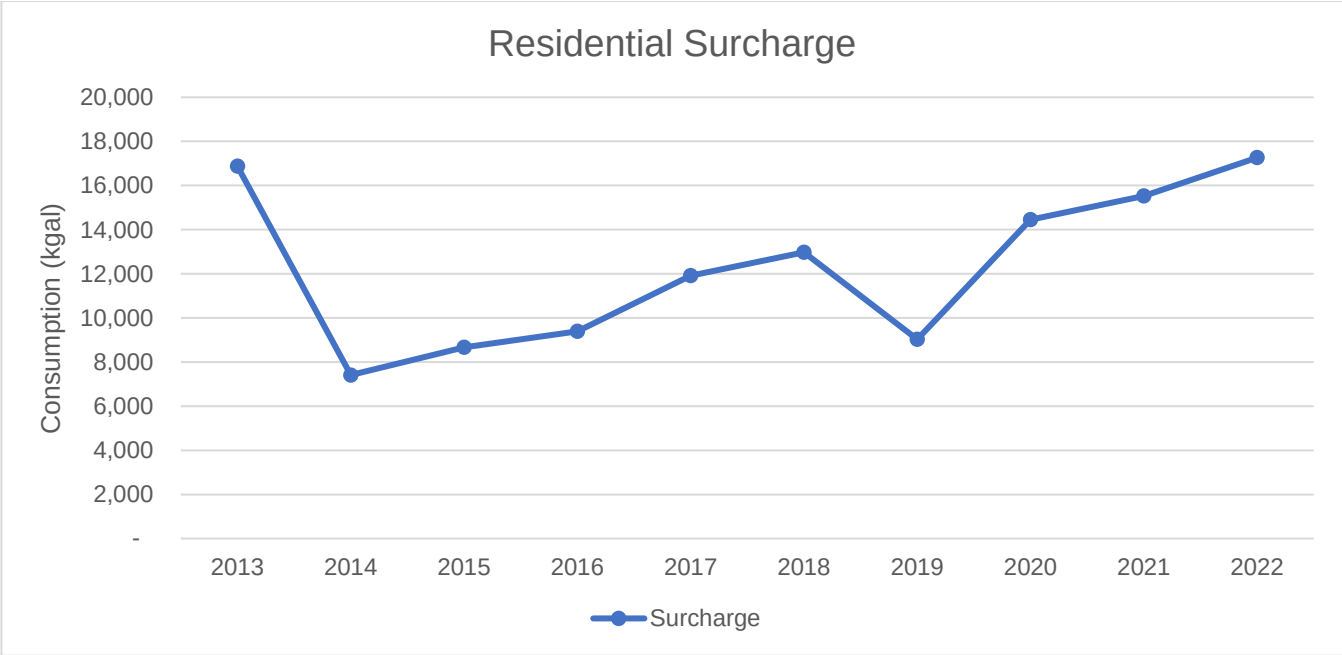


CHART 28: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE RESIDENTIAL SURCHARGE 2013-2022



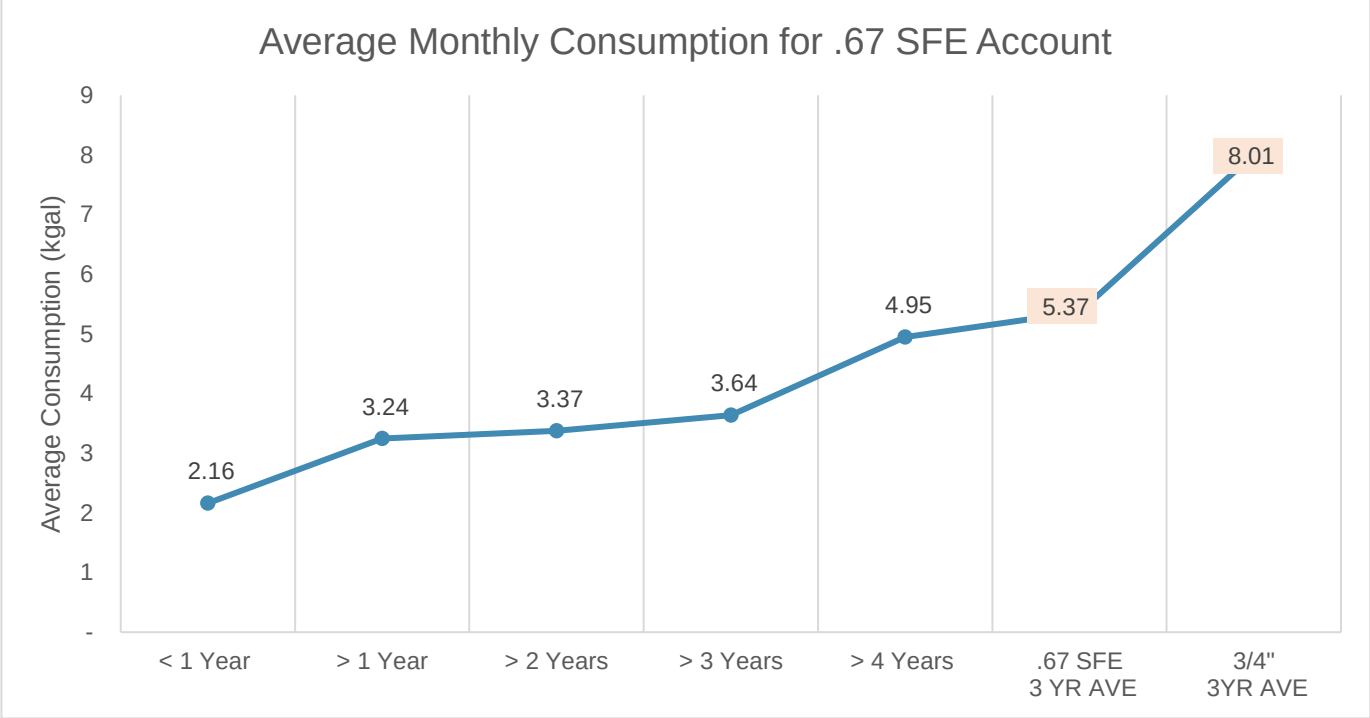
Charts 24 shows that Commercial consumption has seen steady increases in consumption over the past 10 years. We did see a slight reduction in 2020, however the following two years did see a continuation of the trend, driven primarily by Tier 2. Chart 25 shows that Multifamily has seen incremental increases in consumption over the last two years after seeing a larger increase in 2020. Irrigation customers as shown in Chart 26 saw a decrease in 2021 after a dry irrigation season in 2020, however we did see an increase in consumption between 2021 and 2022. Residential account usage by tier in Chart 27 and Surcharge usage in Chart 28 show increases in Tier 1, Tier 2 and Surcharge, however Tier 3 remained relatively flat to 2021.

5/8" ACCOUNTS - 0.67 SFE

Castle Rock Water continues to evaluate 0.67 SFE accounts to determine performance relative to the goal of 33% less usage than that of the average residential 1 SFE. As of January 1, 2021, the water resources monthly fixed charge for an existing 0.67 SFE account is charged the reduced amount of 67% of a 1 SFE. Those accounts will continue with the reduced monthly fixed amount until they transfer ownership, at which time they will be reset to a 1 SFE going forward. New residential accounts as of January 1, 2021 have all been set up with a 1 SFE due to the fact that the nature of the program is not being met in the long term. This change does not apply to the water resources system development fees as those remained at 67% of the cost of 1 SFE. As of January 2023, the .67 SFE program was discontinued in lieu of the new landscape criteria requirements that went into effect on January 1, 2023. Beginning in 2023, all new single family residential permits that meet or exceed the new landscape criteria and have a builder-installed front and back yard may qualify for reduced water resources and water system development fees depending on total fixture calculations and irrigation requirements.

As shown in Chart 29 below, 8.01 is the 3-year average monthly consumption for a ¾" residential account, or one SFE, which is higher than last year's study 3-year average of 7.81.

CHART 29: 0.67 SFE ACCOUNT CONSUMPTION BY YEAR



WATER EFFICIENCY PLAN (WEP) ACCOUNTS

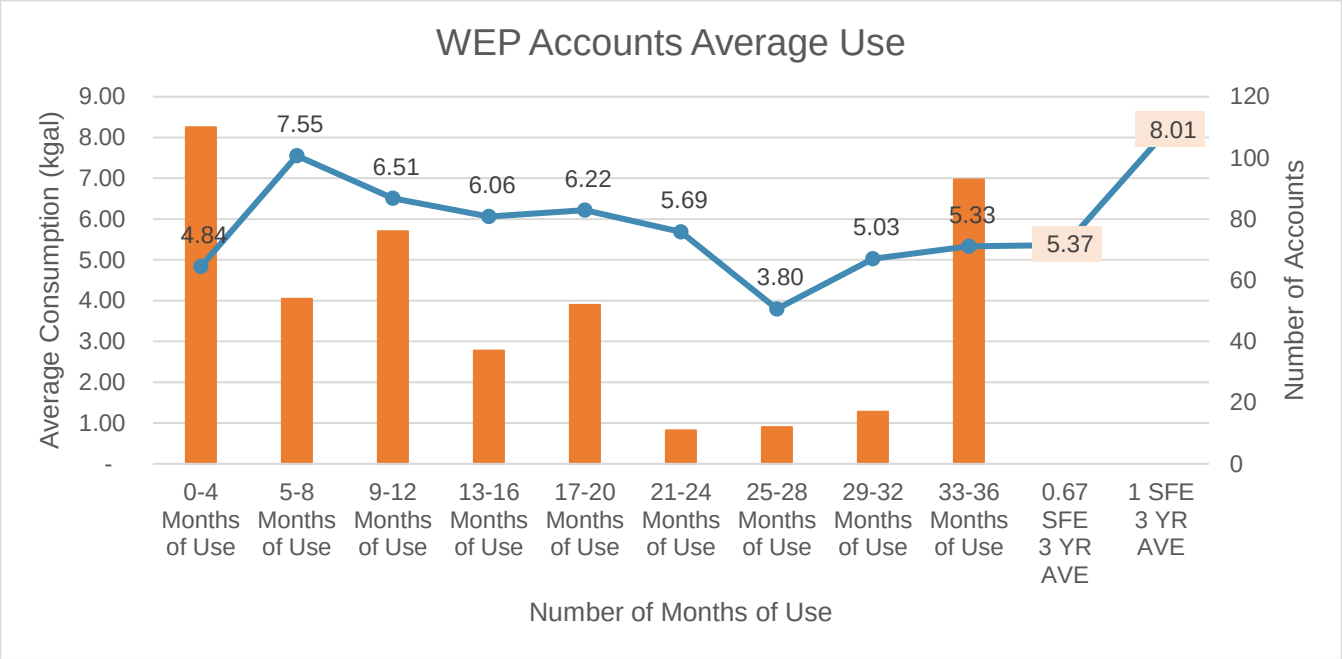
New to Castle Rock Water in 2019 were Water Efficiency Plan (WEP) accounts. These are accounts that are outfitted with water efficient products that must meet or exceed identified water efficiency requirements. As of the end of 2022 there were 462 approved accounts that met the criteria. Table 8 below shows 69 customers were over the average usage in 2022 for a 1 SFE and 131 were over the 0.67 SFE. Unlike the 0.67 SFE program these 462 accounts can have varying SFEs below a 1 SFE based on fixture calculations and irrigation requirements. As of January 2023, the WEP program was discontinued in lieu of the new landscape criteria requirements that went into effect on January 1, 2023. Beginning in 2023, all new single family residential permits that meet or exceed the new landscape criteria and have a builder-installed front and back yard may qualify for reduced water resources and water system development fees depending on total fixture calculations and irrigation requirements.

TABLE 8: AVERAGE WEP ACCOUNT USAGE

Average Use	Number of Accounts
8.01 kgals and above	69
5.37 - 8.01 kgals	131
2.69 - 5.37 kgals	173
0.00 - 2.59 kgals	89

Total Accounts	462

CHART 30: AVERAGE WEP ACCOUNT USAGE VS. 0.67 AND 1.00 SFE USAGE



The data collected for this chart is from January 2020-December 2022

IRRIGATION USAGE BASED ON WATERING SCHEDULES

Each irrigation season Castle Rock Water puts out a residential watering schedule based on the last digit of the service address representing a circle, diamond or square. Starting in 2018, non-residential customers were assigned watering days based on being on the east or west side of I-25. Given the importance of the watering schedules, CRW has tracked the usage of customers by year by watering schedule.

Below are charts that show the residential and non-residential water usage from 2013 to 2022 based on their scheduled watering days. For residential customers, circle and diamond customers have very similar usage for all the years, whereas the square customers have higher usage than the circle and diamond customers. One reason for this is the number of customers for each schedule. Square has the most at 9,265 customers, circle is second with 7,696 customers and diamond has the least with 7,486 customers based on the 2022 billing data.

For non-residential usage, customers on the west side of I-25 have less usage on an annual basis than customers on the east side of I-25. The east side has more customers, 1,104 customers, than the west side, 706 customers, based on the 2022 billing data. Overall this information can help us to track water consumption patterns for each customer group and can

help CRW to determine if the schedule breakouts need to be reevaluated in the future or if the water usage patterns are adequate in meeting peak daily demands.

CHART 31: RESIDENTIAL IRRIGATION SEASON USAGE BY WATERING SCHEDULE

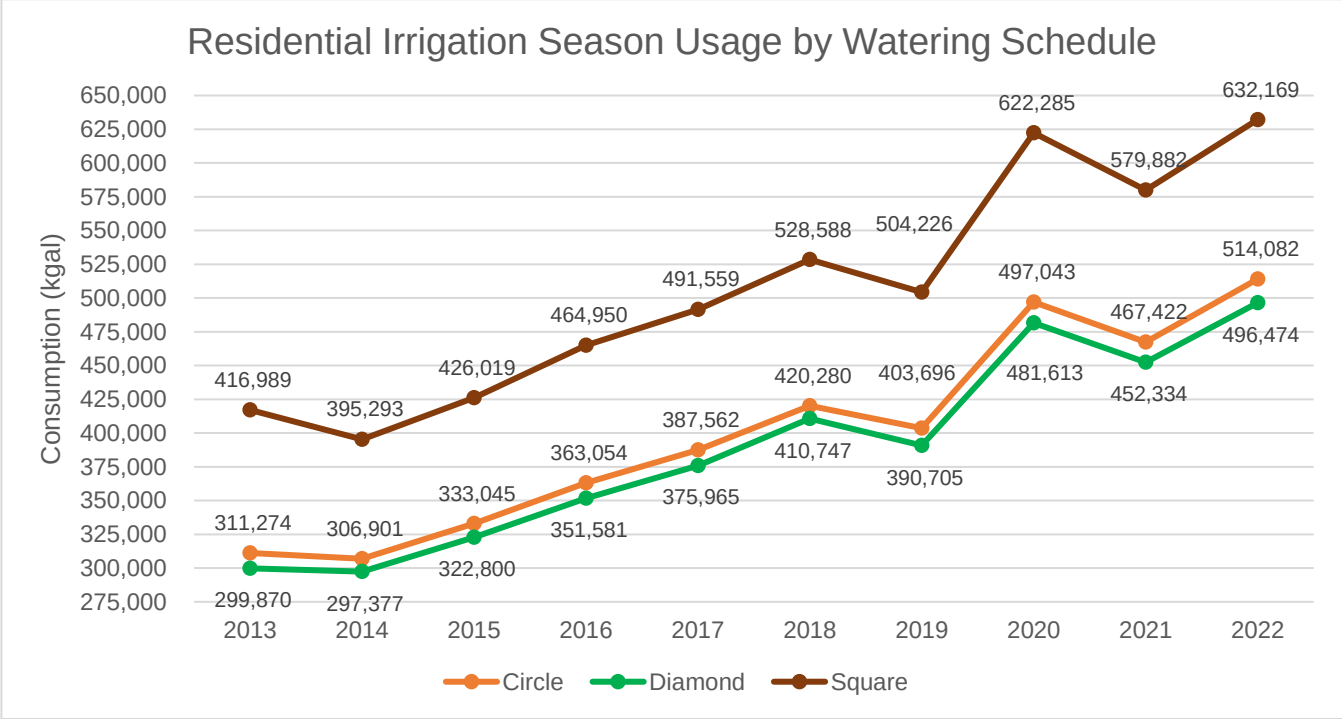
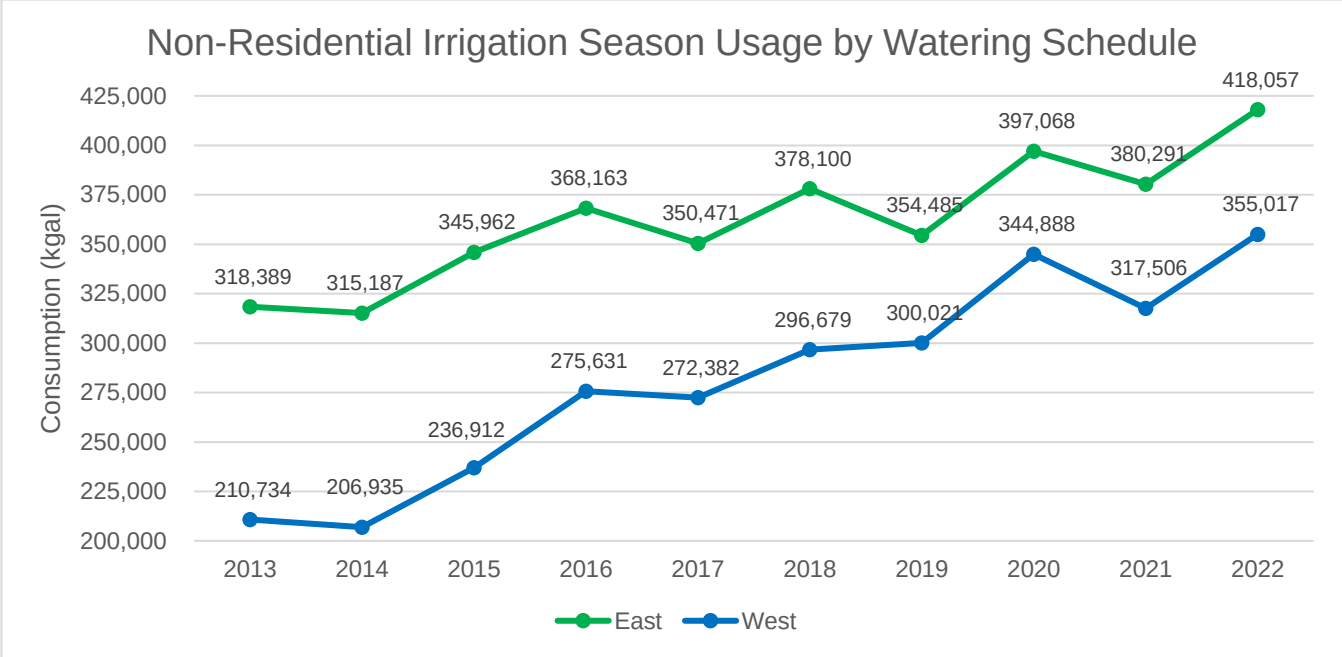


CHART 32: NON-RESIDENTIAL IRRIGATION SEASON USAGE BY WATERING SCHEDULE



IRRIGATION SEASON USAGE VERSUS WEATHER PATTERNS

CRW looked into whether a dry versus a wet irrigation season would make a difference on usage patterns across the different customer classes. The four charts below show the number of days of rainfall for each month for a three-year time period compared to the actual usage for the customer class for that same time period. In looking at Charts 33-36 for the different customer classes, it is up and down as to whether or not the rainfall and weather patterns affect the use for each customer class. CRW is working with Stantec Consulting, Inc. to further analyze these statistics.

