To: Honorable Mayor and Members of Town Council

Through: David L. Corliss, Town Manager

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

Title

AN ORDINANCE AMENDING TITLES 3, 4 AND 13 OF THE CASTLE ROCK MUNICIPAL CODE BY CHANGING STORMWATER DEVELOPMENT IMPACT FEES, WATER RESOURCES SYSTEM DEVELOPMENT FEES, WATER SYSTEM DEVELOPMENT FEES, WASTEWATER SYSTEM DEVELOPMENT FEES, WATER RESOURCES, STORMWATER AND WASTEWATER RATES, METER SET FEES; AND MAKING CERTAIN EDITORIAL UPDATES TO SUCH TITLES (1st Reading) *[Entire Town of Castle Rock and extraterritorial service areas]*

Executive Summary

The purpose of this memorandum is to request Town council approval of an ordinance amending titles 3, 4 and 13 of the Castle Rock Municipal Code by changing Stormwater Development Impact Fees, Renewable Water Resources System Development Fees, Water System Development Fees, Wastewater System Development Fees; Water Resources, Stormwater and Wastewater rates; meter set fees and rates for bulk water; and making certain editorial updates to such titles ***(Attachment A).***

The Ordinance was developed from the staff recommendations presented to Council at the September 7, 2021 Council meeting. The Specific changes include:

Water Fund

- No change in Water Rates
- 7% increase in Water System Development Fees

Water Resources Fund

- 3% increase in the Water Resources Rate
- 15% increase in the Renewable Water Resources System Development Fee

Stormwater Fund

- 2.5% increase in the Stormwater Rate
- 8% increase in Stormwater Development Impact Fees in Plum Creek
- 4% increase in Stormwater Development Impact Fees in Cherry Creek

Wastewater Fund

- 5% decrease in Wastewater Rates
- 4% increase in Wastewater System Development Fees

In order to develop the recommended changes to rates and fees for 2022, Staff completed the 2021 Annual Rates and Fees Study ***(Attachments B, C, D, E, & F).*** The annual study is critical to ensure Castle Rock Water Fully re-evaluates the cost of service and updates the financial plans so that revenue requirements and resulting rates and fees are based on the best available current information going into the future.

The attached Staff Report ***(Attachment G)*** provides details on the rates and fees study and the development of the staff recommendations.

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

On November 23, 2010 with its adoption of the 2011-2015 Rates and Fees, Town Council requested annual updates each year thereafter with Castle Rock Water (CRW) Commission participation and Town Council adoption of endorsed recommendations. CRW Commission reviewed at least one aspect or component of the annual rates and fees study process and the 2020 and 2021 rates and fees studies at each of their meetings from October 2020 to August 2021 to provide staff with input. For a complete list of topics, please see the CRW Commission agendas.

On May 26, 2021, CRW Commission reviewed the Customer Characteristics Analysis for the 2021 rates and fees study with staff.

On July 28, 2021, the results of the 2021 annual rates and fees study were presented to CRW Commission by staff for discussion and direction. Generally, the CRW Commission was supportive of staff recommendations.

On August 25, 2021, the results of the 2021 annual rates and fees study were again presented to CRW Commission by staff. CRW Commission unanimously recommended Town Council approval of the rates and fees as presented by staff which are the same rates and fees recommendations presented in this memo.

On September 7, 2021, staff presented the proposed 2022 rates and fees to Town Council for discussion and direction. The general direction from Council was to finalize the proposed rates and fees with an ordinance and bring that back to Council for consideration at the September 21, 2021, meeting.

Staff Recommendation

Staff and CRW Commission recommend approval of the ordinance as presented.

Proposed Motion

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

Attachments

Attachment A:	Ordinance 1st Reading
Attachment B:	Volume 1 (Rates) Draft
Attachment C:	Volume 1 Appendix C: Customer Characteristics Memo
Attachment D:	Volume 1 Appendix D: Volume 1 Stantec Review Letter
Attachment E:	Volume 2 (System Development Fees) Draft
Attachment F:	Volume 2 Appendix C: Volume 2 Stantec Review Letter
Attachment G:	Staff Report

ORDINANCE NO. 2021-

AN ORDINANCE AMENDING TITLES 3, 4 AND 13 OF THE CASTLE ROCK MUNICIPAL CODE BY CHANGING STORMWATER DEVELOPMENT IMPACT FEES, WATER RESOURCES SYSTEM DEVELOPMENT FEES, WATER SYSTEM DEVELOPMENT FEES, WASTEWATER SYSTEM DEVELOPMENT FEES, WATER RESOURCES, STORMWATER AND WASTEWATER RATES, METER SET FEES; AND MAKING CERTAIN EDITORIAL UPDATES TO SUCH TITLES

WHEREAS, in 2010 Town Council directed staff to prepare and present annual updates to Castle Rock Water rates and fees; and

WHEREAS, the Town Council has considered and accepted staff's analyses and recommendations and the following supporting reports and analyses prepared by a nationally-recognized independent rates and fees consulting firm, Stantec Consulting Services, Inc. for the 2021 update:

- 2021 Castle Rock Water Rates and Fees Study Update – Vol. 1 of 2: 2022–2026 Rates Final Report dated September 2021
- 2021 Castle Rock Water Rates and Fees Study Update – Vol. 2 of 2: System Development Fees Final Report dated September 2021; and

WHEREAS, increases in the actual rate of growth for the last five years over projected growth rates, changes to estimates on long term build out of the Town, and updates to long term capital plans to support growth increases in the costs for water rights, construction costs and meters substantiate changes to the Water System Development Fees, Water Resources System Development Fees, Wastewater System Development Fees, Stormwater Development Impact Fees, Water Resources, Stormwater and Wastewater Rates and Meter Set Fees.

WHEREAS, changes in the costs for water rights, construction costs and operating costs; retirement of certain debt, substantiate changes to the Water Resources, Stormwater, and Wastewater rates; and updates to capital plans to support the Town's long term renewable water plan.

NOW, THEREFORE, IT IS ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF CASTLE ROCK, COLORADO:

Section 1. **Legislative Findings**. The recitals to this ordinance are adopted as findings of the Town Council in support of enactment of this Ordinance, and in addition, the Town Council finds that:

A. The fee structure established by this Ordinance is supported by:

1. 2021 Castle Rock Water Rates and Fees Study Update – Vol. 1 of 2: 2022- 2026 Rates Final Report dated September 2021;

2. 2021 Castle Rock Water Rates and Fees Study Update – Vol. 2 of 2: 2022-2026 System Development Fees Final Report dated September 2021

3. The Agenda Memorandum dated September 21, 2021 prepared by the Director of Castle Rock Water and the accompanying PowerPoint presentation offered at first and second reading of this Ordinance; and

4. Public comment and testimony.

B. The fees and charges imposed by this Ordinance comply with the legislative restrictions on impact fees adopted by local governments in §29-20-104.5, C.R.S.

Section 2. **Effective Date**. Unless otherwise stated to the contrary, the rates, fees and charges established under this Ordinance shall take effect January 1, 2022.

Section 3. **Amendment.** The Residential and Non-Residential Stormwater Development Impact Fees tables in Subsections A and B of Section 3.16.030 of the Castle Rock Municipal Code are amended to read as follows:

3.16.030 - Assessment and collection.

Commencing January 1, 2022, impact fees shall be assessed and collected according to the following provisions, including Section 3.16.035:

A. *Residential uses*. No building permit shall be issued for any dwelling unit prior to the payment of the following applicable fees:

Development Impact Fees for Residential Uses

Stormwater – Cherry Creek Basin (*per dwelling unit*)	
Unit Type	~~***2022 and thereafter 2020 and thereafter IMPACT FEE***~~***2022 and thereafter***
Single-family Detached	~~$868~~ ~~$911~~947
Single-family Attached	~~$580~~ ~~$609~~$633
Multi-family	~~$526~~ ~~$552~~$574
Stormwater – Plum Creek Basin (*per dwelling unit)*	
Unit Type	~~***2022 and thereafter 2020 and thereafter IMPACT FEE***~~***2022 and thereafter***
Single-family Detached	~~$1357~~ ~~$1,425~~1,539
Single-family Attached	~~$906~~ ~~$951~~$1,027

Multi-family	~~$822~~ ~~$863~~$932

For purposes of this Subsection, any remodeling activity which results in the creation of an additional dwelling unit shall be subject to the payment of the fee as specified in this Subsection. For purposes of this Subsection, *single-family detached* shall include duplexes and mobile homes.

B. *Nonresidential uses*. No building permit shall be issued for the occupancy of any structure to be used primarily for nonresidential use prior to the payment of the following applicable fees (per 1,000 square feet of gross floor areas):

Development Impact Fees for Non-Residential Uses

Stormwater - Cherry Creek Basin *(per 1,000 sq. ft.)*	
Unit Type	~~***2022 and thereafter***~~ ~~***2020 and thereafter***~~ ~~***IMPACT FEE***~~***2022 and thereafter***
Commercial/Industrial	~~$391~~ ~~$411~~$427
Stormwater - Plum Creek Basin *(per 1,000 sq. ft.)*	
Unit Type	~~**2022 and thereafter**~~~~**2020 and thereafter**~~ ~~***IMPACT FEE***~~***2022 and thereafter***
Commercial/Industrial	~~$612~~ ~~$643~~ $694

Section 4. **Amendment**. Subsection 4.04.150.A. of the Castle Rock Municipal Code is amended to read as follows:

4.04.150 - Renewable water resource fee.

A. In order to defray the cost incurred by the Town in the acquisition and development of renewable water resources consistent with the water plan and this Chapter, there is imposed a renewable water resource fee as a condition to the right to connect to the municipal water system. The renewable water resource fee is established at the following schedule of fees in effect as of the date of a complete building permit application, provided however, in order to qualify for the 0.67 SFE, the applicant must meet additional engineering criteria beyond meter capacity as established by Castle Rock Water:

Renewable Water Resource Fee

Meter Size	***SFE***	***Meter Capacity (GPM*)***	~~***2020***~~ ~~***2021***~~ ***2022 and thereafter***
⅝" × ¾"	.67	20	~~$11,810~~ ~~$12,401~~ $14,261

¾" × ¾"	1.00	30	~~$17,623~~ ~~$18,504~~$21,280~~-~~
1"	1.67	50	~~$29,437~~ ~~$30,909~~ $35,545
1.5"	3.33	100	~~$58,~~~~698~~ ~~$61,633~~ $70,878
2" C2	6.67	200	~~$117,523~~ ~~$123,452~~$141,969
2" T2	8.33	250	~~$146,833~~ ~~$154,175~~ $177,301
3" C2	16.67	500	~~$293,844~~ ~~$308,536~~$354,817
3" T2	21.67	650	~~$381,979~~ ~~$401,078~~ $461,240
4" C2	33.33	1,000	~~$587,511~~ ~~$616,887~~ $709,420
4" T2	41.67	1,250	~~$734,521~~ ~~$771,247~~ $886,934
6" C2	66.67	2,000	~~$1,175,198~~ ~~$1,233,958~~ $1,419,052
6" T2	83.33	2,500	~~$1,468,865~~ ~~$1,542,308~~ $1,773,654

*Potential flow capacity in gallons per minute.

Section 5. **Amendment**. Subsection 13.12.080.A. of the Castle Rock Municipal Code is amended to read as follows:

13.12.080 - System development fees.

A. In order to defray the capital costs of utilizing, expanding and developing municipal facilities for the provision of water, system development fees shall be assessed in accordance with the following schedule of rates in effect as of the date of submission of a complete building permit application, provided however, in order to qualify for the 0.67 SFE system development fee, the applicant must meet additional engineering criteria beyond meter capacity as established by Castle Rock Water:

Water System Development Fee

Meter Size	***SFE***	***Meter Capacity (GPM*)***	***~~2020~~ ~~2021~~ 2022 and thereafter***
⅝" × ¾"	.67	20	~~$2,455~~ ~~$2,701~~ $2,890
¾" × ¾"	1.00	30	~~$3,664~~ ~~$4,030~~ $4.312
1"	1.67	50	~~$6,119~~ ~~$6,731~~ $7,202
1.5"	3.33	100	~~$12,201~~ ~~$13,421~~ $14,361
2" C2	6.67	200	~~$24,439~~ ~~$26,883~~ $28,765

2" T2	8.33	250	~~$30,521~~ ~~$33,573~~ $35,923
3" C2	16.67	500	~~$61,079~~ ~~$67,187~~ $71,890
3" T2	21.67	650	~~$79,399~~ ~~$87,339~~ $93,453
4" C2	33.33	1,000	~~$122,121~~ ~~$134,333~~ $143,736
4" T2	41.67	1,250	~~$152,679~~ ~~$167,947~~ $179,703
6" C2	66.67	2,000	~~$244,279~~ ~~$268,707~~ $287,516
6" T2	83.33	2,500	~~$305,321~~ ~~$335,853~~ $359.363

*Potential flow capacity in gallons per minute.

Wastewater System Development Fee*

Meter Size	*SFE*	*Meter Capacity (GPM*)*	*20~~19~~22 and thereafter*
⅝" × ¾"	.67	20	~~$2,695~~ $2,802.80
¾" × ¾"	1.00	30	~~$4,023~~ $4,183.92
1"	1.67	50	~~$6,718~~ $6,986.72
1.5"	3.33	100	~~$13,397~~ $13,932.88
2" C2	6.67	200	~~$26,833~~ $27,906.32
2" T2	8.33	250	~~$33,512~~ $34,852.48
3" C2	16.67	500	~~$67,063~~ $69,745.52
3" T2	21.67	650	~~$87,178~~ $90,665.12
4" C2	33.33	1,000	~~$134,087~~ $139,450.48
4" T2	41.67	1,250	~~$167,638~~ $174,343.52
6" C2	66.67	2,000	~~$268,213~~ $278,941.52
6" T2	83.33	2,500	~~$335,237~~ $348,646.48

Section 6. **Amendment**. Subsection 13.12.090.C. of the Castle Rock Municipal Code is amended to read as follows:

13.14.090 - Limitations on disconnection and disconnection fees.

C. No disconnection shall be permitted on a day when the low temperature FOR THE NEXT twenty-four (24) hours, as reported by the National Weather Service FOR THE CASTLE ROCK AREA, IS FORECASTED TO BE below zero degrees Fahrenheit.

Section 7. **Amendment**. Subsection 13.12.100 of the Castle Rock Municipal Code is amended to read as follows:

13.12.100 - Meter set fees.

No new potable water, wastewater or irrigation water service shall be extended to any user until payment of proper tap fees in accordance with the schedule enumerated below is made. The fee shall be assessed and payable at the time of submission of a complete building application. The payment of the tap fee is for the privilege to tap to the main and an inspection by the Town and is supplementary to the system development fees imposed under Section 13.12.080. The construction of the service line is to be completed by the user, stubbed at a properly designated point as determined by the Director of Castle Rock Water.

Meter Set Fee Schedule

	Single Port	
Meter Size & Type	***Indoor Installation***	***Outdoor Installation***
⅝" × ¾" iPERL	~~$411.23 $425.76~~$486.94	~~$422.77 $430.03~~$489.40
¾" ally	~~$718.56~~$839.95	~~$722.83~~$842.41
1" iPERL	~~$480.42 $497.07~~$579.14	~~$491.96 $501.34~~$581.60
1.5" OMNI C2, 1,000 gallon pulse	~~$1,514.66 $1,579.22~~$1,847.37	~~$1,533.88 $1,583.49~~$1,849.83
2" OMNI C2, 1,000 gallon pulse	~~$1,715.38 $1,786.61~~$2,101.44	~~$1,737.14 $1,790.88~~$2,103.90
3" OMNI C2, 1,000 gallon pulse	~~$2,118.61 $2,189.07~~$2,533.90	~~$2,130.15 $2,193.34~~$2,536.36
4" OMNI C2, 1,000 gallon pulse (irrigation)	~~$3,479.00 $3,590.27~~$4,166.14	~~$3,490.54 $3,594.54~~$4,168.60
6" OMNI C2, 1,000 gallon pulse	~~$5,848.91 $6,031.26~~$7,005.40	~~$5,860.45 $6,035.53~~$7,007.86
1.5" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$1,141.77 $1,179.61~~$1,378.63
2" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$1,312.17 $1,353.16~~$1,593.22
3" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$1,571.18 $1,617.60~~$1,864.66
4" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$2,783.51 $2,866.30~~$3,318.97
6" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$4,817.94 $4,961.75~~$5,755.11

	Dual Port	
Meter Size & Type	***Indoor Installation***	***Outdoor Installation***
⅝" × ¾" iPERL	~~$434.02 $465.61~~$487.83	~~$452.27 $482.49~~$553.41
¾" Ally	~~$758.41~~$840.84	~~$775.29~~$906.42
1" iPERL	~~$503.21 $536.92~~$580.03	~~$521.46 $553.80~~$645.61
1.5" OMNI C2, 1,000 gallon pulse	~~$1,537.45 $1,619.07~~$1,848.26	~~$1,563.38 $1,635.95~~$1,913.84
2" OMNI C2, 1,000 gallon pulse	~~$1,738.17 $1,826.46~~$2,102.33	~~$1,766.64 $1,843.34~~$2,167.91
3" OMNI C2, 1,000 gallon pulse	~~$2,141.40 $2,228.92~~$2,534.79	~~$2,159.65 $2,245.80~~$2,600.37
4" OMNI C2, 1,000 gallon pulse	~~$3,501.79 $3,630.12~~$4,167.03	~~$3,520.04 $3,647.00~~$4,232.61
6" OMNI C2, 1,000 gallon pulse	~~$5,871.70 $6,071.11~~$7,006.29	~~$5,889.95 $6,087.99~~$7,071.87
1.5" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$1,171.27 $1,232.07~~$1,442.64
2" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$1,341.67 $1,405.62~~$1,657.23
3" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$1,600.68 $1,670.06~~$1,928.67
4" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$2,813.01 $2,918.76~~$3,382.98
6" OMNI T2, 1,000 gallon pulse (irrigation)	N/A	~~$4,847.44 $5,014.21~~$5,819.12

Section 8. **Amendment**. The definition of "water budget" in Section 13.12.111 of the Castle Rock Municipal Code is amended to read as follows:

Section 9. **Amendment**. The Renewable Water Service Charge table in Section 13.12.112 of the Castle Rock Municipal Code is amended to read as follows:

13.12.112 - Service charges, all users, excluding bulk.

Beginning with water service provided on or after January 1, ~~2018~~ 2022, the Town is empowered to levy and collect the following monthly charges for water service within its corporate limits during the calendar years as noted:

Renewable Water Service Charge

Meter Size	~~*2019 2021*~~ *2022 and thereafter*
⅝" × ¾"	~~$17.52 $26.15~~$26.93
¾" × ¾"	~~$26.15~~$26.93
1"	~~$99.11~~$102.08
1½"	~~$187.50~~$193.13
2"	~~$313.54~~$322.95
3"	~~$588.90~~$606.57
4"	~~$1,502.32~~$1,547.39
6"	~~$2,429.34~~$2,502.22

Plus: Any applicable surcharges imposed under Subsection 13.15.040.C.

Section 10. **Amendment**. The bulk hydrant service charges in Section 13.12.116 of the Castle Rock Municipal Code is amended to read as follows:

A. "Bulk hydrant customers: shall mean those Castle Rock Water customers who obtain a bulk water permit for water to be pulled directly and metered from an existing hydrant. Bulk hydrant customers shall be charged as follows:

Renewable Water Fixed Rate
($ per monthly bill)

2022~~18~~ and thereafter
~~$187.50~~ $193.13

B. "Bulk station customers" shall mean those Castle Rock Water customers who obtain a bulk water permit for water to be pulled from the bulk water station located at 825 Justice Way, Castle Rock, Colorado. Bulk station customers shall be charged as follows:

Renewable Water Fixed Rate
($ per monthly bill)

2022~~18~~ and thereafter
~~$26.15~~ $26.93

Section 11. **Amendment**. 13.12.118 Service charges, wastewater

Beginning with wastewater service provided on or after January 1, ~~2018~~ 2022, the Town is empowered to levy and collect the following monthly charges for wastewater services within its corporate limits during the calendar years noted:

Wastewater Service Charge ($ meter size)

Meter Size	*~~2020~~ 2022 and thereafter*
⅝" × ¾"	~~$9.02~~ $8.56
¾" × ¾"	~~$9.02~~ $8.56
1"	~~$14.36~~ $13.64
1½"	~~$20.82~~ $19.78
2"	~~$30.03~~ $28.53
3"	~~$50.17~~ $47.66
4"	~~$116.96~~ $111.11
6"	~~$184.77~~ $175.53

Plus:

Wastewater Volume Rate
($ per 1,000 gallons of AWMC)

~~2020~~ 2022 and thereafter
~~$6.39~~ $6.07

Section 12. **Amendment**. 13.30.060 Stormwater utility fee schedule

Effective with utility bills issued on or after January 1, ~~2020~~2022, the monthly fee for each Stormwater single-family equivalent shall be as follows:

Stormwater Fee
($ per SWSFE*)

~~2018~~ 2022 and thereafter
~~$7.12~~ $7.30

***SFE Assignment**

Customer Class	*SWSFE*
Single-family residence	1
Multi-family and nonresidential	Parcel size times 80% imperviousness divided by 3,255 impervious square feet per SWSFE = number of SWSFEs for non-single-family

B. Customers receiving non-single-family utility charges may appeal for an adjustment of the Stormwater utility fee if they can demonstrate that less than eighty percent (80%) of their property area is impervious.

Section 13. **Severability.** If any part or provision of this Ordinance or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other

provisions or applications of this Ordinance which can be given effect without the invalid provisions or application, and to this end the provisions of this Ordinance are declared to be severable.

Section 14. **Safety Clause.** The Town Council finds and declares that this Ordinance is promulgated and adopted for the public health, safety and welfare and this Ordinance bears a rational relation to the legislative object sought to be obtained.

APPROVED ON FIRST READING this 21st day of September, 2021 by a vote of __ for and __ against, after publication in compliance with Section 2.02.100.C of the Castle Rock Municipal Code; and

PASSED, APPROVED AND ADOPTED ON SECOND AND FINAL READING this 7th day of December, 2021, by the Town Council of the Town of Castle Rock by a vote of__ for and __ against.

ATTEST:

_____
Lisa Anderson, Town Clerk

TOWN OF CASTLE ROCK

_____
Jason Gray, Mayor

Approved as to form:

_____
Michael J. Hyman Town Attorney

Approved as to content:

_____
Mark Marlowe, Director of Castle Rock Water

2021 RATES AND FEES STUDY UPDATE

VOLUME 1 OF 2

2022-2026 RATES

Prepared by Castle Rock Water
Business Solutions Team

Final Report

September 2021

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Executive Summary

On an annual basis, Castle Rock Water (CRW) conducts a comprehensive rates and fees study for water, water resources, wastewater, and stormwater funds.

Project Purpose

The purpose of the rates and fees study is to calculate the cost-of-service (COS) based rates for each enterprise fund that meet CRW's financial goals while being defensible and promoting water conservation. The annual rates and fees study update ensures that any changes in revenue requirements are accounted for based on changes in customer characteristics and both operational and capital costs.

Financial Management Plan

Starting in 2015, CRW prepared a Financial Management Plan (FMP) which has since been updated on an annual basis as part of this study. The FMP was completed to assist CRW in achieving the following goals:

1. To minimize future rates at or below the 2013 Hybrid Model levels
2. To minimize debt carrying costs at or below industry standards
3. To minimize risk by balancing fixed and variable revenues with expenses as appropriate
4. To keep costs at or under budget for capital and operational budgets each year by fund and to continuously strive towards more efficient operations
5. To keep our rates and fees competitive with surrounding communities
6. To keep adequate reserves and maintain fund balances between minimums and maximums
7. To keep our rates and fees affordable within various national affordability indices
8. To develop regional partnerships to provide economies of scale to reduce total costs of infrastructure to our customers
9. To be an industry leader in the application of financial management benchmarking ourselves against others locally and nationally

Cost-of Service Analysis

Revenue Requirements

A long term financial plan is prepared to project the revenues required for each of CRW's four enterprise funds. The long-term financial plan allows the integration of debt, accumulation/use of reserves, and other assumptions to forecast funding of CRW's water system operations and maintenance (O&M) expenses and capital improvements for each respective enterprise. For each enterprise fund, the financial plan calculates the annual service charge revenue requirements. The projection period developed for each enterprise financial plan was driven by the length of the capital improvement program (CIP) and ends in 2060.

Although the projection period extends to 2060, revenue requirements and capital improvement programs are presented in this report for the five year planning period 2022 through 2026 for all four enterprise funds. The estimated 2021 total revenue requirements from rates are shown below.

2021 Total Revenue Requirements from Rates	
Water	$17.4 Million
Water Resources	$9.8 Million
Wastewater	$11.7 Million
Stormwater	$3.3 Million

Rates and Fees Analysis

CRW updated COS rates for the water and wastewater enterprises, and monthly service charges for the water resources and stormwater enterprises, to meet the annual service charge revenue requirements. The rates and fees meet CRW's financial objectives while being defensible. The CRW's rates and fees goals as described in the FMP include:

- Keep the rates and fees competitive with surrounding communities
- Ensure rates and fees for water and water resources are lower than the projected rates in the 2013 hybrid financial plan
- Keep the rates and fees affordable within various national affordability indices

CRW's rates are based on the cost of providing services and CRW's comprehensive review of current customer characteristics. A summary of the customer characteristics analysis is presented in Appendix C.

2021 Adopted Rates vs 2022 Proposed Rates by Fund

CRW's adopted rates for 2021 versus proposed rates for 2022 are listed in Tables 1 through 5. Given the financial plan and COS updates, CRW is proposing a 3% increase in the water resources monthly fixed rate, a 2.5% increase in the stormwater monthly fixed rate and a 5% decrease in both the monthly fixed and volumetric rates for wastewater. Each account pays a fixed monthly water service charge, water resources charge and wastewater charge based on their individual meter size. CRW's water rate structure includes both the fixed monthly service charge by meter size and a volumetric charge based on tiered usage calculated using a water budget rate structure. Volumetric rates are stated per 1,000 gallons (Kgal).

Table 1 Water Fund 2021 Adopted vs 2022 Proposed Monthly Service Charges		
Meter Size	**2021 Adopted Monthly Charges**	**2022 Proposed Monthly Charges**
5/8" x ¾"	$9.54	$9.54
¾"	$9.54	$9.54
1"	$13.72	$13.72
1.5"	$18.78	$18.78
2"	$26.00	$26.00
3"	$41.78	$41.78
4"	$94.12	$94.12
6"	$147.26	$147.26
Bulk Hydrant	$18.78	$18.78
Bulk Station	$9.54	$9.54

Tiered Rate Structure

The volumetric water budget rate structure consists of three increasing tiered rates:

- Tier 1 = AWMC or Average Winter Monthly Consumption = Base COS rate (Typically considered indoor use)
- Tier 2 = Outdoor Usage = Base plus extra capacity rates by customer class (Typically considered outdoor use)
- Tier 3 = Excess use rate to recover the remaining revenue requirements

Residential accounts are subject to a water conservation surcharge for usage greater than 40 Kgal per month. This surcharge is intended to send a conservation price signal to customers with excessive usage. The revenue collected from this tier is then used to fund conservation rebate programs.

For the volumetric rates shown in Table 2 below there is no change in the Tiers for 2022.

Table 2 Water Fund 2022 Proposed Volumetric Rates by Tier			
Irrigation Season (April 1 through October 31 Consumption)			
Customer Class	**Tier 1 (AWMC)**	**Tier 2 (Outdoor)**	**Tier 3 (Excess)**
Residential	$2.82	$5.74	$8.56
Multi-Family	$2.82	N/A	$3.70
Multi-Family w/Irrigation	$2.82	$4.87	$7.28
Commercial	$2.82	N/A	$3.94
Commercial w/Irrigation	$2.82	$4.93	$7.37
Irrigation	N/A	$7.86	$11.78
Winter Season (November 1 through March 31 Consumption)			
Customer Class	**Tier 1 (AWMC)**	**Tier 2 (Outdoor)**	**Tier 3 (Excess)**
Residential	$2.82	N/A	$5.74
Multi-Family	$2.82	N/A	$3.70
Multi-Family w/Irrigation	$2.82	N/A	$4.87
Commercial	$2.82	N/A	$3.94
Commercial w/Irrigation	$2.82	N/A	$4.93
Irrigation	N/A	N/A	$11.78
Bulk Water Customers			
Bulk Hydrant	$7.86	N/A	N/A
Bulk Station	$9.82	N/A	N/A

An additional surcharge of $8.56 is added for any water usage over 40,000 gallons.

Table 3 Water Resources Fund 2021 Adopted vs 2022 Proposed Monthly Service Charges		
Meter Size	**2021 Adopted Monthly Service Charges**	**2022 Proposed Monthly Service Charges**
5/8" x ¾"	$26.15	$26.93
¾"	$26.15	$26.93
1"	$99.11	$102.08
1.5"	$187.50	$193.13
2"	$313.54	$322.95
3"	$588.90	$606.57
4"	$1,502.32	$1,547.39
6"	$2,429.34	$2,502.22
Bulk Hydrant	$187.50	$193.13
Bulk Station	$26.15	$26.93

Table 4 Wastewater Fund 2021 Adopted vs 2022 Proposed Monthly Service Charges and Volumetric Rate		
Meter Size	**2021 Adopted Monthly Service Charges**	**2022 Proposed Monthly Service Charges**
5/8" x ¾"	$9.02	$8.57
¾"	$9.02	$8.57
1"	$14.36	$13.64
1.5"	$20.82	$19.78
2"	$30.03	$28.53
3"	$50.17	$47.66
4"	$116.96	$111.11
6"	$184.77	$175.53
Volumetric Rate – All Applicable Customers, Per Kgal	$6.39	$6.07

Table 5 Stormwater Fund 2021 Adopted vs 2022 Proposed Monthly Service Charge		
	2021 Adopted Monthly Service Charge	**2022 Proposed Monthly Service Charge**
All Customers, per Single Family Equivalent (SFE)	$7.12	$7.30
SFE Assignment		
Customer Class	**Impervious Sq. Ft.**	**SFE**
Single Family Attached & Detached Customers	3,255	1
Non-Single Family (Multi-Family & Commercial Customers)	Parcel size times 80% imperviousness divided by 3,255 impervious sq. ft. per SFE = # of SFE's	

Proposed Rates for 2022 Through 2026

Rates for the five-year study period (2022-2026) were projected using the cost of service model results for water and wastewater as well as the percentage rate revenue increases projected by the financial plan models for all four funds. Table 6 represents proposed rate revenue changes for 2022 through 2026.

Table 6 Proposed Rate Revenue Percentage Increases 2022-2026				
Year	**Water**	**Water Resources**	**Wastewater**	**Stormwater**
2022	0.0%	3.0%	(5.0%)	2.5%
2023	3.0%	3.0%	0.0%	3.5%
2024	3.0%	3.0%	0.0%	3.5%
2025	3.0%	3.0%	0.0%	3.5%
2026	3.0%	3.0%	0.0%	3.0%

Long-Term Financial Planning

Background

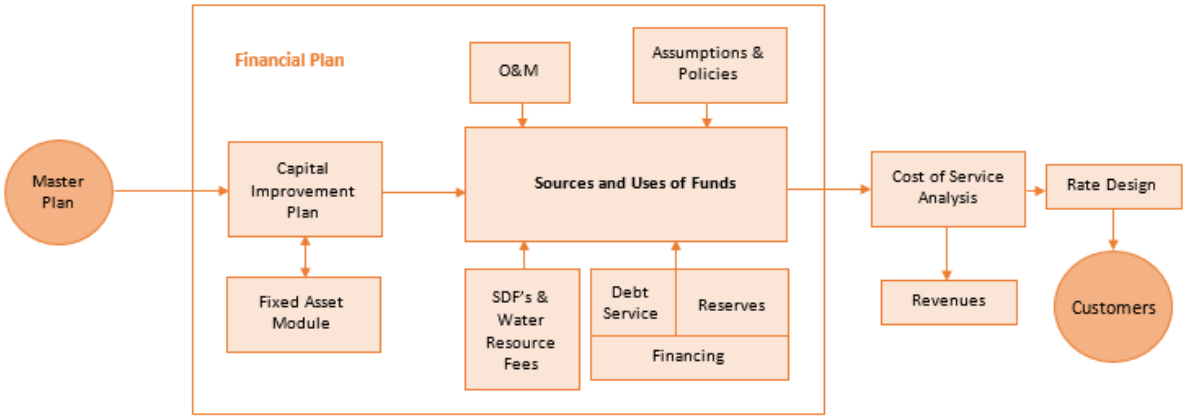
Castle Rock Water engaged Stantec Consulting Services, Inc. (Stantec) to assist in updating the comprehensive utility-specific financial plans that examine revenues, expenditures, debt service requirements, cash flows, reserve requirements, fund balances and capital project costs for the study period. The financial plan is used as the basis for projecting utility specific revenue requirements for the water, water resources, wastewater, and stormwater funds. Assumptions used in the development of the long term financial plans play a critical role in the results of this study. A full understanding of the modeling assumptions is therefore vitally important in qualifying study results. The following sections discuss both the planning assumptions and methods for calculating revenue requirements for the purpose of the study.

Financial Planning Overview

The main function of the financial plan is to balance the sources and uses of funds. Sources of funds include revenues from water sales (or water resources charges, wastewater charges, stormwater charges), miscellaneous fee revenue, interest/investment earnings, use of cash reserves, debt proceeds and contributions (including grants, developer contributions, etc.). Uses of funds include expenditures for operating expenses, repairs and replacements, debt service, increases in reserves and cash-financed capital expenditures. CRW has an explicit financial goal to minimize risk by balancing fixed and variable revenues with expenses as appropriate. By identifying the planned uses of funds, CRW developed financial plans to balance the sources of funds while minimizing the impact on rates to the greatest extent possible.

The financial plan is a forward looking model, meaning that all values reported are for future periods. For the purposes of this study, the first year in the model is fiscal year 2022. CRW's fiscal year is January 1, 2022 to December 31, 2022. The model includes projections of sources and uses of funds throughout the study period. Figure 1 provides a visual overview of the financial planning process followed by CRW and reviewed by Stantec. In addition to forecast assumptions, historical revenues and expenses, existing and planned debt service, and the current CIP serve as the basis for revenue requirement projections. Each step of the financial planning process is described individually in greater detail in the following sections.

Figure 1: Financial Planning Flowchart



Capital Improvements

Capital improvements are the planned investments in capital projects specific to each fund that are projected for the term of the corresponding utility's financial plan. Capital includes physical assets and infrastructure with a useful life greater than one year that meet all of CRW's established capitalization policy criteria. CRW also established a measurable goal to keep costs at or under budget for capital budgets each year by enterprise fund. Detailed CIPs were developed by CRW Engineers.

Operating Expenditures

Operating expenditures are planned annually as part of the operating budget. The majority of operating costs are fixed as opposed to variable, meaning that increases or decreases in usage will have little effect on the total costs of operations. Similar to capital expenses, CRW also aims to keep costs at or under budget for operational budgets each year by fund and continuously strives towards more efficient operations.

Other Capital Funding Costs

Planned capital expenditures include monies needed to fund the major infrastructure projects for each fund through the study period. Capital funding costs are cash expenditures that the respective fund will need to make in order to fund capital projects. These expenditures include the annual costs of debt service (principal and interest payments), the cost of cash-financing a given portion of the projects' costs and the cost of funding repair and replacement reserves. The capital funding costs presented in this report include the impacts of the 3,500 acre-feet (AF) Hybrid renewable water supply option which Town Council approved in October 2012 and the additional 1,000 AF of renewable WISE water supply approved by Town Council in July of 2018.

Revenue Requirements

Revenue requirements define the total amount of income CRW must earn in order to operate on a day-to-day basis, conduct any necessary repairs and respond to the needs of growth in the system. Two major requirements are measured as revenue requirements:

1. The Total Revenue Requirements
2. The Revenues Required from Rates (Service Charge Revenue Requirements)

The revenue requirements of each enterprise fund include O&M costs, cash-financed capital improvements, debt service payments and funding of operations, catastrophic failure, and capital reserves. The water fund requires additional funding of rate revenue stabilization reserves.

Calibration of Financial Plan

There are five major tools one can utilize in optimizing the financial plan to meet revenue requirements while remaining aligned with CRW policies and objectives. These include:

1. Additional Income from Rate Revenue Increases
2. Proceeds from New Debt Issuance
3. Contributions from System Development Fees
4. The Use of Reserve Funds
5. Inter-Fund Loans

Assumptions Shared Across Funds

Some of the assumptions and inputs used in the development of the long term financial plans are shared across all four enterprise funds.

Table 7 represents projected system growth for each of the four enterprise funds. These assumptions were developed using projections given from the Town's Development Services Department which are updated each year.

Table 7: Projected New Permits and Percentage Growth by Fund								
	Water Fund		Water Resources Fund		Wastewater Fund		Stormwater Fund	
Year	New Permits	Percentage Growth	New Permits	Percentage Growth	New Permits	Percentage Growth	New SFEs	Percentage Growth
2022	814	(24%)	814	(24%)	806	(24%)	1,162	(15%)
2023	821	1%	821	1%	815	1%	1,162	0%
2024	721	(12%)	721	(12%)	715	(12%)	1,062	(9%)
2025	721	0%	721	0%	715	0%	1,062	0%
2026	721	0%	721	0%	715	0%	1,062	0%

The escalation factors used in this study are defined in Appendix B.