CHART 33: RESIDENTIAL MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL

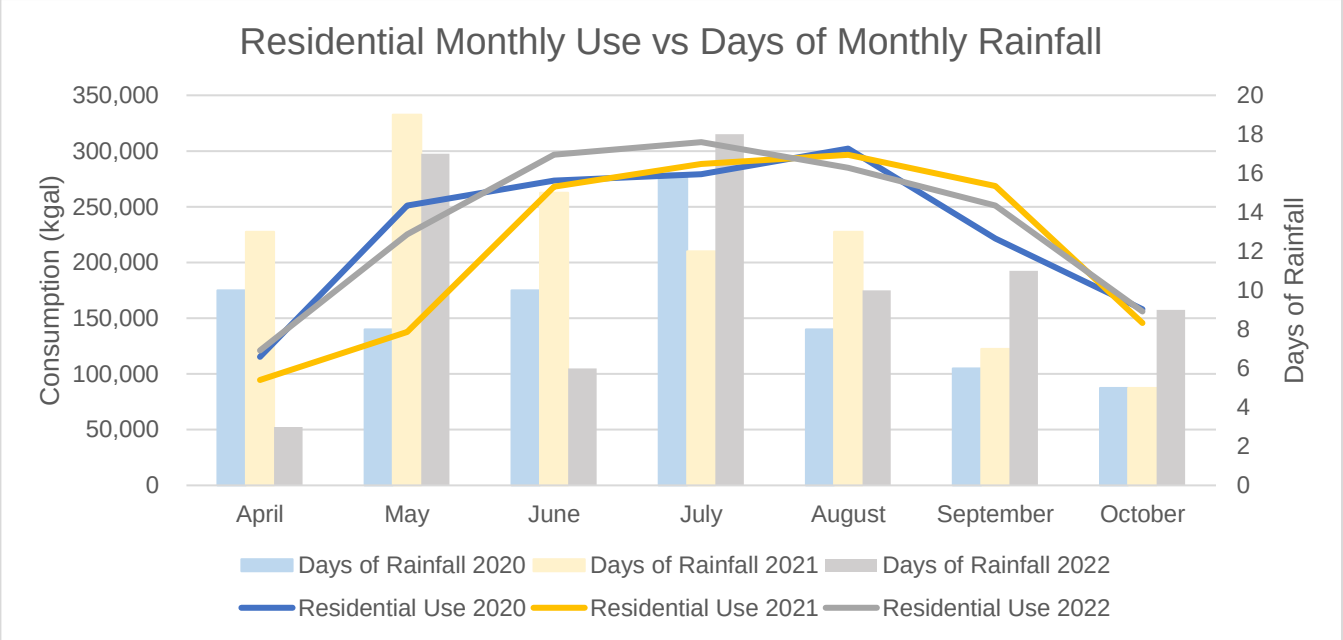


CHART 34: IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL

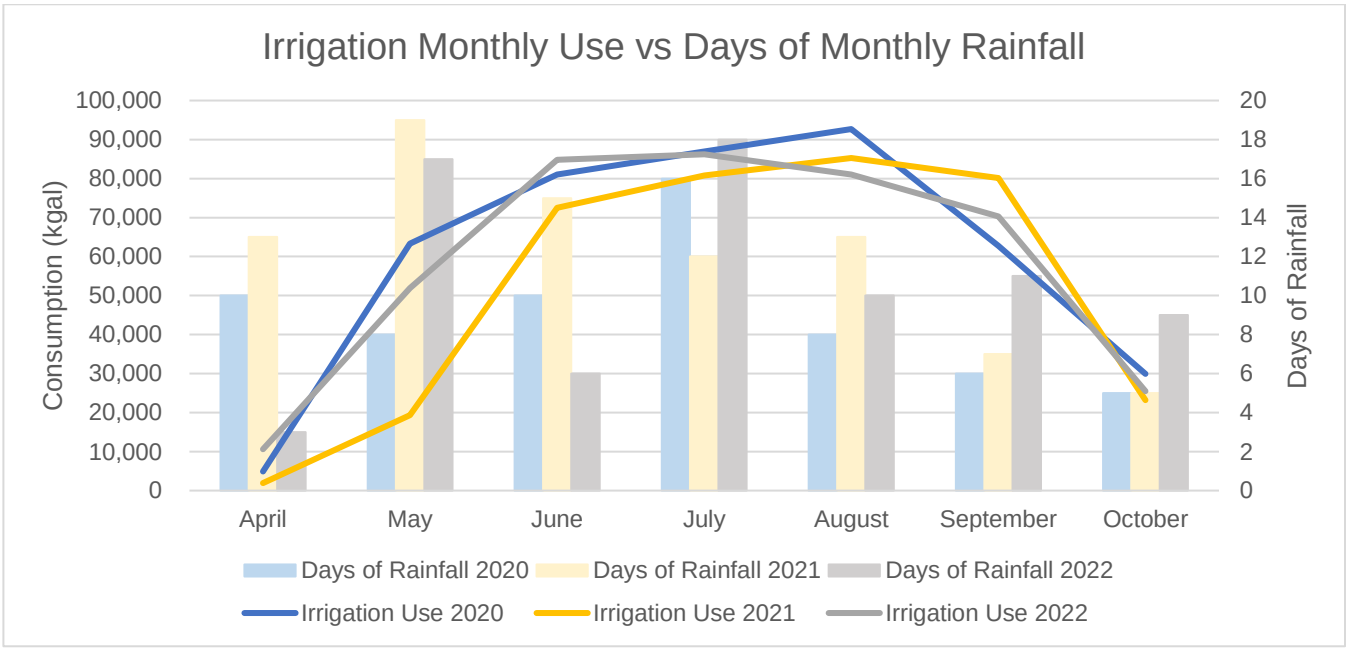


CHART 35: MULTIFAMILY WITH IRRIGATION MONTHLY USAGE VS DAYS OF MONTHLY RAINFALL

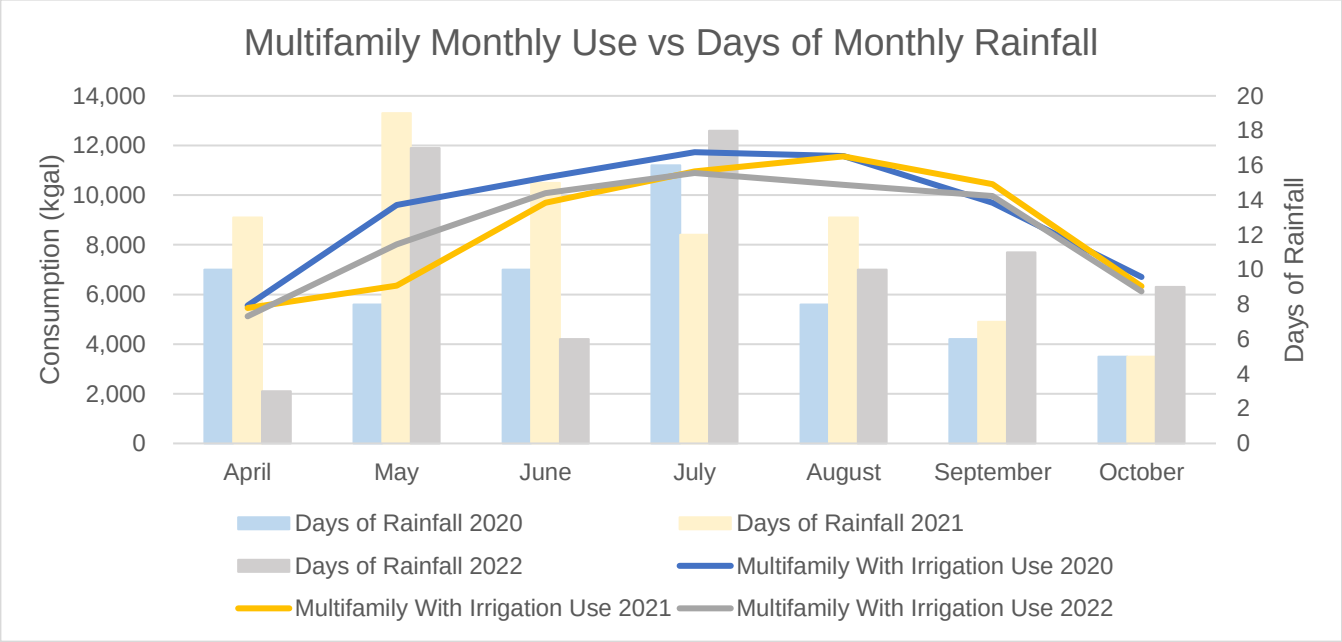
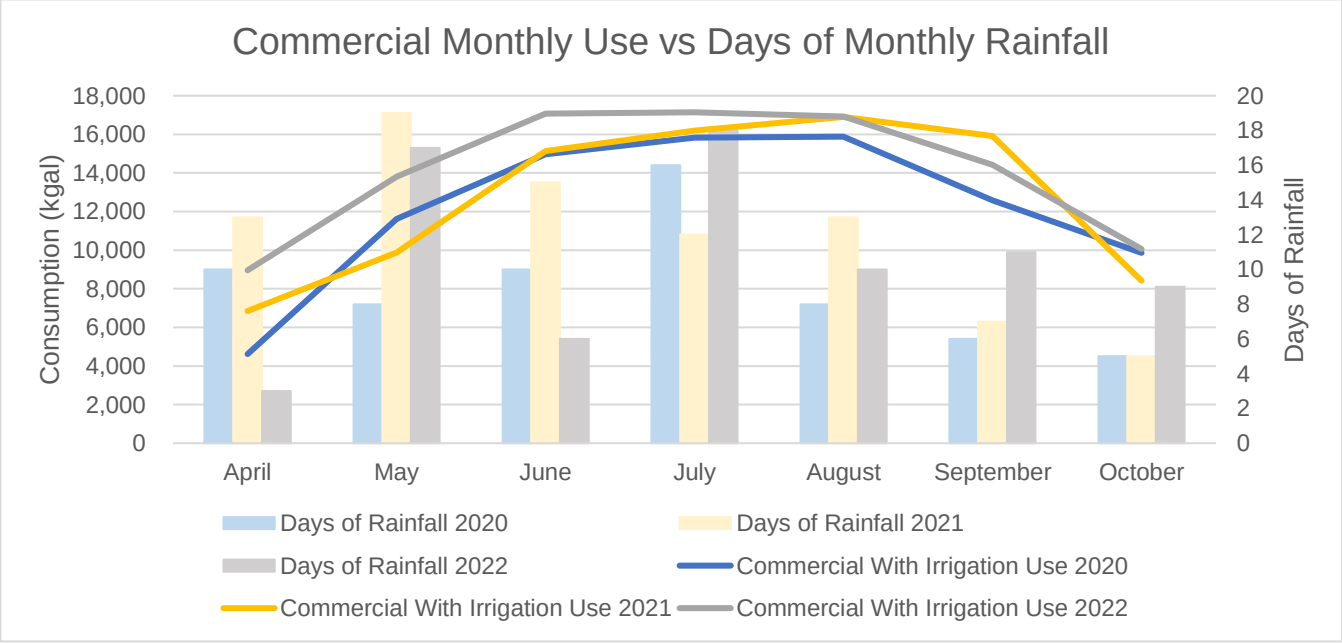


CHART 36: COMMERCIAL WITH IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL



WATER WISER CUSTOMERS

Each year CRW offers Water Wiser classes for customers. The purpose of the class is to help educate customers about watering more efficiently. It also helps to educate customers on water conservation and more efficient landscaping ideas. As a water wiser customer, you can water any day as needed versus following the every third day watering schedule. However, residential customers must still water between the hours of 8:00 p.m. and 8:00 a.m.

In order to see the success of the program, CRW completed some analysis on the water wiser accounts consumption patterns before and after taking the water wiser class. In order to analyze these customers, CRW looked at three different data sets. These three data sets were customers who had water usage for 12 months before they obtained their water wiser status and 12 months of usage after they became a water wiser. The other two data sets were for customers with 24 months and 36 months of data before and after completing the water wiser program. The table below shows the before and after water wiser average usage.

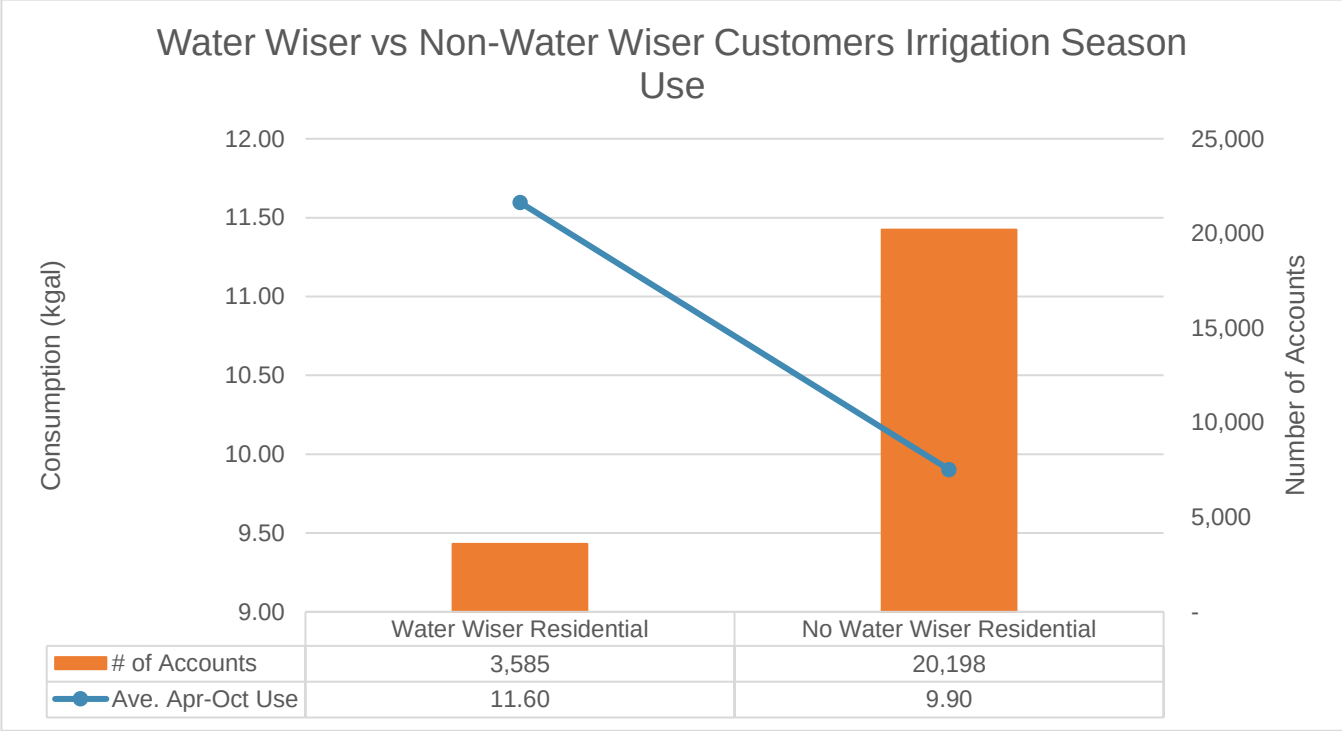
TABLE 9: BEFORE AND AFTER WATER WISER AVERAGE USAGE

# of Months Before and After Water Wiser	Average Usage Before Water Wiser Class	Average Usage After Water Wiser Class	% of Customers to Decrease Usage After Water Wiser Class
36 Months	9.6	8.6	58%
24 Months	8.8	8.6	54%
12 Months	8.5	8.5	50%

Table 9 shows that overall the average consumption has been decreasing for customers after taking the water wiser class. In general, when looking at the individual accounts for the 36 months of data, 58% of people have decreased their average usage, which means that 42% of users have maintained or increased their average usage despite attending a water wiser workshop. This data shows that as we add more months the data is improving. At 12 months of consumption, it shows that only 50% of users decreased their usage and at 24 months of consumption this increased to 54%. Overall, there is room for improvement for roughly 42% of the water wiser customers.

One other comparison completed was to see how the water wiser customers compare to the non-water wiser customers average irrigation usage (April through October). When looking at the residential customers for the average irrigation season usage the water wiser customers have a higher average at 11.60 kgals versus 9.90 kgals for the customers who have not taken the water wiser classes, which is a concerning statistic.

CHART 37: WATER WISER VS. NON-WATER WISER CUSTOMERS IRRIGATION SEASON USE (APRIL TO OCTOBER)



IMPACT OF IRRIGATED AREAS (SQUARE FEET)

Chart 38 shows the number of residential accounts by irrigated area. Chart 39 shows the average monthly consumption by irrigated area for residential customers. As expected, the more irrigated area, the more the average consumption per month. Chart 40 shows total usage by irrigated area for commercial accounts. Chart 41 shows average monthly consumption for commercial accounts by irrigated area.

CHART 38: RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

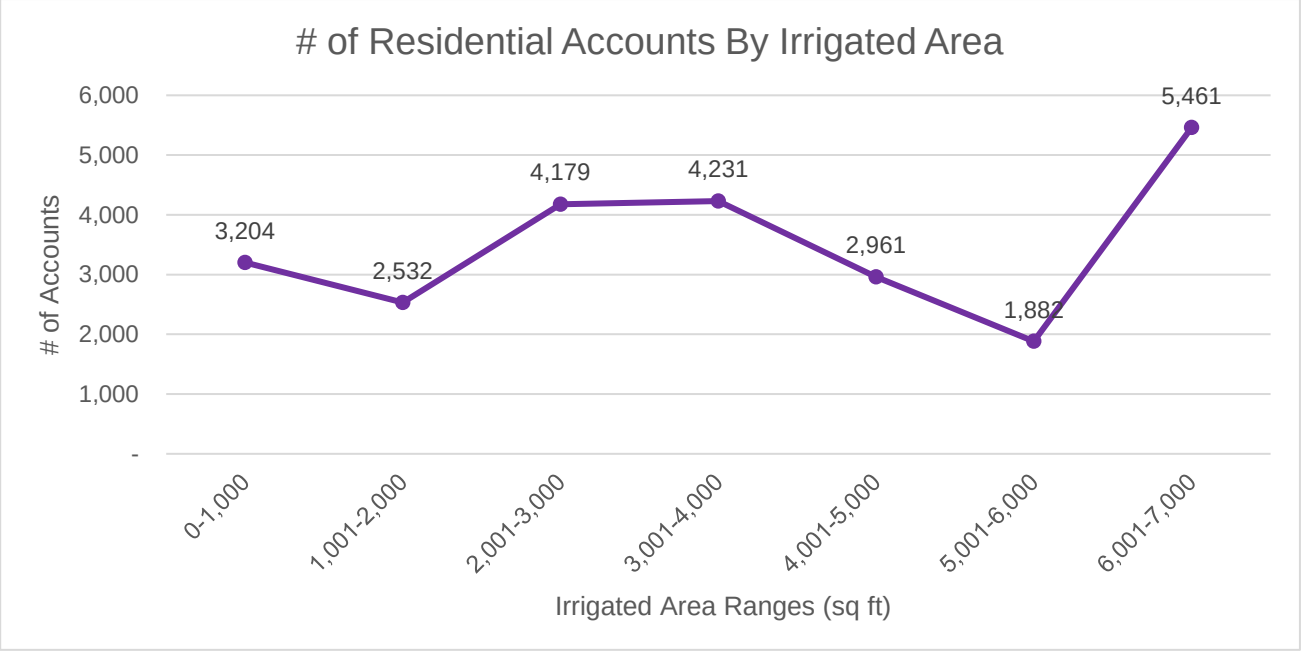


CHART 39: RESIDENTIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA

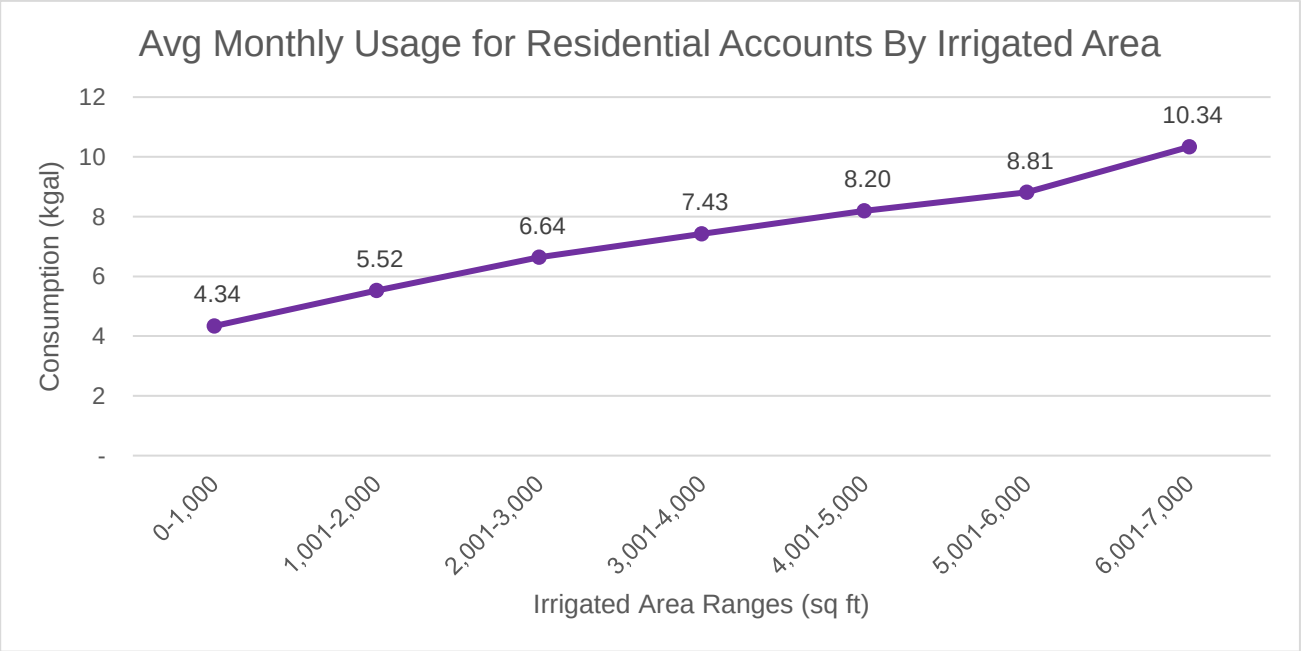


CHART 40: COMMERCIAL ACCOUNTS BY IRRIGATED AREA

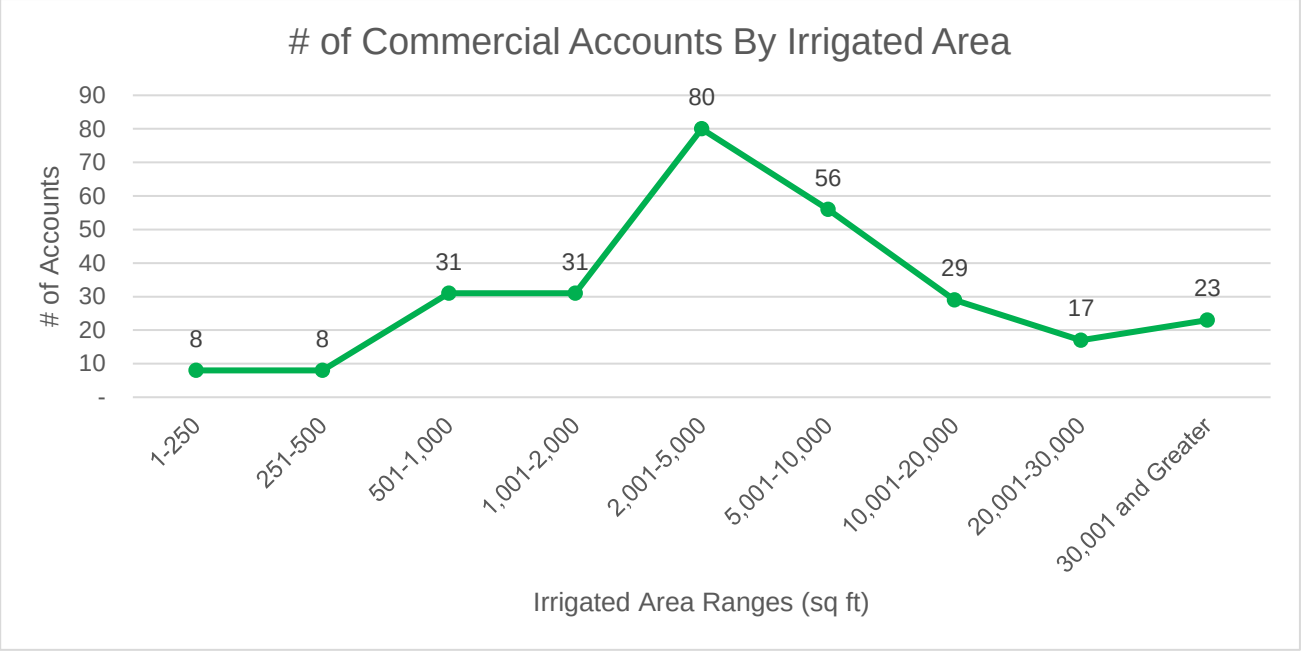
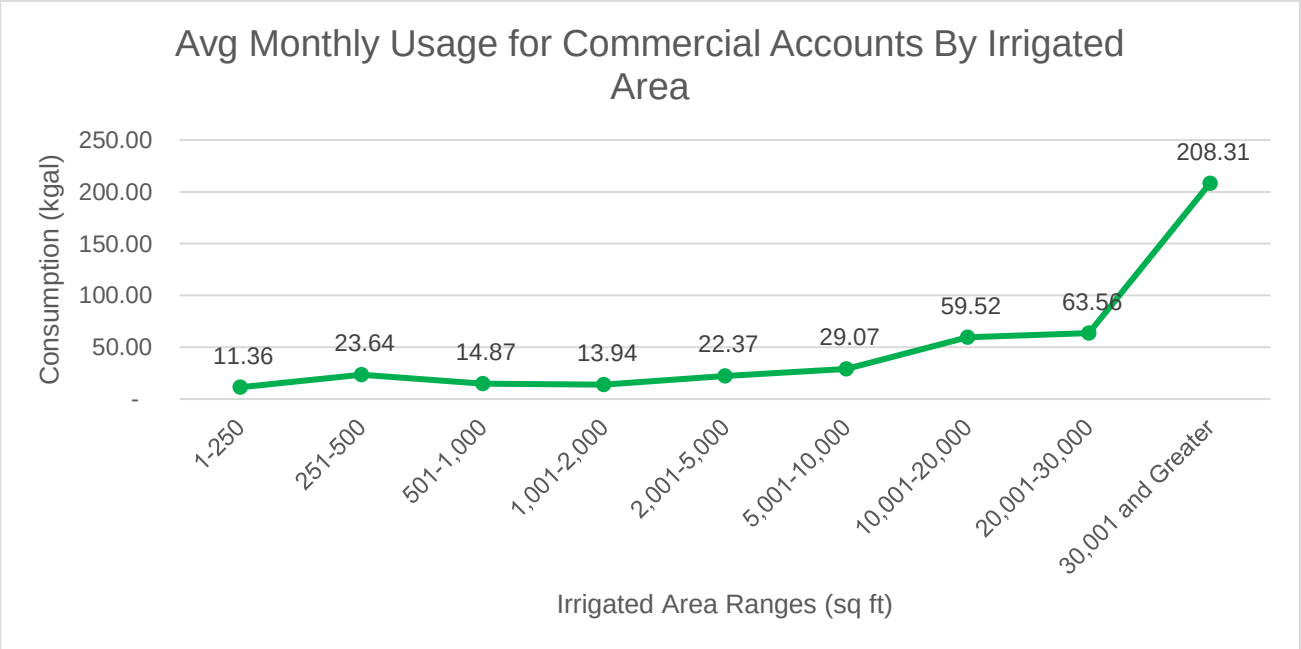


CHART 41: COMMERCIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA



HOA'S AVERAGE MONTHLY CONSUMPTION

CHART 42: AVERAGE MONTHLY CONSUMPTION FOR ALL HOAS (94) COMBINED

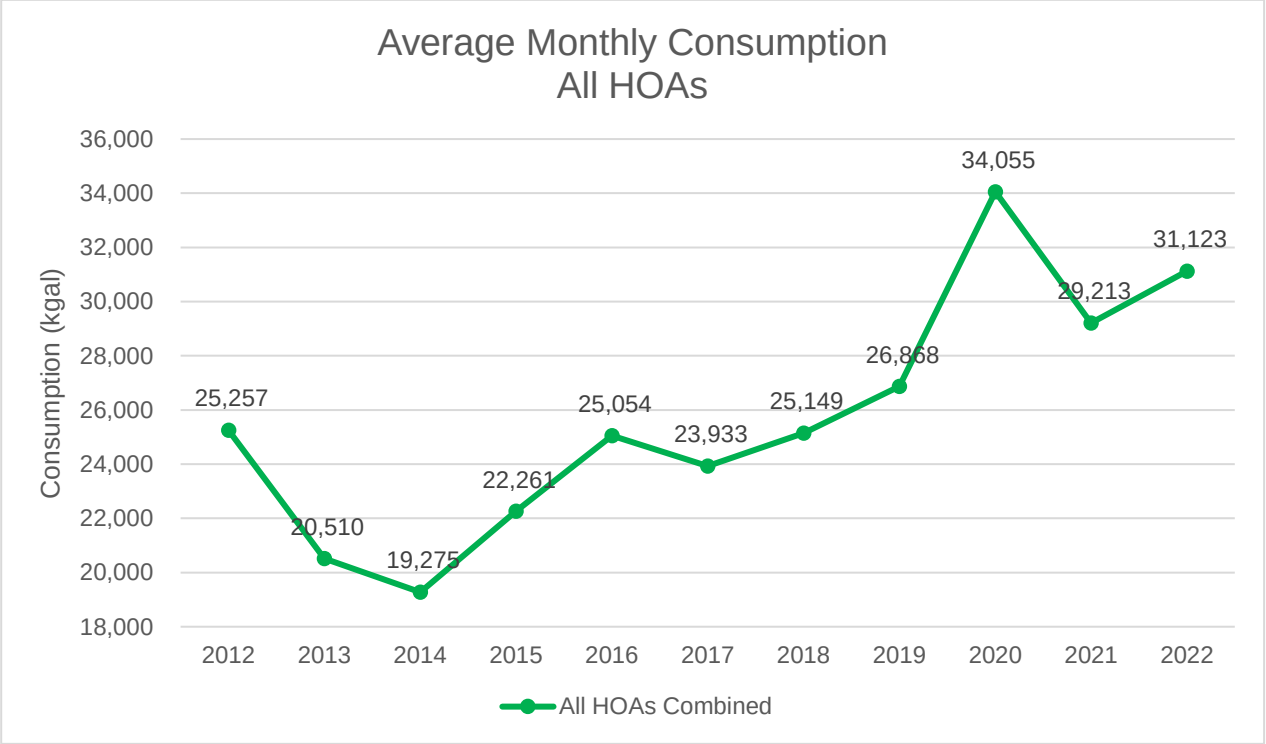
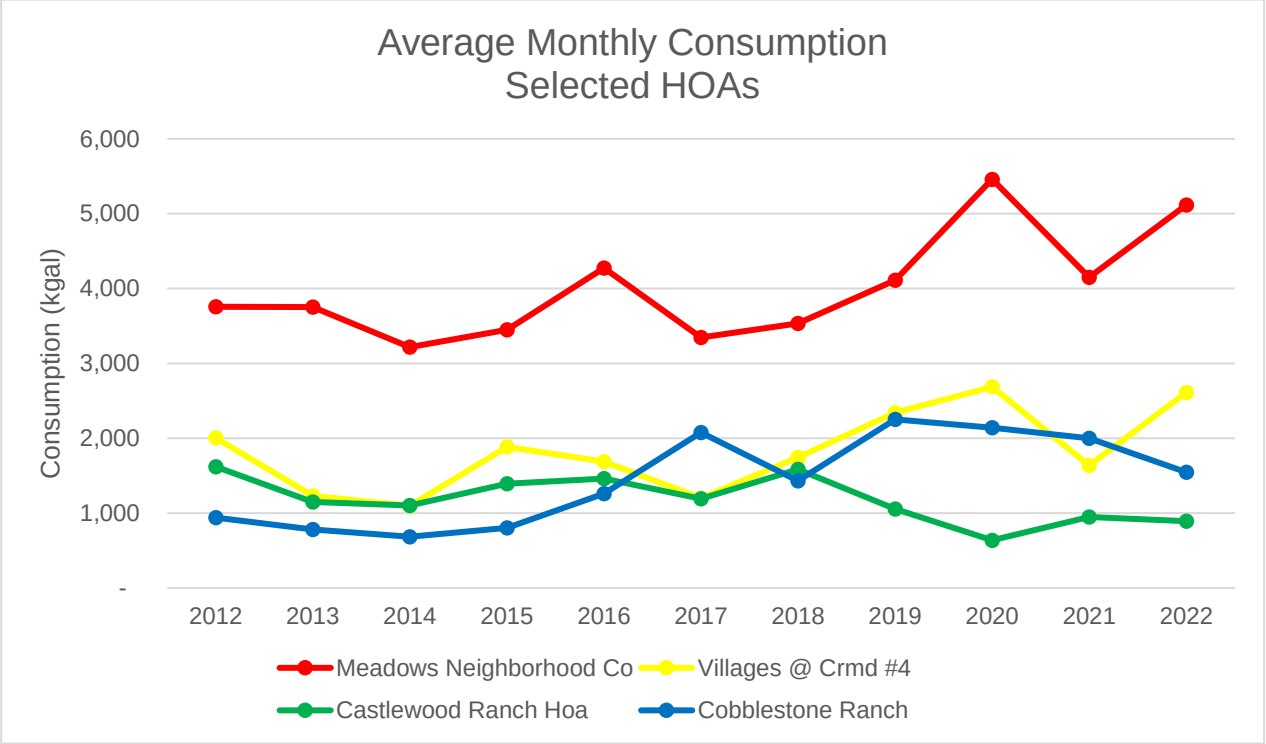