Water Fund

The water fund financial plan projects the water fund's sources and uses of funds from 2022-2060. The water fund financial model developed for this study contains four sub-funds:

- Operating Reserve
- Capital Reserve
- Catastrophic Failure Reserve
- Rate Revenue Stabilization Reserve

Sources of Funds

Sources of funds include all cash inflows to the water fund. These include service charge revenues, miscellaneous income, contributed cash-capital, and interest earnings. The assumptions for specific sources of funding are provided below. Detailed definitions are given in Appendix B.

- System Growth – Table 7 represents projected system growth by fund.
- Rate Revenue Increases – Rate revenues are projected to increase each year based on Town growth and usage from 2022-2026. However, no increase is being proposed for 2022.
- System Development Fee (SDF) Revenues – SDFs are projected to increase each year based on growth in the Town as well as projected increases from the SDF models. These are shown in more detail in Volume 2.
- Revenue Bonds – No new debt is planned in the five-year study period.

- Inter-Fund Loans – There are currently no Inter-fund loans planned.
- Other Revenues – For the study period, the water fund other revenues are presented in Table 8 below and include the following categories:
    - Charges for Service/Fees include revenues from bulk hydrant backflow inspections, bulk hydrant meter calibration, bulk hydrant permit fees, meter repair tests and fees, bulk water sales, water service transfer charges, etc.
    - Contributions and Donations include revenues from developer contributions.
    - Fines and Forfeitures include disconnection notice fees, late charges, lien administrative fees, lien filing fees, NSF charges and disconnection/reconnection of service fees.
    - Intergovernmental Agreement (IGA) Revenues include revenues received from various IGAs.
    - Miscellaneous Revenues include proceeds from sale of assets, reimbursements, sale of recycled materials, tower leases, water leases and vending machine commission.
    - Interest Earnings is the net revenue impact of earnings or losses on our investments.

Table 8
Water Fund
Other Revenues

Other Revenues	FY2022	FY2023	FY2024	FY2025	FY2026
Charges for Service/Fees	$974,660	$945,160	$937,360	$928,360	$919,360
Contributions and Donations	$0	$0	$0	$0	$0
Fines and Forfeitures	$345,200	$345,200	$350,200	$350,200	$355,200
IGA Revenues	$150,000	$0	$0	$0	$0
Miscellaneous Revenues	$127,341	$129,042	$133,174	$135,454	$135,454
Interest Earnings	$262,630	$206,667	$174,717	$188,308	$245,873
Total	**$1,859,831**	**$1,626,069**	**$1,595,451**	**$1,602,322**	**$1,655,887**

- Fund Balances – The water fund is projected to have a reserve fund balance of approximately $7.2 million at the beginning of 2021, not including capital reserve funds. Each reserve has a minimum fund balance requirement to help mitigate financial risk, which is in line with the FMP goal to keep adequate reserves and maintain fund balances between minimums and maximums. The requirements by sub-funds are:
    - Operating Reserve – 60 days of O&M; increasing from approximately $2.4 to $2.8 million throughout the study period.
    - Capital Reserve – Obligated reserves vary from year to year, depending on the Capital Improvement Plan. The fund maintains a minimum unobligated reserve balance of $1.0 million throughout the study period.

- Catastrophic Failure Reserve – Approximately 2% of original fixed asset value, averaging $3.4 million throughout the study period.
- Rate Revenue Stabilization Reserve – Based upon 10% of metered water sales; averaging approximately $1.7 million in the study period. The 10% is consistent with the variance in rainfall from year to year.

The financial plan calls for maintaining the fund balance requirements presented above while subsequently using the net available capital reserve fund balance to offset short-term capital needs. The goal is to balance the need for rate increases and, if necessary, additional debt.

Uses of Funds

Uses of funds include all expenditures, either operating or capital and any reserve requirement or increase in fund balance CRW plans to achieve. The major assumptions for uses of funds are as follows. Detailed definitions for each are located in Appendix B.

- Operating Expenses – For the water fund most operating costs are fixed; meaning not varying based on the volume of water sold; with the exception of energy, treatment chemicals and certain other supplies, which vary with production.
- Personnel Services – CRW reviews full time equivalent (FTE) needs each year to determine how many new FTEs are projected over the budget period and includes these into the expense projections. The total projected FTEs for all four enterprise funds for the five-year period is 11 new FTEs.
- Supplies – The supplies for the water fund are expected to remain consistent over the five-year study period at about $2.0 million a year.
- Energy Costs – Over the five-year study period these are expected to increase at an average rate of approximately 5%.
- Capital Improvements – Total water system capital improvement costs from 2022-2026 are expected to be $45.8 million in today's dollars. Only improvements and replacements that provide benefits to existing customers are included in revenue requirements. Improvements to serve growth are funded from SDFs.
- Inter-Fund Loans – The water fund does not have an Inter-Fund loan balance that it is paying on at this time as an expense.
- Transfers Out – These include the costs for the vehicle replacement fund which is transferred to the fleet department for about $1.5 million over the five-year period. Also included in the transfers out is approximately $3.0 million over the five-year period for revenues captured in the water fund by tier that are designated for the water resources fund.
- Fund Balances – When fund balances are drawn down from initial balances, the use of those funds is a source of funding to cover water fund expenses. When it is building the fund balance it is a use of funds as cash is added to the water operating fund. These are projected to be kept at an acceptable level of working capital, which is a minimum of 60 days O&M in the operating reserve. This also conforms to the FMP goal to keep adequate reserves and maintain fund balances between minimums and maximums.

- Debt Service – The water fund currently has two outstanding revenue bond issues (2012 and 2015). The 2012 bond issue was a refinancing of 2003 and 2004 bonds and the 2015 bond issue was a refinancing of 2006 bonds. The water fund debt service amounts to approximately $1.7 million annually through 2023 and then drops down to approximately $690K through 2026.
- Debt Service Coverage – The debt service coverage ratio in the model is set to 1.2 times the total annual debt service amount, which is about $2.0 million. This is a bond covenant requirement.

Service Charge Revenue Requirements

The portion of annual system revenue requirements to be recovered through rates depends on a utility's financing policy and its other sources of income. To determine the amount of service charge revenue the water enterprise must generate annually, the total revenue requirements must be reduced by non-rate or other system revenues. Other system revenues are defined as all revenues except those derived from water rates. Table 9 represents the water fund service charge revenue requirements for 2022-2026.

Table 9
Water Fund
Service Charge Revenue Requirements

Revenue Requirements	FY2022	FY2023	FY2024	FY2025	FY2026
Operating and Maintenance	$14,525,783	$15,143,035	$15,293,718	$15,888,975	$16,559,291
Debt Service	$1,740,010	$1,741,270	$683,900	$689,000	$687,750
Transfers Out	$1,051,828	$1,147,404	$1,107,298	$1,111,931	$1,106,162
Cash Funded Capital	$0	$4,130,424	$4,863,453	$2,794,321	$480,000
Minor Capital Outlay	$0	$0	$0	$0	$0
Required Reserves/(Use of Reserves)	$2,980,998	($909,002)	$509,312	$3,263,518	$6,300,497
Total Revenue Requirements	**$20,298,619**	**$21,253,131**	**$22,457,681**	**$23,747,745**	**$25,133,700**
Non-Rate Revenues	($1,859,831)	($1,626,069)	($1,595,451)	($1,602,322)	($1,655,887)
Transfers In	$0	$0	$0	$0	$0
Revenues Required from Rates	**$18,438,788**	**$19,627,062**	**$20,862,230**	**$22,145,423**	**$23,477,813**

Water Resources Fund

The water resources fund financial plan projects the fund's sources and uses of funds from fiscal year 2022 through 2060. As noted previously, the results presented for the water resources fund include the impacts of the renewable water supply plan for the 3,500 AF Hybrid proposal authorized by Town Council in October 2012 and the 1,000 AF WISE renewable supply approved by Town Council in July of 2018. The water resources fund financial model developed in this study has three sub-funds:

- Operating Reserve
- Capital Reserve
- Catastrophic Failure Reserve

The major assumptions for specific sources of funding are provided below.

Sources of Funds

The sources of funds include all cash inflows to the operating funds. These include service charge revenues, miscellaneous income, contributed cash-capital, and interest earnings. The major assumptions for specific sources of funding are provided below and detailed definitions are given in Appendix B.

- System Growth – Table 7 represents the projected system growth for water resources.
- Rate Revenue Increases – There is a 3% increase proposed for 2022. A steady rate increase is projected at 3% for 2023-2026.
- SDF Revenues – Please see Volume 2 for current projections.
- Revenue Bonds – During the 2022-2026 study period no new debt is planned.
- Inter-Fund Loans – There were no loans payable to the water resources fund.
- Other Revenues – For the study period the water resources fund other revenues are presented in Table 10 below.
    - Charges for Service/Fees include irrigation permit fees, sod exemption fees and landscaper registration fees.
    - Fines and Forfeitures include lien administrative revenue, water surcharge and water violation revenues.
    - Miscellaneous Revenues include capital leases, water rights leases, reimbursements, miscellaneous revenues and vending machine commission.
    - Interest Earnings is the net revenue impact of earnings or losses on our investments.

Table 10 Water Resources Fund Other Revenues					
Other Revenues	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
Charges for Service/Fees	$33,000	$32,000	$32,000	$32,000	$32,000
Fines and Forfeitures	$155,500	$155,500	$155,500	$155,500	$155,500
Miscellaneous Revenues	$731,538	$273,240	$272,740	$272,240	$271,740
Interest Earnings	$733,120	$391,260	$464,545	$666,713	$963,603
Total	**$1,653,158**	**$852,000**	**$924,785**	**$1,126,453**	**$1,422,843**

- Fund Balances – The water resources fund was projected to have a reserve of approximately $6.1 million at the beginning of 2021, not including capital reserve funds. Each of the sub-funds in the water resources financial plan has a minimum balance requirement to help mitigate financial risk, which is in line with the FMP goal to keep adequate reserves and maintain fund balances between minimums and maximums. The requirements by sub-fund are:
    - Operating Reserve – 60 days of O&M; increasing from approximately $1.9 million to $2.4 million in the study period.
    - Capital Reserve – Obligated reserves vary from year to year; depending on the CIP. The fund maintains a minimum unobligated reserve of $500,000 throughout the study period.
    - Catastrophic Failure Reserve – Approximately 2% of original fixed asset value averaging about $5.7 million in the study period.

The financial plan calls for maintaining the balances above and using net available capital reserve fund balance to offset short-term capital needs.

Uses of Funds

Uses of funds include all the same components as listed above in the water fund. The major assumptions for uses of funds are shown below. For detailed definitions see Appendix B.

- Operating Costs – For the water resources fund most operating costs are fixed.
- Personnel Services – CRW reviews FTE needs each year to determine how many new FTEs are projected over the budget period and includes these in the expense projections. The total projected FTEs for all four enterprise funds for the five-year period is 11 new FTEs.
- Supplies – For the water resources fund supplies are projected to be approximately $752,000 per year over the five-year study period.
- Capital Improvements – Total water resources system capital improvement costs from 2022-2026 are expected to be $96.9 million in today's dollars. Only improvements or

replacements that provide benefits to existing customers are included in revenue requirements. Improvements to serve growth are funded from SDFs.

- Inter-Fund Loans – The fund does not have an inter-fund loan balance at this time.
- Fund Balances – For the study, it is assumed that the fund balances will not drop below the requirements presented in the above section.
- Debt Service – The fund currently has the 2016 revenue bonds which refunded the 2008 Certificates of Participation (COPs). The existing debt service amounts to an average of $4.2 million per year from 2022 to 2034.
- Debt Service Coverage – The debt service coverage ratio in the model is set to 1.2 times the total annual debt service amount, which is about $5.0 million.

Service Charge Revenue Requirements

Table 11 represents the water resources fund service charge revenue requirements for the study period 2022 through 2026.

Table 11
Water Resources Fund
Service Charge Revenue Requirements

Revenue Requirements	FY2022	FY2023	FY2024	FY2025	FY2026
Operating and Maintenance	$11,692,577	$12,815,762	$13,741,875	$14,016,050	$14,214,919
PCWPF Water Treatment Charge	$49,210	$49,210	$49,210	$49,210	$0
Debt Service	$3,766,750	$3,793,950	$3,819,950	$3,849,200	$3,871,200
Transfers Out	$596,657	$386,443	$145,083	$129,217	$369,359
Cash Funded Capital	$0	$0	$0	$0	$0
Minor Capital Outlay	$0	$0	$0	$0	$0
Required Reserves/(Use of Reserves)	($2,133,236)	($2,910,464)	($2,558,044)	($1,572,318)	($740,431)
Total Revenue Requirements	**$13,971,958**	**$14,134,901**	**$15,198,074**	**$16,471,359**	**$17,715,047**
Non-Rate Revenues	($1,653,158)	($852,000)	($924,785)	($1,126,453)	($1,422,843)
Transfers In	($1,687,348)	($1,888,169)	($2,075,495)	($2,302,756)	($2,374,405)
Revenues Required from Rates	**$10,631,452**	**$11,394,732**	**$12,197,794**	**$13,042,150**	**$13,917,799**

Wastewater Fund

The wastewater fund financial plan projects the fund's source and uses of funds from 2022 through 2060. The three sub-funds include:

- Operating Reserve
- Capital Reserve
- Catastrophic Failure Reserve

Sources of Funds

The sources of funds include all cash inflows to the operating funds. These include service charge revenues, miscellaneous income, contributed cash-capital, and interest earnings. The major assumptions for specific sources of funding are provided below and detailed definitions are given in Appendix B.

- System Growth – Table 7 represents the projected system growth for wastewater.
- Rate Revenue Increases – There is a 5% decrease proposed for 2022. No rate increases are projected for 2023-2026.
- SDF Revenues – Please see Volume 2 for current projections.
- Inter-Fund Loans – There were no loans payable to the fund.
- Revenue Bonds – During 2022-2026 no new debt options are being reviewed.
- Other Revenues - For the study period, the wastewater fund other revenues are presented in Table 12 below.
    - Contributions and Donations include expected developer contributions.
    - Fines and Forfeitures include lien administrative revenue.
    - Miscellaneous Revenues include reimbursements, vending machine commissions and other miscellaneous revenues.
    - Interest Earnings is the net revenue impact of earnings or losses on our investments.

Table 12
Wastewater Fund
Other Revenues

Other Revenues	FY2022	FY2023	FY2024	FY2025	FY2026
Contributions and Donations	$29,510	$29,510	$29,510	$29,510	$21,469
Fines and Forfeitures	$100	$100	$100	$100	$100
Miscellaneous Revenues	$2,640	$2,640	$2,640	$2,640	$2,640
Interest Earnings	$63,290	$84,638	$104,019	$124,867	$150,144
Total	**$95,540**	**$116,888**	**$136,269**	**$157,117**	**$174,353**

- Fund Balances – The wastewater fund was projected to have a reserve of approximately $4.2 million at the beginning of 2021, not including capital reserve funds. Each of the sub-funds in the financial plan have a minimum balance requirement to help mitigate financial risk, which is in line with the FMP goal to keep adequate reserves and maintain fund balances between minimums and maximums. The requirements by sub-fund are:
    - Operating Reserve – 60 days of O&M; averaging $1.2 million in the study period.
    - Capital Reserve – Obligated reserves vary from year to year; depending on the CIP. The fund maintains a minimum unobligated reserve of $1.0 million throughout the study period.
    - Catastrophic Failure Reserve – Approximately 2% of original fixed asset value averaging about $2.5 million in the study period.

The financial plan calls for maintaining these balances above and using net available capital reserve fund balance to offset short-term capital needs.

Uses of Funds

Uses of funds include all the same components as listed above in the water fund. The major assumptions for uses of funds are shown below. For detailed definitions see Appendix B.

- Operating Costs – For the wastewater fund most operating costs are fixed.
- Personnel Services – CRW reviews FTE needs each year to determine how many new FTEs are projected over the budget period and includes these into the expense projections. The total projected FTEs for all enterprise funds for the five-year period is 11 new FTEs.
- Energy Costs – Over the five-year study period these average $118k per year.
- Capital Improvements – Total wastewater system capital improvement costs from 2022-2026 are expected to be $25.7 million in today's dollars. Only improvements or replacements that provide benefits to existing customers are included in revenue requirements. Improvements to serve growth are funded from SDFs.
- Transfers Out – These include the costs for the vehicle replacement fund which is transferred to the fleet department and is about $755,000 over the five-year study period.
- Fund Balances – For the study, it is assumed that the fund balances will not drop below the requirements presented in the above section.
- Debt Service – The fund currently has the 2012 revenue bond, which is a refinancing of a 2004 revenue bond series. The principal and interest payments equal approximately $332,000 annually from 2022 through 2023.
- Debt Service Coverage – The debt service coverage ratio in the model is set to 1.2 times the total annual debt service amount, which is about $398,400. This is a bond requirement.

Service Charge Revenue Requirements

Table 13 represents the wastewater fund service charge revenue requirements for the study period 2022 through 2026.

Table 13 Wastewater Fund Service Charge Revenue Requirements					
Revenue Requirements	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
Operating and Maintenance	$6,620,111	$6,937,955	$7,245,085	$7,570,025	$7,964,487
Debt Service	$332,040	$331,380	$0	$0	$0
Transfers Out	$216,466	$249,440	$213,746	$205,842	$208,313
Cash Funded Capital	$0	$0	$0	$0	$0
Minor Capital Outlay	$0	$0	$0	$0	$0
Required Reserves/(Use of Reserves)	$4,333,120	$4,444,834	$4,972,416	$5,131,670	$5,214,741
Total Revenue Requirements	**$11,501,737**	**$11,963,609**	**$12,431,247**	**$12,907,537**	**$13,387,541**
Non-Rate Revenues	($95,540)	($116,888)	($136,269)	($157,117)	($174,353)
Transfers In	$0	$0	$0	$0	$0
Revenues Required from Rates	**$11,406,197**	**$11,846,721**	**$12,294,978**	**$12,750,420**	**$13,213,188**

Stormwater Fund

The stormwater fund financial plan projects the fund's source and uses of funds from 2022 through 2060. The three sub-funds include:

- Operating Reserve
- Capital Reserve
- Catastrophic Failure Reserve

Sources of Funds

The sources of funds include all cash inflows to the operating funds. These include service charge revenues, miscellaneous income, contributed cash-capital, and interest earnings. The major assumptions for specific sources of funding are provided below and definitions are given in Appendix B.

- System Growth – Table 7 represents the projected system growth for stormwater.
- Rate Revenue Increases – There is a 2.5% increase proposed for 2022. An increase is projected at 3.5% for 2023-2025 and a 3.0% increase for 2026.

- System Development Fee (SDF) Revenues - Please see Volume 2 for current projections.
- Revenue Bonds – $9.5 million in loans has been processed with $4.5 million received in 2019, another $4.5 million in 2020 and $500K in 2021.
- Inter-Fund Loans – There were no loans payable to the fund.
- Other Revenues – For the study period, the stormwater fund other revenues are presented in Table 14 below.
    - DESC/GESC (now called TESC) Fees include TESC inspection fees and TESC plan check fees and re-inspection fees.
    - Developer Contributions include contributions from developers.
    - Fines and Forfeitures include the lien administrative revenue.
    - Miscellaneous Revenues include vending machine commissions, reimbursements and other miscellaneous revenues.
    - Interest Earnings is the net revenue impact of earnings or losses on our investments.

Table 14
Stormwater Fund
Other Revenues

Other Revenues	FY2022	FY2023	FY2024	FY2025	FY2026
TESC Fees	$418,000	$412,000	$412,000	$412,000	$412,000
Developer Contributions	$2,315	$2,315	$2,315	$2,315	$2,315
Fines and Forfeitures	$150	$150	$150	$150	$150
Miscellaneous Revenues	$5,640	$6,640	$7,640	$8,640	$9,640
Interest Earnings	$37,272	$23,447	$7,431	$1,975	$9,072
Total	**$463,377**	**$444,552**	**$429,536**	**$425,080**	**$433,177**

- Fund Balances – The stormwater fund was projected to have a reserve of approximately $2.7 million at the beginning of 2021, not including capital reserve funds. Each of the sub-funds in the financial plan have a minimum balance requirement to help mitigate financial risk, which is in line with the FMP goal to keep adequate reserves and maintain fund balances between minimums and maximums. The requirements by sub-fund are:
    - Operating Reserve – 60 days of O&M; averaging approximately $542,000 in the study period.
    - Capital Reserve – Obligated reserves vary from year to year; depending on the CIP. The fund maintains a minimum unobligated reserve of $500,000 throughout the study period.
    - Catastrophic Failure Reserve – Approximately 2% of original fixed asset value averaging about $2.1 million in the study period.

The financial plan calls for maintaining these balances above and using net available capital reserve fund balance to offset short-term capital needs.

Uses of Funds

Uses of funds include all the same components as listed above in the water fund. The major assumptions for uses of funds are shown below. For detailed definitions see Appendix B.

- Operating Costs – For the stormwater fund most operating costs are fixed.
- Personnel Services – CRW reviews FTE needs each year to determine how many new FTEs are projected over the budget period and includes these in the expense projections. The total projected FTEs for all four enterprise funds for the five-year period is 11 new FTEs.
- Supplies – The supplies for the stormwater fund are expected to remain consistent over the five-year study period at about $112,000 a year.
- Energy Costs – Over the 5-year study period these are expected to increase at a rate higher than inflation at about 5%.
- Capital Improvements – Total stormwater system capital improvement costs from 2022-2026 are expected to be $13.9 million in today's dollars. Only improvements or replacements that provide benefits to existing customers are included in revenue requirements. Improvements to serve growth are funded from SDFs.
- Transfers Out – These include the costs for the vehicle replacement fund which is transferred to the fleet department and is about $665,000 over the five-year study period.
- Inter-Fund Loans – There are no outstanding Inter-fund loans.
- Fund Balances – For the study, it is assumed that the fund balances will not drop below the requirements presented in the above section.
- Debt Service – The 10-year debt repayment of the new 2021 debt for $9.5M will average $1.1 million a year during the study period.

Service Charge Revenue Requirements

Table 15 represents the stormwater fund service charge revenue requirements for the study period 2022 through 2026.

Table 15 Stormwater Fund Service Charge Revenue Requirements					
Other Revenues	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
Operating and Maintenance	$2,833,263	$3,171,021	$3,292,167	$3,408,501	$3,532,938
Debt Service	$1,084,027	$1,140,120	$1,146,400	$1,157,200	$1,167,424
Transfers Out	$144,134	$156,477	$182,089	$181,217	$165,695
Cash Funded Capital	$0	$0	$0	$0	$0
Minor Capital Outlay	$0	$0	$0	$0	$0
Required Reserves/(Use of Reserves)	$38,480	($141,129)	($51,462)	$88,342	$236,550
Total Revenue Requirements	**$4,099,904**	**$4,326,489**	**$4,569,194**	**$4,835,260**	**$5,102,607**
Non-Rate Revenues	($463,377)	($444,552)	($429,536)	($425,080)	($433,177)
Transfers In	$0	$0	$0	$0	$0
Revenues Required from Rates	**$3,636,527**	**$3,881,937**	**$4,139,658**	**$4,410,180**	**$4,669,430**

Water and Wastewater Cost-of-Service Analysis

Introduction

Part of the study includes updating the water and wastewater cost-of-service (COS) analysis to implement the rate revenue requirements determined in the financial plans. The results of the COS analysis are monthly service charges and volumetric rates by customer class that equitably distribute the ongoing water and wastewater costs across customer classes.

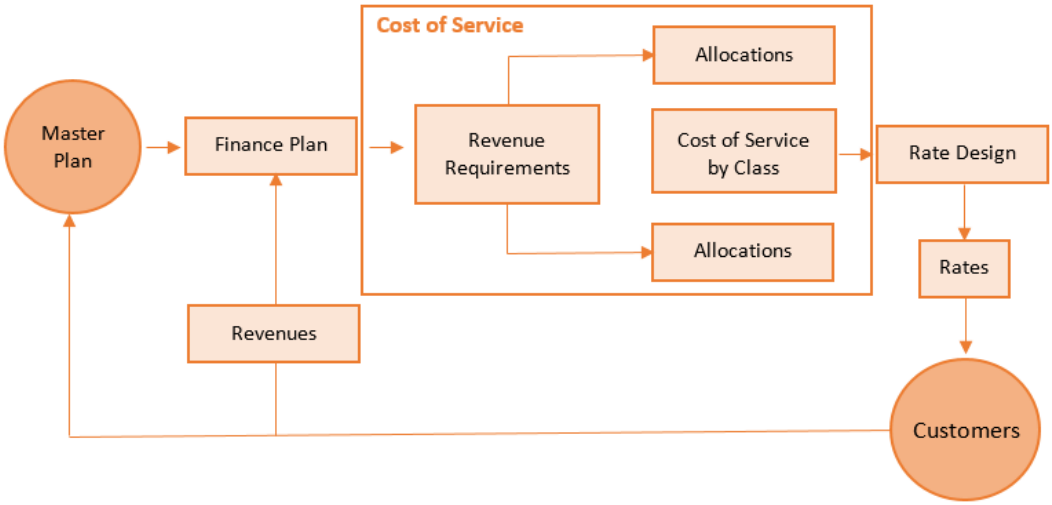
Cost-of-Service Methodology

The basic philosophy behind a COS methodology is that utilities should be self-sustaining enterprises that are adequately financed with rates that are based on sound engineering and economic principles. In addition, rates should be equitable and proportionate to the costs of providing service to a given type of customer. The guidelines of water ratemaking are established by the American Water Works Association (AWWA) in the Manual M1. The guidelines for wastewater ratemaking are established by the Water Environment Federation (WEF) in the Manual of Practice No. 27.

Figure 2 illustrates the flow of information involved in developing COS rates. More specifically, the steps required to develop COS rates include:

- Determination of the systems' annual revenue requirements (i.e., costs)
- Determination of service charge revenue requirements
- Analysis of customer demands and characteristics
- Allocation of service charge revenue requirements by type of customer class
- Design of rates

Figure 2: Cost-of-Service Process



The COS process utilizes information generated in the financial plan, as discussed above in the water and wastewater sections. The CIP is a particularly critical component of the financial plan because the way in which the utility plans to meet its capital costs has major implications on the level of rates that customers pay. One key function of the financial plan is to give management a tool to evaluate the impact of the costs of capital projects on service charges, debt, fund balances, etc. A major result of the financial plan is the annual service charge revenue requirements: the amount of revenue the utility must earn from the assessment of water and wastewater rates in order to meet all of its financial needs and obligations. The COS analysis allocates service charge revenue requirements among CRW's customer classes to determine the cost of service by class.

The financial plan attempts to balance cash sources and uses through 2060; however, the COS analysis focuses on the water and wastewater system revenue requirements for a single test year with two projected years. The main goal was to determine rates for recommendation in 2022. Revenue requirements for 2022 through 2026 were obtained from the financial plans developed for CRW.

The steps of the COS process are as follows.

Determination of Annual System Revenue Requirements

Revenue requirements are total operating and capital costs of the system for a single year to be recovered from all available revenue sources. Under a cash-need approach followed by most governmental-type entities, total revenue requirements typically equal:

- O&M Expenses
- Debt Service
- Cash-Funded Capital Expenditures
- Transfers to Reserves

Determination of Service Charge Revenue Requirements

The portion of annual system revenue requirements to be recovered through rates depends on a utility's financing policy and its other sources of income. To determine the amount of revenue that rates must generate annually, the total revenue requirements must be reduced by non-rate revenue or other system revenue. Other system revenues are defined as all revenues except those derived from water and wastewater rates.

Analysis of Flows and Usage Characteristics

Analyzing annual consumption and flows in the system and other usage characteristics begins with a review of the individual customer classes. CRW currently provides water services to seven customer classes:

- Residential
- Multifamily (with irrigation)
- Multifamily Indoor Use Only
- Commercial (with irrigation)
- Commercial Indoor Use Only
- Irrigation
- Bulk Water

CRW currently provides wastewater to five customer classes:

- Residential
- Multifamily (with irrigation)
- Multifamily Indoor Use Only
- Commercial (with irrigation)
- Commercial Indoor Use Only

The commercial class includes such customers as schools, churches and the non-irrigation accounts. The irrigation class includes all irrigation-only accounts.

To equitably allocate the service charge revenue requirements of the system, an analysis of each customer class' consumption and flow characteristics is necessary. Characteristics such as annual and monthly consumption in millions of gallons, AWMC, average summer monthly consumption and the number of customers by meter size and customer class are analyzed.

Customer Characteristics

CRW's customer characteristics that are analyzed in the study include the following for the water system. These are defined in Appendix B and analyzed further in the Customer Characteristics Analysis in Appendix C.

- Base Water Demand
- Maximum Day Extra Capacity
- Maximum Hour Extra Capacity
- Meters and Services
- Number of Customers

For wastewater the analyzed customer characteristics are shown below and are defined in Appendix B and analyzed further in the Customer Characteristics Analysis in Appendix C.

- Flow Demand
- Meters and Services
- Number of Customers

The percentage of each customer class' share of each characteristic above forms the basis for allocating costs of service to each customer class.

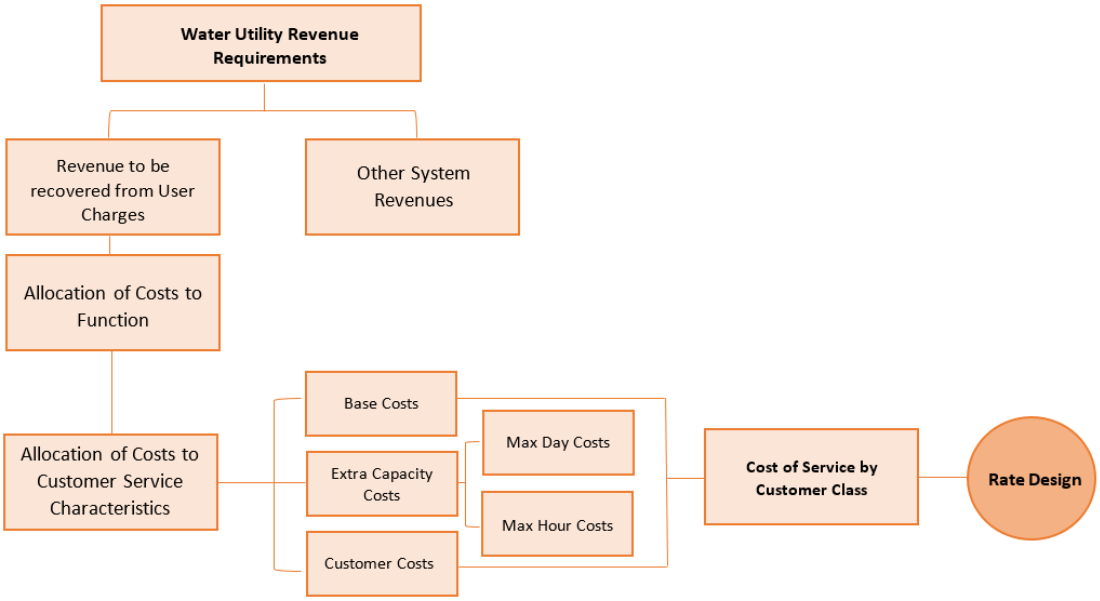
Allocation Costs to Customer Classes

Equitably allocating the water and wastewater systems' service charge revenue requirements to the customer classes involves a multi-step process. Beginning with the O&M costs, the following steps were completed:

- Allocate costs to functions (called unit process in the wastewater system)
- Allocate costs by functions to customer characteristics
- Allocate costs to customer classes based on each class' proportion of the customer characteristics

Figure 3 illustrates how the separate cost allocation steps fit into the overall process of setting rates for the water system.

Figure 3: Rate Setting Process



Allocation of Costs to Functions

A water or wastewater utility's O&M expenditures may be reported according to a chart of accounts that identifies the system functions. Alternatively, the expenses may follow the divisions of the utility such as management, distribution, storage, treatment, billing, etc. The functions need to be identified and costs separated accordingly. The first cost allocation step determines the percentage of each O&M line item to be allocated to one or more of the system's functions. Functionalizing costs in this manner enhances the accuracy and equity of the system cost allocation to the customer classes. The O&M expenditures for the water system were allocated to the following system functions based on fixed asset allocations and direction from CRW Staff:

- Source of Supply
- Treatment
- Pumping
- Transmission
- Distribution
- Storage
- Buildings/Improvements
- Administration
- Tools/Equipment
- Power and Chemicals
- Meters and Services
- Customers and Accounts

The O&M expenditures for the wastewater system were allocated to the following unit processes based on fixed asset allocations and direction from CRW Staff:

- Treatment by Others
- Collection
- Interceptor
- Lift Station
- Administration
- Customer and Accounts
- Meters and Services

Allocation of Costs to Customer Characteristics

The assignment of costs to customer characteristics varies with the allocation methodology used. In the method of COS allocation used, costs are typically assigned to the following customer characteristics for water, which are defined in Appendix B and analyzed further in the Customer Characteristics Analysis in Appendix C.

- Base
- Maximum Day Extra Capacity
- Maximum Hour Extra Capacity
- Customer
- Meter and Services

In the method of cost allocation followed, costs are typically assigned to the following characteristics for wastewater, which are also defined in Appendix B and analyzed further in the Customer Characteristics Analysis in Appendix C.

- Flow
- Number of Customers
- Demand

Distribution of Costs to Customer Classes

The projections of customer class consumption and their respective usage characteristics are calculated in this step. Each class listed above in the report for water and wastewater contributes a different proportion of total annual usage.

For the water utility, base costs are allocated to each class in proportion to its total annual consumption. Costs related to max day and max hour extra capacity are allocated to each class in proportion to the class' estimated peaking factors of each class' extra capacity demands relative to the total extra capacity demands. Peaking factors by class were determined by analyzing monthly consumption data and system peaking factors.

Customer costs typically are allocated based on the proportion of the number of customers of each class. Meters and service costs are allocated according to the proportion of equivalent meters.

For the wastewater utility, flow costs are allocated to each class in proportion to total annual usage (calculated using the AWMC). Costs related to flow are allocated to each class in proportion to the class' estimated flow based on typical domestic flow.

Customer costs are allocated based on the proportion of customers; meters and services costs are allocated according to the proportion of equivalent meters. The proportion of equivalent meters by customer class is also used to allocate demand costs.

Capital Costs

Under the cash basis approach to calculating revenue requirements, capital costs consist of non-debt funded capital expenditures (capital outlays), debt service and transfers to reserve funds. It is important to note that capital costs for improvements to serve new growth are not included in these costs. Unlike O&M costs where each line item is allocated to the water system functions, capital costs under this approach are allocated to customer classes based on the allocation of fixed assets net of accumulated depreciation and contributions. To generate capital cost allocation percentages used under the cash basis approach, each fixed asset line item is allocated according to the following four steps:

1. Allocate net fixed assets used to serve customers to functions (called unit processes in the wastewater fund).
2. Allocate assets by functions to customer characteristics.
3. Allocate assets to customer classes based on each class' proportion of the customer characteristics.
4. Distribute the capital costs to each class of customers based on each class' proportionate use of the allocated assets.

Rate Design Development and Rate Calculation

The last step in the COS analysis is the actual design of the water and wastewater rate structures and calculation of the rates by customer class. Several types of rate structures have been used historically and are currently in use throughout the industry. The most important concern is to ensure the rate structure recovers the cost of service and meets CRW's objectives identified by the community.

Water Cost-of-Service Analysis Results

The steps described above to conduct the water COS analysis were followed. The results presented in this section summarize the cost of service for each of the water system's customer classes for 2022.

Estimated Water System Revenue Requirements

The first two steps of the analysis determine the revenue requirements and service charge revenue requirements or revenues to be recovered from the calculated water rates. Based on the O&M and capital budget and financial planning assumptions, Table 16 represents the water fund revenue requirements for 2022.

Table 16
Water Fund
2022 Revenue Requirements

Description	2022
O&M Expenses:	
Admin	$1,768,981
Capital Projects	$1,487,215
Customer Billing	$297,298
Meter Services	$1,830,629
Meters Retrofit / AMI	$0
Engineering	$549,933
Mapping	$170,573
Field Services	$1,557,611
Facility Maintenance	$1,003,678
Water Plant Operations	$4,983,479
SCADA	$646,636
Reg. & Water Compliance	$297,110
Transfers Out	$401,362
Subtotal O&M	**$14,994,505**
Less :Transfers	($401,362)
Less: Minor Capital	$0
Total O&M	**$14,593,143**
Capital Expenses	
Transfer to Capital Fund	$451,828
Debt Service	$1,740,010
Cash Funded Capital	$0
Minor Capital Outlay	$0
Subtotal Capital	**$2,191,838**
Total Revenue Requirements	**$16,784,981**
Less: O&M Related Non-Rate Revenue	($974,660)
Plus: Capital Related Non-Rate Revenue	$2,628,467
Service Charge Revenue Requirement	**$18,438,788**

After subtracting non-rate revenues and calculating the service charge revenue requirements for 2022 the amount to recover is approximately $18.4 million.

Customer characteristics are estimated for 2022 based on consumption for the most recent twelve months ending December 2020 from CRW's billing records, peaking factors calculated by CRW, plus the projected minimum additional flow by customer class. Minimum additional flow per class is calculated based on a representative customer's annualized AWMC multiplied by projected growth. Table 17 summarizes the projected customer characteristics that calculate the equivalent meters used for the study as well as the consumption patterns used. Table 18 shows the percentages allocated to each customer characteristic from the COS model that is projected for 2022 for each customer class.