Chart 42 shows the average monthly consumption for all HOAs. Consumption saw increases in 2020 due to several factors including dry weather as well as large growth in both the Meadows and Founders neighborhoods. Chart 43 shows four HOAs that were selected at random out of the 94 in total to show the average monthly consumption patterns for these user types.

CHART 43: SELECTED FOUR HOAS AVERAGE MONTHLY CONSUMPTION



MONTHLY CONSUMPTION BY SUBDIVISION

CHART 44: MEADOWS AVERAGE MONTHLY CONSUMPTION

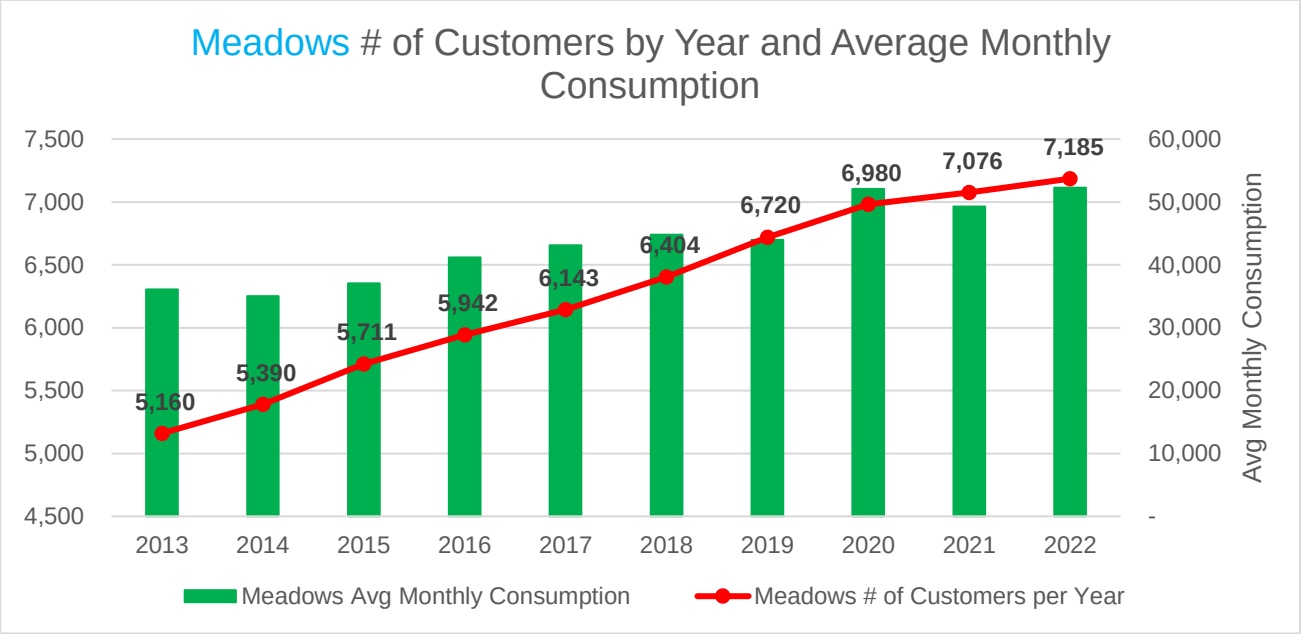


CHART 45: MEADOWS AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

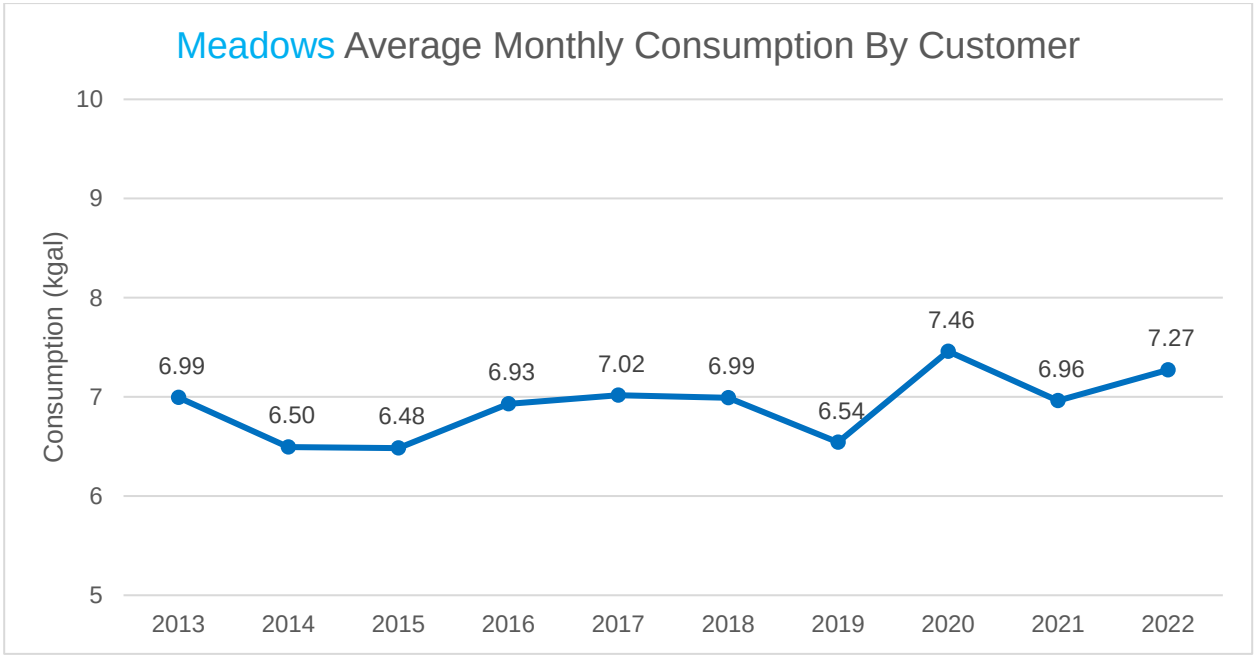


CHART 46: MEADOWS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

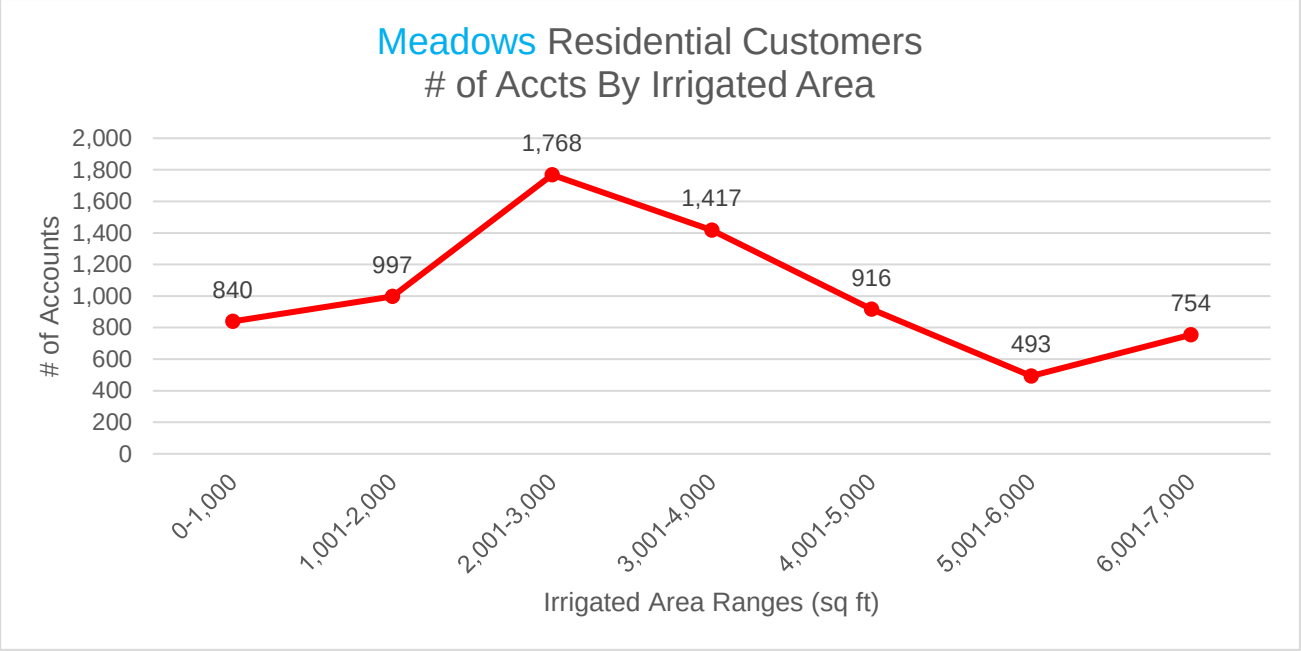


CHART 47: MEADOWS RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER

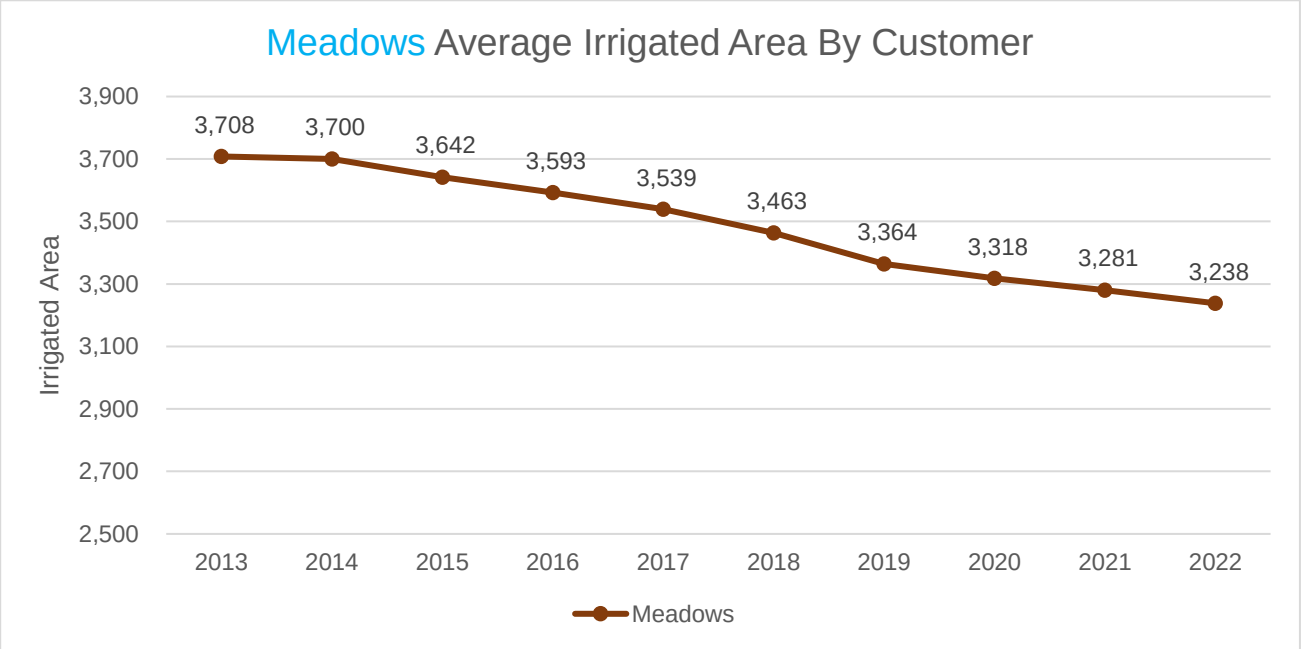