Table 17
Water Fund
Customer Characteristics by Customer Class (2022 Projected)

Customer Class	Base Consumption (Kgal)	Max Day Extra Capacity (MGD)	Max Hour Extra Capacity (MGD)	Customers	Equivalent Meter
Residential	2,133,971	5.85	18.78	23,767	23,838
Multifamily w/ Irrigation	91,000	0.25	0.70	112	961
Commercial w/ Irrigation	116,060	0.32	0.93	289	1,645
Bulk	57,956	0.16	0.52	105	105
Irrigation	424,109	1.16	5.78	568	3,502
Multifamily Indoor Use Only	129,215	0.35	0.66	414	2,205
Commercial Indoor Use Only	151,083	0.41	0.91	400	2,513
Total	**3,103,394**	**8.50**	**28.28**	**25,655**	**34,769**

Table 18
Water Fund
Customer Characteristics (2022 Projected)

Customer Class	Base	Max Day	Max Hour	Customer	Meter
Residential	68.76%	64.49%	66.42%	92.64%	68.56%
Multifamily w/ Irrigation	2.93%	2.07%	2.46%	0.44%	2.76%
Commercial w/ Irrigation	3.74%	2.90%	3.28%	1.13%	4.73%

Bulk	1.87%	1.84%	1.84%	0.41%	0.31%
Irrigation	13.67%	25.98%	20.43%	2.21%	10.07%
Multifamily Indoor Use Only	4.16%	0.86%	2.35%	1.61%	6.34%
Commercial Indoor Use Only	4.87%	1.86%	3.22%	1.56%	7.23%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

The service charge revenue requirements reported in Table 16 of $18.4 million are allocated first among functions, then to customer characteristics and finally to each customer class based on the percentages presented in Table 18 above. These results are the cost of service by customer characteristics and class shown in Table 19 below.

Table 19
Water Fund
Water Cost of Service by Customer Class (2022 Projected)

Customer Class	Base	Max Day	Max Hour	Customer	Meter	Total
Residential	$4,935,532	$2,515,819	$1,297,573	$3,426,308	$1,170,833	$13,346,065
Multifamily w/ Irrigation	$210,468	$80,811	$48,056	$16,146	$47,206	$402,687
Commercial w/ Irrigation	$268,428	$113,209	$64,079	$41,663	$80,811	$568,190
Bulk	$134,043	$71,849	$36,209	$15,137	$5,157	$262,395
Irrigation	$980,897	$1,013,640	$399,074	$81,884	$172,007	$2,647,502
Multifamily Indoor Use Only	$298,854	$33,445	$45,889	$59,683	$108,301	$546,172
Commercial Indoor Use Only	$349,431	$72,442	$62,818	$57,665	$123,419	$665,775
Total	**$7,177,653**	**$3,901,215**	**$1,953,698**	**$3,698,486**	**$1,707,734**	**$18,438,786**

Wastewater Cost-of-Service Analysis Results

This section represents the cost of service by customer class for the wastewater system.

Estimated Wastewater System Revenue Requirements

Test year revenue requirements and service charge revenue requirements, or revenues to be recovered from the calculated wastewater rates, are presented in Table 20. The study projects that the wastewater system needs to recover approximately $11.4 million from wastewater customers in 2022.

Table 20 Wastewater Fund 2022 Revenue Requirements	
Description	**2022**
O&M Expenses	
Admin	$874,099
Capital Projects	$105,116
Customer Billing	$290,740
Engineering	$335,100
Mapping	$148,790
Field Services	$995,248
Facility Maintenance	$554,461
Plant Operations	$3,100,264
SCADA	$216,293
Transfers Out	$216,466
Subtotal O&M	**$6,836,577**
Less :Transfers	($216,466)
Less: Minor Capital	$0
Total O&M	**$6,620,111**
Capital Expenses	
Transfer to Capital Fund	$216,466
Debt Service	$332,040
Cash Funded Capital	$0
Minor Capital Outlay	$0
Subtotal Capital	**$548,506**
Total Revenue Requirements	**$7,168,617**
Less: O&M Related Non-Rate Revenue	($95,540)
Plus: Capital Related Non-Rate Revenue	$4,333,120
Service Charge Revenue Requirement	**$11,406,197**

Customer characteristics are estimated for 2022 based on January 2020 to December 2020 data from CRW's billing records and assumed residential strength factors plus the projected minimum additional flow by customer class for wastewater customers. The 2021 cost of service model does not currently incorporate differences between waste strength (i.e. BOD and TSS); therefore, no differences in concentrations are used. Minimum additional flow per class is calculated based on a representative customer's annualized AWMC and projected growth. Table 21 summarizes the projected customer characteristics that calculate the equivalent meters used for the study as well as the consumption patterns used. Table 22 shows the percentages allocated to each customer characteristic from the COS model that is projected for 2022 for each customer class.

Table 21 Wastewater Fund Customer Characteristics by Customer Class (2022 Projected)					
Customer Class	**Flow (Kgal)**	**BOD (Pounds)**	**TSS (Pounds)**	**# of Customers**	**Equivalent Meter**
Residential	928,419	2,951,857	3,192,035	23,609	23,677
Commercial w/ Irrigation	73,113	232,459	251,373	274	1,464
Commercial Indoor Use Only	125,041	397,561	429,909	386	2,335
Multifamily w/ Irrigation	56,236	178,799	193,347	112	961
Multifamily Indoor Use Only	107,645	342,251	370,099	414	2,205
Total	**1,290,454**	**4,102,927**	**4,436,763**	**24,795**	**30,642**

Table 22 Wastewater Fund Customer Characteristics (2022 Projected)					
Customer Class	**Flow (Kgal)**	**BOD (Pounds)**	**TSS (Pounds)**	**Customers**	**Equivalent Meter**
Residential	71.94%	71.94%	71.94%	95.21%	77.26%
Commercial w/ Irrigation	5.67%	5.67%	5.67%	1.11%	4.78%
Commercial Indoor Use Only	9.69%	9.69%	9.69%	1.56%	7.62%
Multifamily w/ Irrigation	4.36%	4.36%	4.36%	0.45%	3.14%
Multifamily Indoor Use Only	8.34%	8.34%	8.34%	1.67%	7.20%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

The service charge revenue requirements reported in Table 20 of $11.4 million are allocated first among functions, then to customer characteristics and finally to each customer class based on the percentages presented in Table 22 above. These results are the cost of service by customer characteristics and class shown in Table 23 below.

Table 23 Wastewater Fund Cost of Service by Customer Class (2022 Projected)					
Customer Class	**Flow (Kgal)**	**BOD (Pounds)**	**TSS (Pounds)**	**Customers**	**Total**
Residential	$5,121,263	$900,274	$500,531	$2,228,892	$8,750,960
Commercial w/ Irrigation	$403,299	$70,897	$39,417	$25,868	$539,481
Commercial Indoor Use Only	$689,741	$121,251	$67,412	$36,442	$914,846
Multifamily w/ Irrigation	$310,204	$54,531	$30,318	$10,574	$405,627
Multifamily Indoor Use Only	$593,782	$104,382	$58,034	$39,085	$795,283
Total	**$7,118,289**	**$1,251,335**	**$695,712**	**$2,340,861**	**$11,406,197**

Wastewater Monthly Service Charge

An important rate design feature that directly affects the rate results is the policy decision to include 20 percent of annual capital costs in the monthly service charge. By doing this, revenue stability is increased and all customers are required to pay a portion of debt service and other capital expenses strictly on an equivalent water meter basis rather than on a wastewater volume basis. This also reduces the volumetric rate and recovers a portion of the PCWRA debt service costs from users who require more capacity in the wastewater system. The demand charge component on the monthly service charge recovers the 20 percent of annual wastewater system capital costs not including the capital costs needed to serve new growth.

Water meter size is closely related to the amount of water a customer can potentially use and therefore discharge into the wastewater system. Accounts with larger meter sizes potentially use more capacity in the system (potential demand). With this rate design feature, accounts with larger meters pay a higher proportionate share of the capital costs as part of the monthly service charge.

Rate Design

Introduction

Once the cost of service by class was determined, the water and wastewater COS based rates were developed based on the existing rate structure. The water rate structure is a water budget based rate structure based on tiered usage. The wastewater fund follows a uniform rate structure, with a monthly service charge that varies by meter size. This section presents the

results of the rate development for water, water resources, wastewater, and stormwater enterprise funds.

Water System Rates

Water Budget Based Rate Structure

A water budget based rate structure identifies a monthly budgeted amount of water by individual account that varies for each customer by AWMC for indoor use and landscaped area and historical evapotranspiration rates (ET). Irrigation requirements per square foot of landscaped area depend on ET for the area of Castle Rock and historical precipitation.

The irrigation season is defined as the months of March through October. Total inches of water allowed per square foot of landscaped area for the Town averages approximately 30 inches. The total water allowance is based on 80 percent of the 7-year average of historical ET for the year. This value is adequate because ET demands are based on the maximum requirements for bluegrass and creates the irrigation allowance.

For non-irrigation or winter months, an irrigation allowance is not included in an account's water budget. Instead, an account's historical average winter monthly consumption (AWMC) provides actual data on the account's winter water usage for the months of November through February.

Water Usage Thresholds

The water budget based rate structure consists of three consumption tiers. Table 24 represents the tier threshold by customer class for the irrigation and winter season.

Table 24 Water Fund Water Usage Thresholds			
Irrigation Season (April 1 through October 31 Consumption)			
Customer Class	**Tier 1**	**Tier 2**	**Tier 3**
Residential	AWMC	Budget	Excess
Multifamily Indoor Use Only	AWMC	N/A	Excess
Multifamily	AWMC	Budget	Excess
Commercial Indoor Use Only	AWMC	N/A	Excess
Commercial	AWMC	Budget	Excess
Irrigation	N/A	Budget	Excess
Winter Season (November 1 through March 31 Consumption)			
Customer Class	**Tier 1**	**Tier 2**	**Tier 3**
Residential	AWMC	N/A	Excess
Multifamily Indoor Use Only	AWMC	N/A	Excess
Multifamily	AWMC	N/A	Excess
Commercial Indoor Use Only	AWMC	N/A	Excess
Commercial	AWMC	N/A	Excess
Irrigation	N/A	N/A	Excess

Explanations of the specific tiered rates follow. Bulk water accounts are not subject to a water budget based rate structure and are not discussed in this section.

Description of Thresholds

For residential, multifamily and commercial accounts with meters providing both indoor and outdoor irrigation water, the rate structure includes three usage tiers with increasing rates per tier billed in thousand gallons (Kgal).

Tier 1 includes all usage up to an individual account's AWMC. This represents the base amount of consumption an individual account requires for basic indoor use. Average AWMC for residential customers is 5,000 gallons per month. AWMC for multifamily and commercial accounts varies according to meter size and type of commercial account.

Tier 2, or irrigation budget, includes usage above an account's AWMC and includes its monthly irrigation allowance. The threshold will vary by month during the irrigation months. An account's landscaped area in square feet (up to a maximum of 7,000 square feet) and the monthly irrigation requirements (ET) will determine the monthly irrigation allowance.

Tier 3, or excess tier, includes all usage greater than an account's AWMC plus irrigation allowance during a month. The goal of this tier is to target users who may be using water inefficiently.

Tiered Rates

The actual rates calculated for consumption tiers in the water budget rate structure recommended here are tied to the results of the COS analysis. Each account pays a fixed monthly service charge and a volumetric charge. A monthly water resources charge per single family equivalent (SFEs, varying by meter) is added to an account's bill. The water resources charge is discussed below.

The water rate structure consists of three increasing tiered rates:

- Tier 1 – Base COS Rate
- Tier 2 – Base plus Extra Capacity Rates by Customer Class
- Tier 3 – Excess Use Rate to Recover CRW's Remaining Revenue Requirements

The rate per 1,000 gallons for Tier 1 equals the cost to CRW of providing one unit of water to its customers on an average use basis. It differs from the average COS rate because it does not include any peaking related costs. This rate is the same for all customer classes and provides an incentive for customers to maintain low water use.

The rate for Tier 2 was intended to represent the cost of providing base and peaking related water demands to CRW's customers. It includes the costs of maximum day and maximum hour costs of delivering water during the peak irrigation periods. This rate varies by customer class due to differences in peaking characteristics among the classes. Irrigation requirements cause peaking on the system; therefore, the water used within a customer's irrigation budget is charged at the peaking rate.

Finally, the rate for Tier 3 recovers revenues for usage above each customer's Tier 2 budget. The rate is higher than Tier 2 to encourage customers to stay within their Tier 2 budgets.

Residential accounts are subject to a water conservation surcharge for usage greater than 40,000 gallons per month. This surcharge intends to send a conservation price signal to customers with excessive usage. The water rates are shown in Tables 25 and 26 below.

Water Resources Monthly Service Charge

CRW currently assesses all water resources customers a fixed monthly service charge per SFE. Table 27 below shows the proposed 2022 fixed monthly service charge per SFE by meter size.

Stormwater Monthly Service Charge

This year's study update used assumptions established during the 2010 study and reviewed periodically for determining the stormwater monthly service charge. This year's study update used revised assumptions. For single family residential units, the percent imperviousness was determined based on the following assumptions:

1. Density of 3 units per acre from the water design criteria section of the Town of Castle Rock – Public Works Regulations – February 12, 1999
2. Typical two story homes
3. Average home size of 2,100 sq. ft. from Douglas County Assessor data

Using these assumptions and data from the Urban Drainage and Flood Control District (UDFCD) Criteria Manual, a single family residential account's percent imperviousness was estimated to be 33 percent.

The Town's Geographical Information System (GIS) data indicates the average lot size of a single family home in the Town is 9,864 sq. ft., Applying 33 percent imperviousness to this lot size results in an impervious area of 3,255 sq. ft. per SFE. The assumption of one SFE used in this study is 3,255 sq. ft.

The service charge is also calculated based on a percent imperviousness for non-residential accounts during this 2021 study update. The average percent imperviousness for multifamily and other non-residential properties was assumed to be 80 percent, unless otherwise indicated in CRW's billing system data based on an actual survey of the property. SFEs were calculated based on the percent imperviousness of each property multiplied by its parcel size.

Wastewater Monthly Service Charges

CRW currently charges wastewater customers a fixed monthly service charge that consists of a customer charge and a demand charge, plus a uniform volumetric rate for wastewater flow. An account's flow is estimated using its AWMC. The proposed 2022 wastewater rates consist of a monthly charge that includes the demand charge by meter size, plus a uniform volumetric rate for all customers as shown in Table 28 below.

Summary

CRW has completed the 2021 Rates and Fees Study update, including financial planning, COS rate studies and rate design. The purpose of the study is to provide an update for water, water resources, wastewater and stormwater fund rates designed to meet CRW policies and objectives during the years 2022 through 2026. The findings are based on a thorough review of the information provided.

Proposed Rates for 2022 by Enterprise Fund

Rates for the five-year study period (2022-2026) were projected using the percentage rate revenue increases projected by the financial plan. The 2022 proposed rates are shown in the following tables by enterprise fund.

Table 25
Water Fund
Proposed 2022 Monthly Service Charges

Meter Size	Monthly Charges
5/8" x ¾"	$9.54
¾"	$9.54
1"	$13.72
1.5"	$18.78
2"	$26.00
3"	$41.78
4"	$94.12
6"	$147.26
Bulk Hydrant	$18.78
Bulk Station	$9.54

Table 26 Water Fund Proposed 2022 Volumetric Rates by Tier			
Irrigation Season (April 1 through October 31 Consumption)			
Customer Class	**Tier 1 (AWMC)**	**Tier 2 (Outdoor)**	**Tier 3 (Excess)**
Residential	$2.82	$5.74	$8.56
Multifamily Indoor Use Only	$2.82	N/A	$3.70
Multifamily	$2.82	$4.87	$7.28
Commercial Indoor Use Only	$2.82	N/A	$3.94
Commercial	$2.82	$4.93	$7.37
Irrigation	N/A	$7.86	$11.78
Winter Season (November 1 through March 31 Consumption)			
Customer Class	**Tier 1 (AWMC)**	**Tier 2 (Outdoor)**	**Tier 3 (Excess)**
Residential	$2.82	N/A	$5.74
Multifamily Indoor Use Only	$2.82	N/A	$3.70
Multifamily	$2.82	N/A	$4.87
Commercial Indoor Use Only	$2.82	N/A	$3.94
Commercial	$2.82	N/A	$4.93
Irrigation	N/A	N/A	$11.78
Bulk Water Customers			
Bulk Hydrant	$7.86	N/A	N/A
Bulk Station	$9.82	N/A	N/A

An additional surcharge of $8.56 is added for any water usage over 40,000 gallons.

Table 27 Water Resources Fund Proposed 2022 Monthly Service Charges	
Meter Size	**Monthly Charges**
5/8" x ¾"	$26.93
¾"	$26.93
1"	$102.08
1.5"	$193.13
2"	$322.95
3"	$606.57
4"	$1,547.39
6"	$2,502.22
Bulk Hydrant	$193.13
Bulk Station	$26.93

Table 28 Wastewater Fund Proposed 2022 Monthly Service Charges and Volumetric Rate	
Meter Size	**Monthly Charges**
5/8" x ¾"	$8.57
¾"	$8.57
1"	$13.64
1.5"	$19.78
2"	$28.53
3"	$47.66
4"	$111.11
6"	$175.53
Volumetric Rate - All Applicable Customers, Per Kgal	$6.07

Table 29 Stormwater Fund Proposed 2022 Monthly Service Charge		
Monthly Stormwater Fee		
All Customers, per SFE		$7.30
SFE Assignment		
Customer Class	**Impervious Sq. Ft.**	**SFE**
Single Family Attached & Detached	3,255	1
Non-Single Family (Multifamily & Commercial)	Parcel size time 80% imperviousness divided by 3,255 impervious sq. ft. per SFE = # of SFEs	

Recommendations

Please see Appendix D for study review letter from Stantec Consulting Services Inc.

For a copy of the supporting data analysis, please contact Castle Rock Water at 720-733-6000.

Appendix A

List of Acronyms

The following provides a list of acronyms used throughout the report and its meaning:

- AF: Acre Feet
- AWMC: Average Winter Monthly Consumption
- BOD: Biochemical Oxygen Demand
- CIP Capital Improvement Program
- COP: Certificates of Participation
- COS: Cost of Service
- ET: Evapotranspiration Rates
- FMP: Financial Management Plan
- FY: Fiscal Year
- GPM: Gallons Per Minute
- GIS: Geographical Information System
- Kgal: Thousand (1,000) Gallons
- O&M: Operations and Maintenance
- PCWRA: Plum Creek Water Reclamation Authority
- SDF: System Development Fee
- SFE: Single Family Equivalent
- Sq. Ft.: Square Feet
- TSS: Total Suspended Solids

Appendix B

Definitions

The following are definitions used in this study:

- 2013 Hybrid Model – The water resources strategic plan set in 2013 as to how rates would be projected in order to achieve the long term water goals for CRW.
- System Growth – The projected growth within the Town that is used to project the increased number of SFEs per year for each fund.
- Escalation Factors – As part of the projections of O&M costs for the study period, CRW has provided a 5-year O&M budget. CRW's budget planning documents are used for the O&M projections within the 5-year budget period. After this period, costs were escalated at 1.55 percent, which is the best estimate based on the average Engineering News Record (ENR) index for the 5-year period 2015-2020 for the Denver area.
- Rate Revenue Increases – System revenues are derived primarily from service charges or rates. Revenue is a function of price and the current financial plans calculate the increases needed.
- System Development Fee (SDF) Revenues – SDFs are one time charges to new connections to the system that are intended to recover investments in capacity to serve new customers. SDF revenue is directly related to the SFE and growth assumptions. SDF revenues are used to fund the growth related CIP and are presented in Volume 2.
- Revenue Bonds – Current and projected debt for the funds.
- Inter-Fund Loans – Loans borrowed between funds and paid back with interest.
- Other Revenues – This source of funds includes non-rate related revenues, miscellaneous revenues, fines, leases, intergovernmental agreements and interest earning.
- Fund Balances – The balances needed to be kept in different reserves for each fund. There are minimums per fund. These can include the operating fund, the capital reserve fund, the catastrophic failure reserve fund, and the rate revenue stabilization reserve fund.
- Operating Expenses – Represents the basic costs of operating the system. Projection of O&M expenses varies depending on the degree of fixed versus variable costs for each budgeted line item. Most of the costs are fixed and do not escalate with increased demand on the system. Meanwhile, variable costs escalate both with increased system use and the expected inflation rate. CRW staff have made a reasonable effort to separate the two for projection purposes. O&M expenses during the rate period were provided by CRW. The goal is to keep costs at or under budget for capital and operational budgets each year by fund and to continuously strive towards more efficient operations.
- Personnel Services – These are one of the most important cost drivers in operating expenses. Additional staff needed over the next five years are included in the 5-year financial planning document.

- Energy Costs – These are a major component in plant operations and an important cost driver in variable operating expenses. Over the next 5 years, energy costs are expected to increase at a rate higher than inflation at approximately 5%.
- Capital Improvements – Capital improvement projections are provided by year for the study. Capital improvement costs were provided by CRW for years 2022-2060. These are reviewed and updated annually.
- Debt Service – The debt service sub-fund currently carries debt service obligations of each fund. As stated in the FMP, CRW aims to minimize debt carrying costs at or below industry standards.
- Debt Service Coverage – Outstanding revenue bonds require operating revenues to be 1.2 times the total annual debt service amount.
- Base Water Demand - the average annual water consumption in thousand gallons for each customer class. This was obtained from the 2021 Customer Characteristics Analysis using the billing data for twelve months ending December 2020.
- Maximum Day and Maximum Hours Extra Capacity Demands - Water demands that exceed average levels of water usage by system customers. Maximum day and hour extra capacity demands are calculated by applying the class peaking factors to the base demand, which average 2.14 for peak day and 5.35 for peak hour.
- Meters and Services – the total number of equivalent meters. These are derived by applying the average actual usage meter equivalency schedule to the number of meters of each size by class.
- Number of Customers – equals the projected total number of customers by customer class.
- Flow Demand represents the quantity discharged from customers directly to the wastewater system. Since, wastewater discharge is not metered, wastewater flows are measured by the average winter monthly consumption (AWMC) of each customer. AWMC was provided by the 2021 Customer Characteristics Analysis, which summarized the billing data for January 2020 to December 2020.
- Pollutant Strength including BOD and TSS - represents total pounds of loadings expected from each customer class. Pounds of loadings by customer class are calculated assuming domestic strength concentrations and volume of flow for each customer class.
- Base Costs – These vary with water consumption under average demand conditions. They are the costs that would be incurred if water consumption occurred evenly from day to day and hour to hour, and the system did not require investment in additional capacity to meet peak requirements.
- Maximum Day and Maximum Hours Extra Capacity Costs (Extra Capacity Demands) – The costs incurred to meet water demands that exceed average levels of water usage by system customers. Extra capacity costs are incurred because of water usage variations and peak demands imposed on a water system. Such demands are directly related to customer water consumption characteristics and fire-flow demands. Extra capacity costs are typically divided into costs incurred to meet maximum day and maximum hour water demands of system customers.

- Customer Related Costs – Those costs incurred to serve customers, regardless of water demands or wastewater flows. Customer costs vary with the number of customers. Examples of these costs include administration and billing costs.
- Meter and Services Costs – These vary with the size of the meter and/or service used to serve the customer. Examples of meter and service costs include meter replacement and maintenance costs.
- Flow Costs – These vary with the hydraulic flow of sanitary sewage. The relative strength of sewage does not affect flow costs. Typically, flow costs include the cost of operating lift stations and the capital costs for assets that are designed based on hydraulic flow requirements.
- Pollutant Strength Costs – Include BOD and TSS, represent costs incurred to treat wastewater of various qualities. As the wastewater treatment processes are the responsibility of PCWRA and the wastewater fund does not charge for strength characteristics, the single unit process allocated to the strength characteristics is Treatment by Others.
- Demand Related Costs – Those capital related costs that are to be recovered on an equivalent water meter basis. In this COS analysis, 20 percent of the wastewater system's capital costs are recovered in this manner. The demand related cost represents a portion of the cost of capacity in PCWRA's system.

Appendix C

Customer Characteristics Analysis

Appendix D

Stantec Consulting Services Inc. Study Review Letter

CUSTOMER CHARACTERISTICS ANALYSIS

2021 RATES AND FEES STUDY

PREPARED BY:

CASTLE ROCK WATER
BUSINESS SOLUTIONS TEAM

September 2021

TABLE OF CONTENTS

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 FY2020. 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 FY2021 and FY2022.

An average consumption based on the most current three years (2018-2020) 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 (2018-2020) 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 customer's 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 2012-2020 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 show the Water Efficiency Plan (WEP) accounts which started in 2019. Although we do not have much data yet, we will continue to analyze the consumption patterns over time to determine if these customers are meeting the spirit of the intent to consume less water than a 1 SFE account.

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 HOA's, bulk water accounts consumption and Town accounts consumption patterns over time. In this year's study we added a section comparing 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 2020 billing data plus growth projections for 2021 and 2022 for customers who are receiving water resources and wastewater services. Stormwater Single Family Equivalents (SFE's) 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.

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 (Jan20-Dec20). This shows that 23,781 customers were receiving water service during this capture period. The FY2019 accounts based on 12 months of billing data (Jan19-Dec19) showed 22,645 customers were receiving water service. There are 1,136 more accounts in FY2020 than FY2019. 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 (SFE's) 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 (FY2020)

Meter Size	Residential	Multifamily	Commercial	Bulk	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	1,871	-	-	-	2	4	9	1,886
3/4"	20,070	14	126	107	200	101	126	20,744
1"	26	25	70	-	110	100	97	428
1.5"	-	55	51	-	147	118	90	461
2"	-	15	27	-	84	41	49	216
3"	-	2	13	-	7	3	14	39
4"	-	1	-	-	2	-	2	5
6"	-	-	2	-	-	-	-	2
Total	21,967	112	289	107	552	367	387	23,781

Chart 1 below shows the growth in residential accounts from 2011-2020 and the projected growth for FY2021 and FY2022. An increase of 1,000 permits for 2021 and 800 for 2022 is being forecasted by the Town's Development Services Department for the residential customer class.

CHART 1: RESIDENTIAL WATER ACCOUNTS

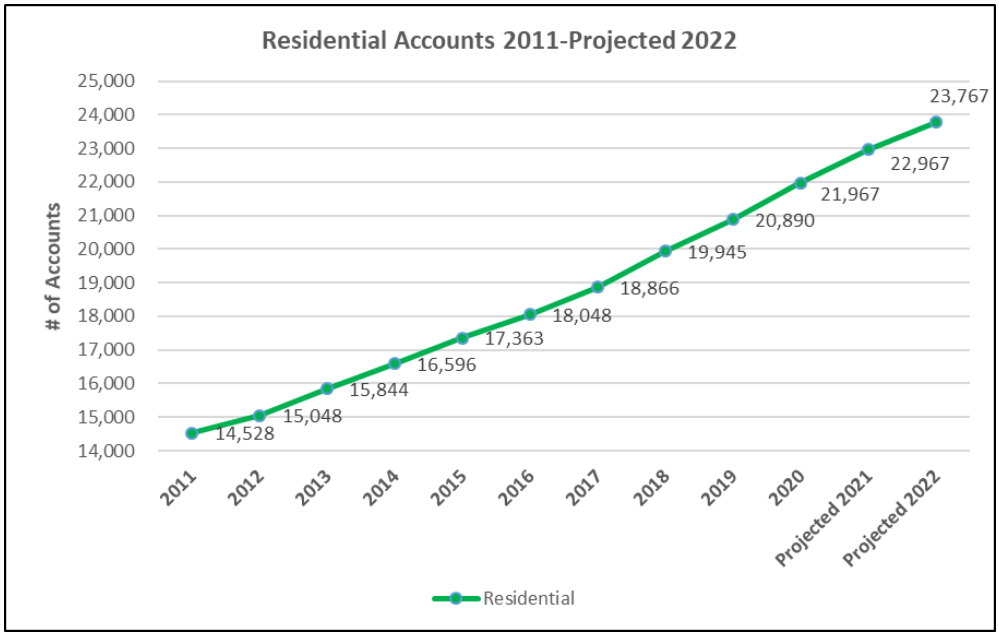
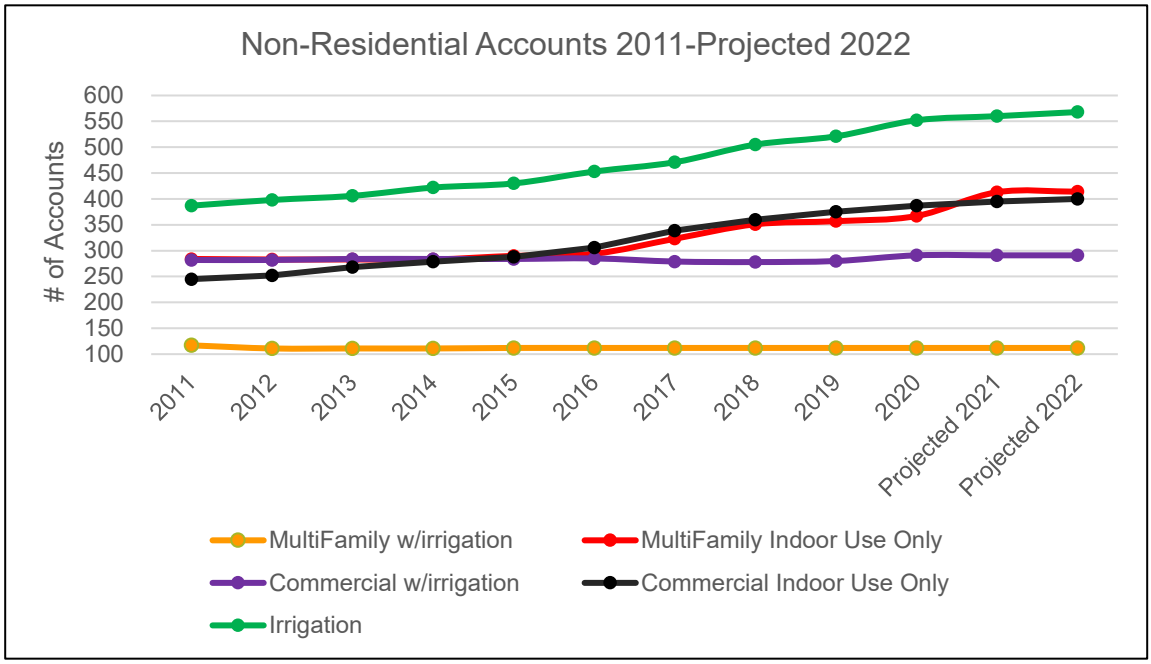


Chart 2 shows the number of non-residential accounts from 2011-2020. Over the last few years, we have started to see multifamily indoor use only number of accounts increasing. The projection for 2021 shows the biggest increase seen in recent years. However, the projection for 2022 shows this curve starting to flatten back out.

CHART 2: NON-RESIDENTIAL WATER ACCOUNTS



Castle Rock Water projects FY2022 water accounts by using FY2020 billing data plus the projected growth for FY2021 and FY2022. The FY2022 water accounts are projected to equal 25,550 (23,767 for residential and 1,783 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:

2021 Projected New Accounts by Customer Class:

1,000	Residential (1 SFE)
46	Multi-Family
8	Commercial
8	Irrigation
1,062	Total

2022 Projected New Accounts by Customer Class:

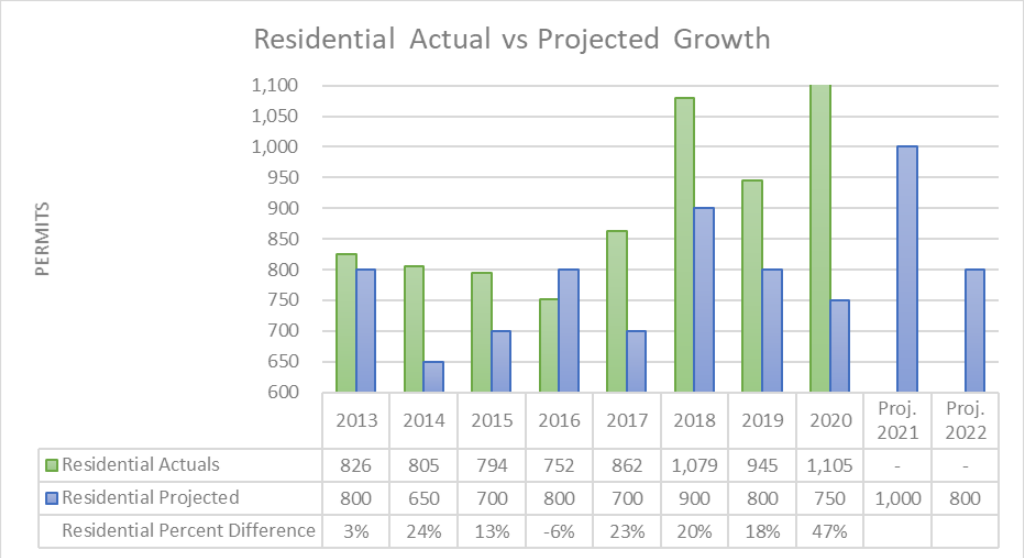
800	Residential (1 SFE)
1	Multi-Family
5	Commercial
8	Irrigation
814	Total

Projections are for 1,062 new accounts for FY2021 and 814 new accounts for FY2022 for a total increase through FY2022 of 1,876 new accounts.

2013-2022 ACTUAL GROWTH VERSUS PROJECTED GROWTH

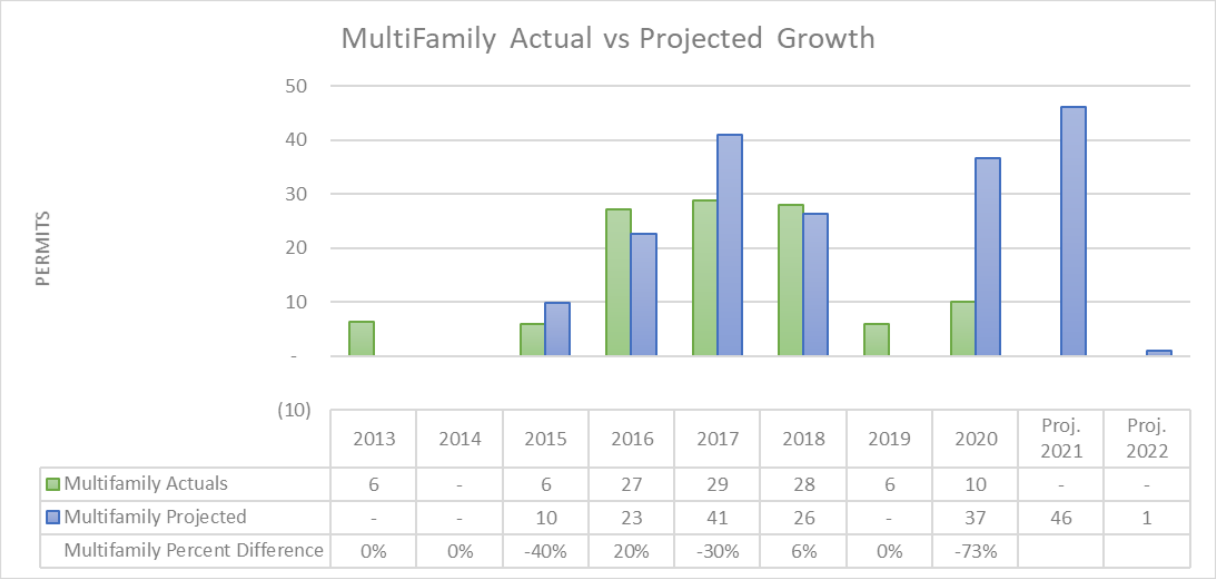
CRW has seen significant growth over the last several years. The projections received each year from the Town's Development Services Department are important components to the rate models and revenue projections when looking at needed rate or fee increases year over year. When looking at future projections 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. For example, projections for 2021 shows 644 permits for multifamily in Chart 4 which equates to approximately 46 new water service accounts shown in Chart 2 above. Based on historical trends, the average number of units served per master metered account is approximately 14.

CHART 3: RESIDENTIAL GROWTH



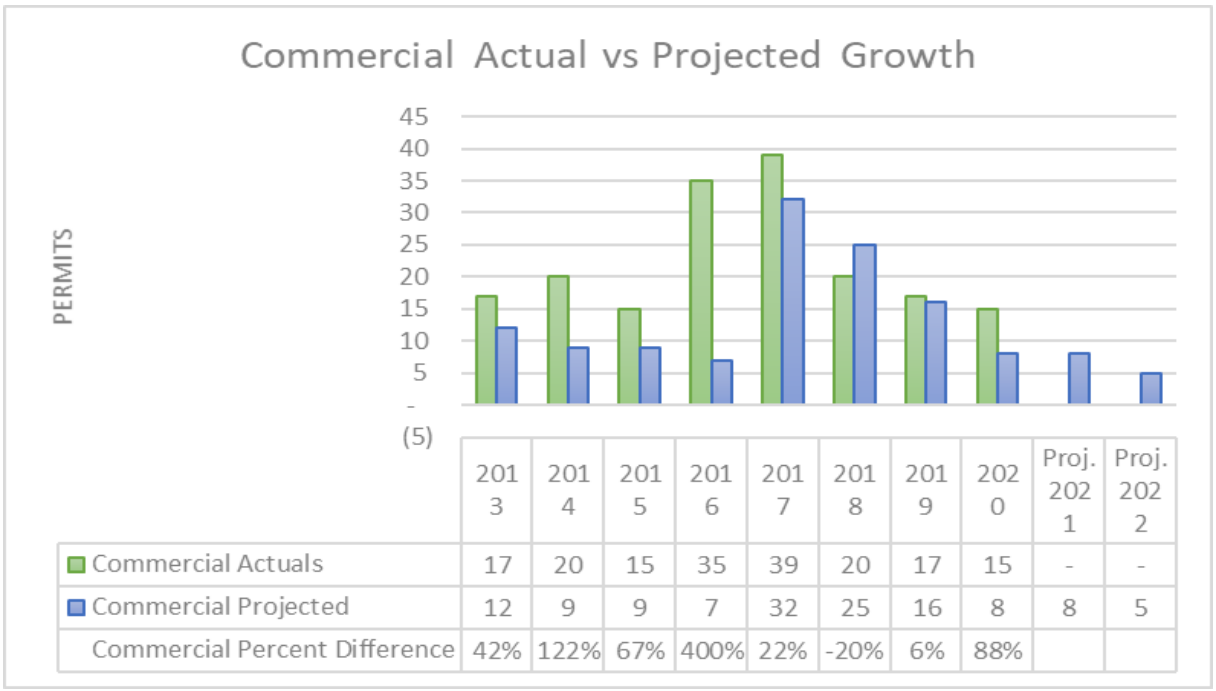
	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Residential Actuals	826	805	794	752	862	1,079	945	1,105	-	-
Residential Projected	800	650	700	800	700	900	800	750	1,000	800
Residential Percent Difference	3%	24%	13%	-6%	23%	20%	18%	47%		

CHART 4: MULTIFAMILY GROWTH



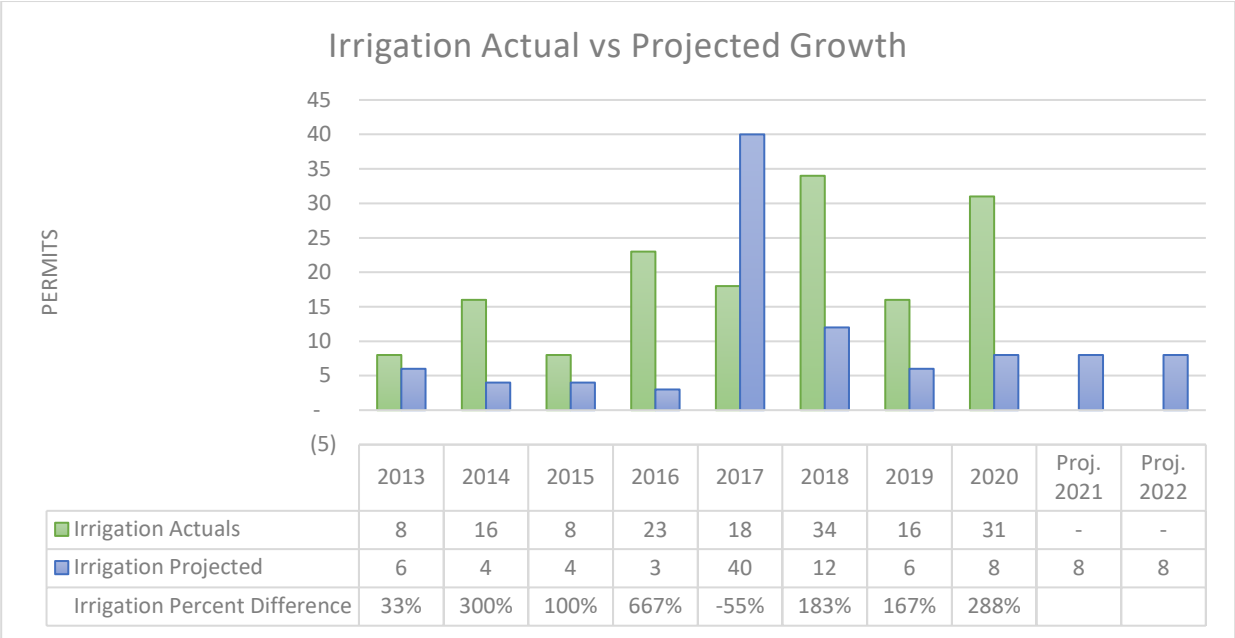
	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Multifamily Actuals	6	-	6	27	29	28	6	10	-	-
Multifamily Projected	-	-	10	23	41	26	-	37	46	1
Multifamily Percent Difference	0%	0%	-40%	20%	-30%	6%	0%	-73%		

CHART 5: COMMERCIAL GROWTH



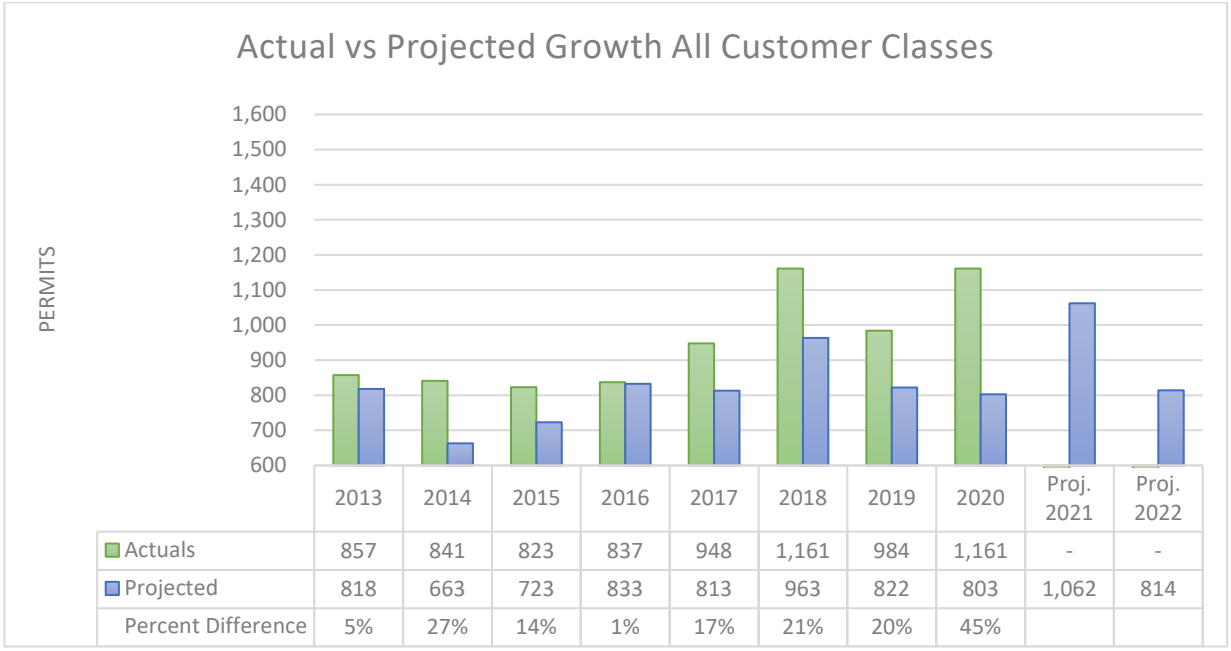
	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Commercial Actuals	17	20	15	35	39	20	17	15	-	-
Commercial Projected	12	9	9	7	32	25	16	8	8	5
Commercial Percent Difference	42%	122%	67%	400%	22%	-20%	6%	88%		

CHART 6: IRRIGATION GROWTH



	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Irrigation Actuals	8	16	8	23	18	34	16	31	-	-
Irrigation Projected	6	4	4	3	40	12	6	8	8	8
Irrigation Percent Difference	33%	300%	100%	667%	-55%	183%	167%	288%		

CHART 7: All CUSTOMER CLASSES COMBINED GROWTH



	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Actuals	857	841	823	837	948	1,161	984	1,161	-	-
Projected	818	663	723	833	813	963	822	803	1,062	814
Percent Difference	5%	27%	14%	1%	17%	21%	20%	45%		

3-YEAR AVERAGE CONSUMPTION BY CUSTOMER CLASS

Table 2 shows the 3-year average monthly consumption by meter size and customer class for 2018-2020 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". Although the number of 1" residential meters is very small at 26 accounts, the impact to the overall weighted average is significant.

TABLE 2: 3-YEAR AVG MONTHLY CONSUMPTION BY CUSTOMER CLASS & METER SIZE (2018-2020)

Meter Size	Residential	Multifamily	Commercial	Irrigation	Multifamily Indoor Use Only	Commercial Indoor Use Only
5/8"	5.23	-	-	10.85	3.46	6.41
3/4"	7.81	21.02	8.56	31.82	3.03	9.38
1"	16.75	30.66	30.62	67.11	16.08	22.98
1.5"	-	68.86	47.24	151.11	41.90	37.13
2"	-	100.53	83.12	238.72	69.67	61.09
3"	-	315.26	145.77	410.29	178.21	88.53
4"	-	406.89	-	903.55	-	1,487.89
6"	-	-	678.83	-	-	-

TABLE 2A: 3-YEAR AVG MONTHLY CONSUMPTION RESIDENTIAL METER SIZES (2018-2020)

Residential Accounts								
Meter Size	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020
5/8"	5.35	6.19	5.70	5.44	5.37	5.44	5.26	5.23
3/4"	7.21	7.70	7.30	7.30	7.48	7.68	7.59	7.81
1"	11.42	13.14	14.17	21.26	17.86	18.69	17.48	16.75
Average	7.99	9.01	9.06	11.33	10.24	10.60	10.11	9.93
Weighted Average	7.10	7.62	7.21	7.20	7.37	7.56	7.44	7.62

CHART 8: 3-YEAR AVG MONTHLY CONSUMPTION RESIDENTIAL ACCOUNTS

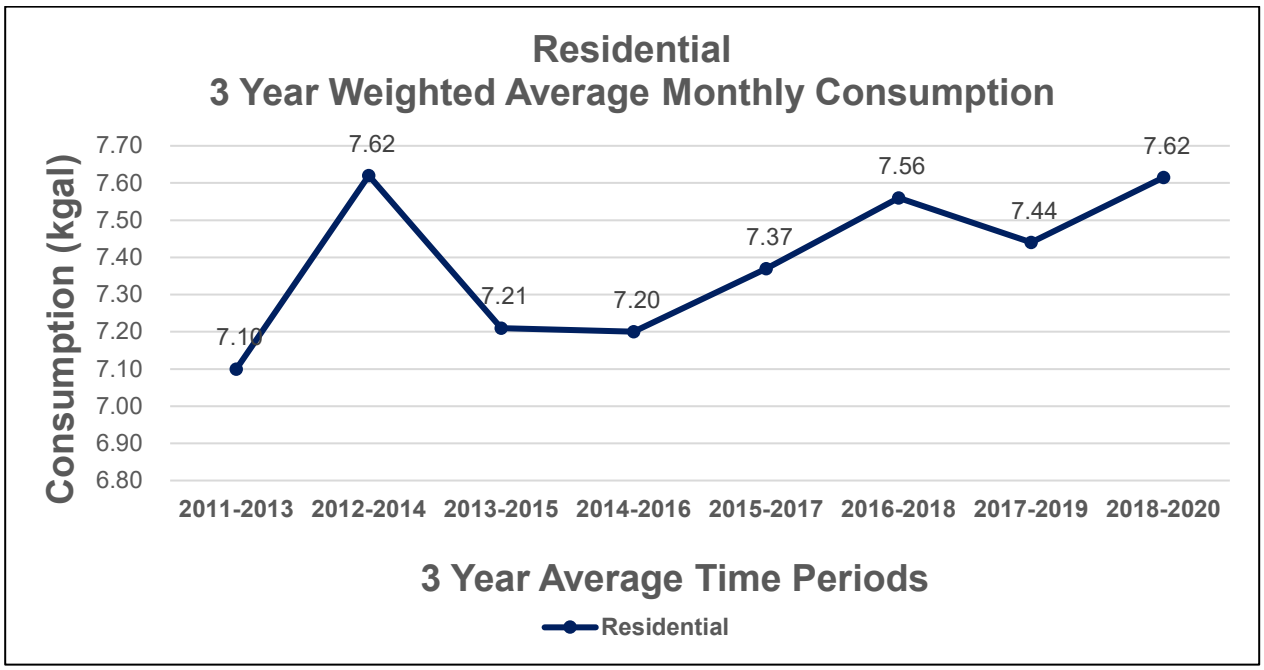
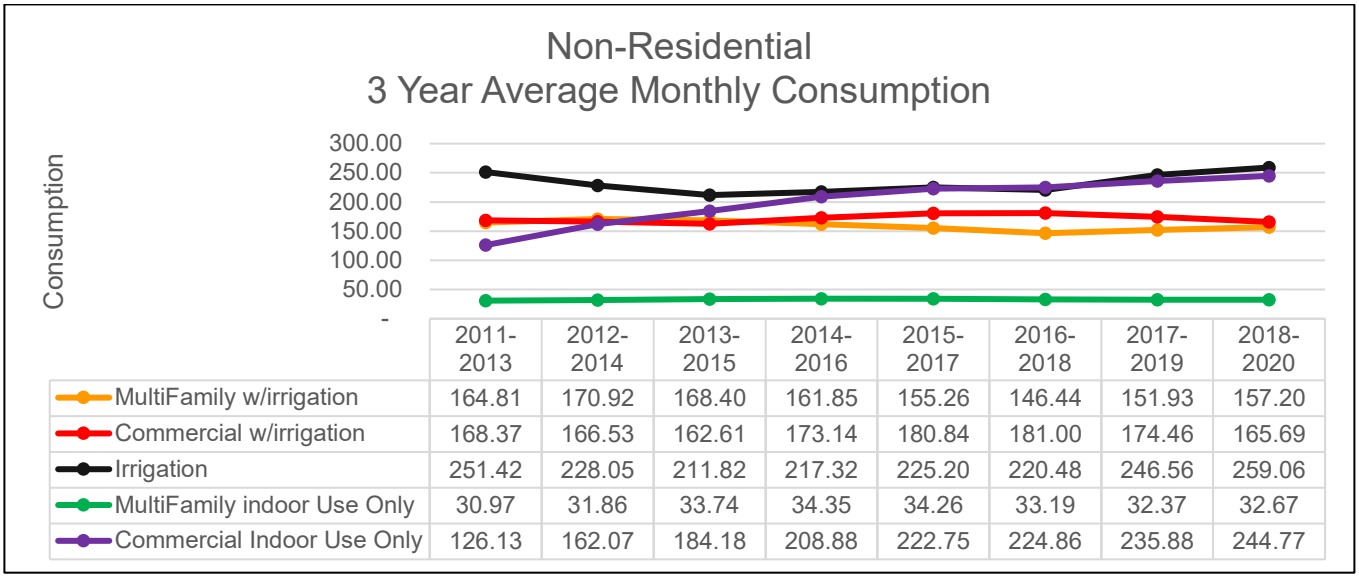


CHART 9: 3-YEAR AVG MONTHLY CONSUMPTION NON-RESIDENTIAL ACCOUNTS

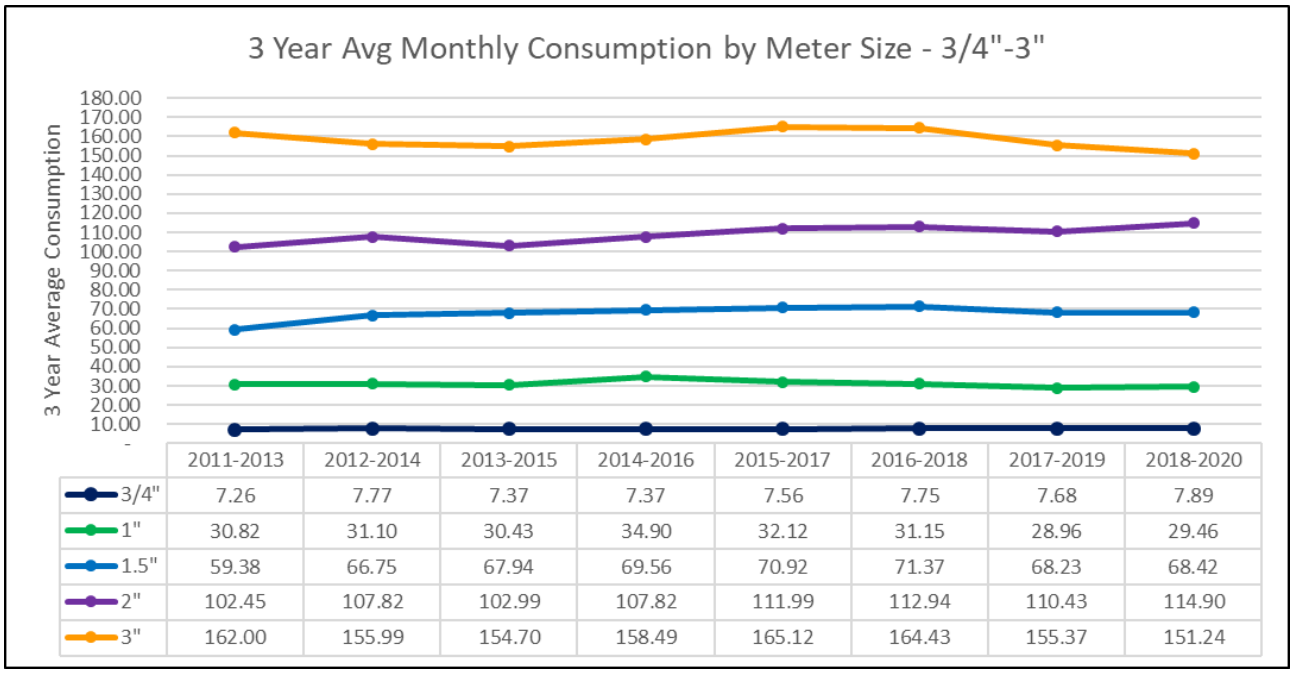


	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020
MultiFamily w/irrigation	164.81	170.92	168.40	161.85	155.26	146.44	151.93	157.20
Commercial w/irrigation	168.37	166.53	162.61	173.14	180.84	181.00	174.46	165.69
Irrigation	251.42	228.05	211.82	217.32	225.20	220.48	246.56	259.06
MultiFamily indoor Use Only	30.97	31.86	33.74	34.35	34.26	33.19	32.37	32.67
Commercial Indoor Use Only	126.13	162.07	184.18	208.88	222.75	224.86	235.88	244.77

The 3-year average monthly consumption shown above in Chart 9 is for all non-residential meter sizes combined by customer class. While all customer classes have stayed relatively flat, commercial indoor use only accounts 3-year averages have been increasing year over year. We start to see the increase in average consumption in this customer class with the addition of the 4″ meter installed in 2013 at the hospital.

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.

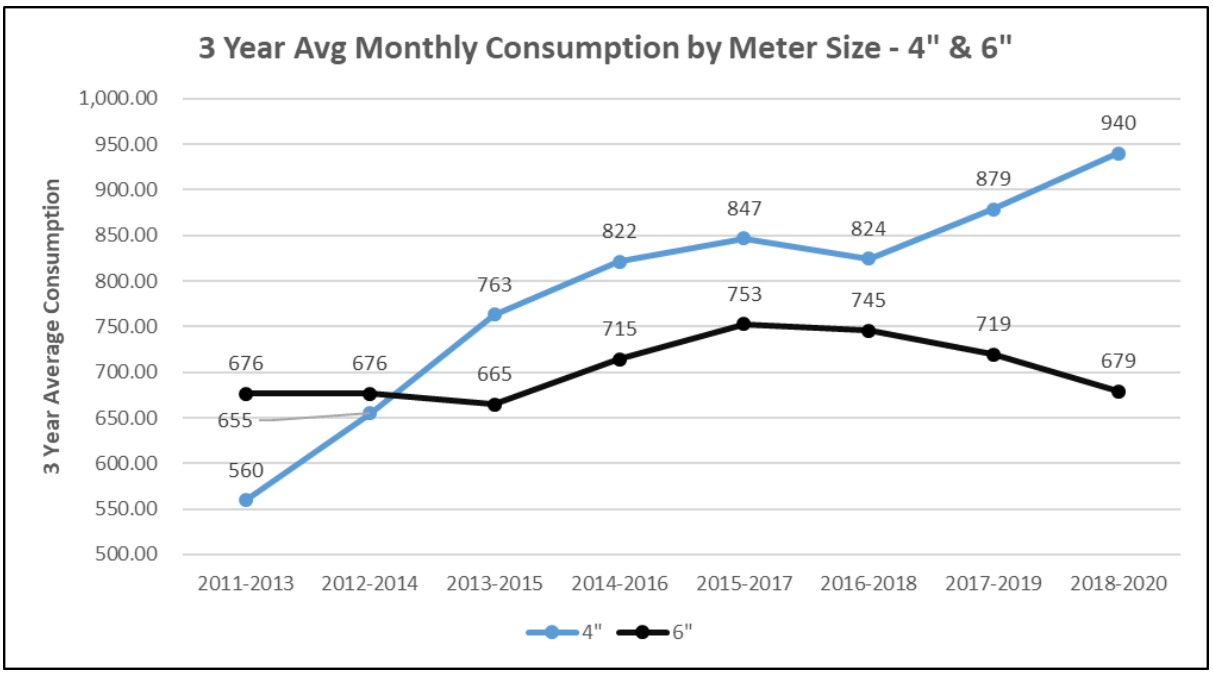
CHART 10: 3-YEAR AVG MONTHLY CONSUMPTION BY METER SIZE ¾″ to 3″ ALL CUSTOMER CLASSES



	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020
3/4"	7.26	7.77	7.37	7.37	7.56	7.75	7.68	7.89
1"	30.82	31.10	30.43	34.90	32.12	31.15	28.96	29.46
1.5"	59.38	66.75	67.94	69.56	70.92	71.37	68.23	68.42
2"	102.45	107.82	102.99	107.82	111.99	112.94	110.43	114.90
3"	162.00	155.99	154.70	158.49	165.12	164.43	155.37	151.24

Chart 11 below shows the average consumption for the two 6″ meters in service is trending downwards slightly over the last two comparison periods. 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 (2018-2020)

Meter Size	With Irrigation	Without Irrigation
5/8"	6.53	3.32
3/4"	10.39	4.29
1"	36.02	17.47
1.5"	83.38	38.71
2"	140.83	58.45
3"	183.61	97.66
4"	1,015.71	837.39
6"	770.95	543.93

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

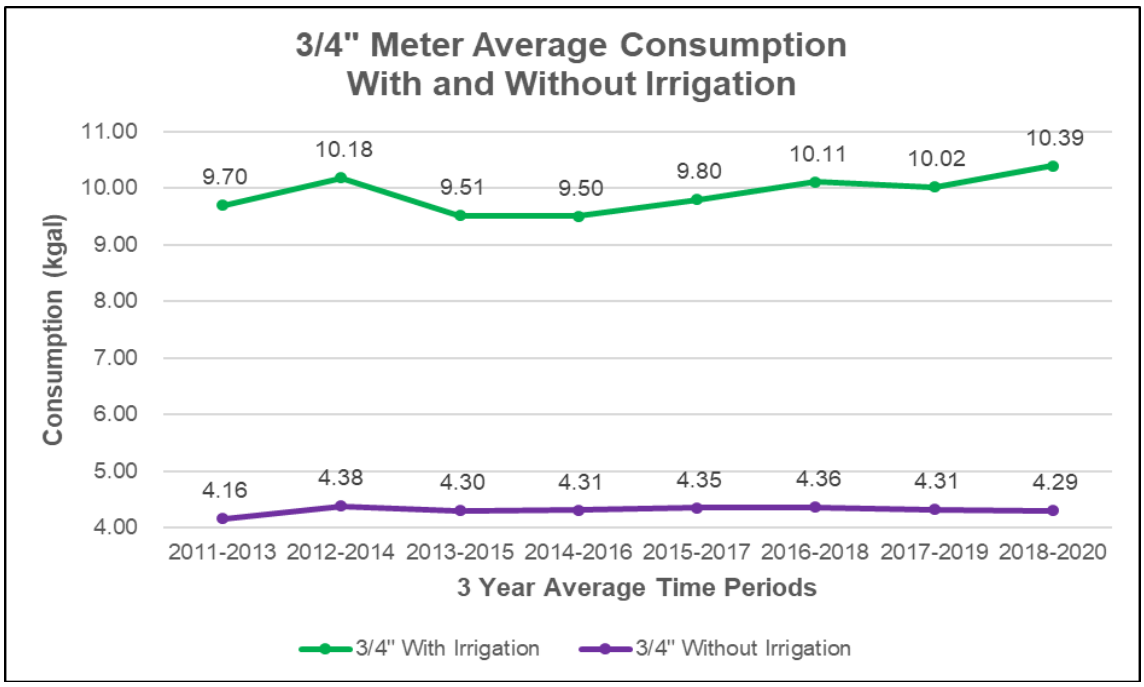


Chart 12 above shows that ¾" meter accounts usage "without irrigation" is very consistent from year-to-year. Approximately 97% of the ¾" meters are residential accounts. This trend indicates indoor water usage from year-to-year for ¾" meters is staying consistent, even with the increase in the number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

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

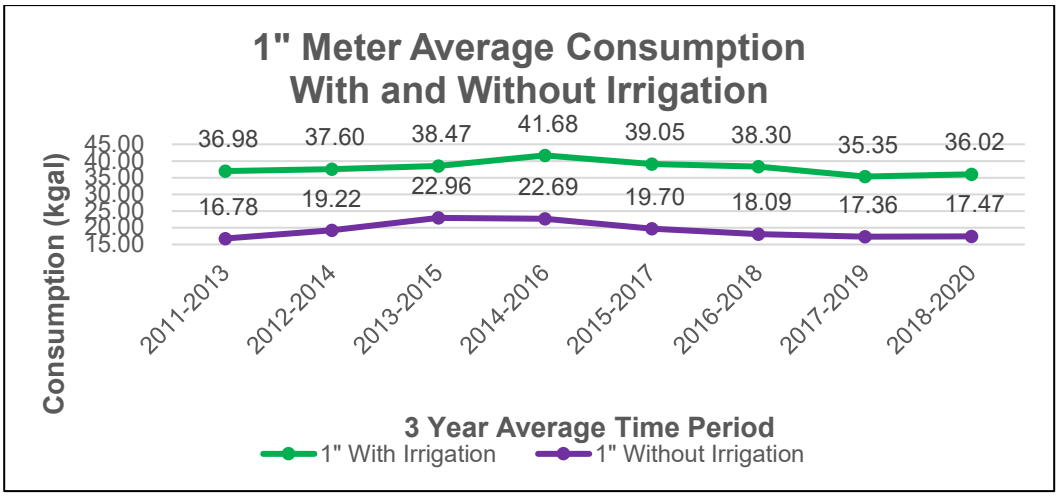


Chart 13 above shows that 1" meter accounts usage both with and without irrigation are showing downward trends over the last few years. Chart 14 below shows the accounts usage

"without irrigation" for all 1.5" accounts is relatively flat over the comparison periods until the last two comparison periods where usage trended slightly downward. Despite an increase of 18 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 also seeing a relatively flat trend for the 1.5" meter usage "with irrigation" until this latest time period comparison where we see a slight decrease 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

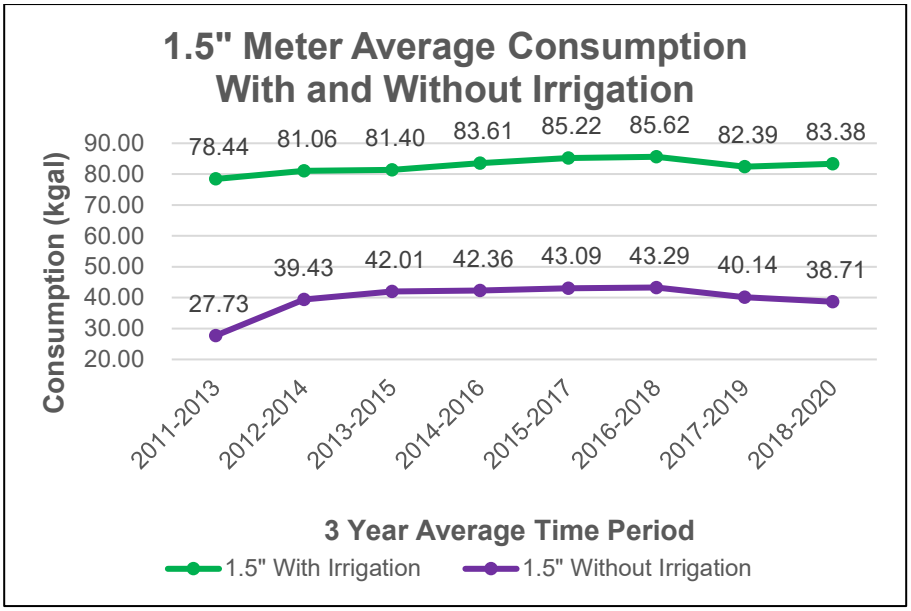


CHART 15: 3-YEAR AVG MONTHLY CONSUMPTION 2″ METERS

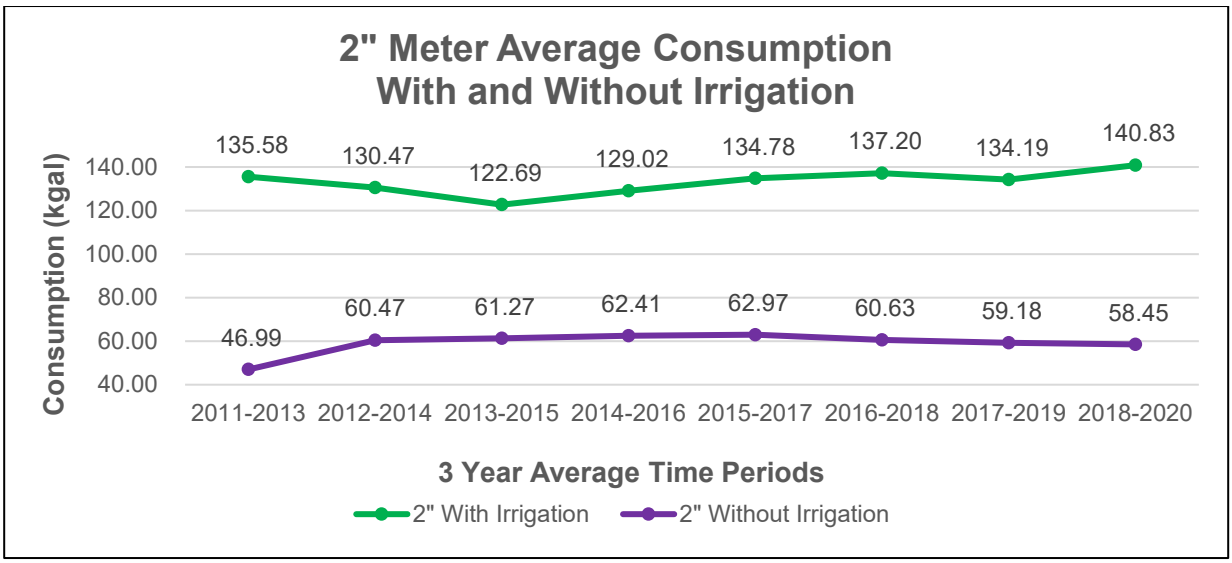


Chart 15 above for 2″ meters shows a fairly level use for the meters without irrigation with just a slight downward trend over the last few years and an up and down trend for the meters with irrigation with the highest average consumption during the last study period. This is mostly due to drier weather patterns in 2020. 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

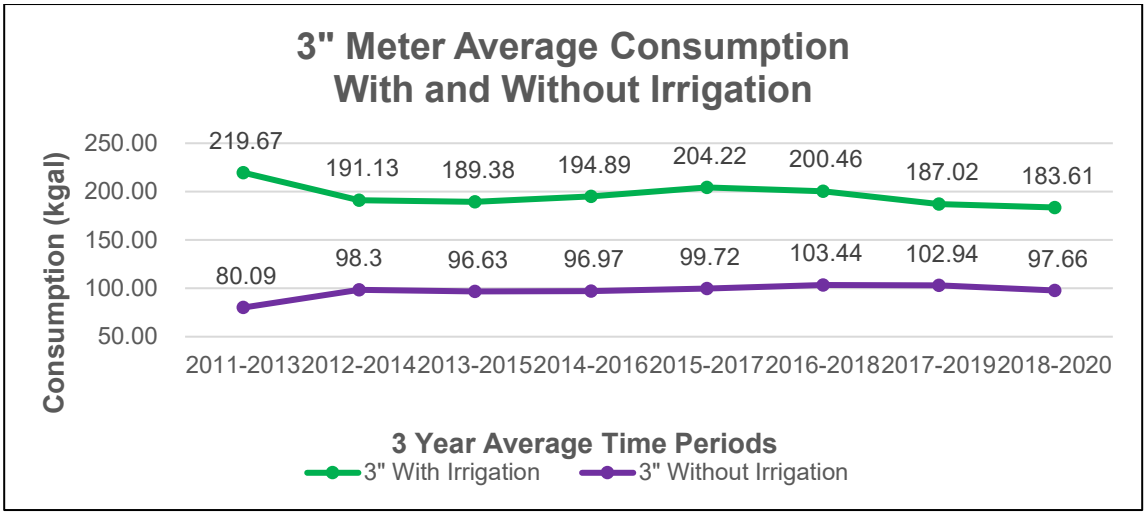
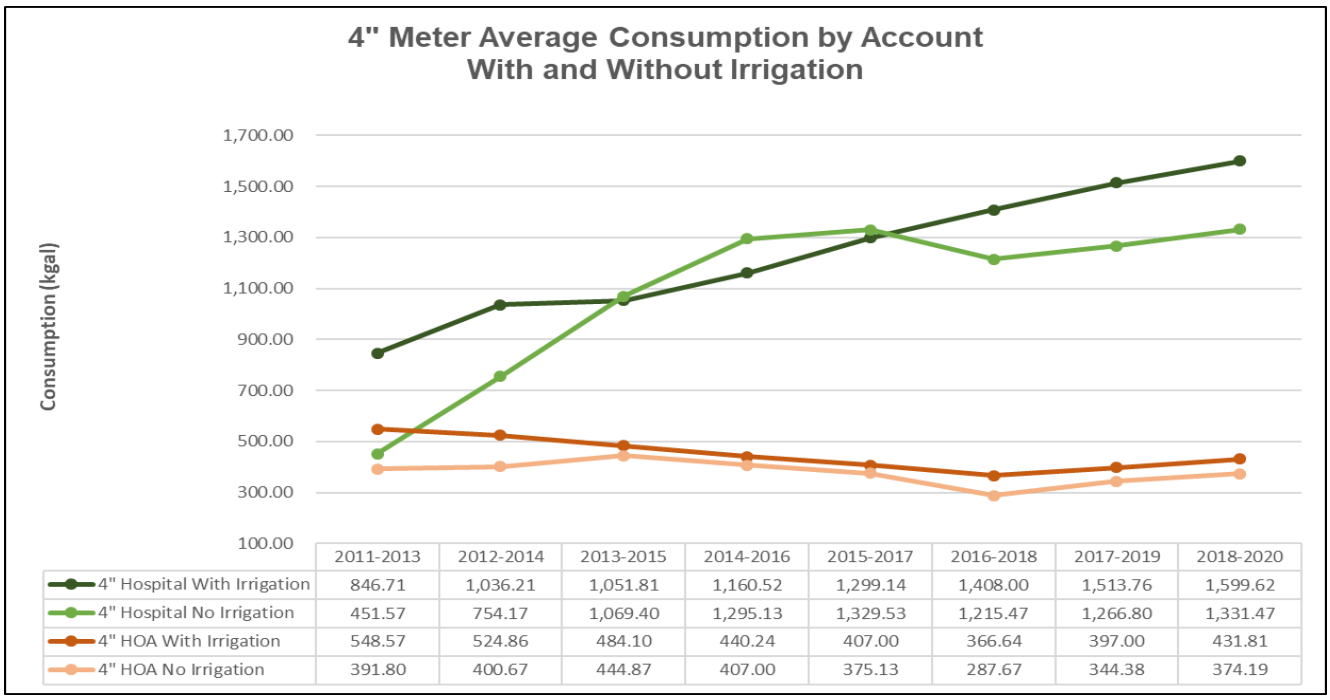


CHART 17: 3-YEAR AVG MONTHLY CONSUMPTION 4″ METERS

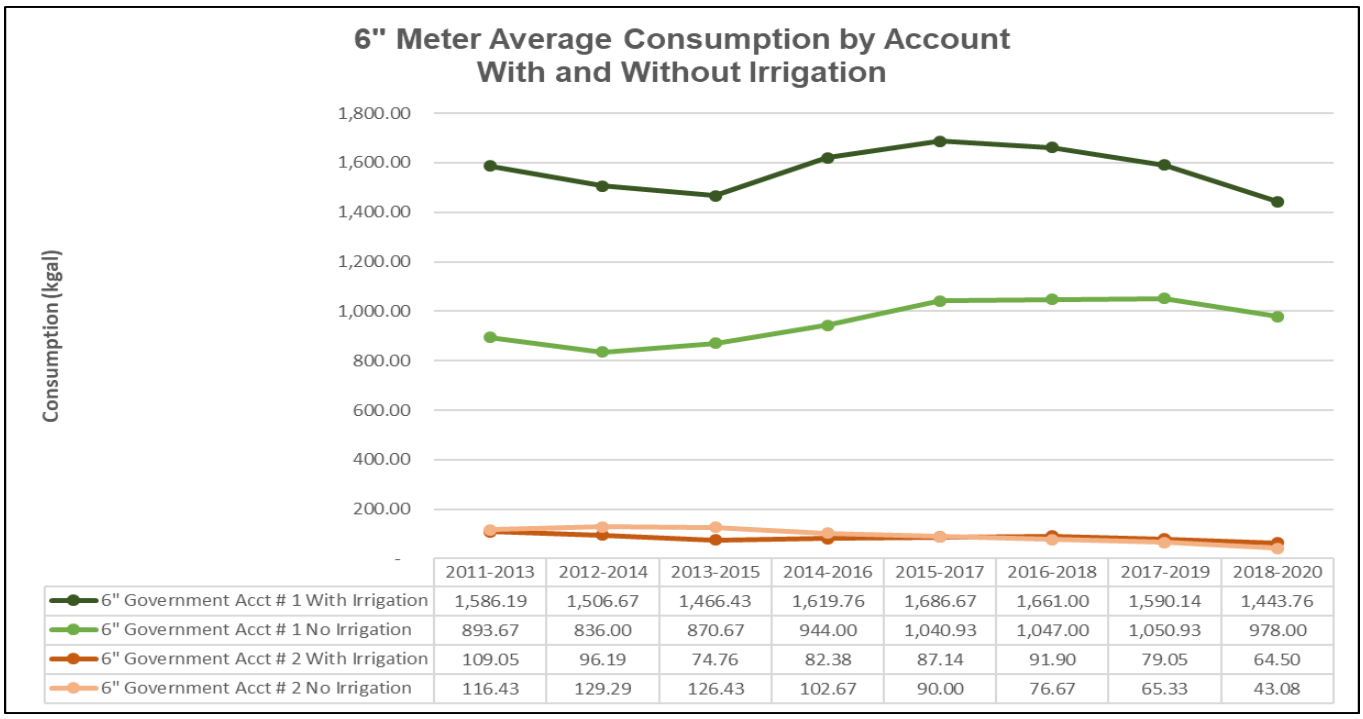


	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020
4" Hospital With Irrigation	846.71	1,036.21	1,051.81	1,160.52	1,299.14	1,408.00	1,513.76	1,599.62
4" Hospital No Irrigation	451.57	754.17	1,069.40	1,295.13	1,329.53	1,215.47	1,266.80	1,331.47
4" HOA With Irrigation	548.57	524.86	484.10	440.24	407.00	366.64	397.00	431.81
4" HOA No Irrigation	391.80	400.67	444.87	407.00	375.13	287.67	344.38	374.19

Chart 17 above shows an upward trend when comparing the last two 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



	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020
6" Government Acct # 1 With Irrigation	1,586.19	1,506.67	1,466.43	1,619.76	1,686.67	1,661.00	1,590.14	1,443.76
6" Government Acct # 1 No Irrigation	893.67	836.00	870.67	944.00	1,040.93	1,047.00	1,050.93	978.00
6" Government Acct # 2 With Irrigation	109.05	96.19	74.76	82.38	87.14	91.90	79.05	64.50
6" Government Acct # 2 No Irrigation	116.43	129.29	126.43	102.67	90.00	76.67	65.33	43.08

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.