CHART 48: FOUNDERS AVERAGE MONTHLY CONSUMPTION

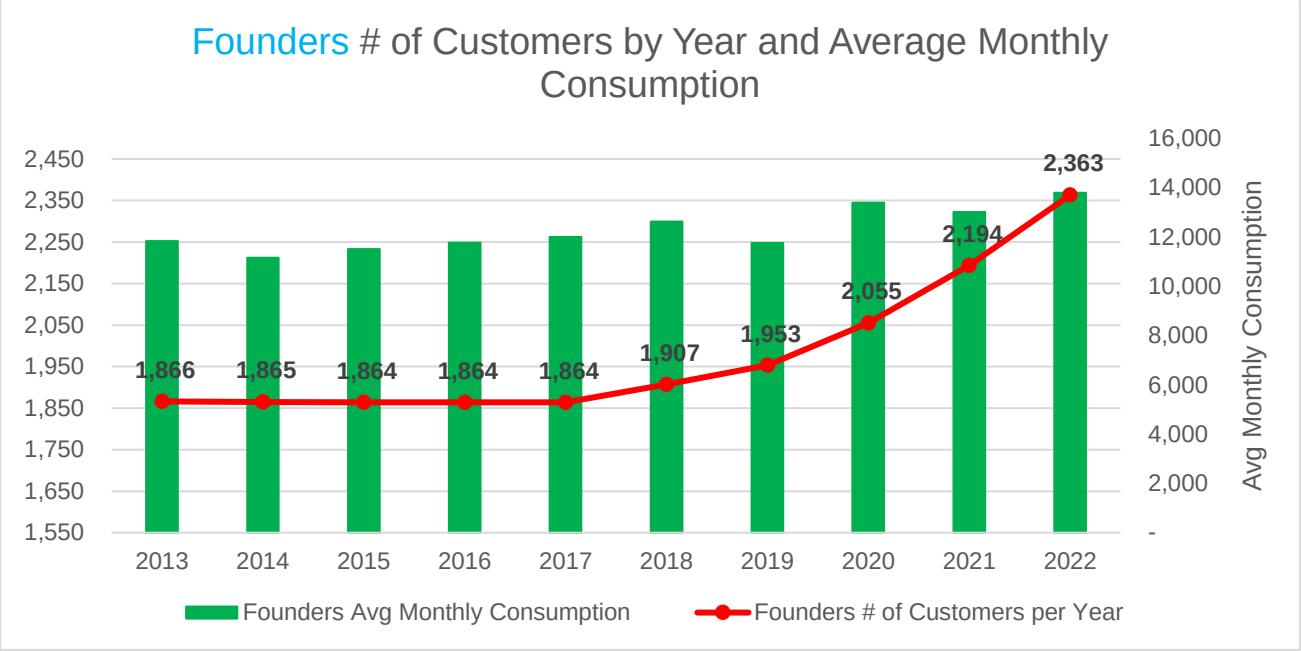


CHART 49: FOUNDERS AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

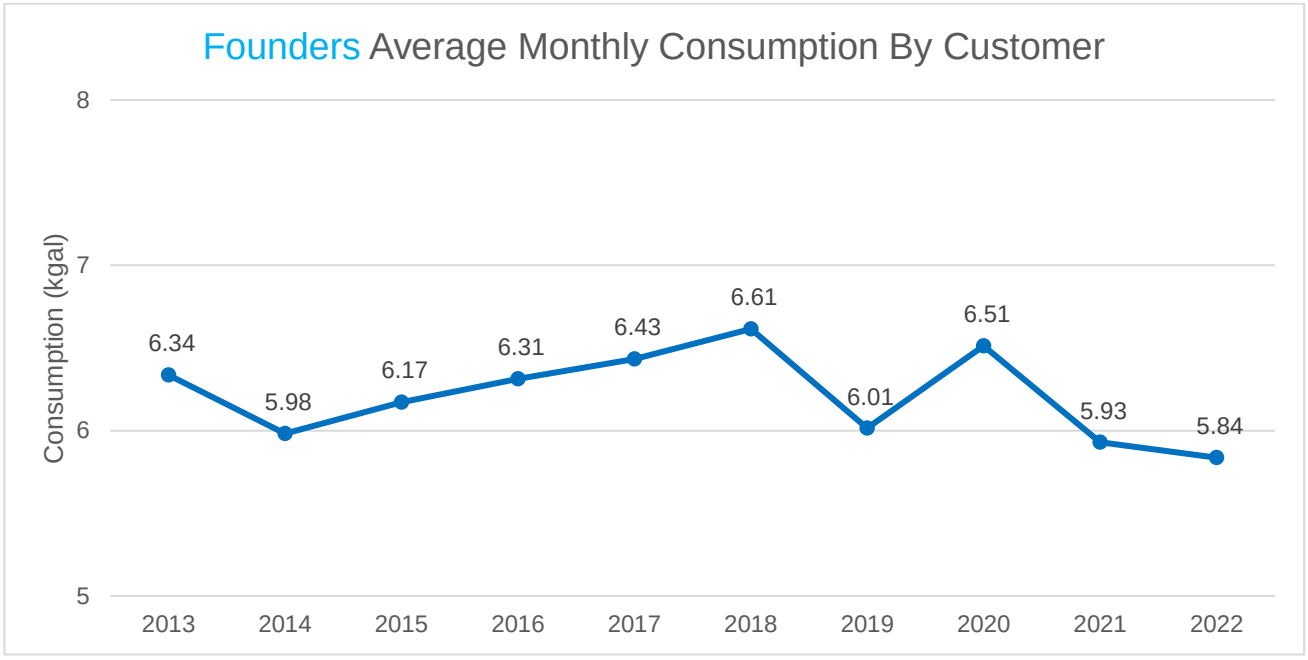


CHART 50: FOUNDERS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

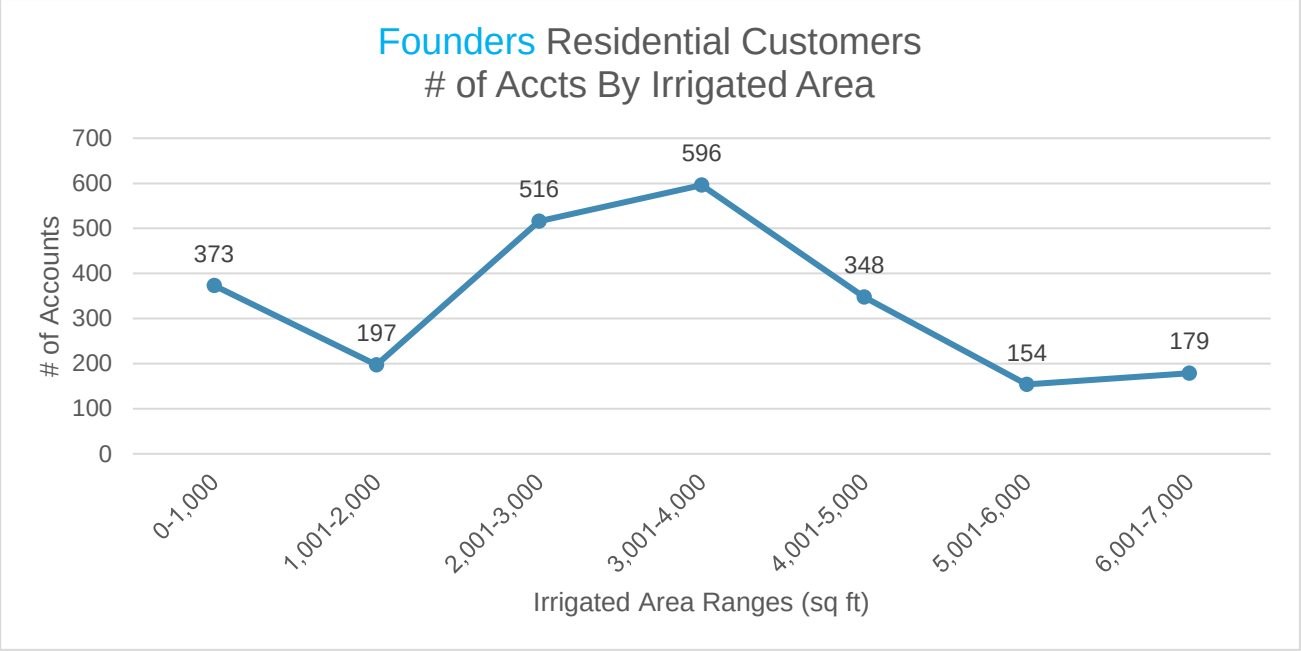
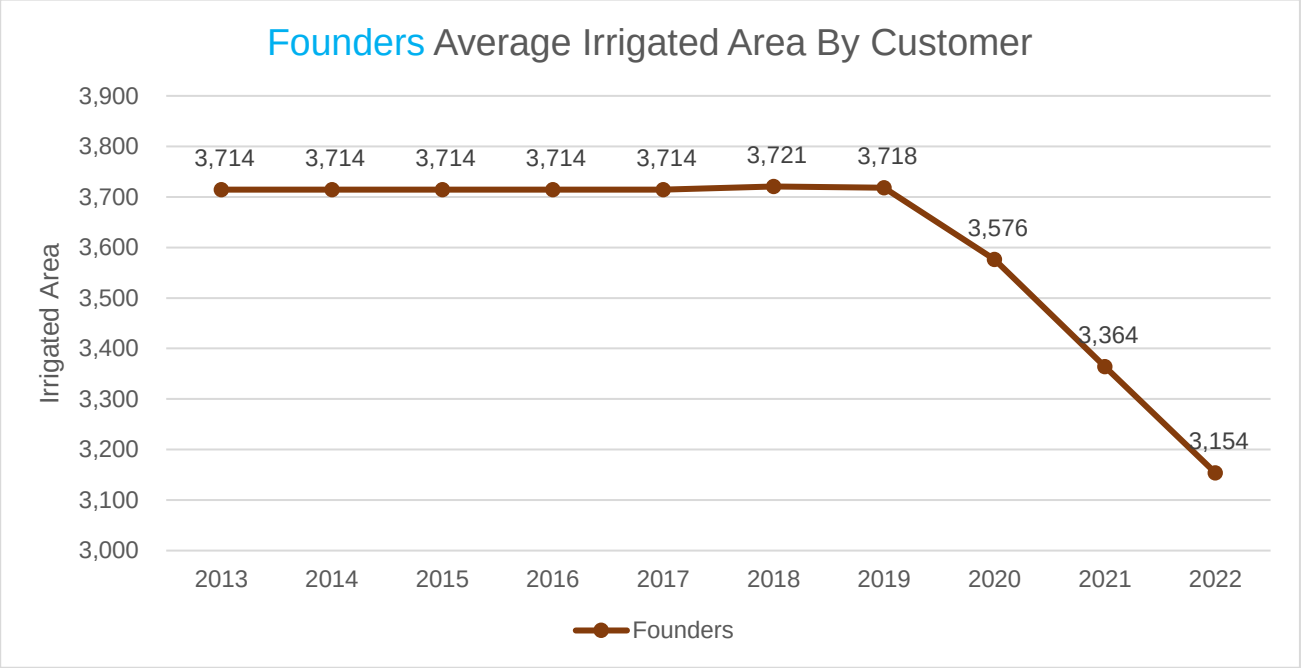


CHART 51: FOUNDERS RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER



*Drop in average irrigated area beginning in 2020 due to lower irrigated area in new builds

CHART 52: PLUM CREEK AVERAGE MONTHLY CONSUMPTION

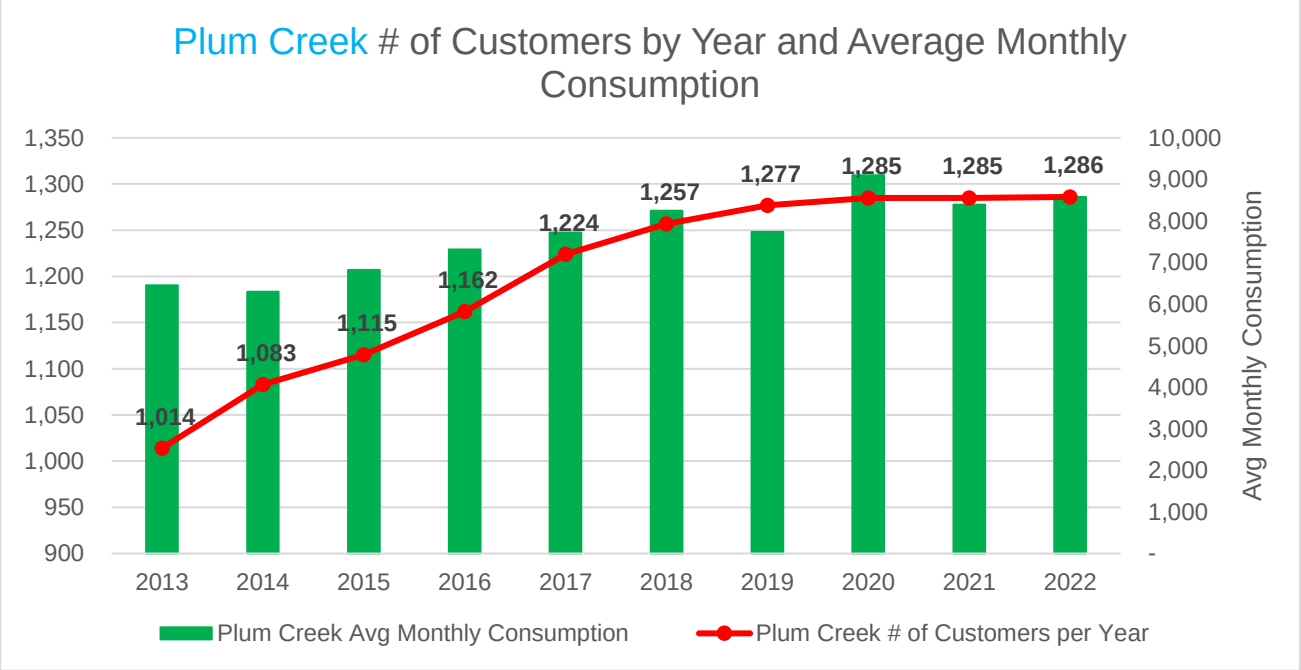


CHART 53: PLUM CREEK AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

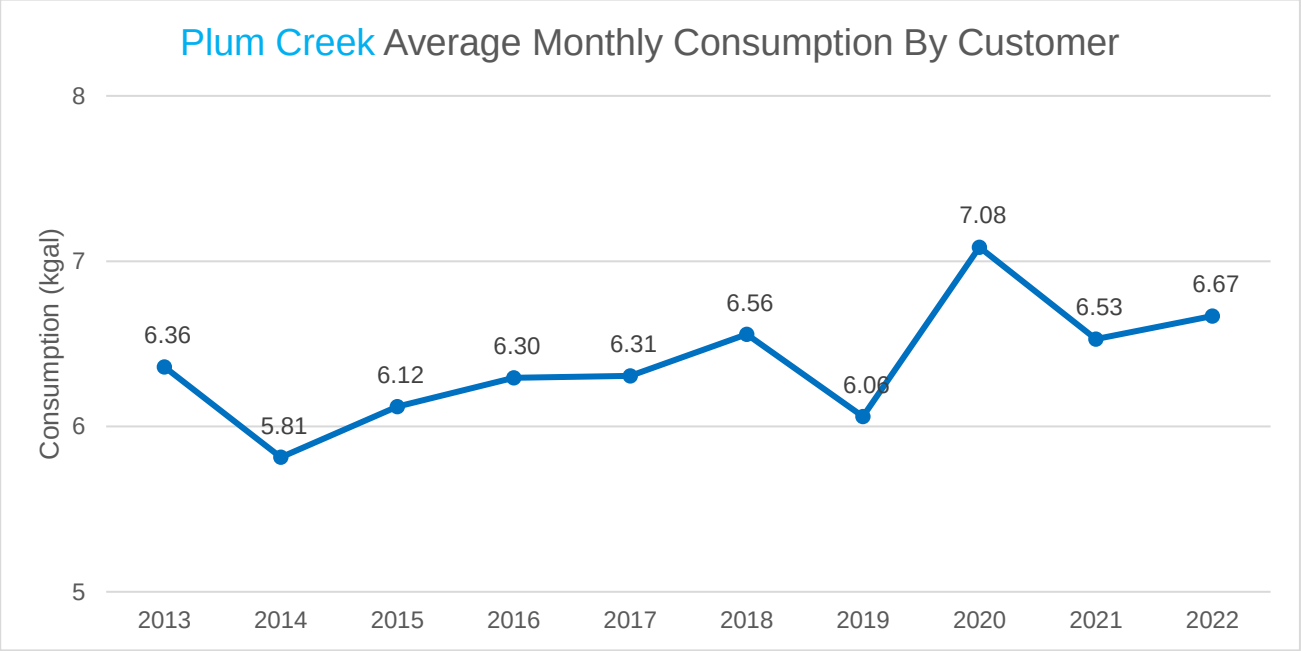


CHART 54: PLUM CREEK RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

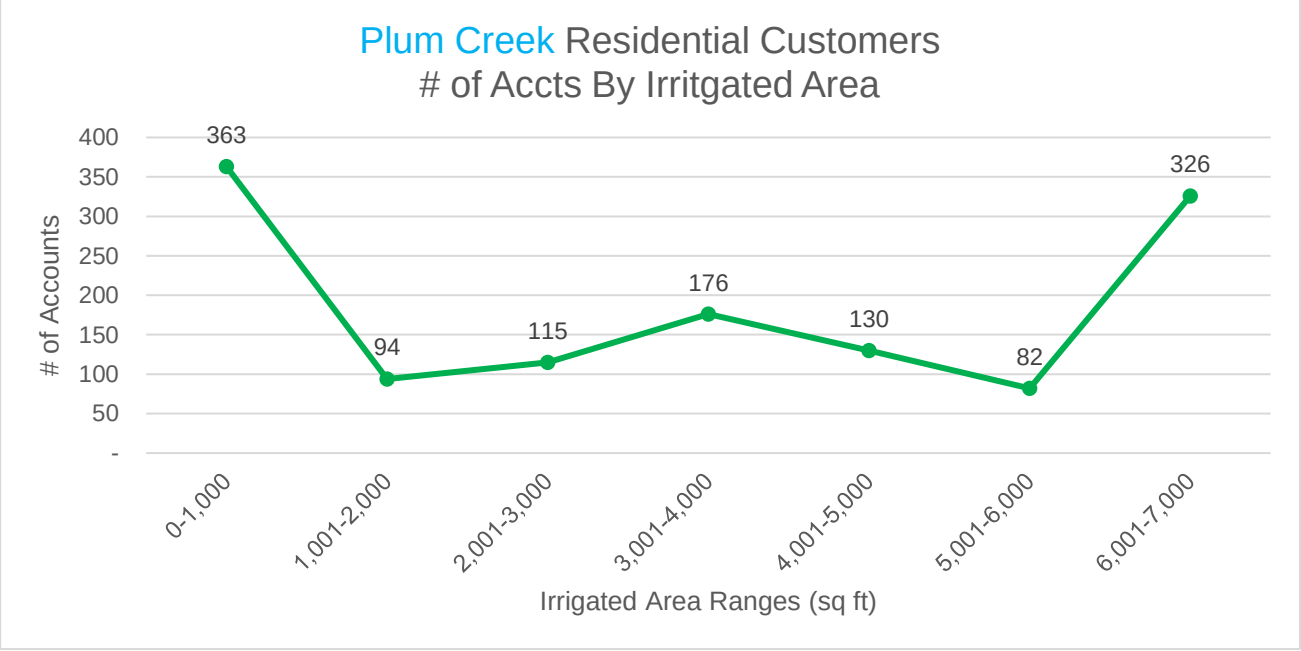
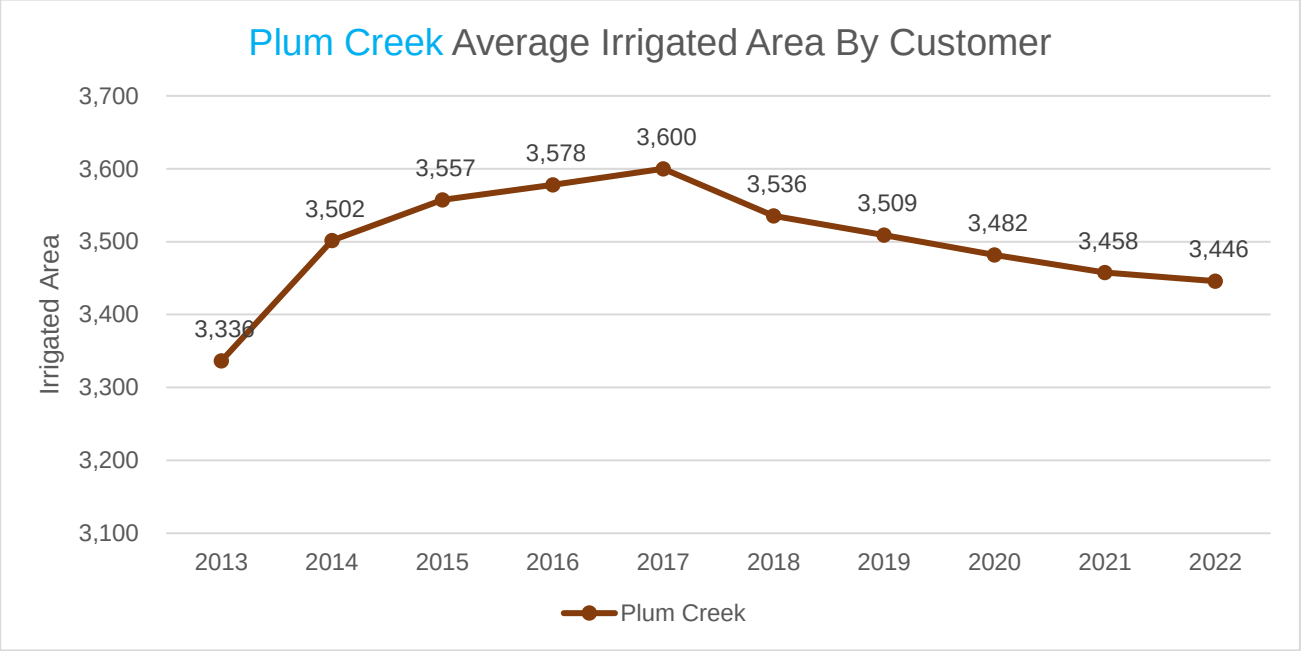