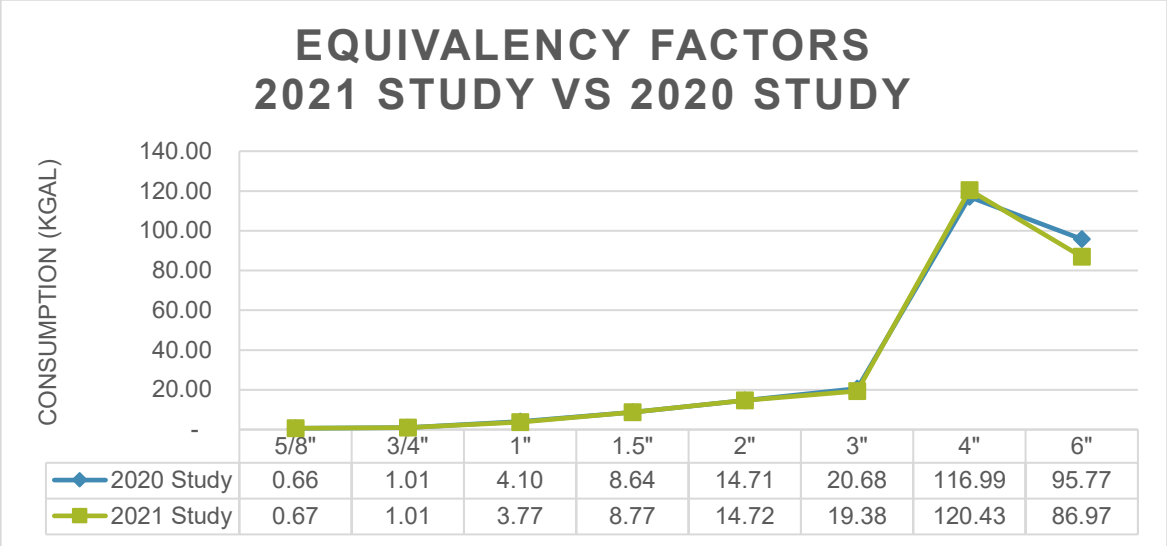
Table 4 calculates equivalency factors by customer class and meter size based on a ¾″ single-family residential customer. The equivalency factor in Table 4 is an input into the system development fees model used to calculate the number of SFE's. This is achieved by multiplying the equivalency factor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

TABLE 4: 2021 STUDY ACTUAL USE EQUIVALENCY FACTORS (BASED ON 3-YEAR AVG. 2018-2020)

Meter Size	Residential	Multifamily	Commercial	Irrigation	Multifamily Indoor Use Only	Commercial Indoor Use Only	Equivalency Factor
5/8"	0.67	-	-	1.39	0.44	0.82	0.67
3/4"	1.00	2.69	1.10	4.08	0.39	1.20	1.01
1"	2.15	3.93	3.92	5.68	2.06	2.94	3.77
1.5"	-	8.82	6.05	19.36	5.37	4.76	8.77
2"	-	12.88	10.65	30.59	8.93	7.83	14.72
3"	-	40.39	18.68	52.57	22.83	11.34	19.38
4"	-	52.13	-	64.31	-	190.63	120.43
6"	-	-	86.97	-	-	-	86.97

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 no methodology change is recommended for the 2021 study.

CHART 19: EQUIVALENCY FACTORS 2021 STUDY COMPARED TO THE 2020 STUDY



REPRESENTATIVE CUSTOMER BY CUSTOMER CLASS

Customer data for the last three years (2018-2020) 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 (Jan20-Dec20).
- 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 and winterization late or early in the season.

TABLE 5: REPRESENTATIVE CUSTOMER BY CLASS
2020 BILLING DATA

Customer Class	Most Common Meter Size	Total Annual Consumption (kgal)	Average Monthly Consumption (Jan-Dec 2020) (kgal)	Average Winter Monthly Consumption (kgal)	Average Irrigation Monthly Consumption (kgal)
Residential	3/4"	80.78	8.33	4.34	11.12
Multifamily (with Irrigation)	1.5"	929.42	70.72	45.31	88.81
Commercial (with Irrigation)	3/4"	106.13	8.25	6.09	9.73
Irrigation	3/4"	311.32	32.15	9.23	33.11
Multifamily Indoor Use Only	1.5"	522.73	43.40	42.29	44.19
Commercial Indoor Use Only	3/4"	114.67	9.61	8.45	10.41

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.

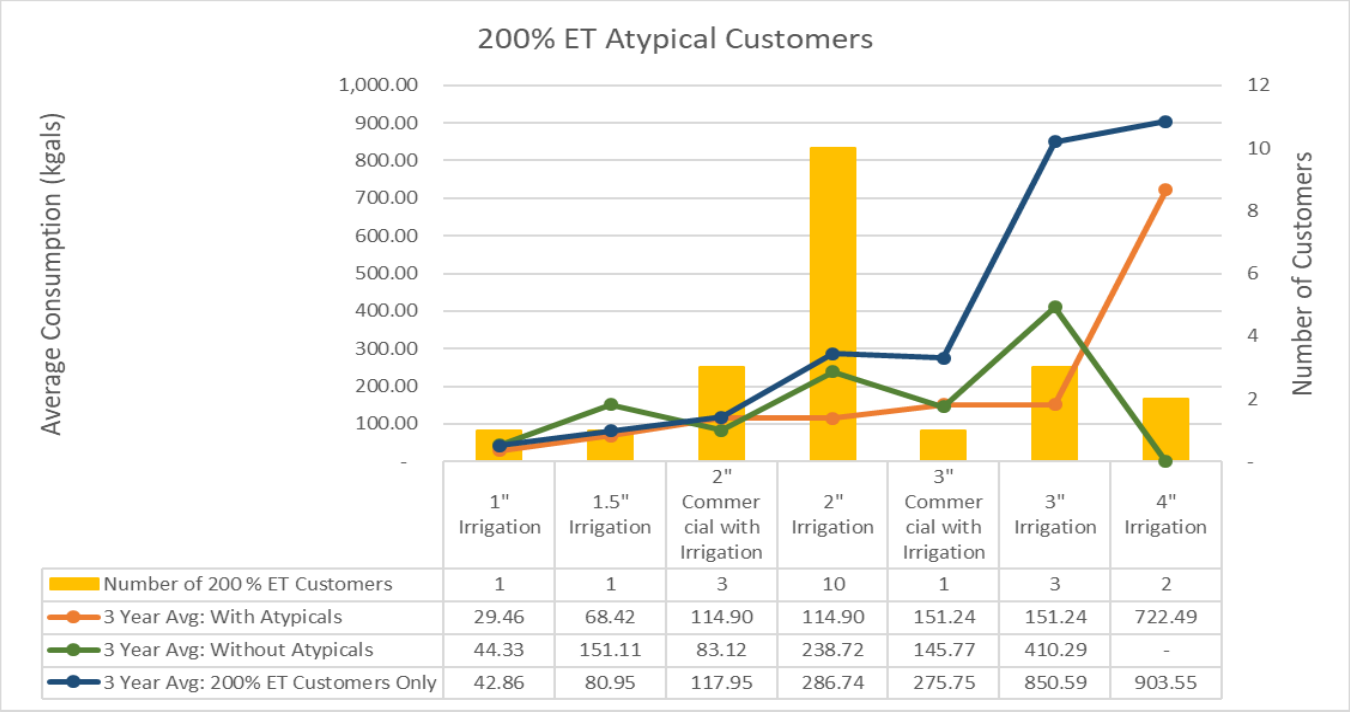
The larger atypical customers that have been removed from the three year averages for the 2021 rates and fees study are 200% ET, carwashes, hotels, outdoor bathrooms, parking garages, sample stations, SFE reservations and swimming pools. Customers designated with a

200% ET are programmed athletic fields. 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.

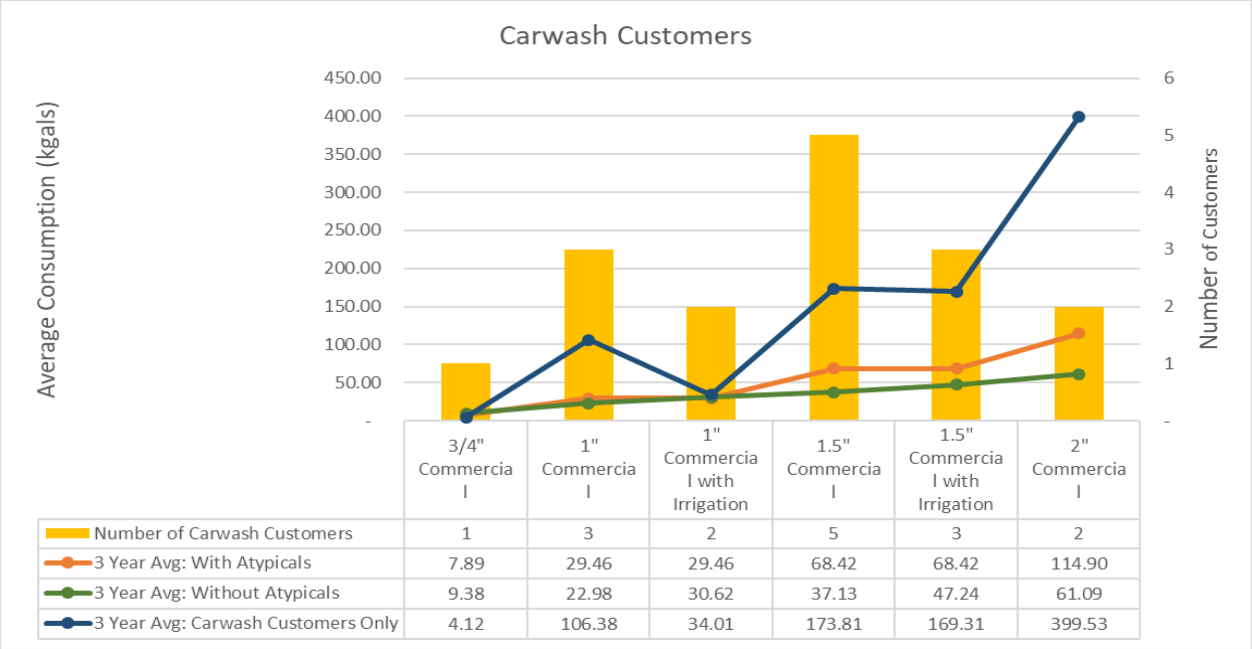
Charts 20 through 23 show the number of customers in each atypical class, the 3-year average with the atypical customers included, the 3-year average without the atypical customers included and the 3-year average of the atypical class by itself.

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 Avg: With Atypicals	29.46	68.42	114.90	114.90	151.24	151.24	722.49
3 Year Avg: Without Atypicals	44.33	151.11	83.12	238.72	145.77	410.29	-
3 Year Avg: 200% ET Customers Only	42.86	80.95	117.95	286.74	275.75	850.59	903.55

CHART 21: CARWASH ATYPICAL CUSTOMERS

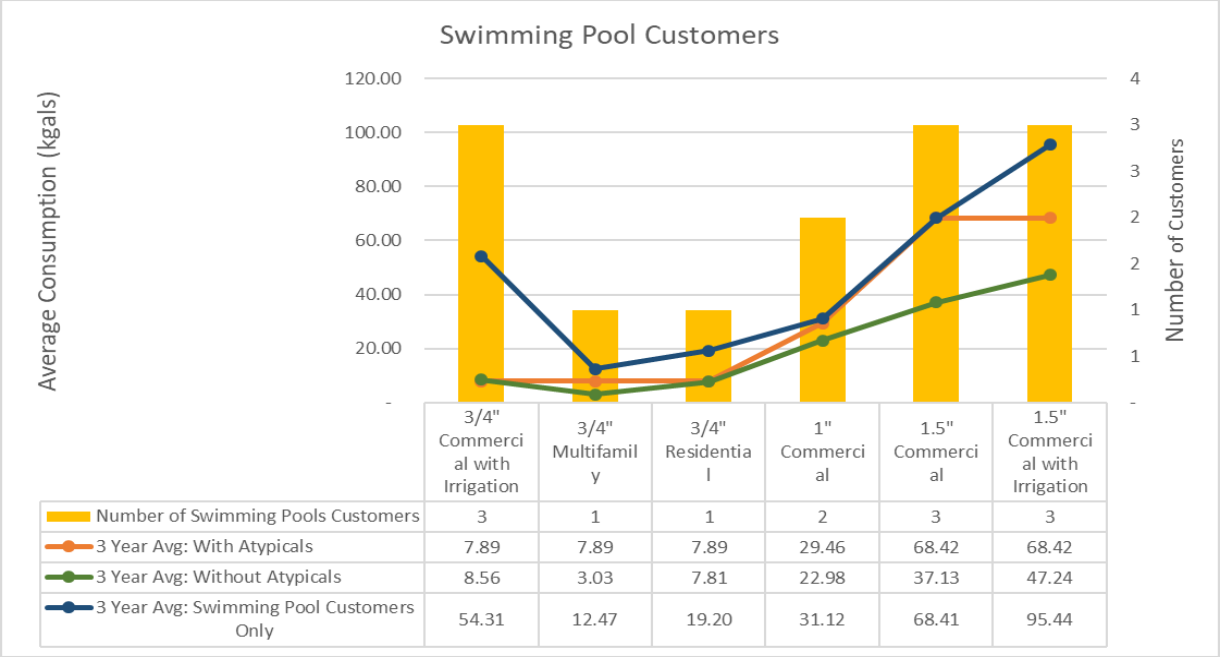


	3/4" Commercial	1" Commercial	1" Commercial with Irrigation	1.5" Commercial	1.5" Commercial with Irrigation	2" Commercial
Number of Carwash Customers	1	3	2	5	3	2
3 Year Avg: With Atypicals	7.89	29.46	29.46	68.42	68.42	114.90
3 Year Avg: Without Atypicals	9.38	22.98	30.62	37.13	47.24	61.09
3 Year Avg: Carwash Customers Only	4.12	106.38	34.01	173.81	169.31	399.53

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 Avg: With Atypicals	7.89	29.46	68.42	114.90	114.90
3 Year Avg: Without Atypicals	8.56	22.98	47.24	61.09	83.12
3 Year Avg: Hotel Customers Only	9.11	41.08	101.25	138.67	147.08

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 Pools Customers	3	1	1	2	3	3
3 Year Avg: With Atypicals	7.89	7.89	7.89	29.46	68.42	68.42
3 Year Avg: Without Atypicals	8.56	3.03	7.81	22.98	37.13	47.24
3 Year Avg: Swimming Pool Customers Only	54.31	12.47	19.20	31.12	68.41	95.44

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 2020 through December 2020. Charts 24-28 compare the total water usage by tier for each customer class for 2012-2020. 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 2020-DECEMBER 2020

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	103,209	33,137	13,472	149,818	-
Commercial w/ Irrig	65,253	32,497	18,310	116,060	-
Irrigation	-	359,834	63,231	423,065	-
MultiFamily	101,941	15,621	9,899	127,461	-
MultiFamily w/ Irrig	53,671	21,152	16,177	91,000	-
Residential	905,135	916,710	219,246	2,041,091	14,550
Total Kgals	**1,229,209**	**1,378,951**	**340,335**	**2,948,495**	**14,550**
Tier % of Total	42%	47%	12%	100%	

TABLE 7: BILLED USAGE BY SEASON BY CUSTOMER CLASS BY TIER JANUARY 2020-DECEMBER 2020

Winter Season

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	43,611	-	13,472	57,083	-
Commercial w/ Irrig	25,827	-	4,888	30,715	-
Irrigation	-	-	1,545	1,545	-
MultiFamily	40,706	-	9,899	50,605	-
MultiFamily w/ Irrig	21,665	-	3,754	25,419	-
Residential	355,700	-	84,536	440,236	910
Grand Total	**487,509**	**-**	**118,094**	**605,603**	**910**
Tier % of Total	80%	0%	20%	100%	

Irrigation Season

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	59,598	33,137	-	92,735	-
Commercial w/ Irrig	39,426	32,497	13,422	85,345	-
Irrigation	-	359,834	61,686	421,520	-
MultiFamily	61,235	15,621	-	76,856	-
MultiFamily w/ Irrig	32,006	21,152	12,423	65,581	-
Residential	549,435	916,710	134,710	1,600,855	13,640
Grand Total	**741,712**	**1,378,951**	**222,241**	**2,342,904**	**13,640**
Tier % of Total	32%	59%	9%	100%	

CHART 24: COMMERCIAL CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2020

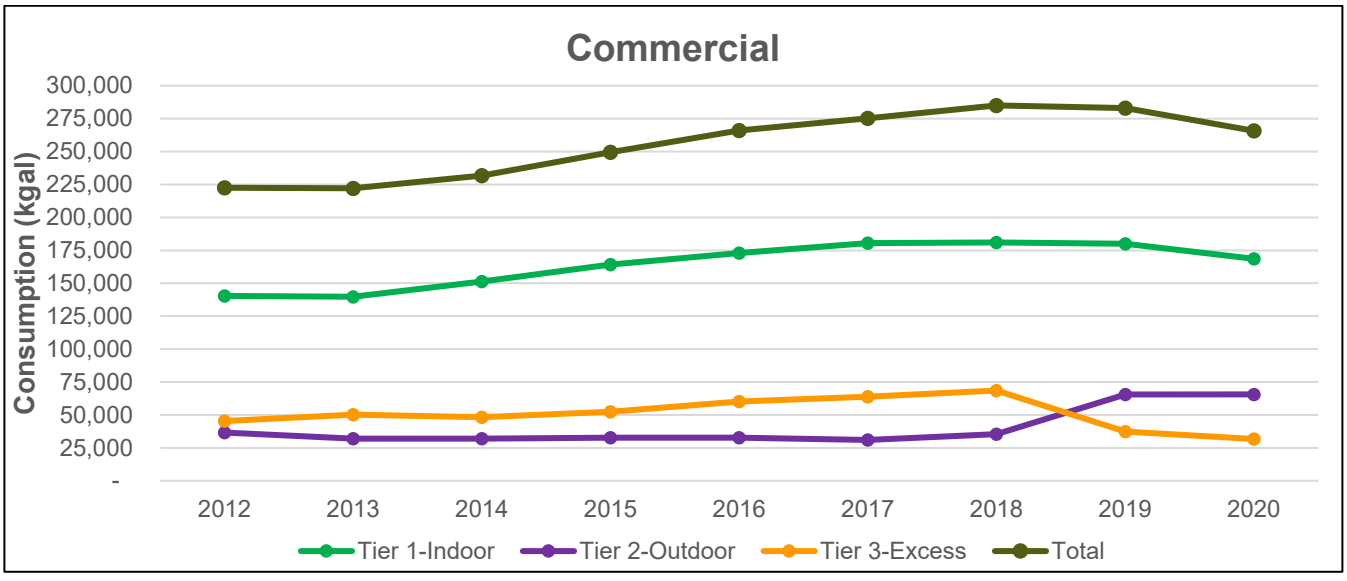


CHART 25: MULTIFAMILY CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2020

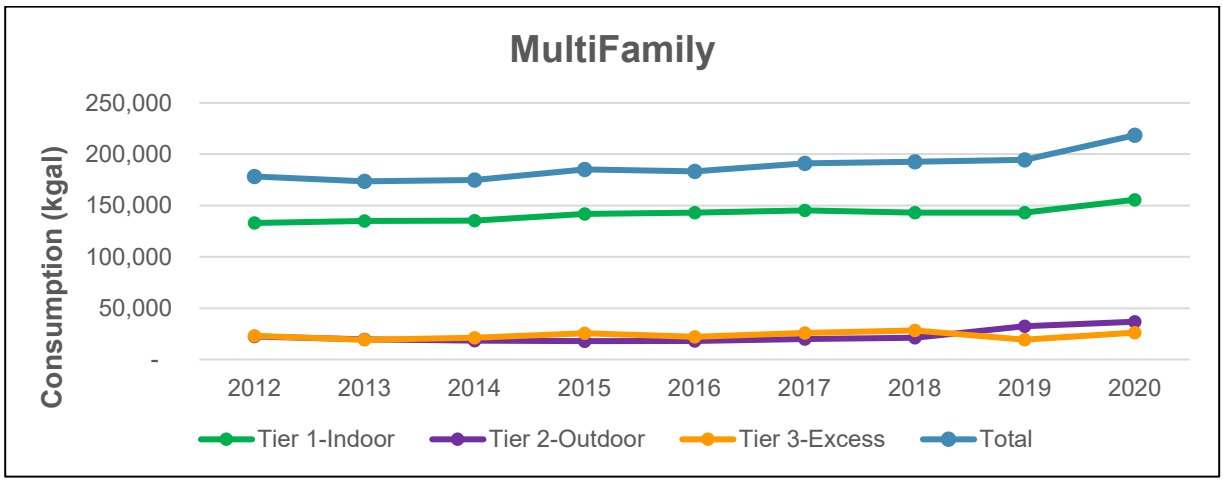


CHART 26: IRRIGATION CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2020

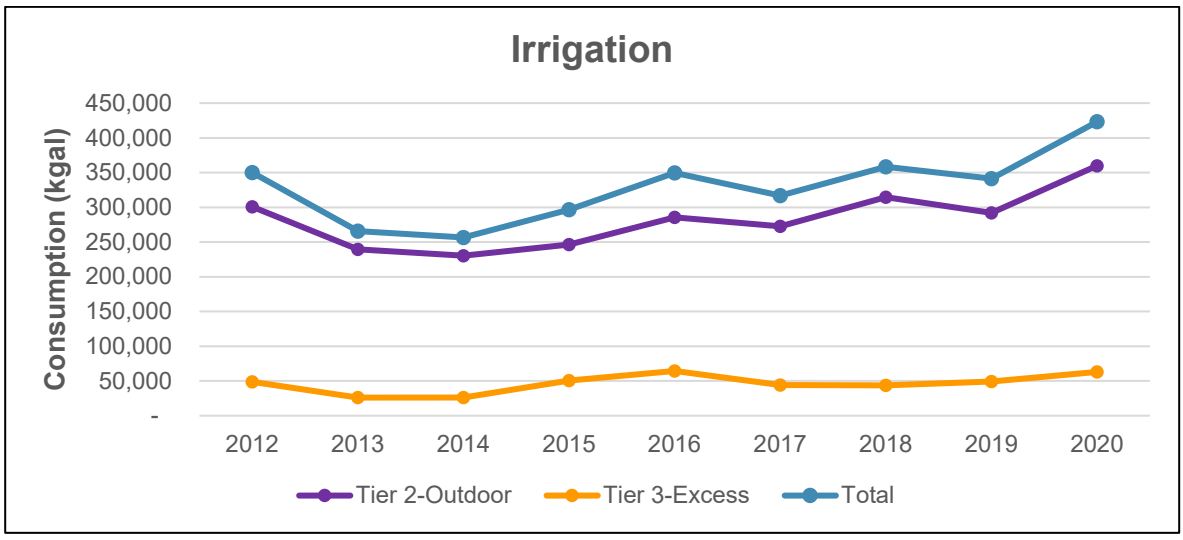


CHART 27: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2020

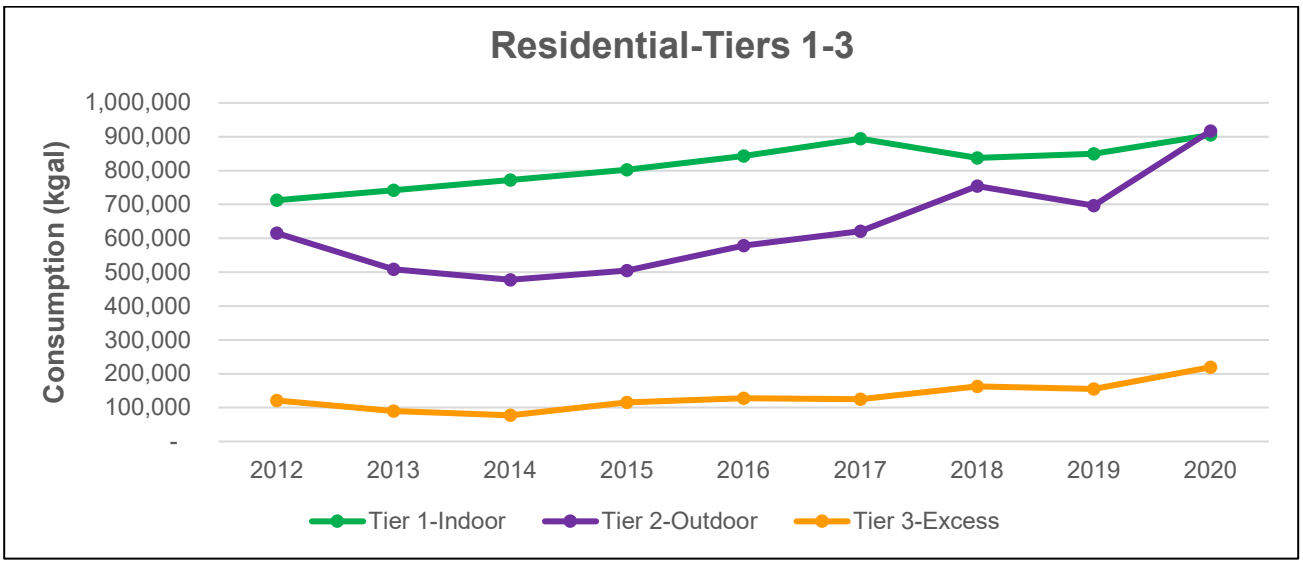
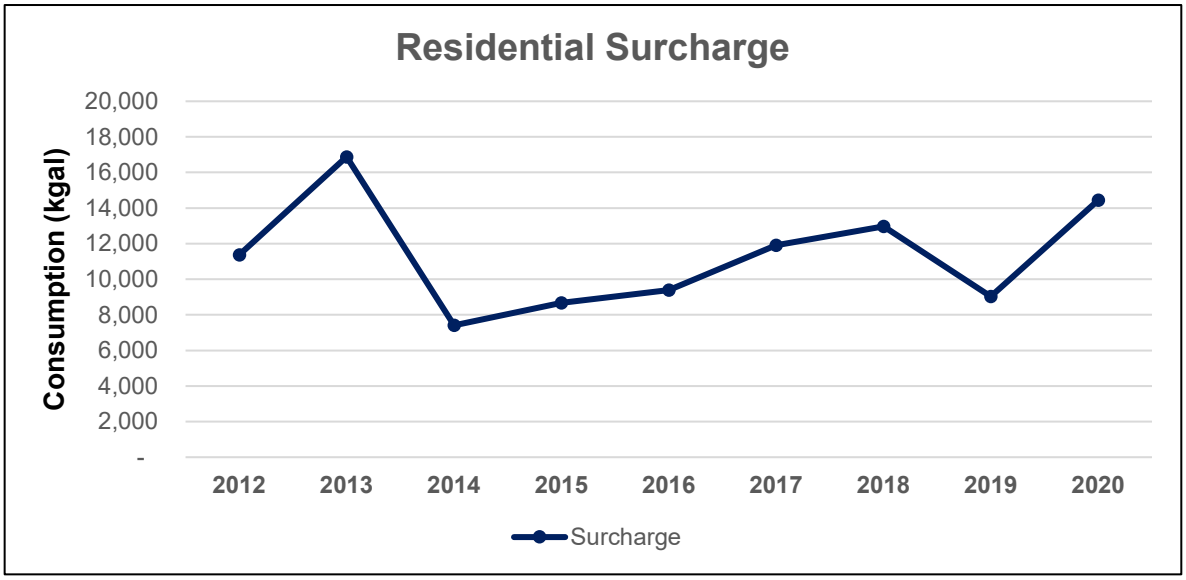


CHART 28: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE RESIDENTIAL SURCHARGE 2012-2020



Charts 24-25 show that Commercial and Multifamily customer classes have remained relatively consistent over the years even with the increased growth. We are seeing a slight increase in 2020 consumption for Multifamily customer class, perhaps due to the pandemic. Irrigation customers as shown in Chart 26 are slightly trending upward mainly due to a dry irrigation season in 2020. Residential account usage by tier in Chart 27 appears to be trending

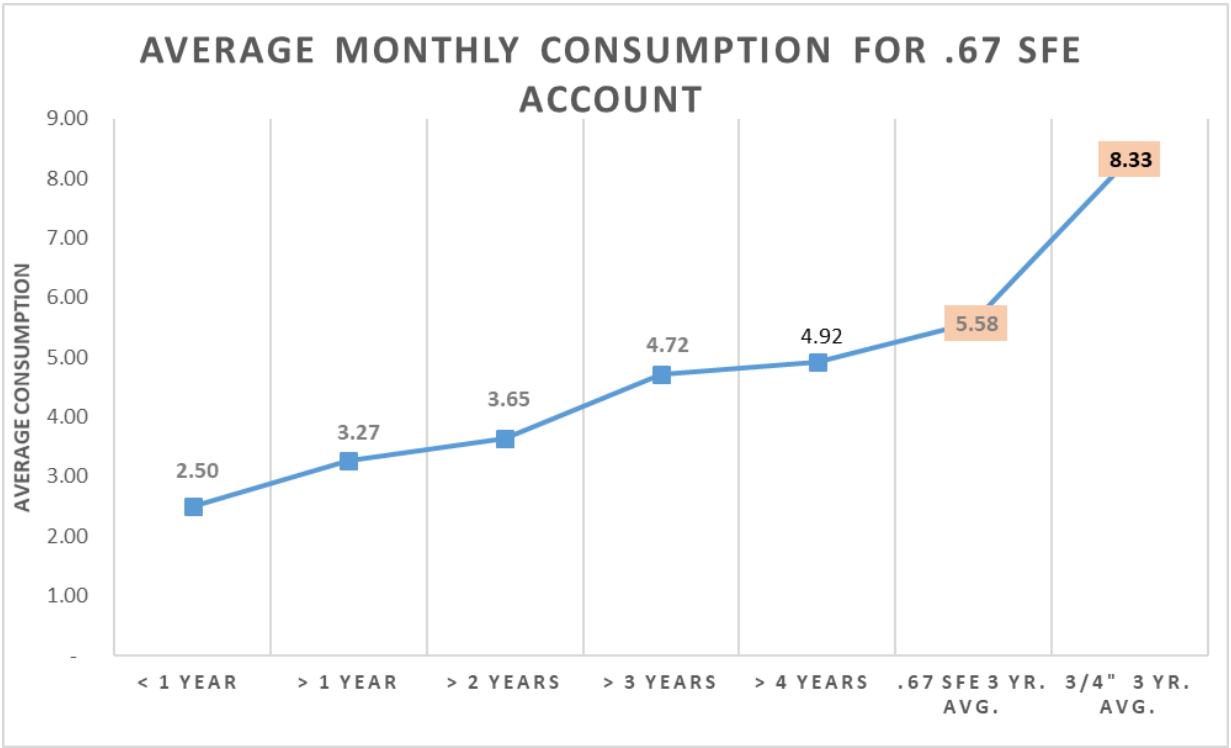
slightly upward for 2020 along with Surcharge usage in Chart 28. This is most likely due to the dry weather and more people at home during the pandemic.

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. Also, new residential accounts as of January 1, 2021 will all be set up with a 1 SFE, there will no longer be accounts set up going forward with anything less than 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 will remain at 67% of the cost of 1 SFE.

As shown in Chart 29 below, 8.33 is the average monthly consumption for a ¾" residential account, or one SFE, which is higher than last year's study average of 7.25. The same trend exists in the 0.67 SFE accounts average with 5.58 this study and 4.86 in last year's study.

CHART 29: 0.67 SFE ACCOUNT CONSUMPTION BY YEAR



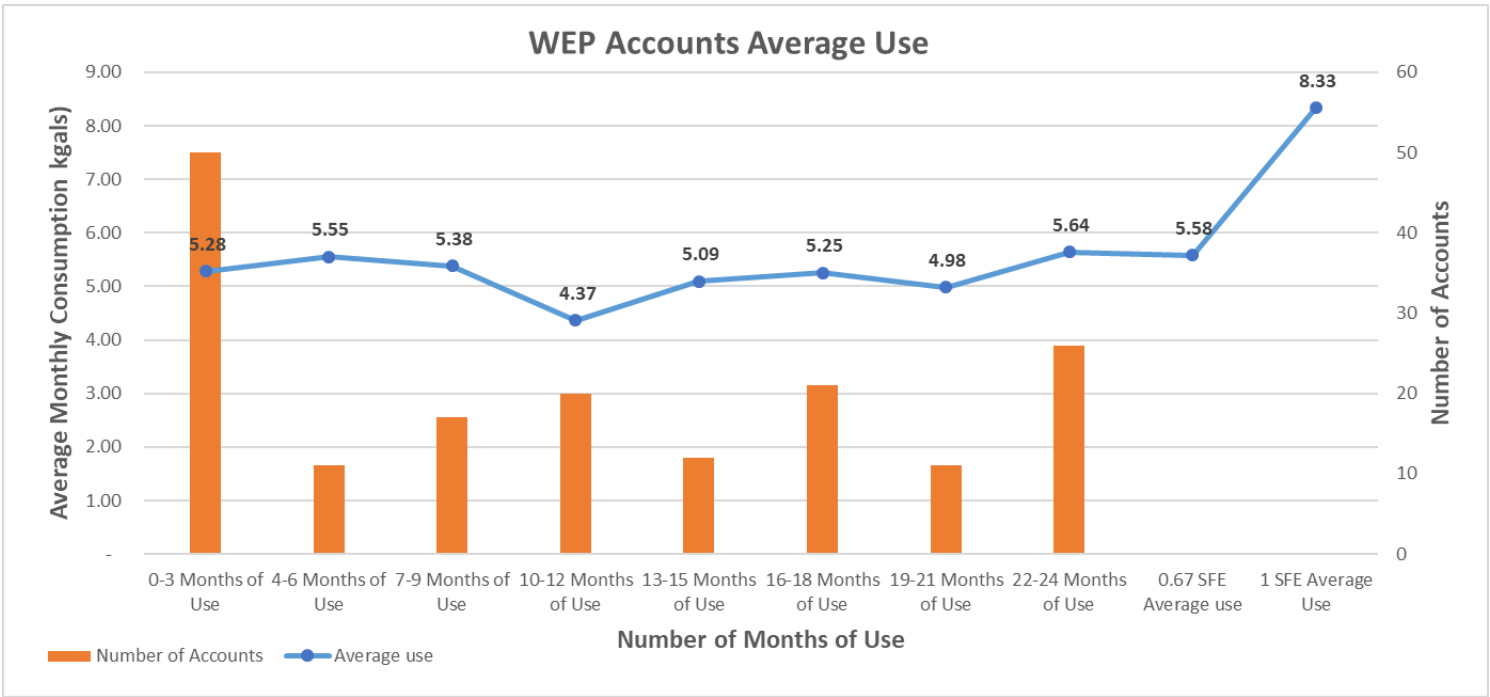
WATER EFFICIENCY PLAN (WEP) ACCOUNTS

New to Castle Rock Water in 2019 were Water Efficiency Plan (WEP) accounts. These are accounts that must meet the criteria for a water efficiency plan. As of the end of 2020 there were 168 approved accounts that met the criteria. Table 8 below shows 10 customers were over the average usage in 2020 for a 1 SFE and 38 were over the 0.67 SFE. Unlike the 0.67 SFE program these 168 accounts can have varying SFE's below a 1 SFE based on fixture calculations and irrigation requirements.