CHART 55: PLUM CREEK RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER



BULK WATER ACCOUNTS

CRW has both bulk hydrant accounts and bulk station accounts. CRW tracks the number of accounts and annual usage for these account types each year. The charts below show the bulk hydrant and bulk station accounts and usage from 2013 to 2022. These accounts vary from year-to-year based on the need and demand of the customers using the program.

CHART 56: BULK HYDRANT AND BULK STATION ACCOUNTS

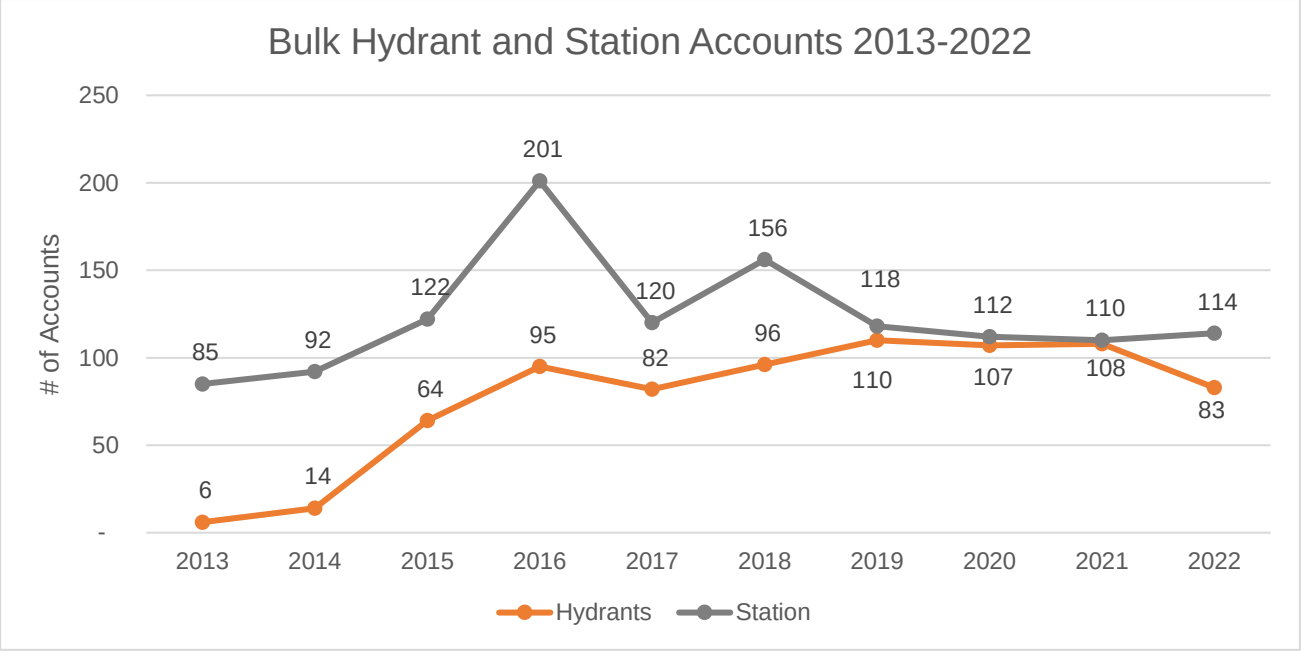


CHART 57: BULK HYDRANT USAGE

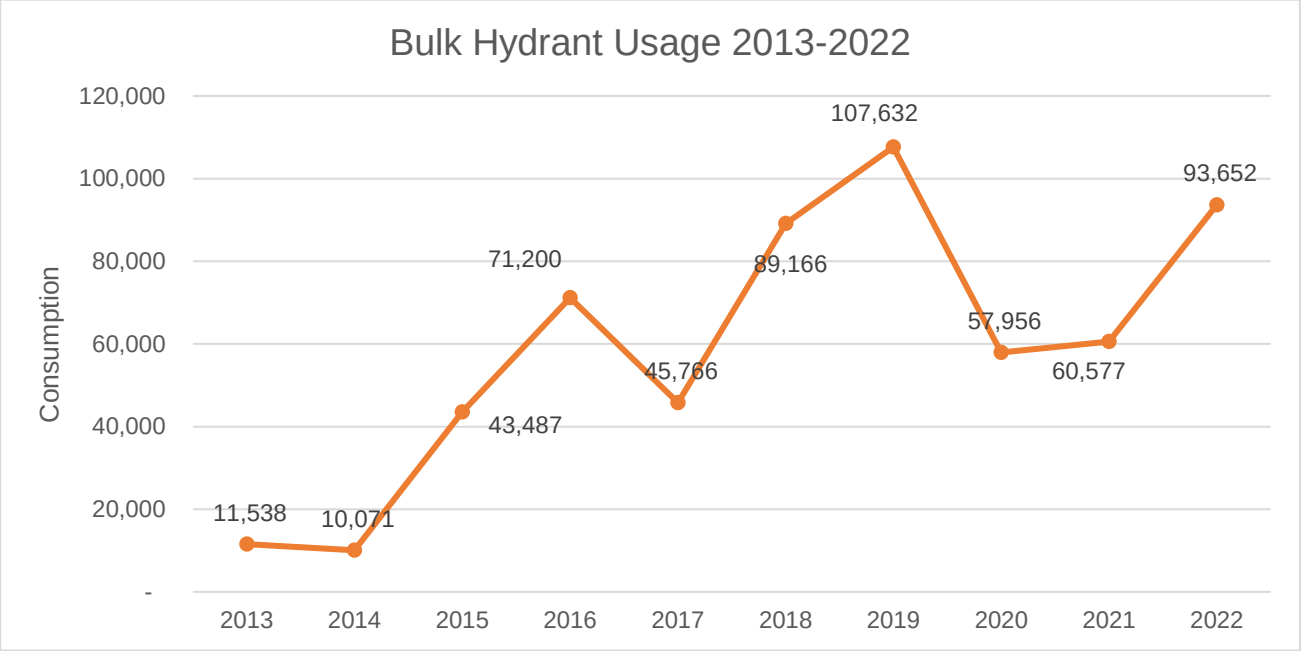
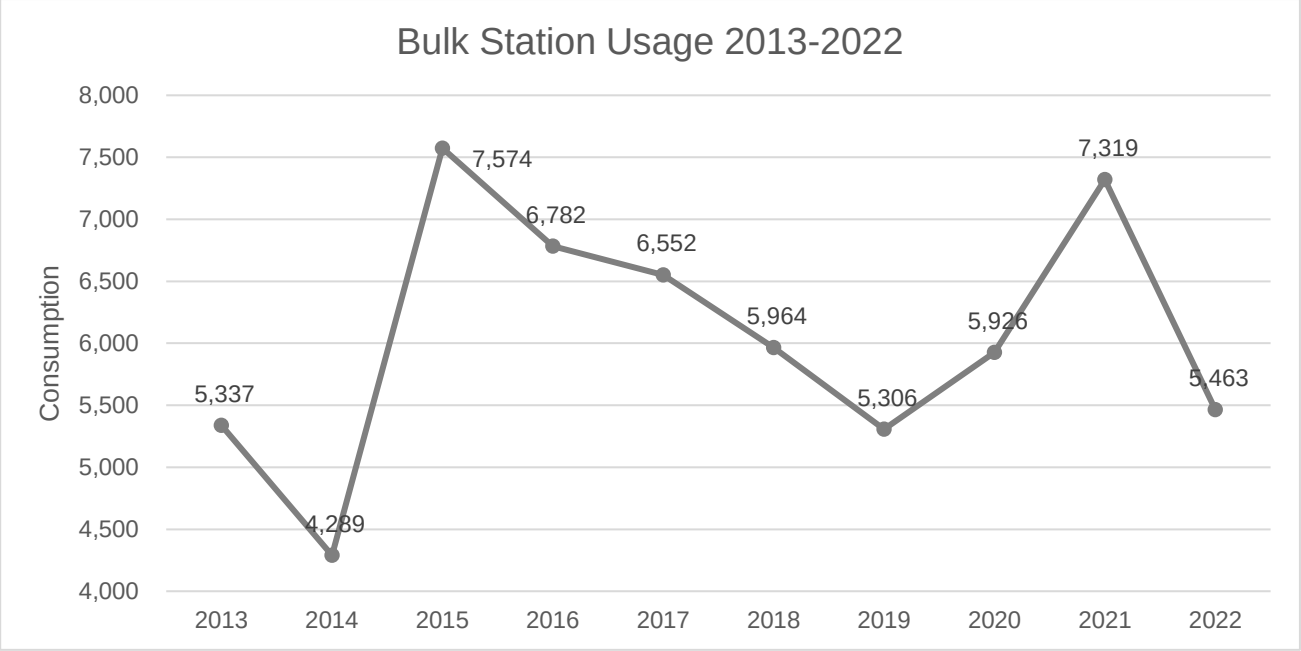


CHART 58: BULK STATION USAGE



TOWN ACCOUNT CONSUMPTION

Chart 59 shows the overall Town consumption from 2013 to 2022. The Parks Department has the largest consumption annually and accounts for 80-90% of total Town consumption. The largest increases in 2022 consumption are from the Festival Park Splash Pad and the Cobblestone Ranch Park expansion. Parks has recently partnered with CRW to reduce consumption in several locations. In 2019 natural turf in Metzler Ranch Park's athletic fields was replaced with synthetic turf. Similarly, natural turf in athletic fields in Paintbrush Park was replaced with synthetic turf at the end of 2022

CHART 59: TOWN CONSUMPTION

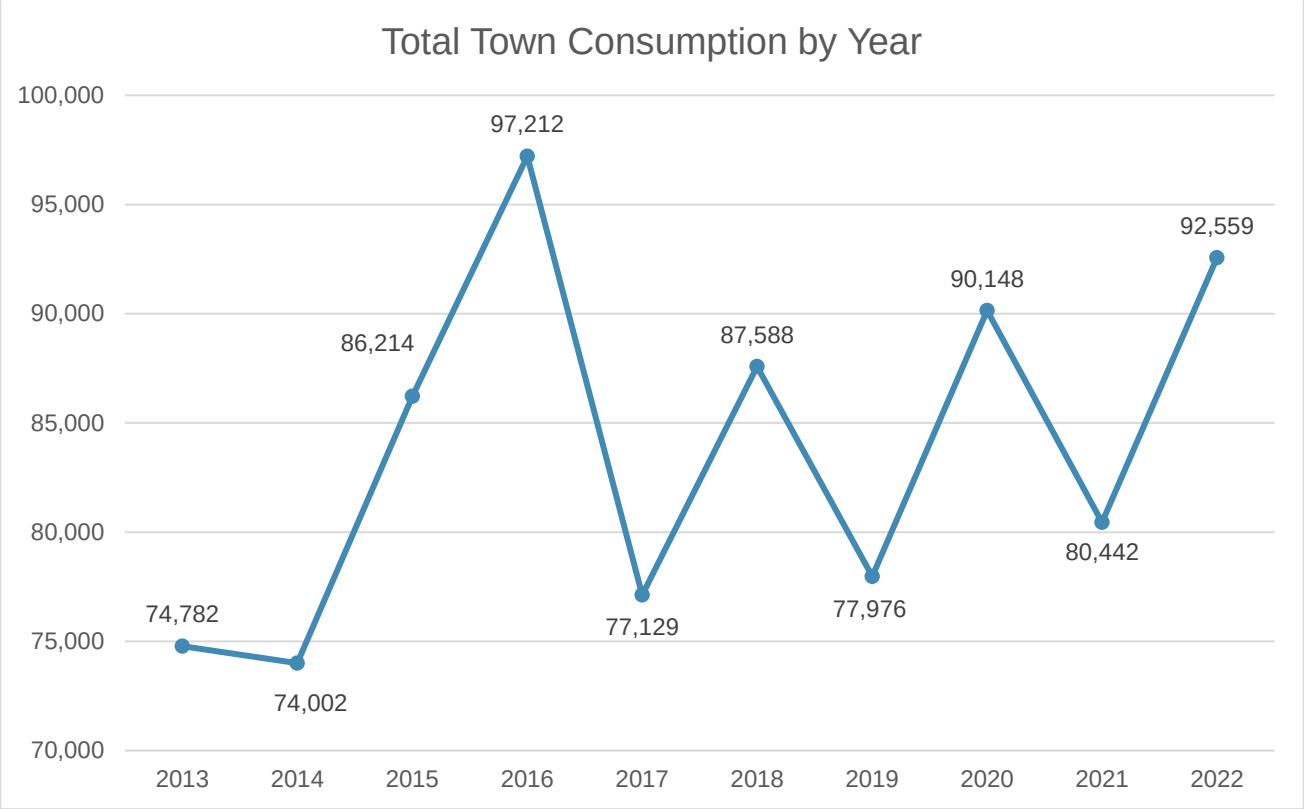


TABLE 10: TOWN CONSUMPTION BY YEAR AND DEPARTMENT (Kgal)

Department	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
CRW	1,112	2,167	2,137	1,523	644	778	862	1,190	2,507	1,518
Facility Maintenance	0	0	0	0	24	25	5	0	0	0
Fire	1,205	1,163	1,273	1,114	858	1,159	1,307	1,280	1,165	1,227
Golf Course	340	340	386	383	324	325	311	251	295	268
Parks	63,332	63,654	74,984	87,026	66,873	76,572	68,900	82,625	71,371	84,345
Police	259	327	340	231	210	265	188	170	177	156
Rec Center	7,188	5,226	5,356	5,617	6,194	5,887	4,625	3,284	3,721	3,765
Service Centers	700	829	898	782	778	690	193	511	406	403
Streets	0	0	0	0	442	434	482	388	356	124
Town Hall	148	155	166	175	171	331	340	117	112	151
Treatment Plants	498	141	674	361	611	1,122	763	332	332	602
Total Consumption	**74,782**	**74,002**	**86,214**	**97,212**	**77,129**	**87,588**	**77,976**	**90,148**	**80,442**	**92,559**

WASTEWATER ENTERPRISE FUND

NUMBER OF ACCOUNTS BY METER SIZE & CUSTOMER CLASS

Table 11 shows the number of accounts by meter size and customer class using 12 months of billing data (Jan22-Dec22). This shows that 25,140 customers were receiving wastewater service during this capture period. The FY2021 accounts based on 12 months of billing data (Jan21-Dec21) showed that 23,914 accounts were receiving wastewater service. There are 1,226 more accounts in FY2022 than FY2021.

There are 1,177 less customers receiving wastewater service than water service due to irrigation customers who don't have wastewater and a few customers who have their own septic tanks, thus not utilizing Castle Rock Water's wastewater services.

TABLE 11: ACCOUNTS BY METER SIZE & CUSTOMER CLASS (FY2022)

Meter Size	Residential	Multifamily	Commercial	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	2,435	-	-	4	7	2,446
3/4"	21,505	14	121	101	126	21,867
1"	28	25	69	123	103	348
1.5"	-	55	49	119	91	314
2"	-	15	27	41	53	136
3"	-	2	5	4	14	25
4"	-	1	-	-	1	2
6"	-	-	2	-	-	2
Total	23,968	112	273	392	395	25,140

CHART 60: RESIDENTIAL WASTEWATER ACCOUNTS

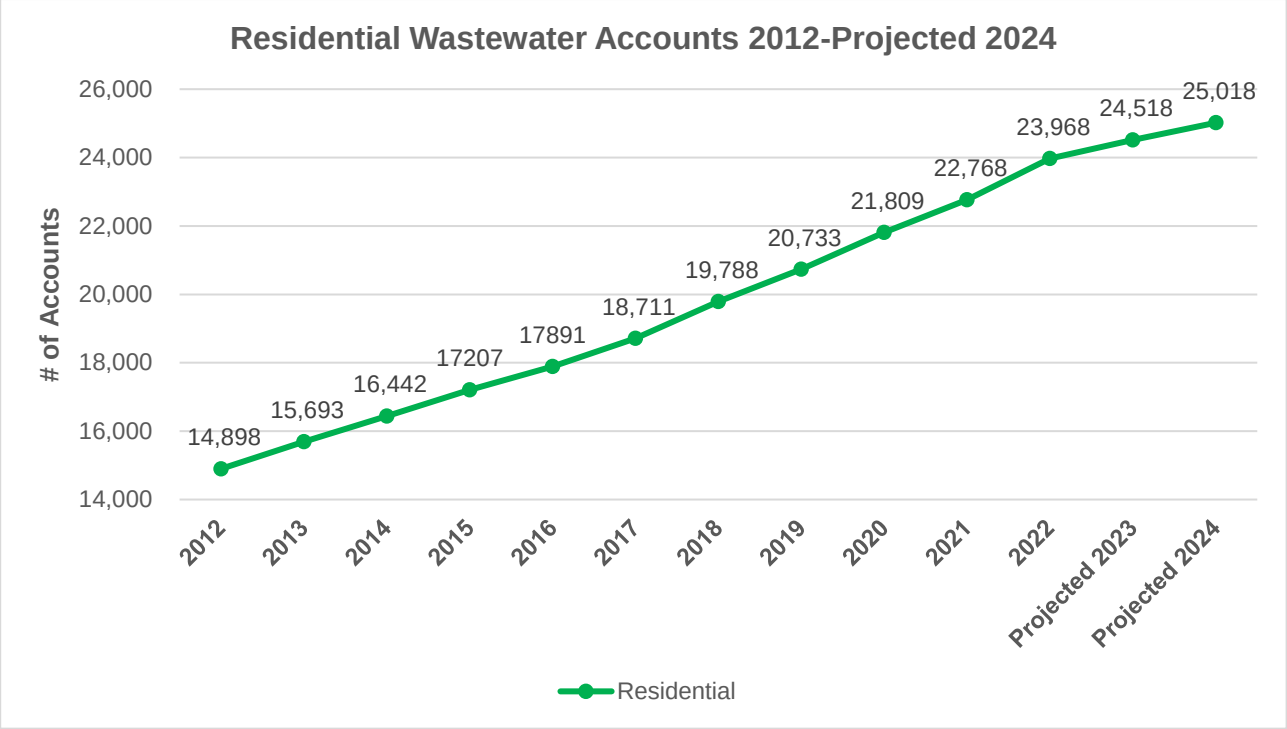
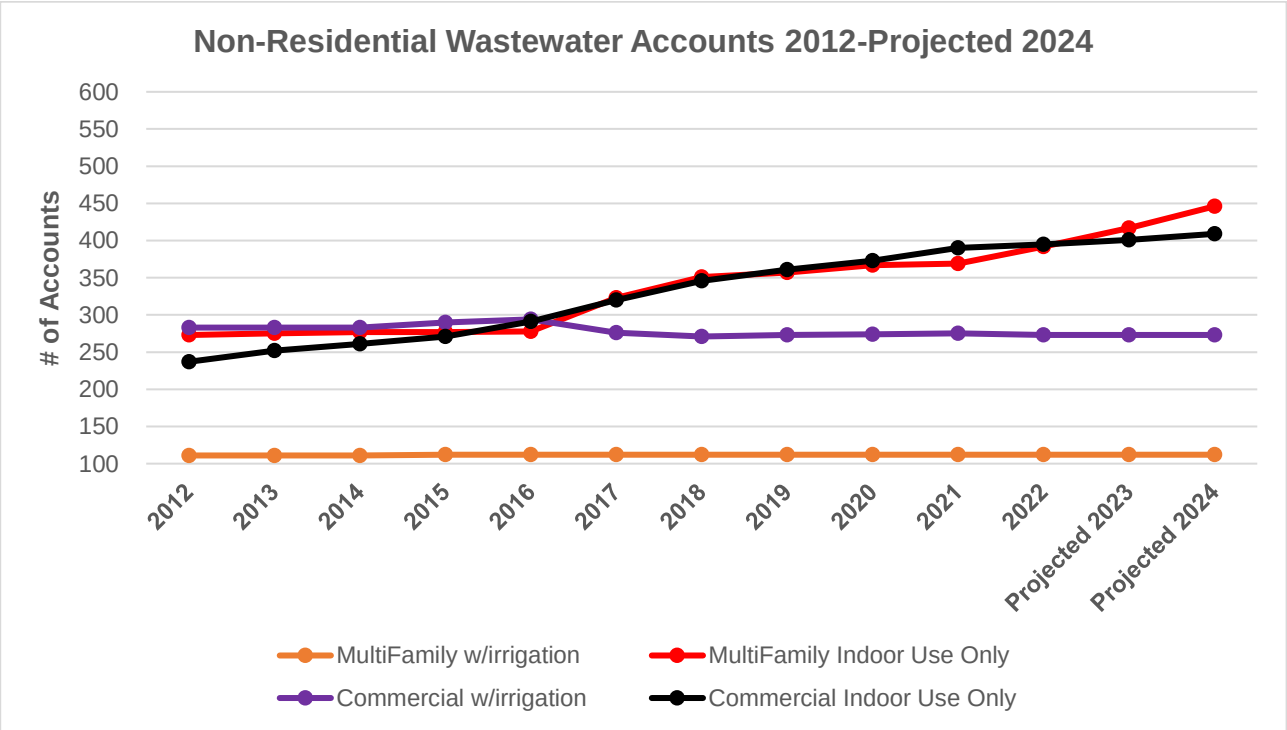


CHART 61: NON-RESIDENTIAL WASTEWATER ACCOUNTS



Castle Rock Water projects FY2024 wastewater accounts by using 2022 billing data plus projected growth for FY2023 and FY2024. The FY2024 wastewater accounts are projected to equal 26,258 (25,018 for residential and 1,240 for non-residential).

2023 Projected New Accounts by Customer Class:

550	Residential (1 SFE)
25	Multi-Family
6	Commercial
581	Total

2024 Projected New Accounts by Customer Class:

500	Residential (1 SFE)
29	Multi-Family
8	Commercial
537	Total

Total growth of 581 accounts is projected for FY2023 and 537 for FY2024 for a total of 1,118 projected for the wastewater fund thru FY2024.

WATER RESOURCES ENTERPRISE FUND

NUMBER OF ACCOUNTS BY METER SIZE & CUSTOMER CLASS

Table 12 shows the number of accounts by meter size and customer class using 12 months of billing data (Jan22-Dec22). This shows 25,983 accounts served by the water resources enterprise fund. The FY2021 accounts based on 12 months of billing data (Jan21-Dec21) showed 24,766 water resources accounts. There are 1,217 more accounts in FY2022 than in FY2021.

TABLE 12: ACCOUNTS BY METER SIZE AND CUSTOMER CLASS (FY2022)

Meter Size	Residential	Multifamily	Commercial	Bulk	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	2,435	-	-	-	2	4	7	2,448
3/4"	21,661	14	124	83	214	101	133	22,330
1"	29	25	71	-	112	123	107	467
1.5"	-	55	51	-	160	119	91	476
2"	-	15	27	-	87	41	54	224
3"	-	2	5	-	6	4	15	32
4"	-	1	-	-	2	-	1	4
6"	-	-	2	-	-	-	-	2
Total	24,125	112	280	83	583	392	408	25,983

CHART 62: RESIDENTIAL WATER RESOURCES ACCOUNTS

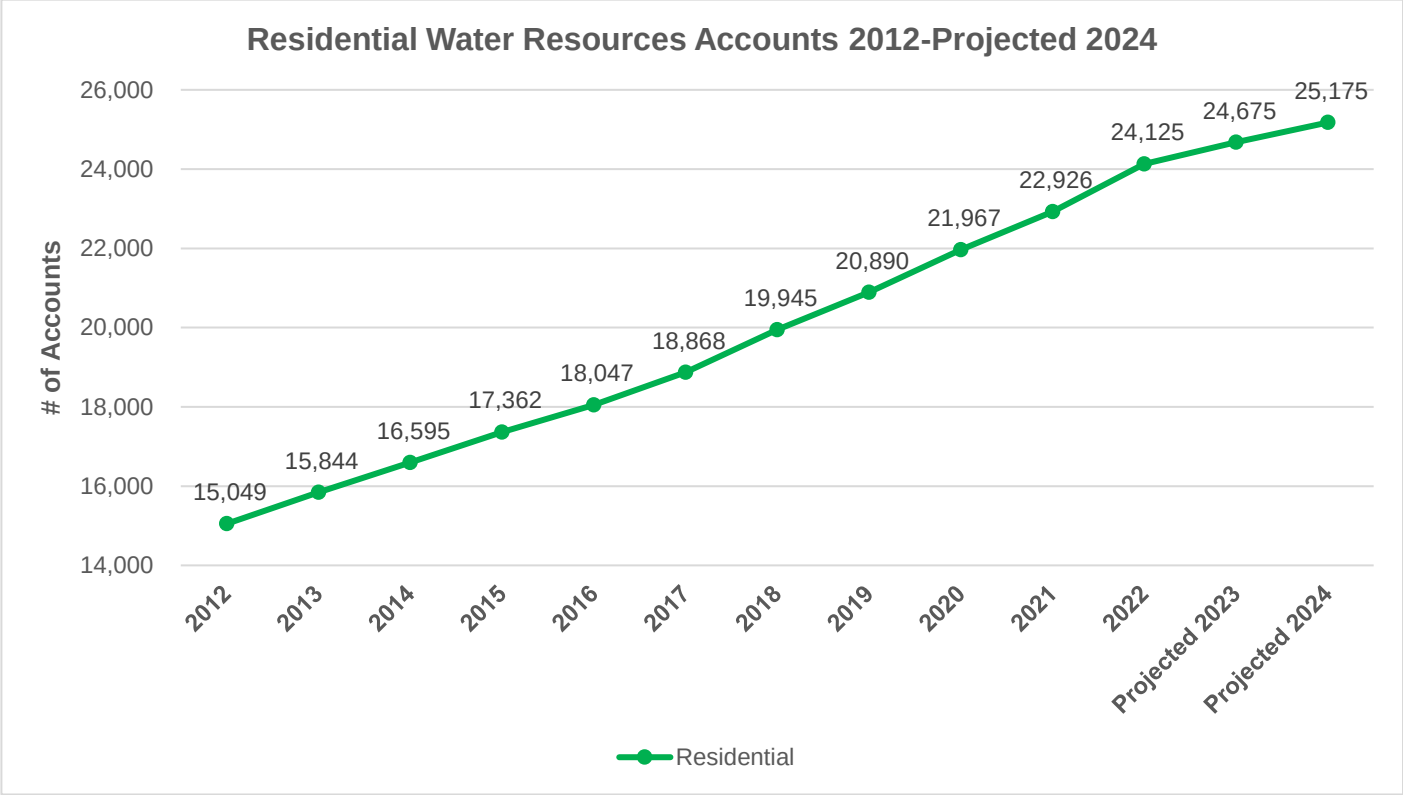
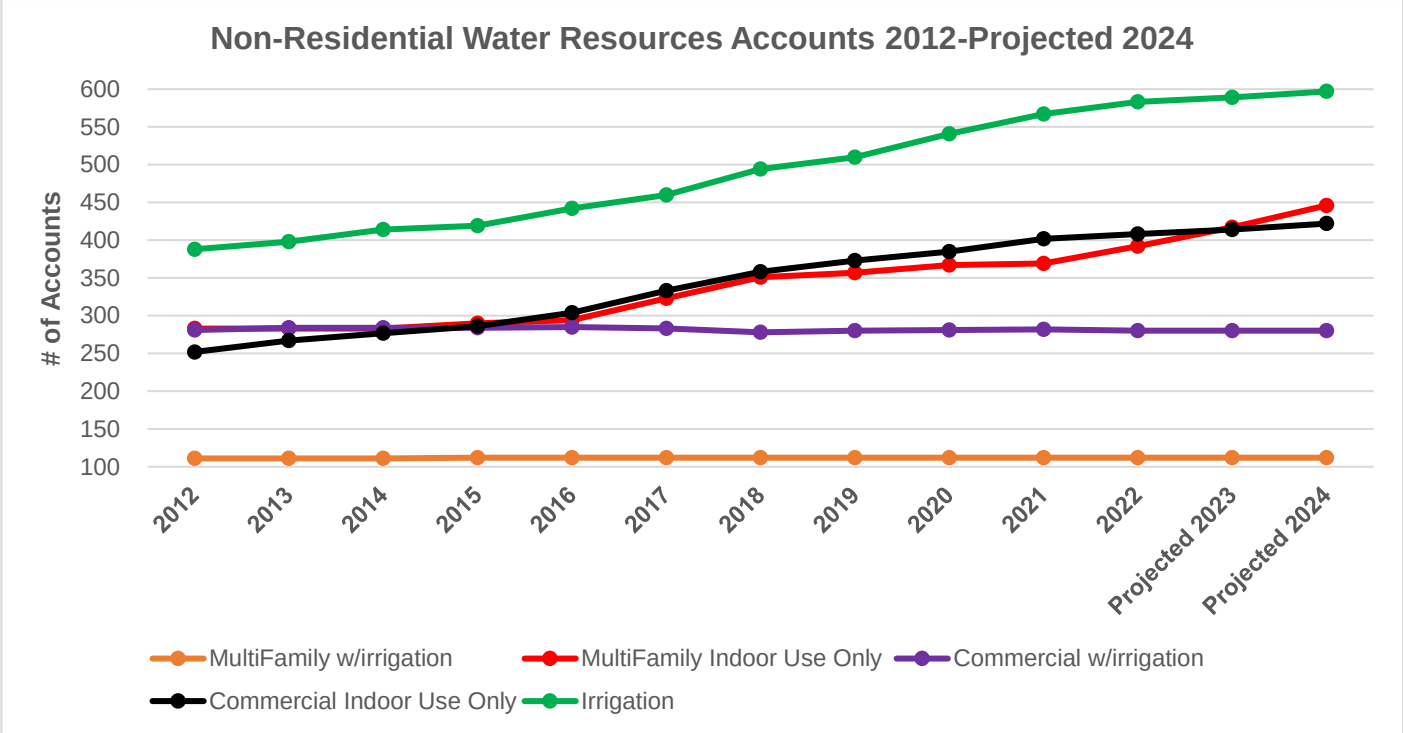


CHART 63: NON-RESIDENTIAL WATER RESOURCES ACCOUNTS



Castle Rock Water projects FY2024 water resources accounts by using 2022 billing data plus projected growth for FY2023 and FY2024. The FY2024 water resources accounts are projected to equal 27,032 (25,175 for residential and 1,857 for non-residential).

2023 Projected New Accounts by Customer Class:

550 Residential (1 SFE)
25 Multi-Family
6 Commercial
5 Irrigation
587 Total

2024 Projected New Accounts by Customer Class:

500 Residential (1 SFE)
29 Multi-Family
8 Commercial
8 Irrigation
545 Total

Total growth of 587 accounts is projected for FY2023 and 545 for FY2024 for a total of 1,132 projected for the water resources fund thru FY2024.