TABLE 8: AVERAGE WEP ACCOUNT USAGE

Average Use	Number of Accounts
8.33 kgal and above	10
5.58 - 8.33 kgal	38
2.29 - 5.58 kgal	77
0.00 - 2.29 kgal	43
Total Accounts	**168**

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 2020

IRRIGATION USAGE BASED ON WATERING SCHEDULES

Each irrigation season Castle Rock Water puts out a residential watering schedule based on the last digit of their 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 2012 to 2020 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 slightly 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 8,388 customers, circle is second with 6,914 customers and diamond has the least with 6,669 customers based on the 2020 billing data.

With the non-residential customers, the west side appears to be smaller or have less usage each year than the east side of I-25 customers. The east side has more customers, 1,029 customers, than the west side, 688 customers, based on the 2020 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

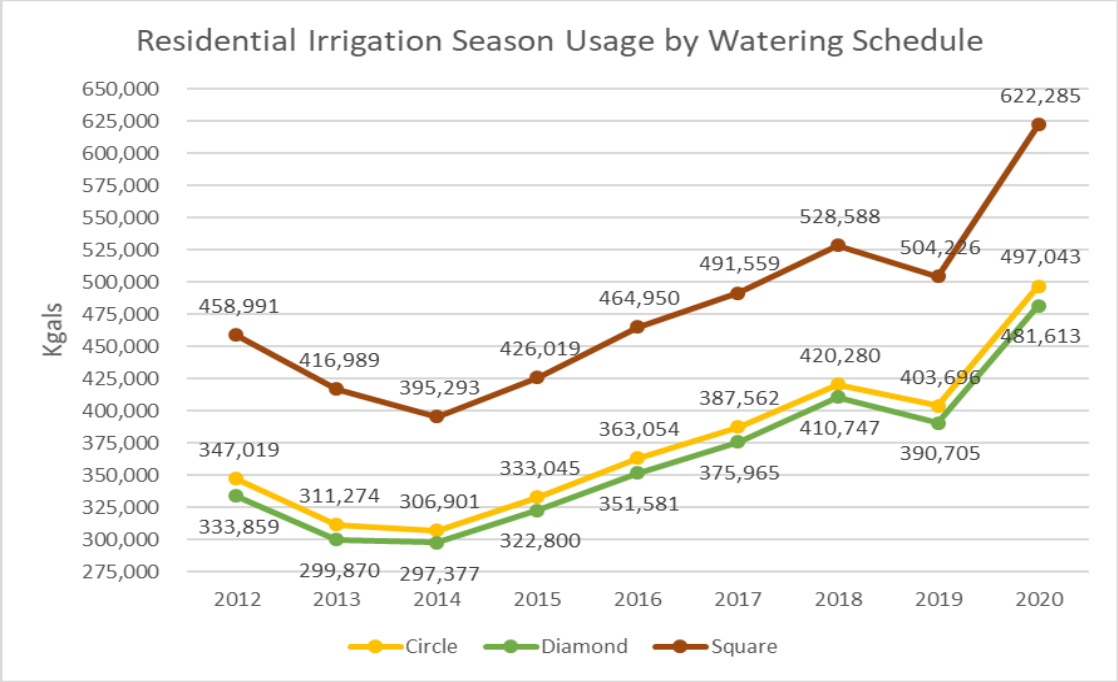
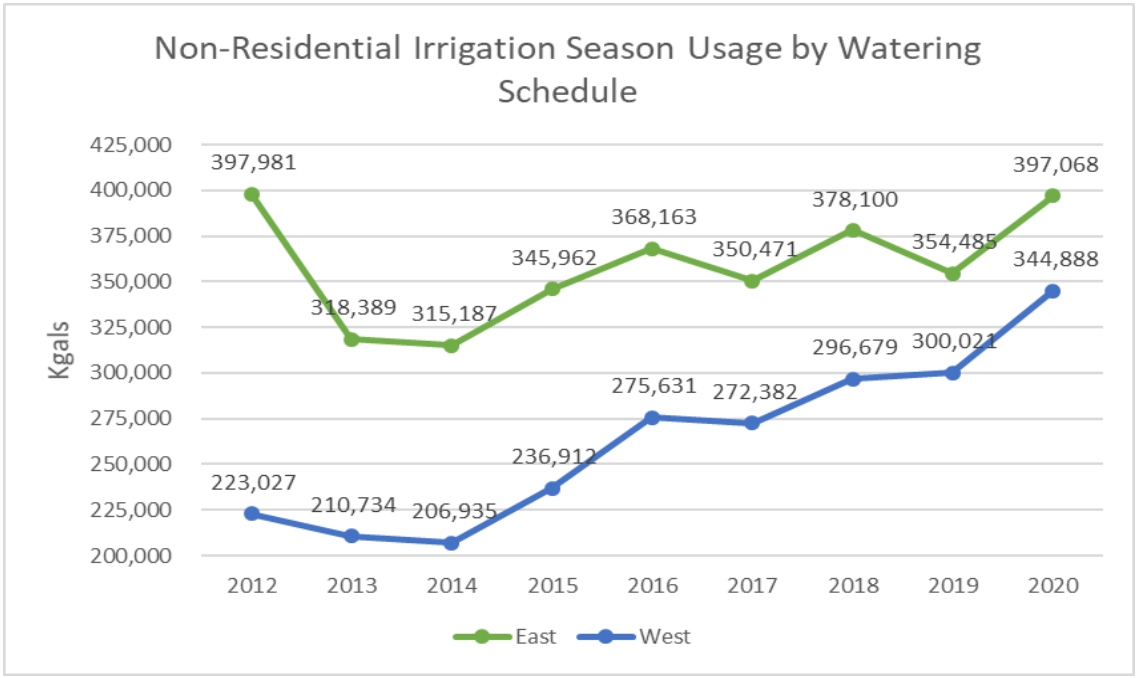


CHART 32: NON-RESIDENTIAL IRRIGATION SEASON USAGE BY WATERING SCHEDULE



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

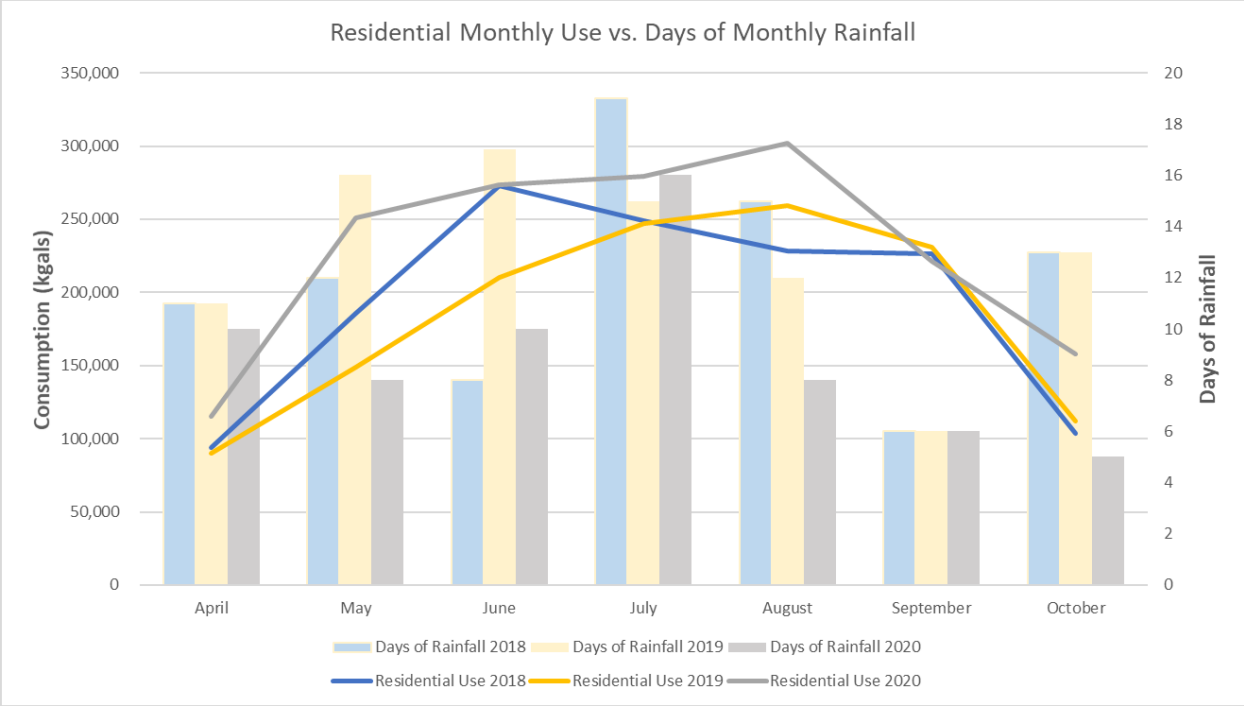


CHART 34: IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL

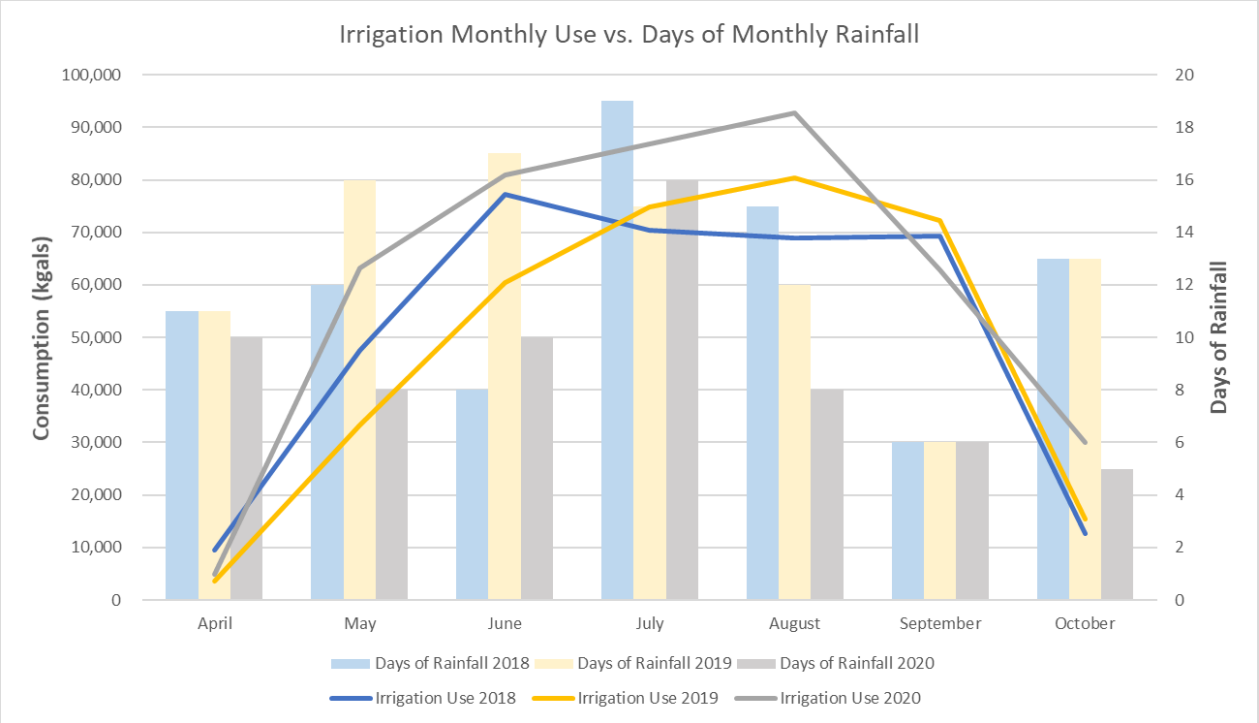


CHART 35: MULTIFAMILY WITH IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL

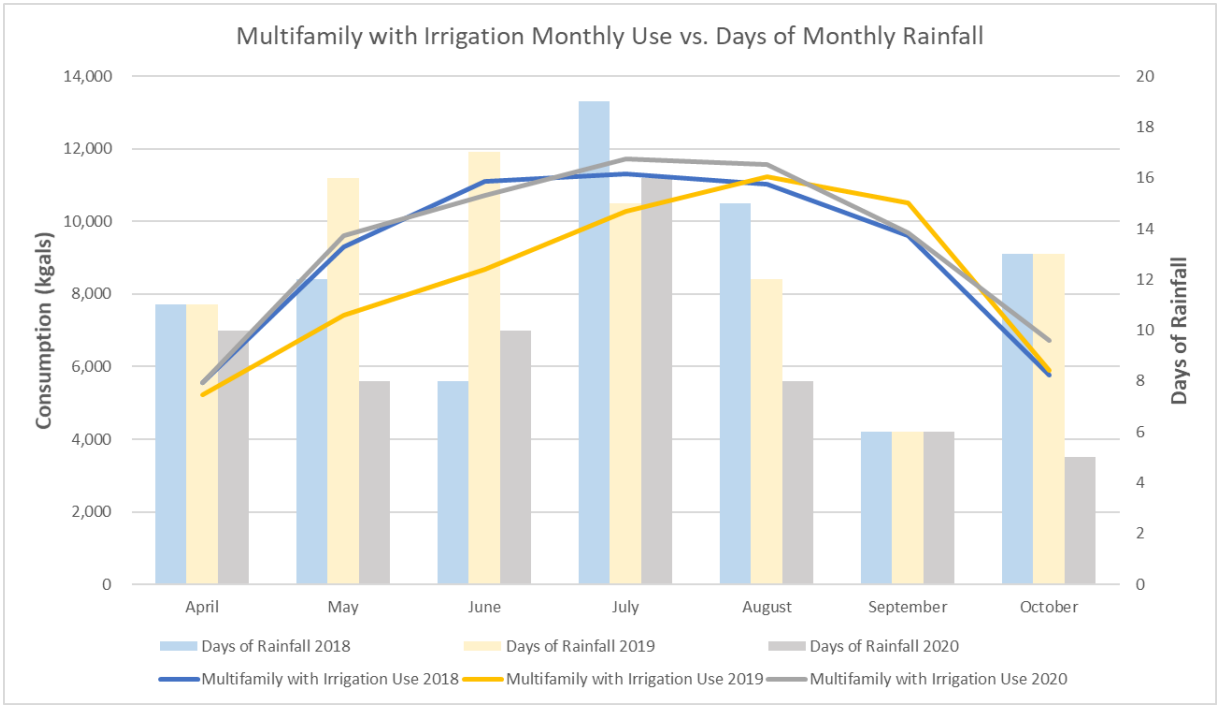
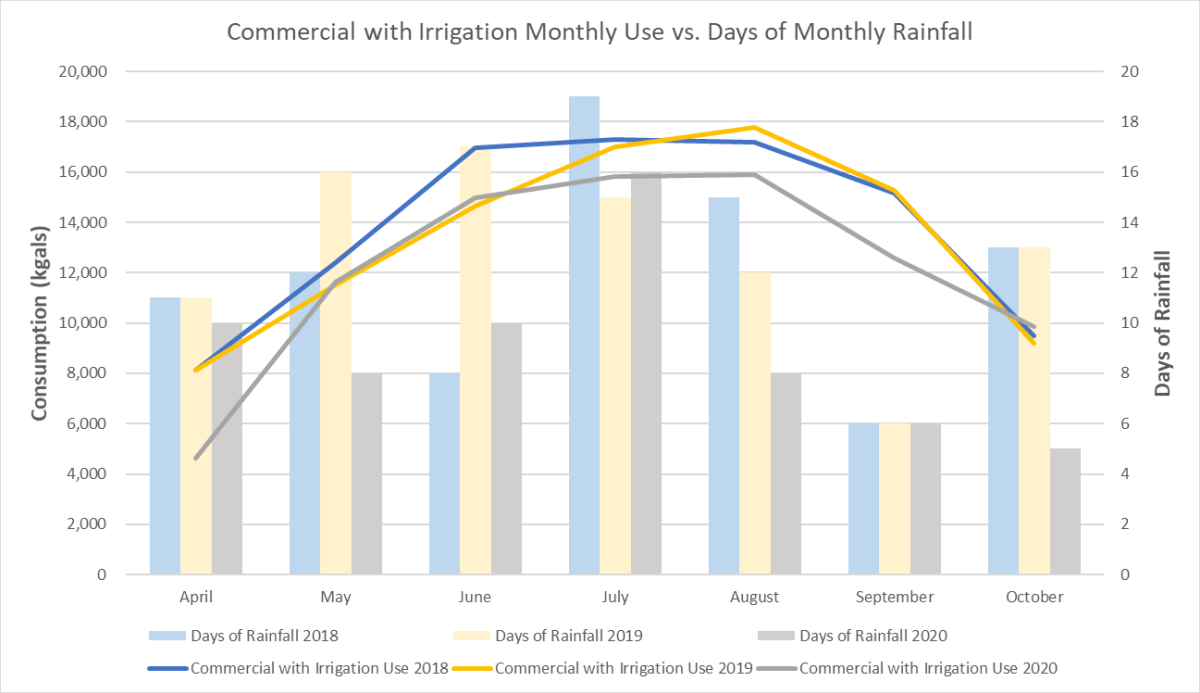


CHART 36: COMMERCIAL WITH IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL



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 versus following 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.

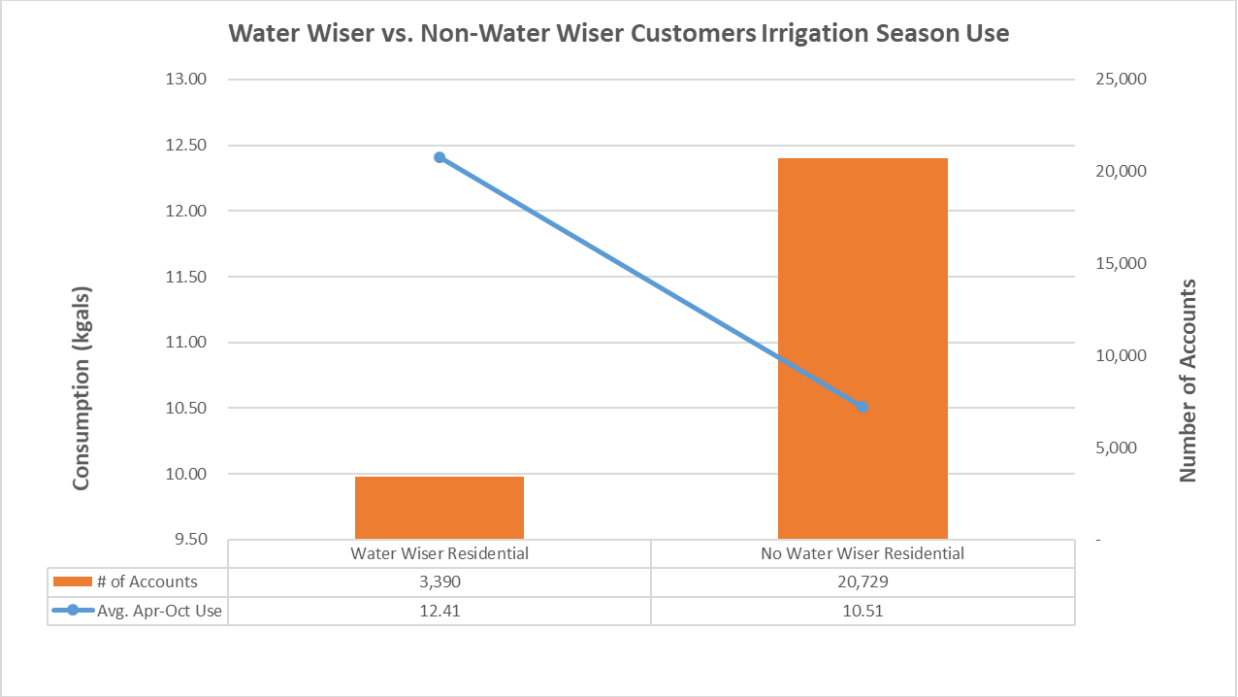
TABLE 9: BEFORE AND AFTER WATER WISER AVERAGE USAGE

# 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	9.8	8.5	63%
24 Months	8.8	8.4	57%
12 Months	8.5	8.3	53%

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 63% of people have decreased their average usage, which means that 37% of users still have 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 53% of users decreased their usage and at 24 months of consumption this increased to 57%. Overall, there is room for improvement for roughly 37% 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 12.41 kgals versus 10.51 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

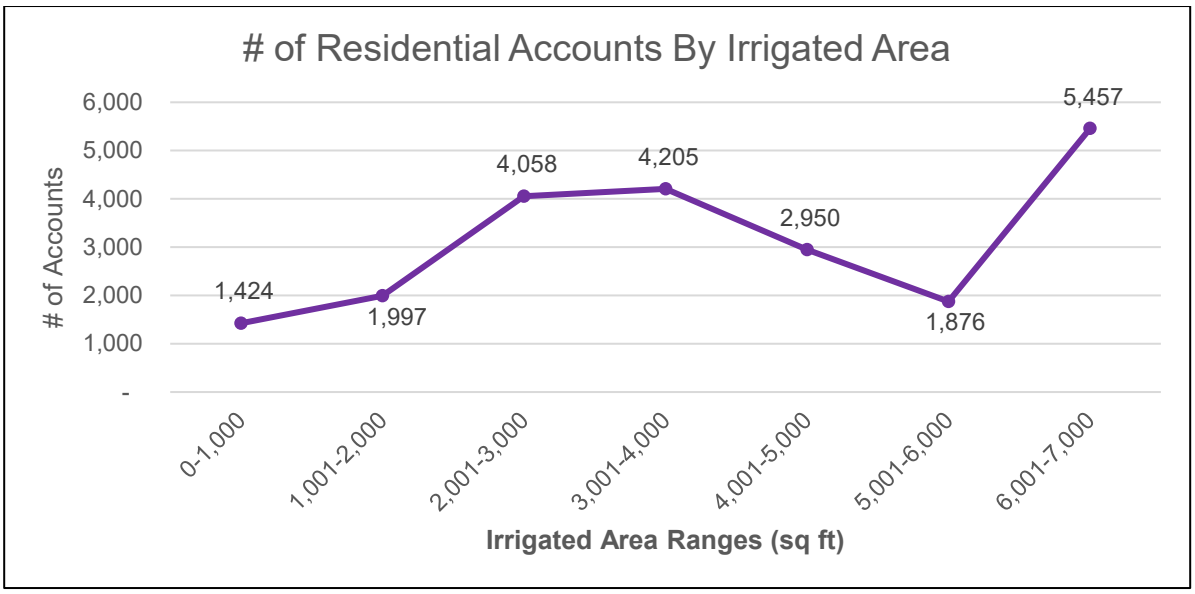


CHART 39: RESIDENTIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA

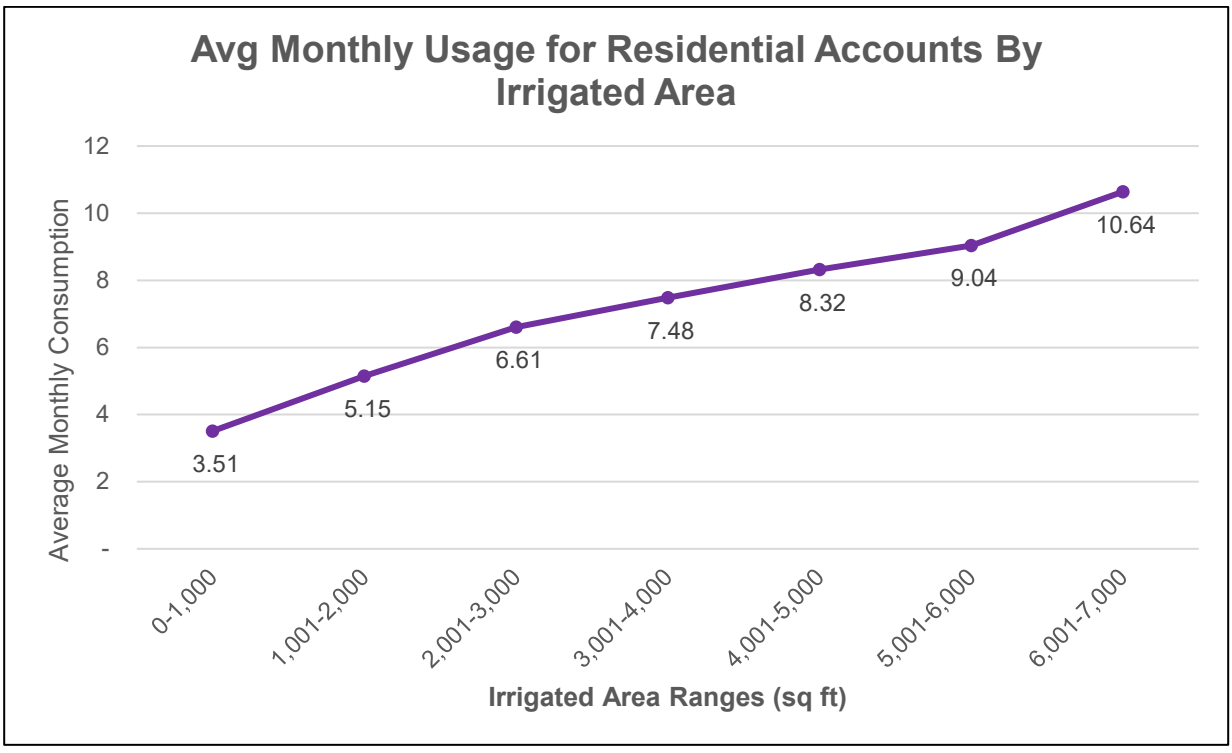


CHART 40: COMMERCIAL ACCOUNTS BY IRRIGATED AREA

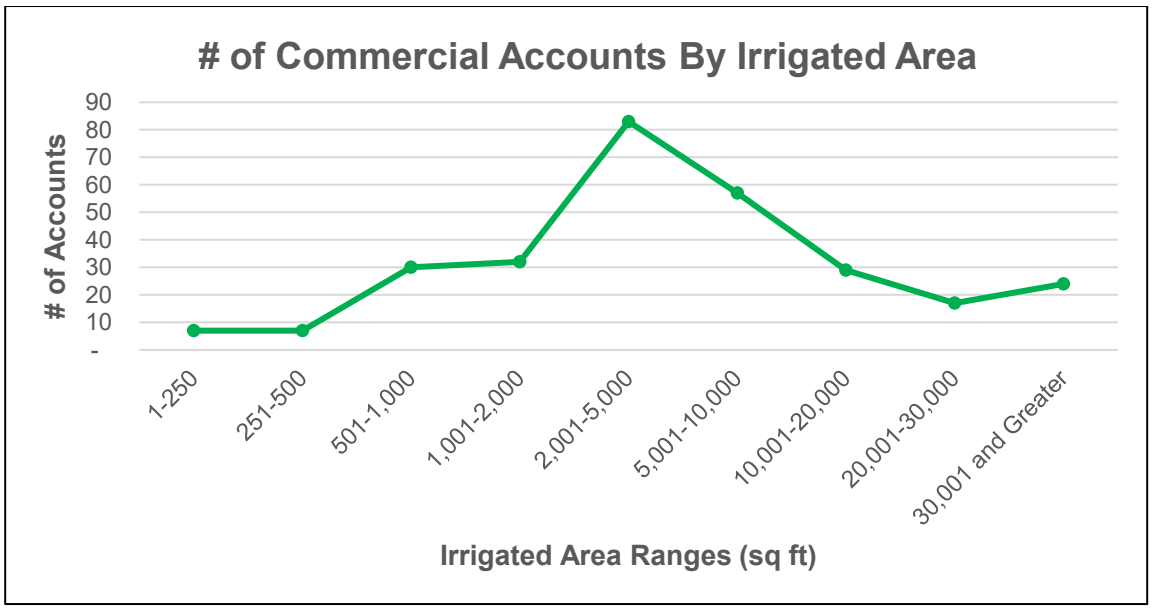
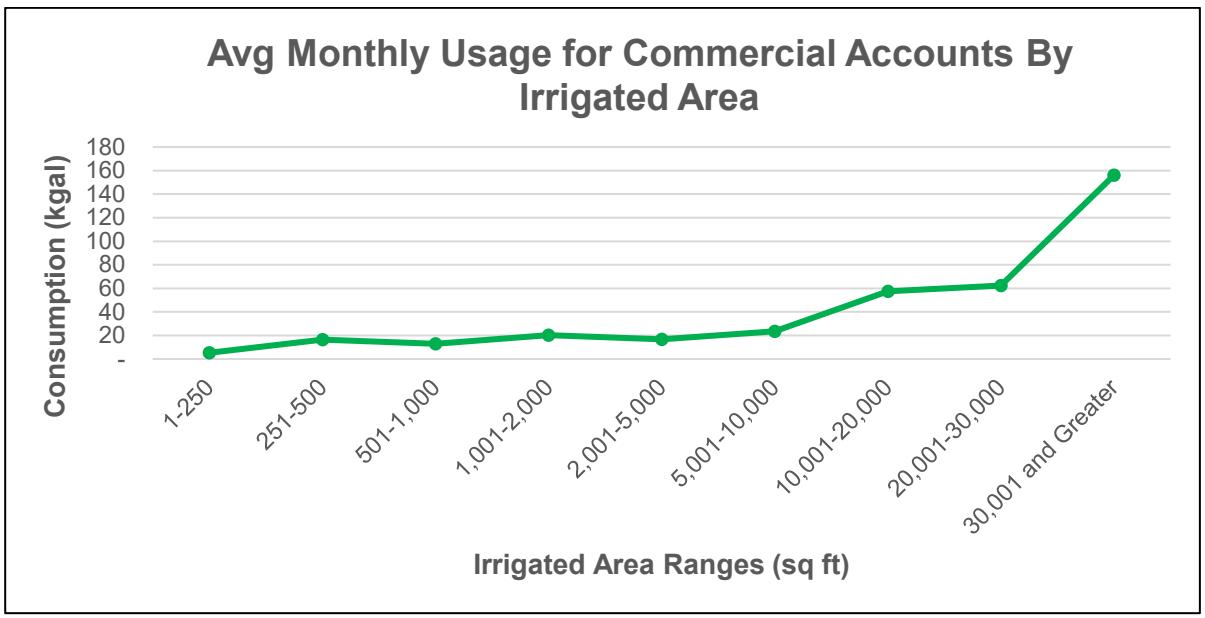


CHART 41: COMMERCIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA



HOA'S AVERAGE MONTHLY CONSUMPTION

CHART 42: AVERAGE MONTHLY CONSUMPTION FOR ALL HOAS (98) COMBINED

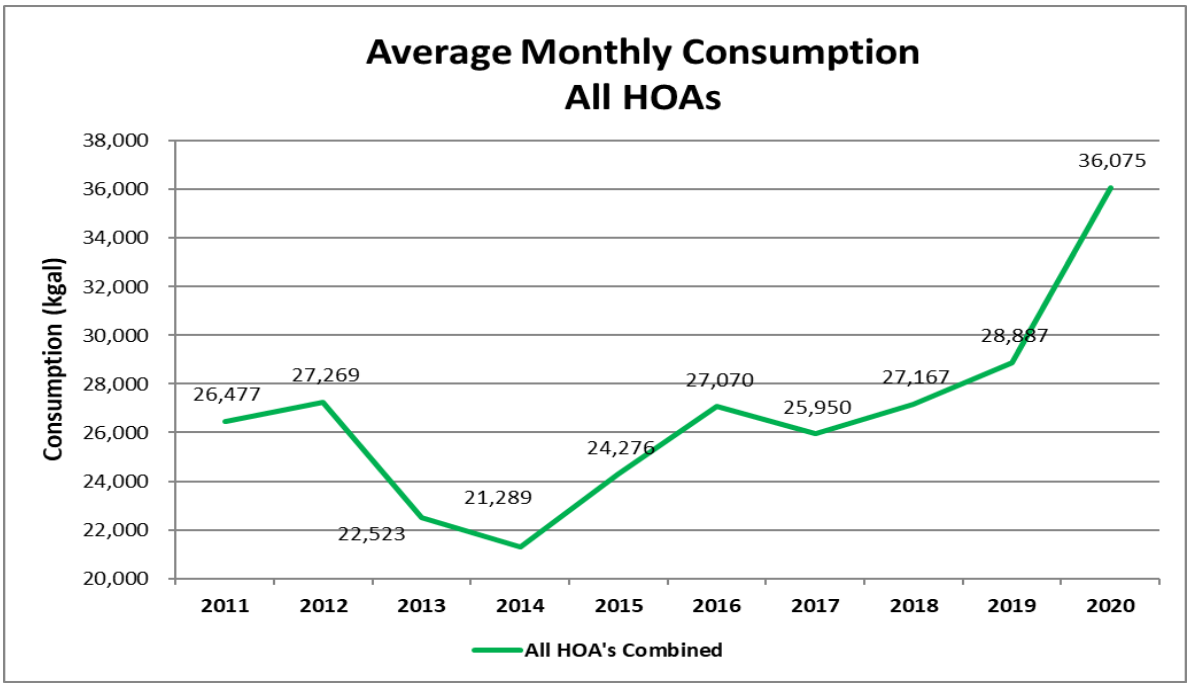
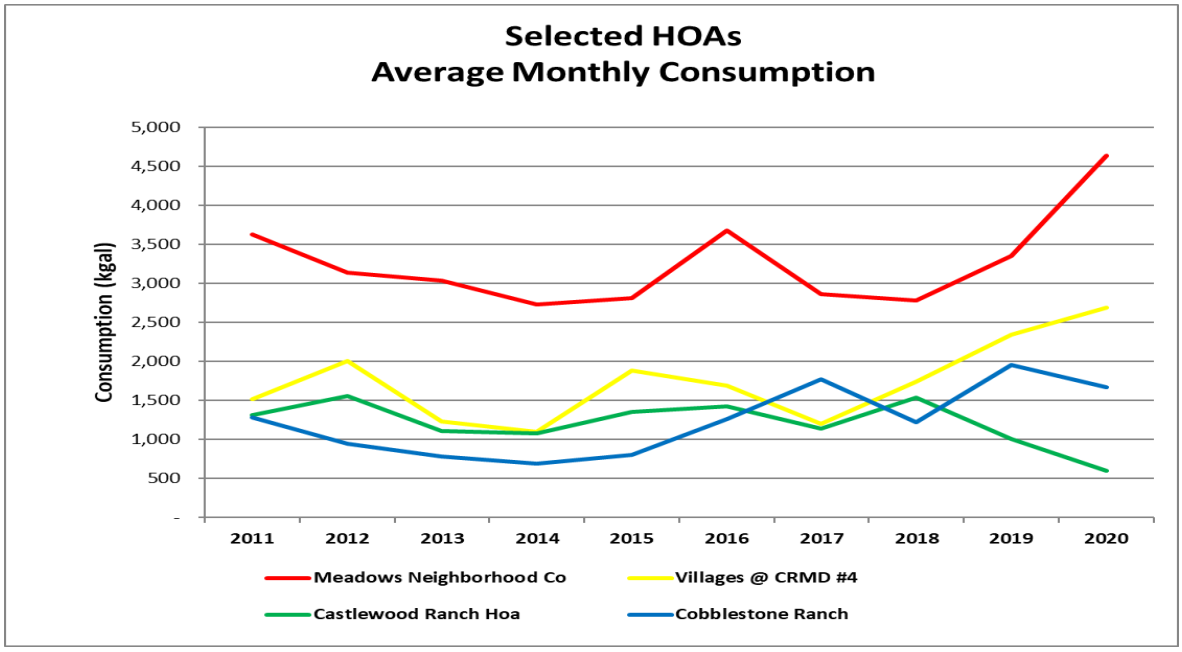


Chart 43 shows four HOAs that were selected at random out of the 98 in total to show the average monthly consumption patterns for these user types. In looking at Chart 43, it seems the Meadows Neighborhood Company is heavily impacting the overall increase in all HOA's combined for 2020 as shown in Chart 42. There was large growth in the Meadows and Founders neighborhoods in 2020. This along with dry weather has caused increased consumption in these areas of Town.