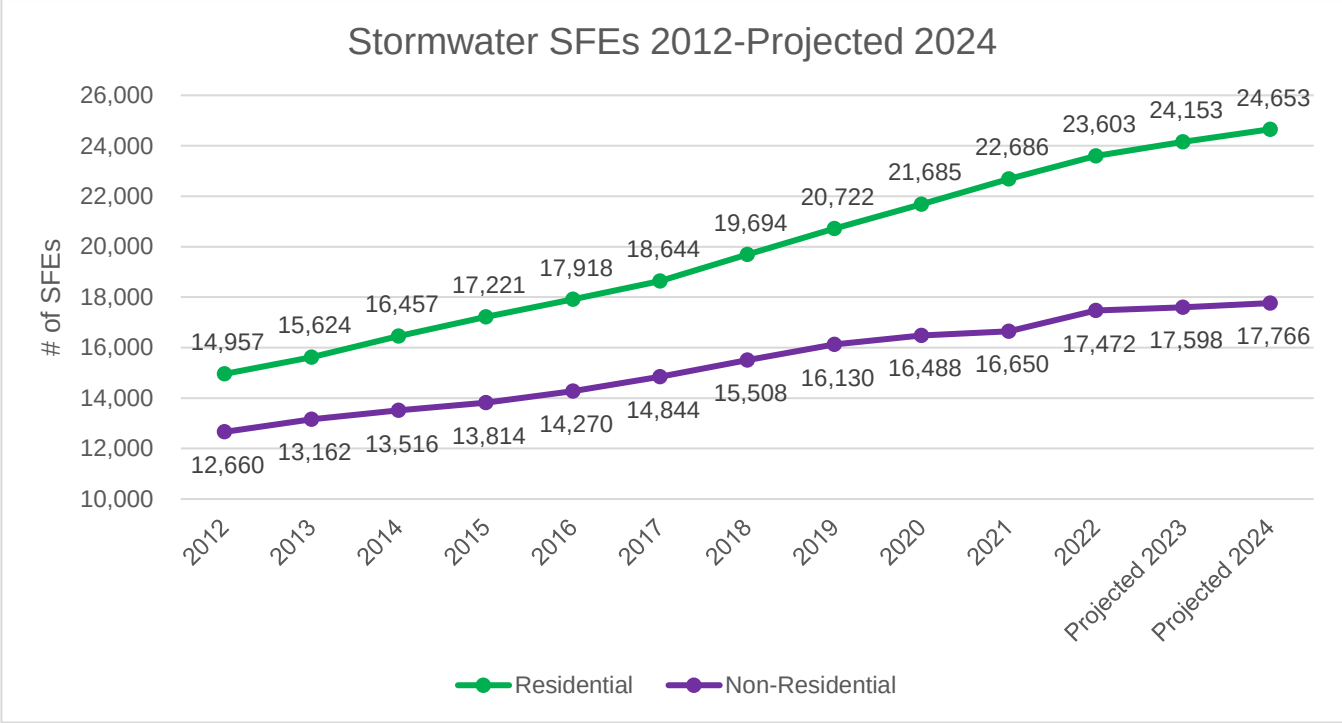
STORMWATER ENTERPRISE FUND

Table 13 shows stormwater average monthly SFEs based on 12 months of billing data (Jan22-Dec22). This shows that 41,075 SFEs were receiving stormwater services during this capture period. The FY2021 billing data (Jan21-Dec21) showed 39,336 SFEs receiving stormwater services. There are 1,739 more SFEs in FY2022 than FY2021.

TABLE 13: STORMWATER SFES (JAN 22-DEC 22)

Total Monthly SFEs	
Residential	23,603
Non-Residential	17,472
Stormwater SFE's	41,075

CHART 64: STORMWATER SFES



Castle Rock Water shows FY2024 projected stormwater SFEs based on 12 months of billing data (Jan22-Dec22) plus projected growth for FY2023 and FY2024. The FY2024 stormwater SFEs are projected to equal 42,419 (24,653 for residential and 17,766 for non-residential).

2023 Projected New (SFEs)

550 Residential
- 22 Detached in Cherry Creek Basin
- 528 Detached in Plum Creek Basin

126 Commercial in the Plum Creek Basin

1,226 Total

2024 Projected New (SFEs)

500 Residential
- 20 Detached in Cherry Creek Basin
- 480 Detached in Plum Creek Basin

168 Commercial in the Plum Creek Basin

1,168 Total

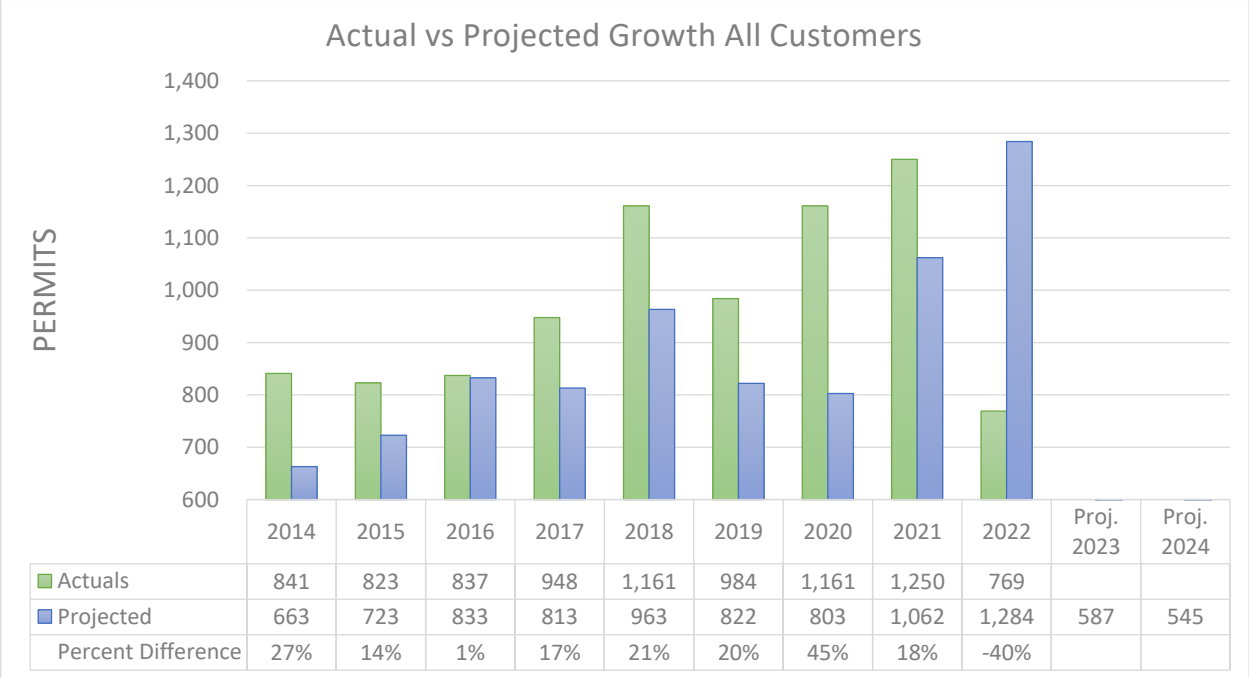
Total growth projected for the stormwater fund is 1,226 SFEs in FY2023 and 1,168 SFEs for FY2024.

Preliminary Projected Growth Numbers 2023-2028

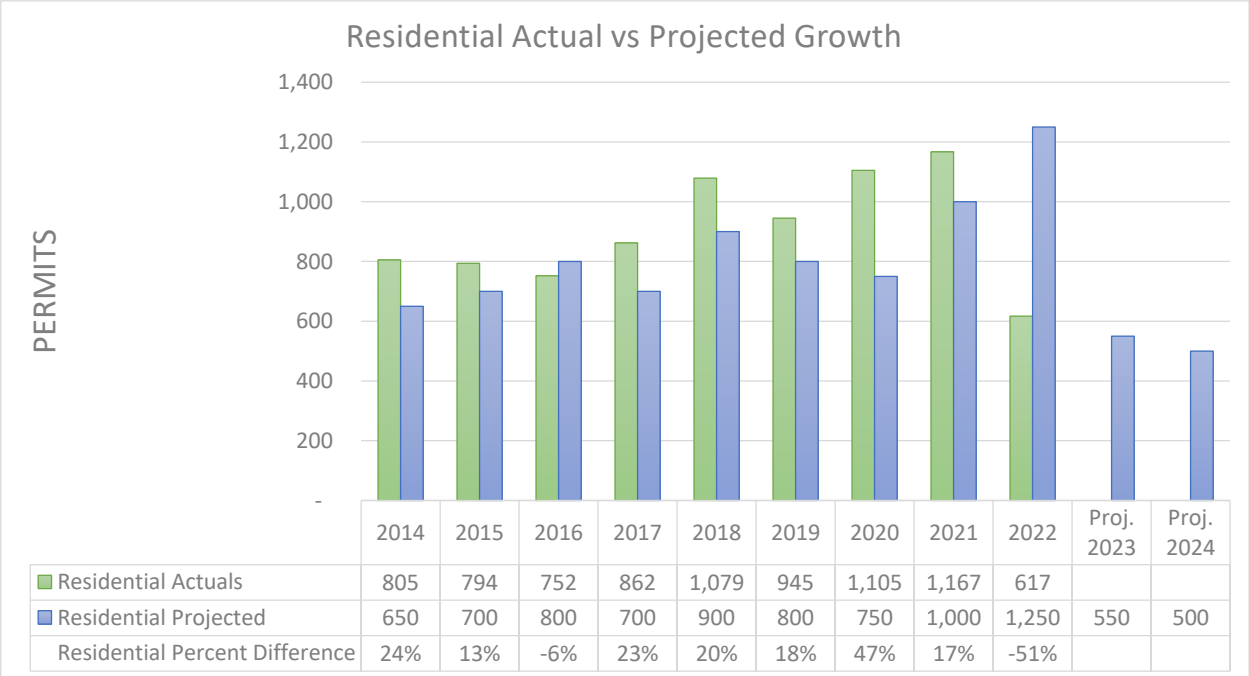
Projected Residential and Multifamily Growth Accounts						
	2023	**2024**	**2025**	**2026**	**2027**	**2028**
New Residential Single Family	550	500	1,000	1,000	1,000	1,000
New Multi Family	2	2	5	5	5	5
Total Residential / MF Accounts	**552**	**502**	**1,005**	**1,005**	**1,005**	**1,005**

**Multi Family is shown in accounts not permits. Historially it is an average of 14 units per one account

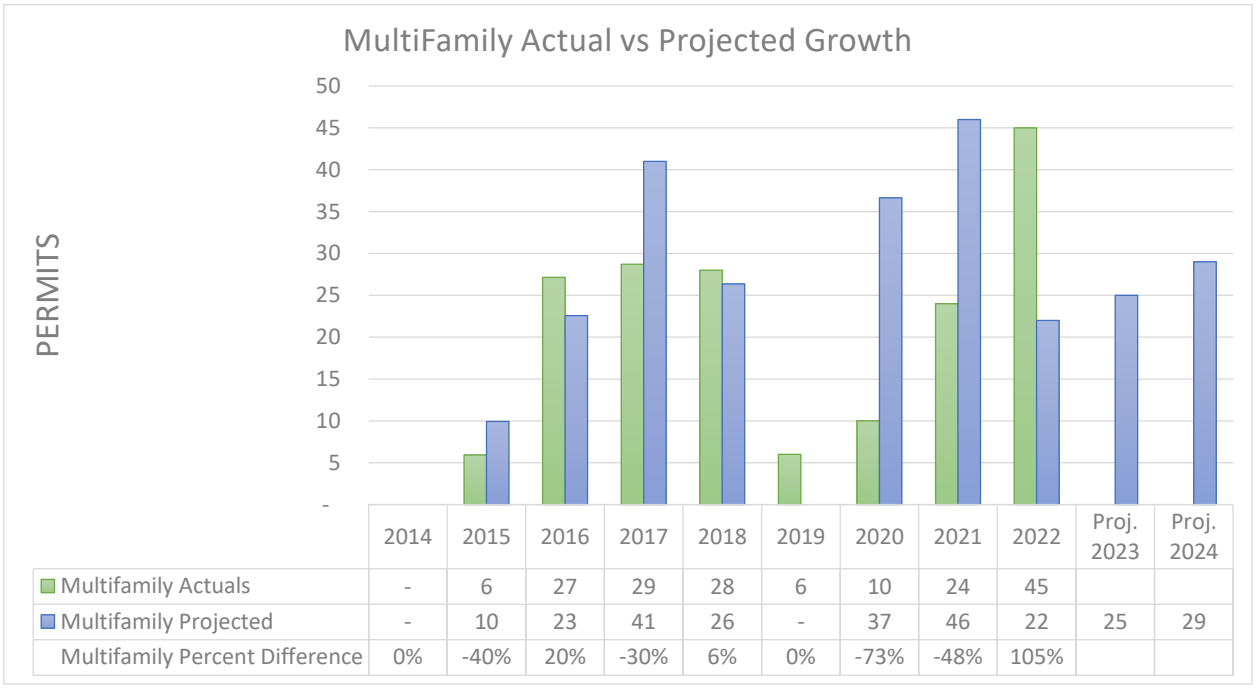
Projected Commercial Growth in Square Feet						
	2023	**2024**	**2025**	**2026**	**2027**	**2028**
Industrial	-	-	-	-	-	-
Office	-	-	-	-	-	-
Retail	57,100	80,000	285,900	131,290	131,290	131,290
Total Commercial Growth	**57,100**	**80,000**	**285,900**	**131,290**	**131,290**	**131,290**



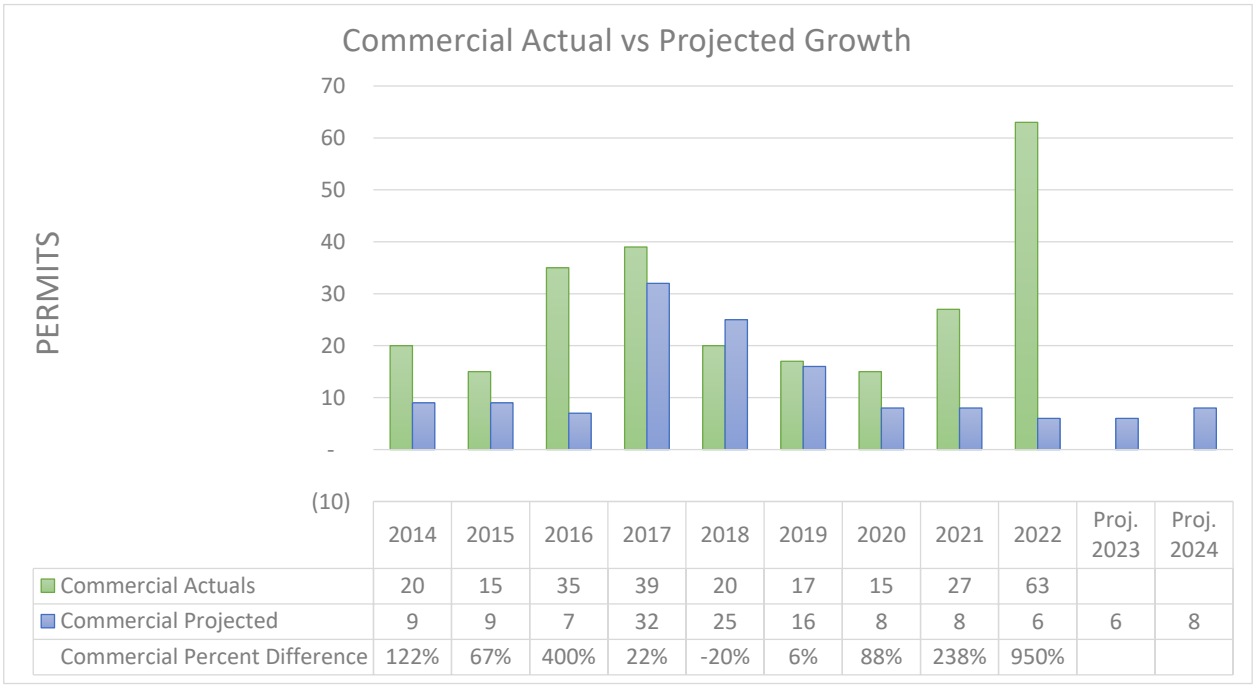
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Actuals	841	823	837	948	1,161	984	1,161	1,250	769		
Projected	663	723	833	813	963	822	803	1,062	1,284	587	545
Percent Difference	27%	14%	1%	17%	21%	20%	45%	18%	-40%		



	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Residential Actuals	805	794	752	862	1,079	945	1,105	1,167	617		
Residential Projected	650	700	800	700	900	800	750	1,000	1,250	550	500
Residential Percent Difference	24%	13%	-6%	23%	20%	18%	47%	17%	-51%		



	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Multifamily Actuals	-	6	27	29	28	6	10	24	45		
Multifamily Projected	-	10	23	41	26	-	37	46	22	25	29
Multifamily Percent Difference	0%	-40%	20%	-30%	6%	0%	-73%	-48%	105%		



	2014	2015	2016	2017	2018	2019	2020	2021	2022	Proj. 2023	Proj. 2024
Commercial Actuals	20	15	35	39	20	17	15	27	63		
Commercial Projected	9	9	7	32	25	16	8	8	6	6	8
Commercial Percent Difference	122%	67%	400%	22%	-20%	6%	88%	238%	950%		

Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/24/2023

Item #: 6. **File #:** WC 2023-056

To: Members of the Castle Rock Water Commission

From: Mark Marlowe, P.E., Director of Castle Rock Water

Drought Update
Town Council Agenda Date: NA

Executive Summary

This will be a presentation item only.

Town of Castle Rock

Agenda Memorandum

Agenda Date: 5/24/2023

Item #: 7. **File #:** WC 2023-057

To: Members of the Castle Rock Water Commission

From: Mark Marlowe, P.E., Director of Castle Rock Water

Upcoming Town Council Items
Town Council Agenda Date: NA

Executive Summary

This item is an informational update only, and is designed to give Commission a preview of time critical items that may need to go to Council prior to review at a Commission Meeting.

Items for this month include:

Resolution Approving a Service Agreement for Storm Sewer Video Inspection
Resolution Approving Pumping Equipment for the East Plum Creek Open Space Wells
Resolution Approving an Amendment to the 2022 Denver Basin Rehab Project