CHART 43: SELECTED FOUR HOA'S AVERAGE MONTHLY CONSUMPTION



MONTHLY CONSUMPTION BY SUBDIVISION

CHART 44: MEADOWS AVERAGE MONTHLY CONSUMPTION

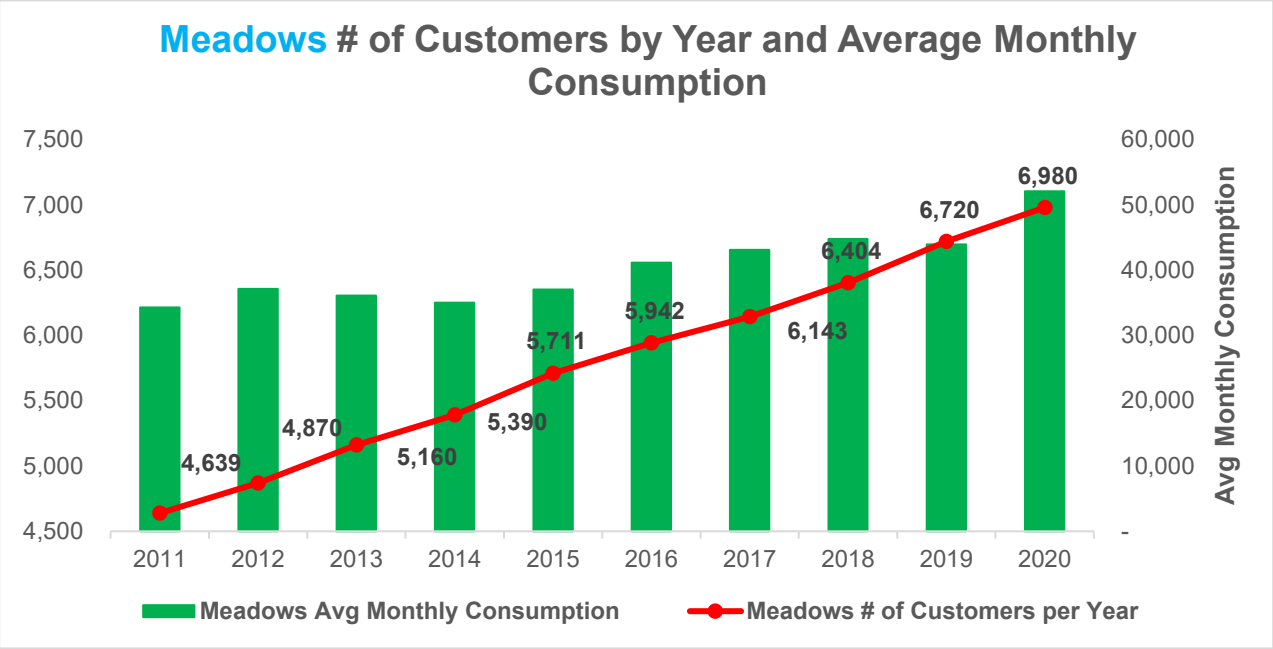


CHART 45: MEADOWS AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

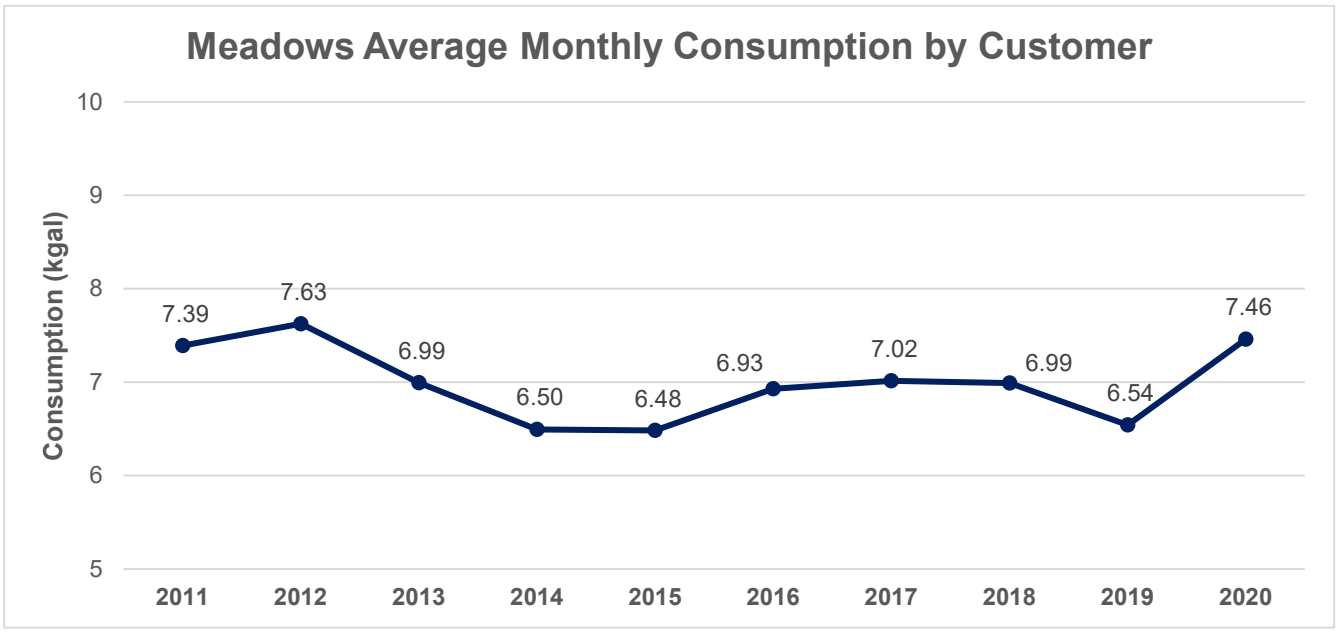


CHART 46: MEADOWS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

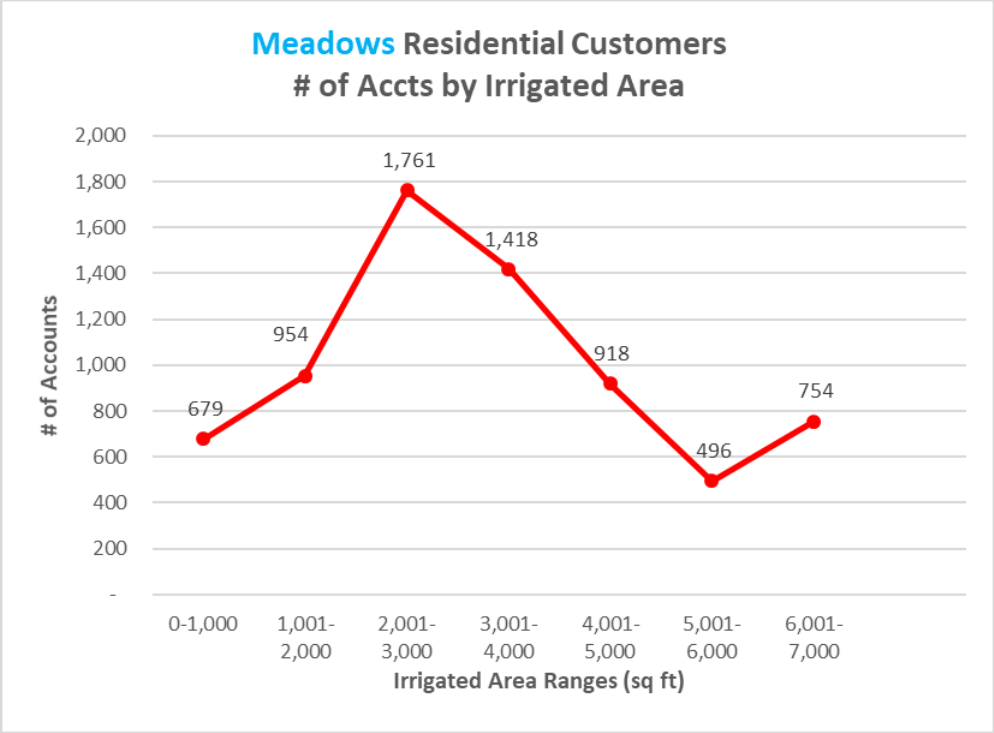


CHART 47: MEADOWS RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER

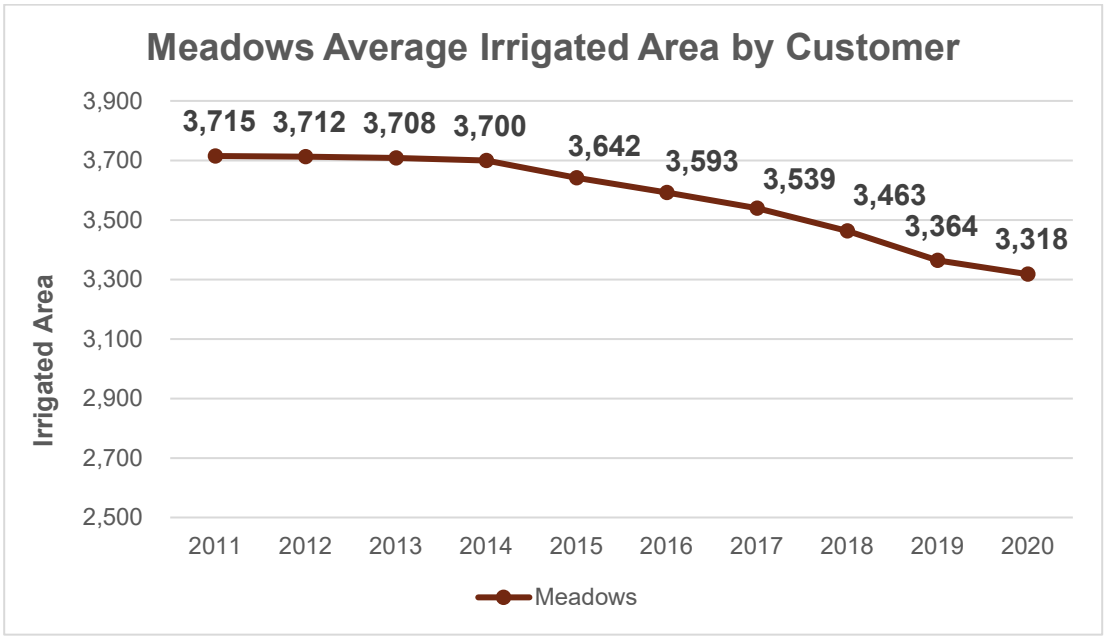


CHART 48: FOUNDERS AVERAGE MONTHLY CONSUMPTION

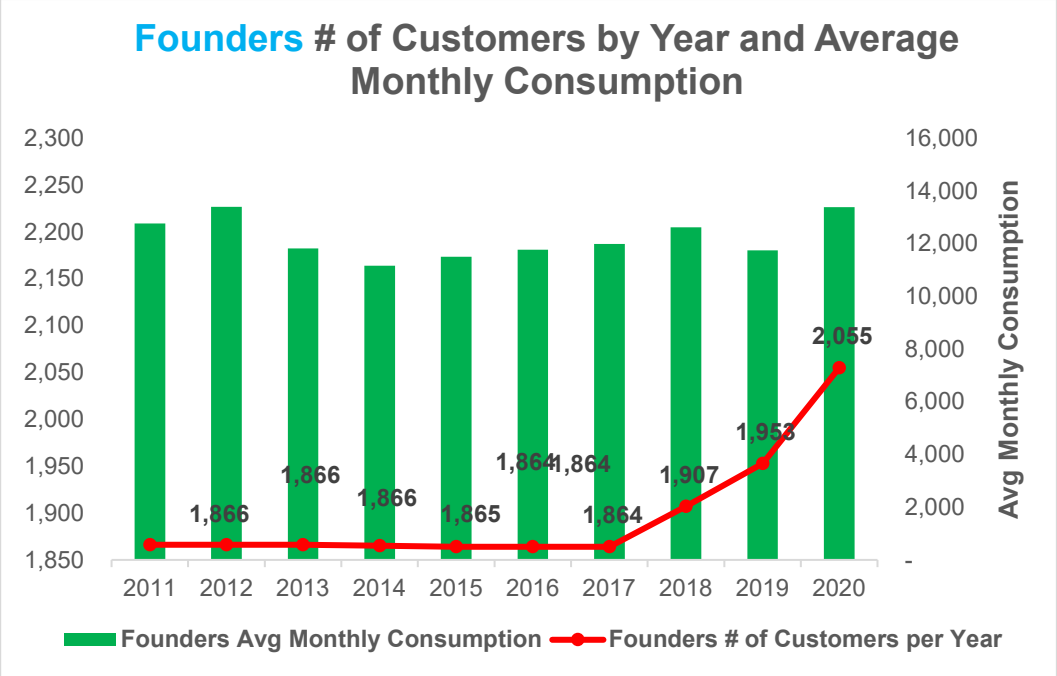


CHART 49: FOUNDERS AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

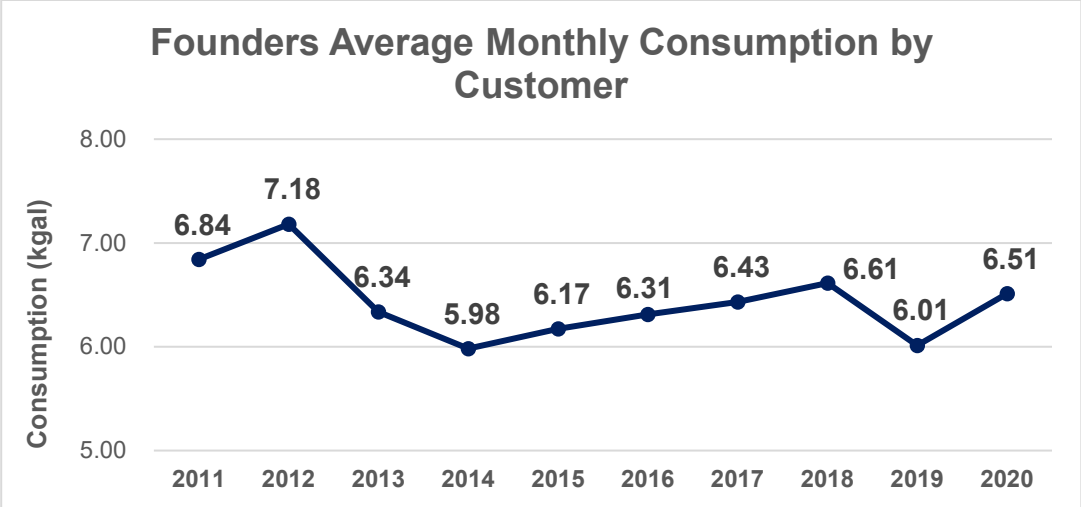


CHART 50: FOUNDERS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

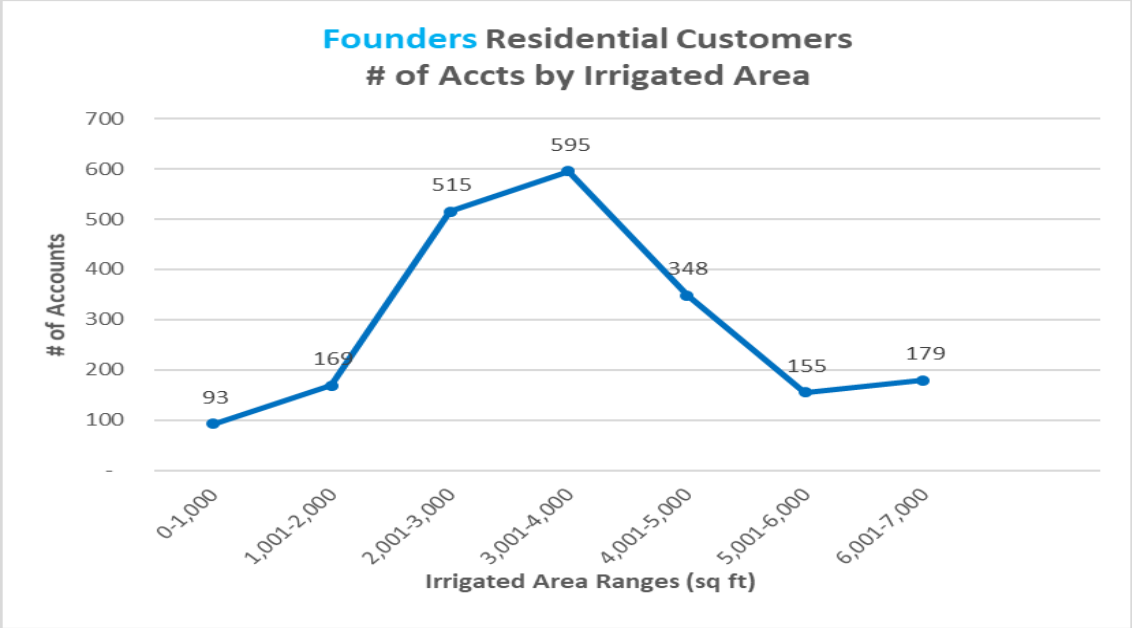
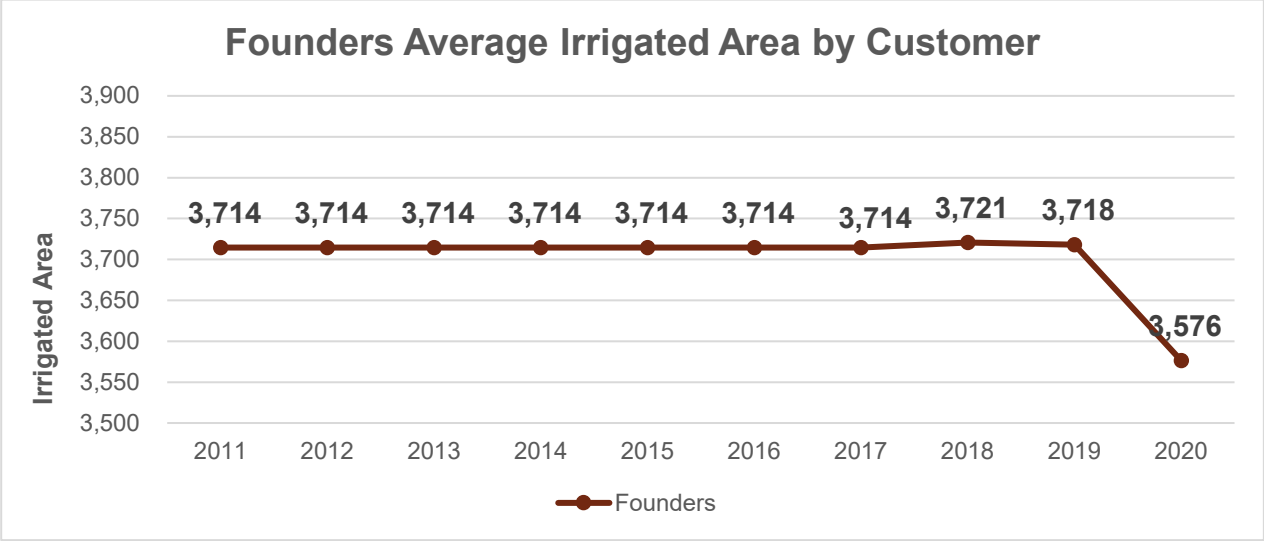


CHART 51: FOUNDERS RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER



*Drop in average irrigated area due to new builds in 2020 only averaging 820 sq. ft. In irrigated area

CHART 52: PLUM CREEK AVERAGE MONTHLY CONSUMPTION

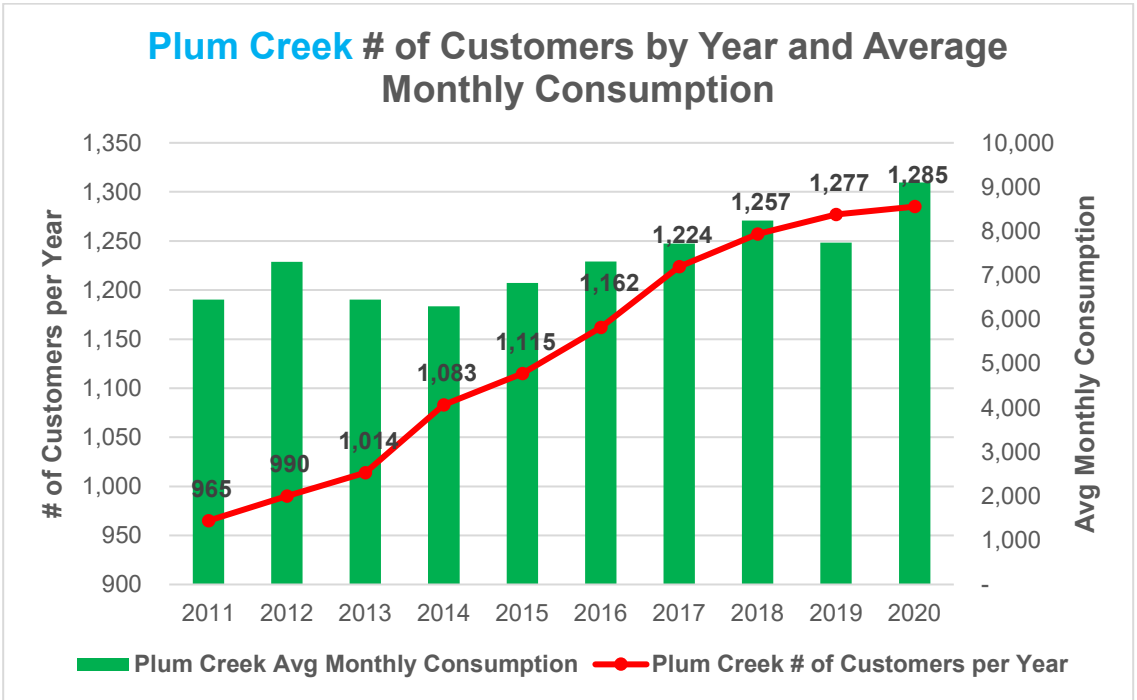


CHART 53: PLUM CREEK AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

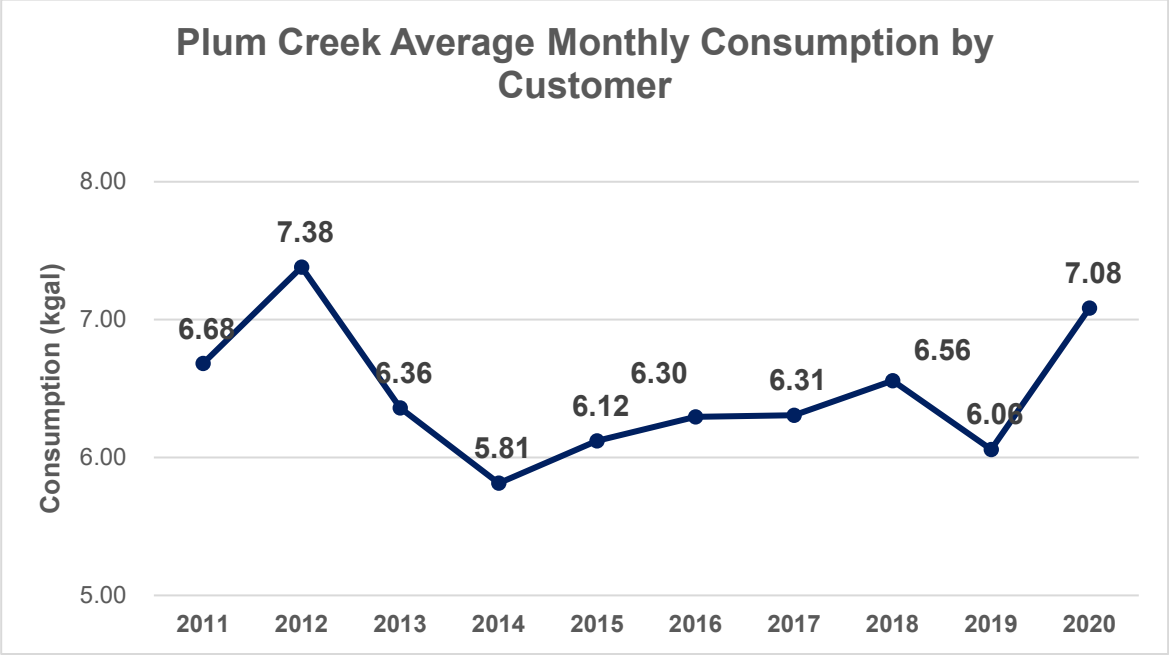


CHART 54: PLUM CREEK RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

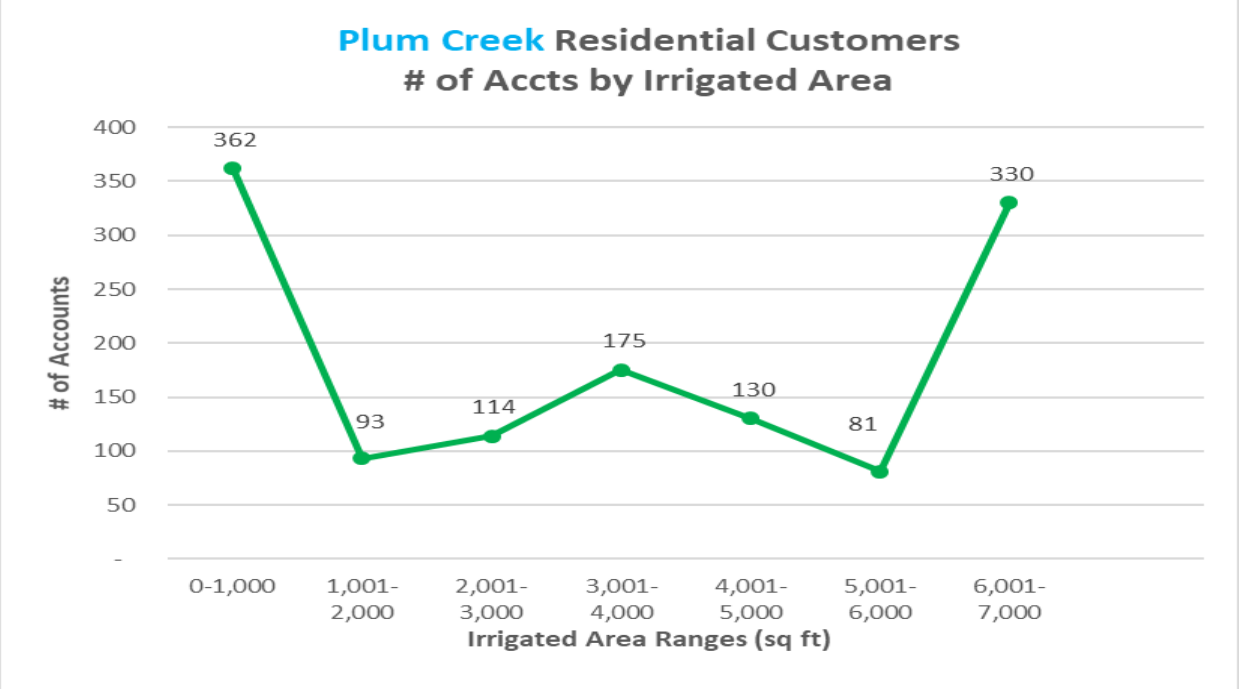
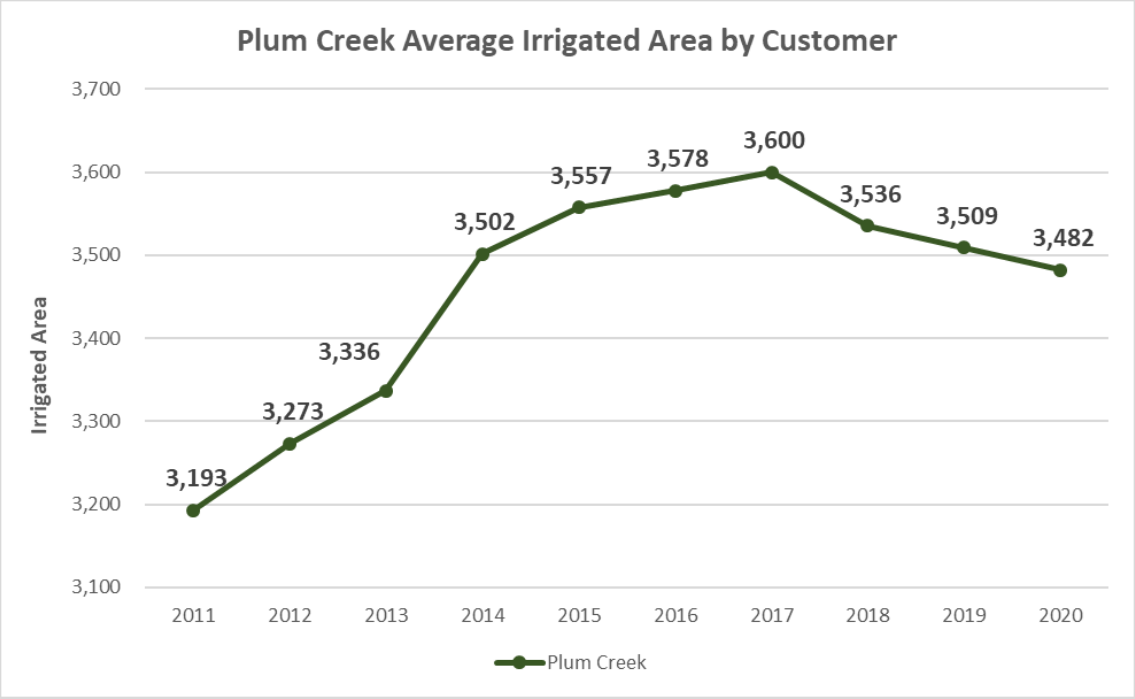


CHART 55: PLUM CREEK RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER



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 2012 to 2020. 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

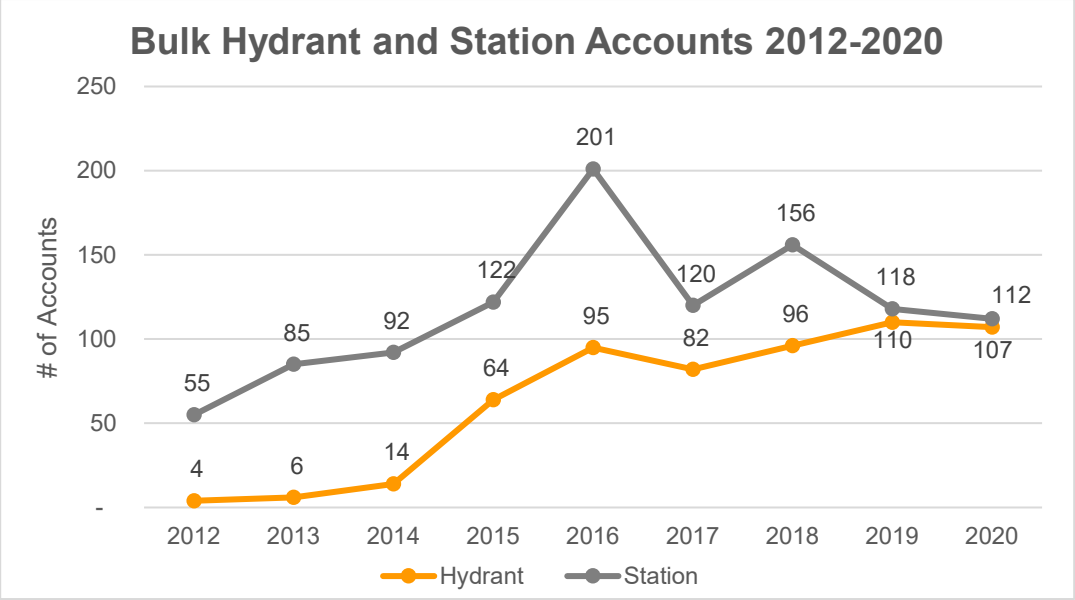


CHART 57: BULK HYDRANT USAGE

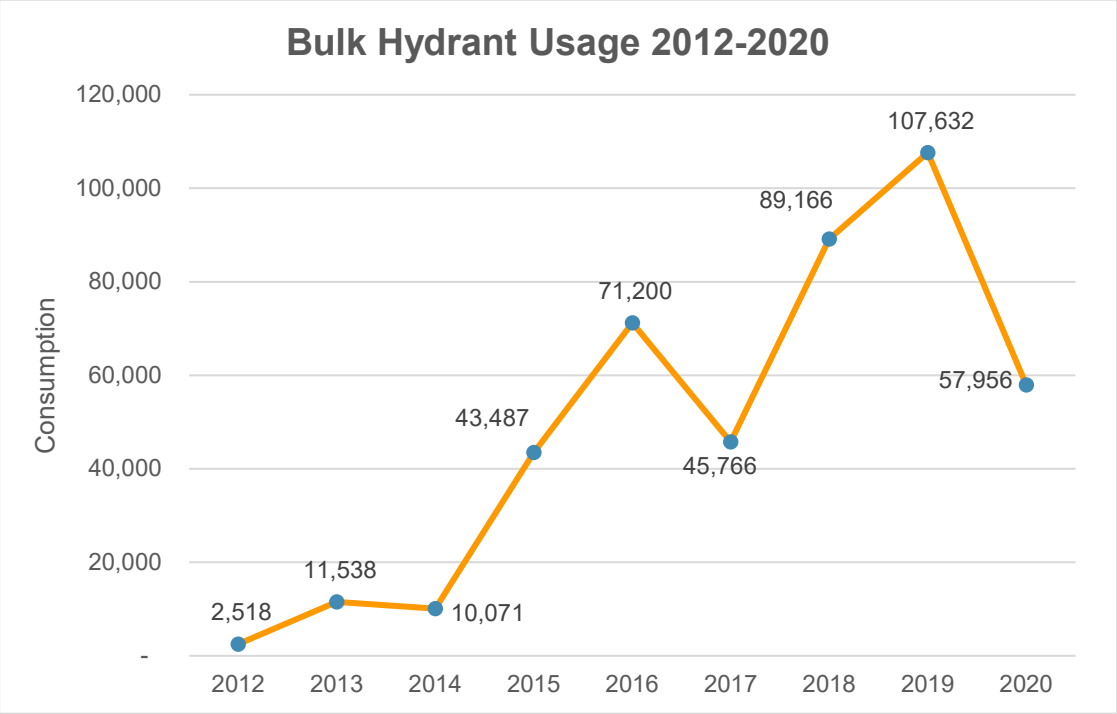
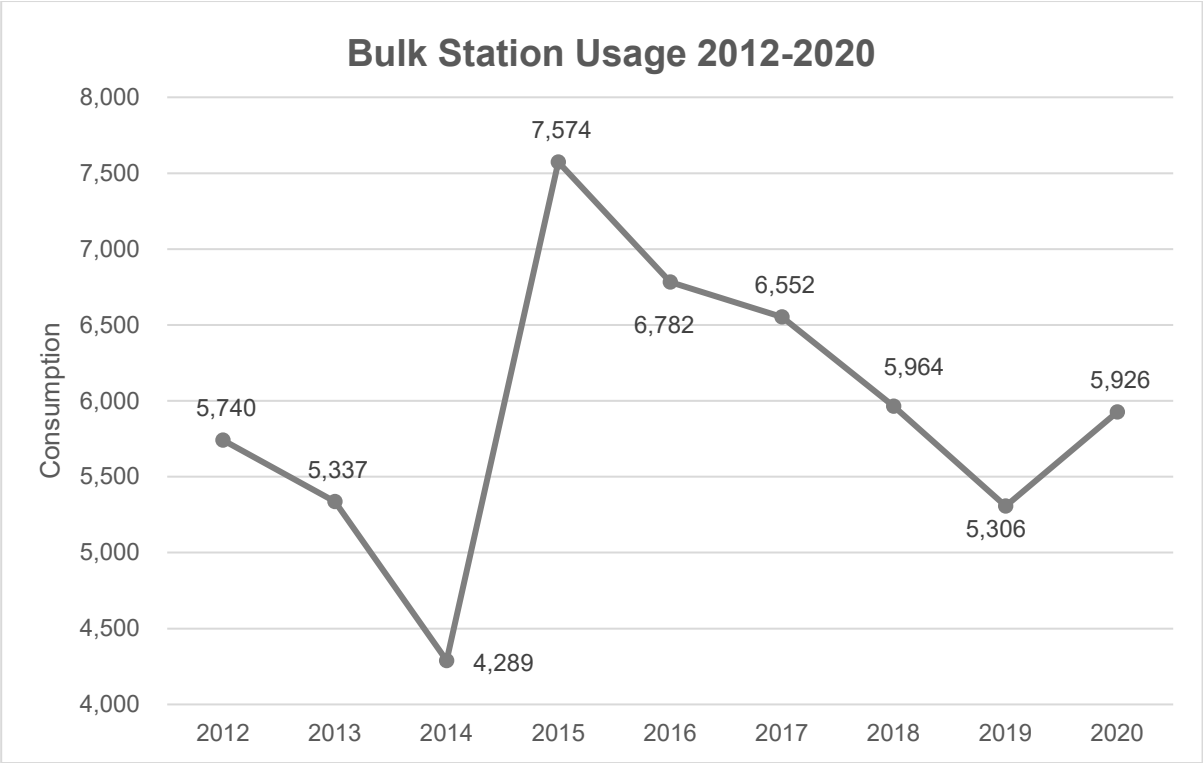


CHART 58: BULK STATION USAGE



TOWN ACCOUNT CONSUMPTION

In Chart 59 it shows the overall Town consumption from 2012 to 2020. From 2018 to 2019 consumption decreased, which was mainly due to the Parks Department.

CHART 59: TOWN CONSUMPTION

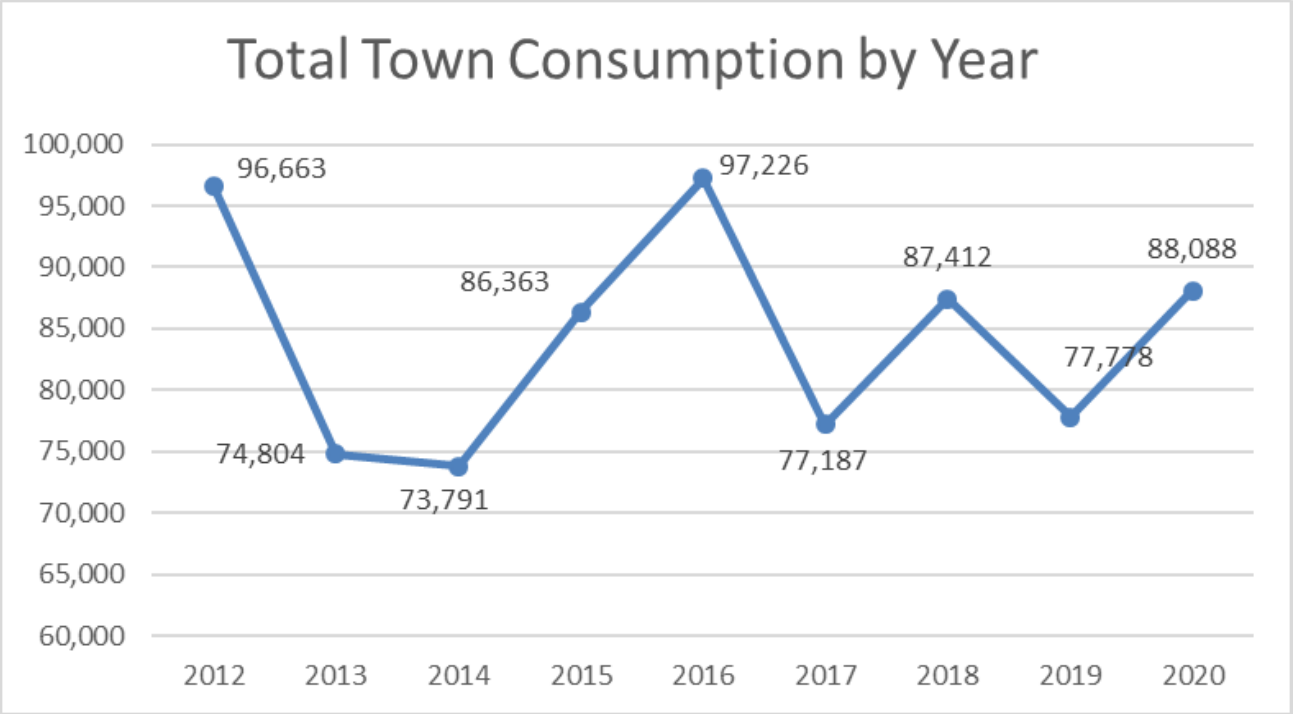


TABLE 10: TOWN CONSUMPTION BY YEAR AND DEPARTMENT (Kgal)

Department	2012	2013	2014	2015	2016	2017	2018	2019	2020
CRW	918	1,087	2,078	2,238	1,544	693	757	856	1,043
Facility Maintenance	0	0	0	0	0	22	25	7	0
Fire	937	1,209	1,164	1,274	1,117	861	1,152	1,302	1,260
Golf Course	365	342	340	379	385	325	326	310	255
Parks	85,461	63,324	63,467	75,079	87,041	66,867	76,539	68,631	80,584
Police	340	258	326	340	231	210	264	188	169
Rec Center	7,431	7,243	5,299	5,308	5,586	6,246	5,890	4,679	3,336
Service Centers	1,051	698	830	898	789	771	689	188	521
Streets	0	0	0	0	0	416	430	444	430
TownHall	160	147	154	165	172	172	335	338	124
Treatment Plants	0	496	133	682	361	604	1,005	835	366
Total Consumption	**96,663**	**74,804**	**73,791**	**86,363**	**97,226**	**77,187**	**87,412**	**77,778**	**88,088**

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 (Jan20-Dec20). This shows that 22,935 customers were receiving wastewater service during this capture period. The FY2019 accounts based on 12 months of billing data (Jan19-Dec19) showed that 21,836 accounts were receiving wastewater service. There are 1,099 more accounts in FY2020 than FY2019.

There are approximately 739 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 (FY2020)

Meter Size	Residential	Multifamily	Commercial	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	1,865	-	-	4	9	1,878
3/4"	19,919	14	123	101	120	20,277
1"	25	25	68	100	92	310
1.5"	-	55	49	118	90	312
2"	-	15	27	41	48	131
3"	-	2	5	3	13	23
4"	-	1	-	-	1	2
6"	-	-	2	-	-	2
Total	21,809	112	274	367	373	22,935

CHART 60: RESIDENTIAL WASTEWATER ACCOUNTS

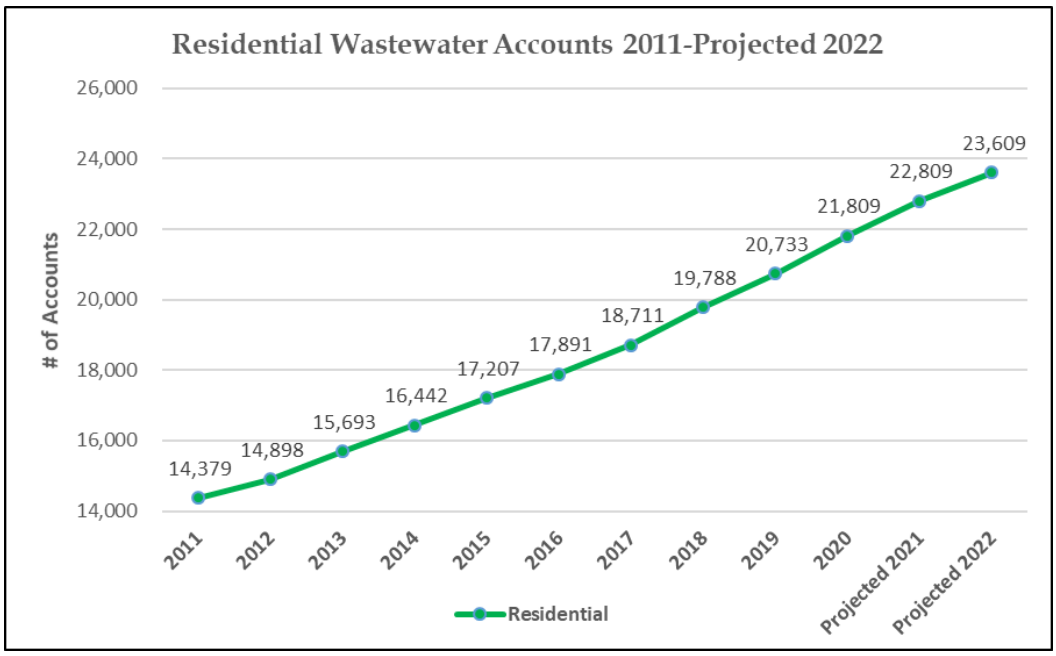
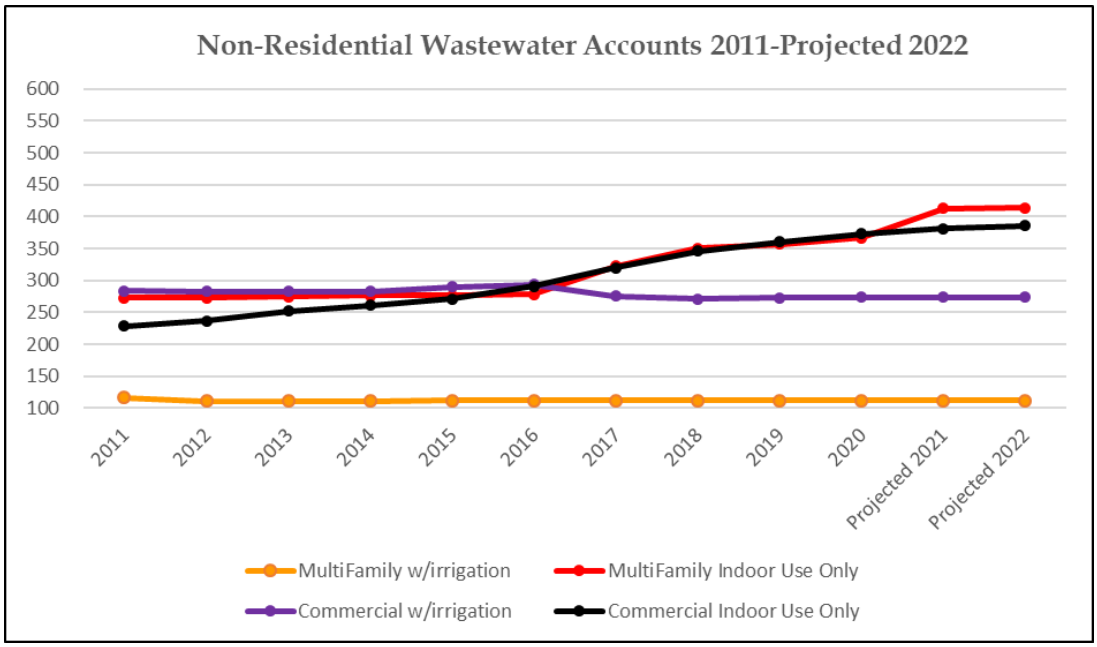


CHART 61: NON-RESIDENTIAL WASTEWATER ACCOUNTS



Castle Rock Water projects FY2022 wastewater accounts by using 2020 billing data plus projected growth for FY2021 and FY2022. The FY2022 wastewater accounts are projected to equal 24,795 (23,609 for residential and 1,186 for non-residential).

2021 Projected New Accounts by Customer Class:

1,000	Residential (1 SFE)
46	Multi-Family
8	Commercial
1,054	Total

2022 Projected New Accounts by Customer Class:

800	Residential (1 SFE)
1	Multi-Family
5	Commercial
806	Total

Total growth of 1,054 accounts is projected for FY2021 and 806 for FY2022 for a total of 1,860 projected for the wastewater fund thru FY2022.

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 (Jan20-Dec20). This shows 23,760 accounts served by the water resources enterprise fund. The FY2019 accounts based on 12 months of billing data (Jan19-Dec19) showed 22,632 water resources accounts. There are 1,128 more accounts in FY2020 than in FY2019.

TABLE 12: ACCOUNTS BY METER SIZE AND CUSTOMER CLASS (FY2020)

Meter Size	Residential	Multifamily	Commercial	Bulk	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	1,871	-	-	-	2	4	9	1,886
3/4"	20,070	14	126	107	200	101	126	20,744
1"	26	25	70	-	110	100	96	427
1.5"	-	55	51	-	142	118	90	456
2"	-	15	27	-	79	41	49	211
3"	-	2	5	-	6	3	14	30
4"	-	1	-	-	2	-	1	4
6"	-	-	2	-	-	-	-	2
Total	21,967	112	281	107	541	367	385	23,760

CHART 62: RESIDENTIAL WATER RESOURCES ACCOUNTS

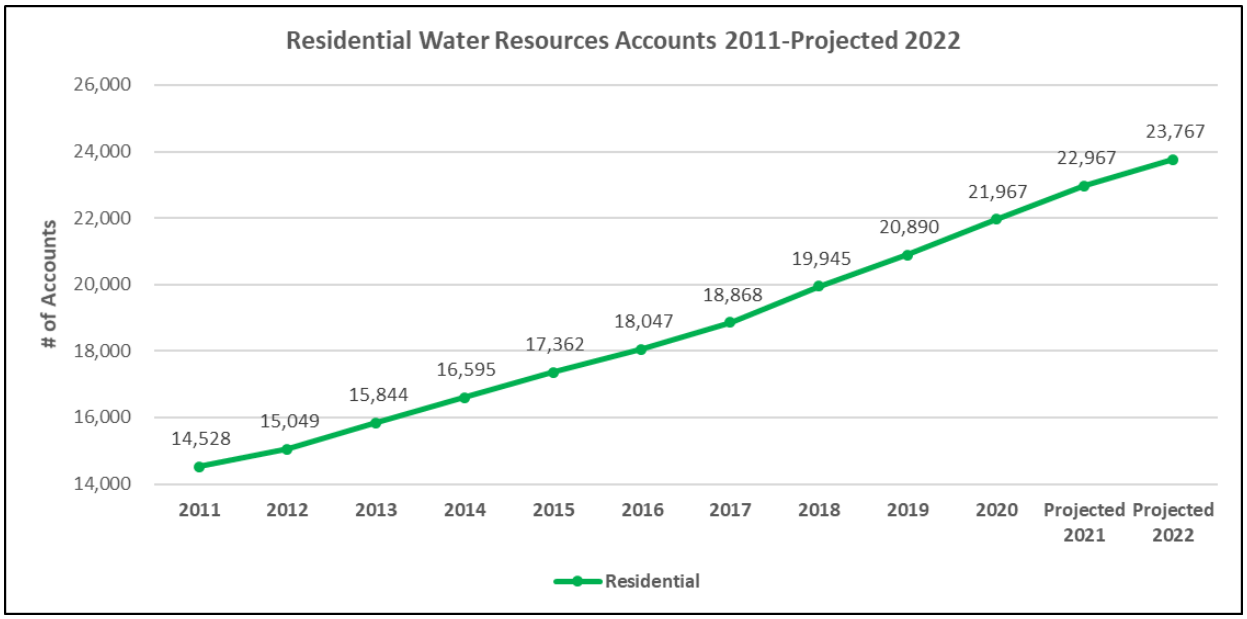
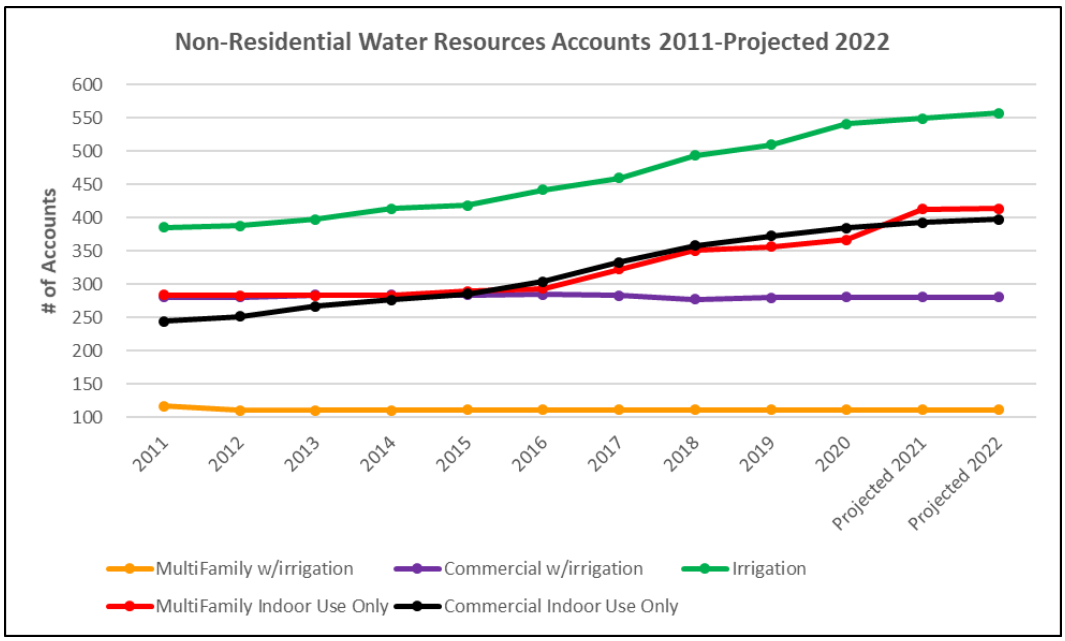


CHART 63: NON-RESIDENTIAL WATER RESOURCES ACCOUNTS



Castle Rock Water projects FY2022 water resources accounts by using 2020 billing data plus projected growth for FY2021 and FY2022. The FY2022 water resources accounts are projected to equal 25,529 (23,767 for residential and 1,762 for non-residential).

2021 Projected New Accounts by Customer Class:

1,000 Residential (1 SFE)
46 Multi-Family
8 Commercial
8 Irrigation
1,062 Total

2022 Projected New Accounts by Customer Class:

800 Residential (1 SFE)
1 Multi-Family
5 Commercial
8 Irrigation
814 Total

Total growth of 1,062 accounts is projected for FY2021 and 814 for FY2022 for a total of 1,876 projected for the water resources fund thru FY2022.

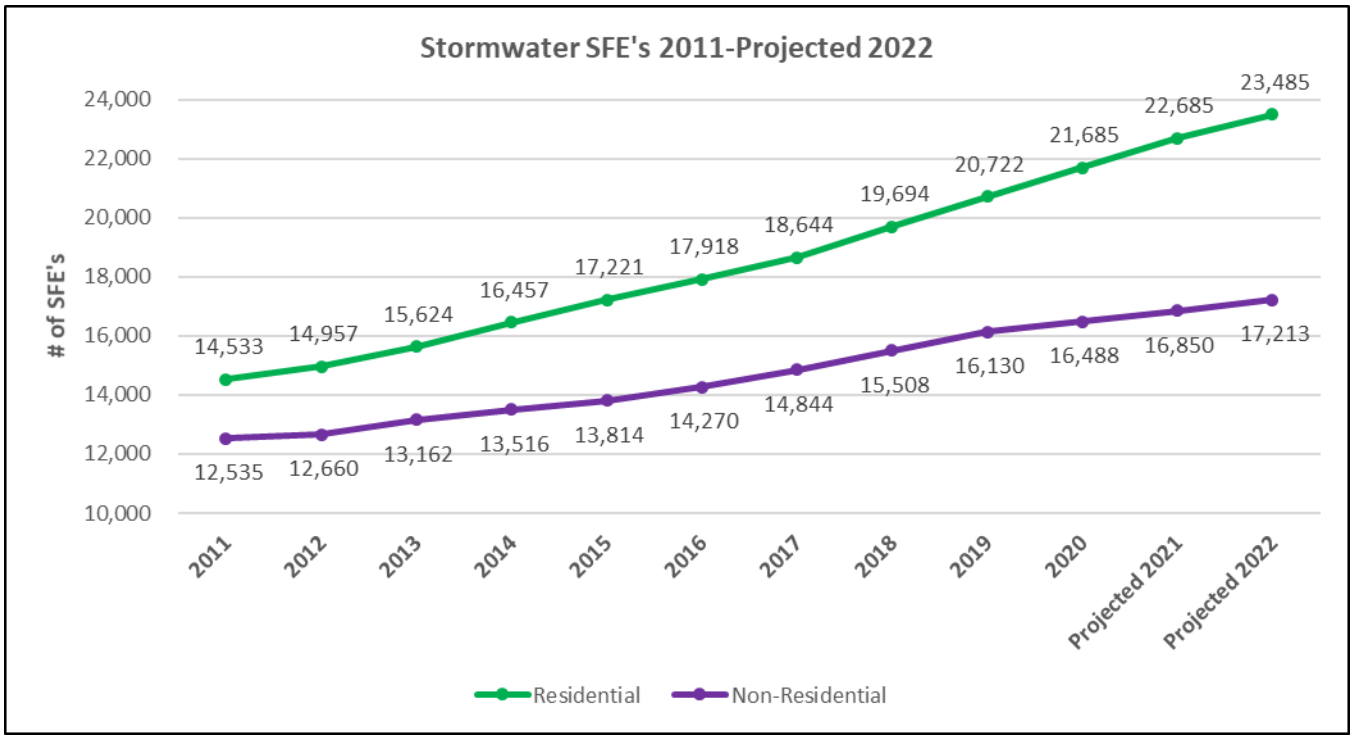
STORMWATER ENTERPRISE FUND

Table 13 shows stormwater average monthly SFE's based on 12 months of billing data (Jan20-Dec20). This shows that 38,173 SFE's were receiving stormwater services during this capture period. The FY2019 billing data (Jan19-Dec19) showed 36,851 SFE's receiving stormwater services. There are 1,322 more SFE's in FY2020 than FY2019.

TABLE 13: STORMWATER SFE'S (JAN 20-DEC 20)

Total Monthly SFE's	
Residential	21,685
Non-Residential	16,488
Stormwater SFE's	38,173

CHART 64: STORMWATER SFE'S



Castle Rock Water shows FY2022 projected stormwater SFE's based on 12 months of billing data (Jan20-Dec20) plus projected growth for FY2021 and FY2022. The FY2022 stormwater SFE's are projected to equal 40,698 (23,485 for residential and 17,213 for non-residential).

2021 Projected New (SFE's)

1,000		Residential
	40	Detached in Cherry Creek Basin
	960	Detached in Plum Creek Basin
362		Commercial in the Plum Creek Basin
1,362	Total	

2022 Projected New (SFE's)

800		Residential
	32	Detached in Cherry Creek Basin
	768	Detached in Plum Creek Basin
362		Commercial in the Plum Creek Basin
1,162	Total	

Total growth projected for the stormwater fund is 1,362 SFEs in FY2021 and 1,162 SFEs for FY2022.

Stantec Consulting Services Inc.
370 Interlocken Boulevard Suite 300, Broomfield CO 80021-8012

September 15, 2021

Attention: Anne Glassman, Business Solutions Manager
Castle Rock Water
175 Kellogg Ct.
Castle Rock, CO 80109

Dear Anne,

Reference: Stantec Financial Review Services for Castle Rock Water's 2021 Rates and Fees Study, Volume 1 of 2, 2022 – 2026 Rates

As part of the 2021 Rates and Fees Study, Stantec Consulting Services Inc. (Stantec) was engaged by Castle Rock Water (CRW) update the modeling tools used in the study with current data as well as provide review and feedback during the study of CRW's methodology and findings. In updating the modeling tools, Stantec has relied on the information and data presented by CRW without independent verification. During the course of the study, discussions with CRW staff focused on reasonableness of the data used, as well as financial policies and comparisons with best practices in the industry.

CRW's continued efforts to optimize capital project funding while maintaining reserves, meeting targets, and minimizing rate increases are in line with industry best practices. Additionally, by funding growth-related capital projects with impact fee and system development fee (SDF) revenue, CRW is making efforts to ensure "growth pays for growth," and is adhering to the industry standard of allocating costs to beneficiary parties.

Following a cost-of-service based approach to establishing rates is recommended by the American Water Works Association (AWWA) and Water Environment Federation (WEF). While CRW presents a five-year forecast of rate recommendations and a single test year of cost-of-service (COS) rates, CRW's annual updates to the COS models for water and wastewater allow for more detailed monitoring of the equity of CRW's rates and fees for its water and wastewater utilities. As a result, Stantec recommends that CRW continue to evaluate the equity among its customer classes. CRW has an Excel modeling tool, reviewed with Stantec, that compares costs of service by class calculated in the COS models with revenues collected from each class. This customer equity analysis provides feedback on projected cost recovery by customer class, projected accounts for the rate year, and consumption used in the COS models compared with actual revenues, accounts, and usage by class. Stantec recommends that the equity analysis is updated prior to the start of the 2022 Rates and Fees Study to better inform next year's study and assist in further evaluation of CRW's rates.

CRW continues to review and revise its water and wastewater cost allocations. Due to changes in financial forecasts and staff changes, time did not allow these changes to be included in the 2021 COS models. CRW can consider implementing the changes, if any, in the 2022 Rates and Fees Study.

In the financial planning models used to develop revenue requirements for each of CRW's enterprise funds, CRW fully balanced the models for a long-term period. Financially sustainable utilities demonstrate that each enterprise fund meets financial targets such as minimum reserves every year and properly plans for future capital expenditures. Stantec advised CRW to consider omitting the beginning fund balance

Reference: Stantec Financial Review Services for Castle Rock Water's 2021 Rates and Fees Study, Volume 1 of 2, 2022 – 2026 Rates

deduction of the 60 days of operating expenses in the first year of the operating fund cash balance, particularly in the Water Resources Fund. The additional deduction was artificially limiting the amount of cash available for expenses in the first year of the model forecast.

To further balance revenue needs with expenditures, Stantec recommends that CRW designate specific CIP funding rules to enable SDF or rate funding according to project designations of growth funded, rate funded or a combination of the two. This requires further tracking of SDF revenues and expenses as recommended in the 2020 Rates and Fees Study. This separation of rate revenues and growth-related revenues and expenses provides better tracking of SDF revenues for appropriate projects.

CRW's use of its internal 5-year financial forecast provides inputs to the Financial Analysis and Modeling System (FAMS) modeling tools. As a result, assumptions used to forecast the revenues and expenses are not transparent in the FAMS models. We recommend either using the FAMS tools for near-term financing or providing revenue and cost escalation assumptions for line items in the internal forecast.

Stantec did not update affordability metrics during this study. Affordability metrics can include the traditional approach that considers utility bills as a percentage of median household income (MHI), as well as more modern approaches such as the affordability ratio of the 20th income percentile (AR20) and the hours worked at minimum wage (HM). We recommend CRW continues to update these calculations in the future.

Finally, CRW's water budget-based rate structure remains an innovative approach in the industry for addressing water conservation. CRW is among a small group of utilities in Colorado that have successfully implemented such a structure. Stantec recommends CRW use the Conservation Impact Model (CIM) if future adjustments in water budget-based rates are desired and possible refinements to its water conservation goals need to be evaluated from a rate structure perspective.

Stantec's specific recommendations for CRW's rates are found in the Summary of the Volume 1 of 2 2021 – 2025 Rates Report.

As usual, we appreciate the opportunity to work with you and your staff on this study. Please contact me at (330) 271-9125 if you have any questions.

Regards,

Carol Malesky
Principal, Financial Services

Phone: 330-271-9125
carol.malesky@stantec.com

2021
RATES AND FEES STUDY

VOLUME 2 OF 2

SYSTEM DEVELOPMENT FEES

Prepared by Castle Rock Water
Business Solutions

Final Report

September 2021

Table of Contents

Executive Summary

On an annual basis, Castle Rock Water (CRW) conducts a comprehensive rates and fees study for the water, water resources, wastewater, and stormwater funds. The purpose of this study is to provide the Town with a comprehensive and updated review of System Development Fees (SDFs) and the underlying assumptions used to calculate the 2022-2026 fees.

For the fifth year in a row, CRW contracted with Stantec Consulting Services, Inc. to provide oversight and guidance with the study. Stantec was chosen based on the company's knowledge and experience in the industry and the ability to provide industry best practices. They have reviewed our models and reports and provided their recommendations for the study.

Methodology

For calculating SDFs, there are two commonly accepted methodologies. They are the equity buy-in approach and the incremental cost (or improvement) approach. A third approach acknowledged by the American Water Works Association (AWWA) and the Water Environment Federation (WEF) is the combined or hybrid approach. The hybrid method is used to calculate CRW's water, water resources and wastewater SDFs.

For stormwater, the incremental cost approach is used to identify additional capacity needed to serve growth. It is assumed that CRW's existing infrastructure and replacements are specifically serving existing developments and capital improvements are needed to provide runoff capacity for new customers.

Equity Buy-In Approach

The equity buy-in approach is most appropriate in situations where new customers can be served by the existing system. Under this method, new customers pay a proportionate share of the value of the existing infrastructure. AWWA recommends the equity method within systems that have adequate capacity to serve both existing and future customers without major system expansions.

Incremental Cost (Improvement) Approach

The incremental cost approach is most appropriate when the existing system is at or near its maximum capacity and when new customers are not being served without significant investment in infrastructure. Under the incremental cost approach, new customers pay a proportionate share of the expansion related costs of the new infrastructure.

Combined Approach

The combined approach often is the most appropriate approach because new customers tend to use capacity available in the existing infrastructure (buy-in) as well as new capacity that the utility must build in order to accommodate growth and the additional units to be served

(incremental cost). This method best conforms to “growth pays for growth” policies, coinciding with the Town’s policy. The SDF is calculated using capital improvement plans (CIPs) developed in CRW’s master planning process.

With the combined approach, the equity buy-in method and incremental cost method are essentially combined so that new customers of the utility pay for their share of the existing system equity as well as their share of the capacity expansion costs. The equity portion of the connection fee is called the buy-in component and the incremental cost portion of the fee is referred to as the improvement component.

The combined approach as follows for water, water resources and wastewater SDFs complies with the criteria for impact fees required in the Colorado Revised Statutes (CRS) 29-20-104.5. This statute requires that SDFs and impact fees are as follows:

- Legislatively adopted
- Applied to a broad class of property
- Recover the costs imposed by proposed development

The incremental cost approach for the stormwater development impact fees also complies with CRS 29-20-104.5.

Capacity Definitions

Defining capacity in both the existing infrastructure and new capital improvements is a critical step in determining SDFs. Moreover, defining capacity required by a single-family equivalent user is required for each of the SDFs and the stormwater development impact fee. For CRW, the following assumptions on capacity definitions apply:

1. A single-family equivalent (SFE) is a measure of the amount of water/wastewater flow required to meet potential demand of a single-family detached residence.
2. For the water and water resources systems, one SFE is assumed to require 400 gallons per day (gpd).
3. For the wastewater systems, one SFE is assumed to require 220 gpd of flow capacity.
4. For stormwater capacity, one SFE equals 3,255 square feet (sq. ft.) of impervious area.

Equivalency Schedule

Out of the various available equivalency schedules, CRW chooses two different schedules to look at in order to establish its rates and fees. 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. These can also be based on the relative potential demands of different customers. Based on the characteristic hydraulic demands, a single family meter size of ¾” is designated as the base for one SFE. The maximum flow rate or water through the meter in gallons per minute (gpm) becomes the unit of comparison. The maximum flow rate demanded by new customers is compared to the base demand in order to determine the equivalency ratio. For example, if the

base single family residential customer's maximum flow rate is 30 gpm and a commercial customer requires 200 gpm, the equivalency ratio equals 6.67 (200/30=6.67). These are shown in Table 1 below.

The second method is the actual use equivalency schedule, which is based on the relative average monthly water usage of CRW's customers. Average monthly use per account by meter size was calculated using a 2018 to 2020 three-year average of monthly consumption data from the customer characteristics analysis, which was obtained from the core billing system. The average usage of a single family residential meter size is designated as the base. The average usage of larger meter sizes is divided by the base usage to calculate equivalency ratios. Estimating existing demands on CRW's systems determines remaining capacity to serve new customers, therefore, the actual use equivalency schedule is what was used to calculate existing SFEs for the water, water resources and wastewater SDFs. These ratios are shown in Table 2 below.

Table 1
Hydraulic Capacity Equivalency Ratios

Meter Size	Equivalent Meter Ratios
5/8" x ¾"	0.67
¾"	1.00
1"	1.67
1.5"	3.33
2" C2	6.67
2" T2	8.33
3" C2	16.67
3" T2	21.67
4" C2	33.33
4" T2	41.67
6" C2	66.67
6" T2	83.33

Table 2 Calculated Meter Equivalency Ratios	
Meter Size	**Equivalent Meter Ratios**
5/8" x ¾"	0.66
¾"	1.00
1"	4.10
1.5"	8.64
2" C2	9.99
2" T2	29.02
3" C2	17.40
3" T2	40.96
4" C2	66.05
4" T2	67.53
6" C2	95.77

2021 Adopted vs 2022 Proposed SDFs by Fund

Castle Rock Water's 2021 adopted versus proposed SDFs for 2022 are listed below in Tables 3 through 6. For water, water resources and wastewater the primary drivers of the SDF calculations include:

- changes in net fixed asset values and construction work in progress
- updated system capacity in existing and future facilities
- growth in SFEs
- updated capital improvement plans

Stormwater development impact fees are assessed based on impervious area by development type. The costs for stormwater capital improvements for new development are proportioned across the planned developments by type:

- Single Family Detached
- Single Family Attached
- Multifamily
- Commercial (Retail/Office)

The stormwater fees are also split for properties located within the Cherry Creek Basin and the Plum Creek Basin.

Updates to the stormwater fee calculations include:

- decrease in the number of developable acres by land use type
- updated costs for the stormwater capital improvement plan

Single family and multifamily development impact fees are per dwelling unit. Units for commercial (retail/office) development are per 1,000 square feet of building space.

Table 3
Water Fund
2021 Adopted vs 2022 Proposed SDFs

Meter Size	2021 Adopted SDFs	2022 Proposed SDFs
5/8" x ¾"	$2,701	$2,890
¾"	$4,030	$4,312
1"	$6,731	$7,202
1.5"	$13,421	$14,361
2" C2	$26,883	$28,765
2" T2	$33,573	$35,923
3" C2	$67,187	$71,890
3" T2	$87,339	$93,453
4" C2	$134,333	$143,736
4" T2	$167,947	$179,703
6" C2	$268,707	$287,516
6" T2	$335,853	$359,363

Table 4 Water Resources Fund 2021 Adopted vs 2022 Proposed SDFs		
Meter Size	**2021 Adopted SDFs**	**2022 Proposed SDFs**
5/8" x ¾"	$12,401	$14,261
¾"	$18,504	$21,280
1"	$30,909	$35,545
1.5"	$61,633	$70,878
2" C2	$123,452	$141,969
2" T2	$154,175	$177,301
3" C2	$308,536	$354,817
3" T2	$401,078	$461,240
4" C2	$616,887	$709,420
4" T2	$771,247	$886,934
6" C2	$1,233,958	$1,419,052
6" T2	$1,542,308	$1,773,654

Table 5 Wastewater Fund 2021 Adopted vs 2022 Proposed SDFs		
Meter Size	**2021 Adopted SDFs**	**2022 Proposed SDFs**
5/8" x ¾"	$2,695	$2,803
¾"	$4,023	$4,184
1"	$6,718	$6,987
1.5"	$13,397	$13,933
2" C2	$26,833	$27,906
2" T2	$33,512	$34,852
3" C2	$67,063	$69,746
3" T2	$87,178	$90,665
4" C2	$134,087	$139,450
4" T2	$167,638	$174,344
6" C2	$268,213	$278,942
6" T2	$335,237	$348,646

Table 6 Stormwater Fund 2021 Adopted vs 2022 Proposed Development Impact Fees		
Plum Creek Basin	**2021 Adopted DIFs**	**2022 Proposed DIFs**
Single Family Detached	$1,425	$1,539
Single Family Attached	$951	$1,027
Multifamily	$863	$932
Commercial (Retail/Office) per 1,000 sq. ft.	$643	$694
Cherry Creek Basin	**2021 Adopted DIFs**	**2022 Proposed DIFs**
Single Family Detached	$911	$947
Single Family Attached	$609	$633
Multifamily	$552	$574
Commercial (Retail/Office) per 1,000 sq. ft.	$411	$427

Proposed SDFs for 2022 Through 2026

CRW reviews the SDFs each year and adjusts based on the updated CIP and fixed asset costs. As new projects are added to serve growth and as projects are completed the SDF is adjusted accordingly. Costs for capital improvements are maintained at 2021 dollars. In order to maintain SDF revenues to match increases in capital costs over time, the SDFs and development impact fees are escalated for the study period 2022-2026, using 2022 as the base year. Water is projected to increase 7% per year for 2023-2026. Water Resources is projected to increase 5% per year for 2023-2026. Wastewater is projected to increase 4% per year for 2023-2026. Stormwater is projected to increase 4% per year in the Cherry Creek Basin and 8% per year in the Plum Creek Basin for 2023-2026. The escalation represents capturing what the current models indicate the current year increase should be over a five-year period instead of in a single year. For future costs past 2026, escalation expectations based on the average Engineering News Record (ENR) index using the Construction Cost Index (CCI) from 2020 are used in CRW's financial models. Tables 7 through 10 show the projected system development fees for 2022 through 2026.

Table 7 Water Fund Proposed System Development Fees 2022-2026					
Meter Size	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
5/8" x ¾"	$2,890	$3,092	$3,311	$3,550	$3,809
¾"	$4,312	$4,659	$5,006	$5,353	$5,700
1"	$7,202	$7,713	$8,261	$8,848	$9,476
1.5"	$14,361	$15,380	$16,472	$17,642	$18,894
2" C2	$28,765	$30,807	$32,994	$35,337	$37,846
2" T2	$35,923	$38,474	$41,205	$44,131	$47,264
3" C2	$71,890	$76,994	$82,461	$88,315	$94,586
3" T2	$93,453	$100,088	$107,194	$114,805	$122,956
4" C2	$143,736	$153,942	$164,872	$176,577	$189,114
4" T2	$179,703	$192,462	$206,127	$220,762	$236,436
6" C2	$287,516	$307,930	$329,793	$353,208	$378,286
6" T2	$359,363	$384,878	$412,204	$441,470	$472,815

Table 8 Water Resources Fund Proposed System Development Fees 2022-2026					
Meter Size	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
5/8" x ¾"	$14,261	$15,031	$15,857	$16,745	$17,683
¾"	$21,280	$22,574	$23,868	$25,163	$26,458
1"	$35,545	$37,465	$39,525	$41,739	$44,076
1.5"	$70,878	$74,705	$78,814	$83,228	$87,888
2" C2	$141,969	$149,636	$157,866	$166,706	$176,042
2" T2	$177,301	$186,875	$197,153	$208,194	$219,853
3" C2	$354,817	$373,977	$394,545	$416,640	$439,972
3" T2	$461,240	$486,147	$512,885	$541,606	$571,936
4" C2	$709,420	$747,728	$788,853	$833,029	$879,679
4" T2	$886,934	$934,829	$986,244	$1,041,474	$1,099,796
6" C2	$1,419,052	$1,495,680	$1,577,943	$1,666,308	$1,759,621
6" T2	$1,773,654	$1,869,432	$1,972,251	$2,082,697	$2,199,328

Table 9 Wastewater Fund Proposed System Development Fees 2022-2026					
Meter Size	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
5/8" x ¾"	$2,803	$2,915	$3,032	$3,153	$3,279
¾"	$4,184	$4,365	$4,546	$4,728	$4,909
1"	$6,987	$7,266	$7,557	$7,859	$8,173
1.5"	$13,933	$14,490	$15,070	$15,673	$16,299
2" C2	$27,906	$29,023	$30,183	$31,391	$32,646
2" T2	$34,852	$36,247	$37,696	$39,204	$40,772
3" C2	$69,746	$72,535	$75,437	$78,454	$81,592
3" T2	$90,665	$94,292	$98,063	$101,986	$106,065
4" C2	$139,450	$145,028	$150,830	$156,863	$163,137
4" T2	$174,344	$181,317	$188,570	$196,113	$203,957
6" C2	$278,942	$290,099	$301,703	$313,771	$326,322
6" T2	$348,646	$362,592	$377,096	$392,180	$407,867

Table 10 Stormwater Fund Proposed Development Impact Fees 2022-2026					
Plum Creek Basin	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
Single Family Detached	$1,539	$1,669	$1,811	$1,964	$2,128
Single Family Attached	$1,027	$1,114	$1,208	$1,311	$1,422
Multifamily	$932	$1,011	$1,097	$1,190	$1,290
Commercial (Retail/Office)	$694	$753	$816	$885	$960
Cherry Creek Basin	**FY2022**	**FY2023**	**FY2024**	**FY2025**	**FY2026**
Single Family Detached	$947	$987	$1,028	$1,071	$1,116
Single Family Attached	$633	$659	$687	$716	$746
Multifamily	$574	$597	$622	$648	$676
Commercial (Retail/Office)	$427	$445	$464	$483	$504

Study Purpose

The purpose of the water, water resources and wastewater system development fees and stormwater development impact fee study update is to provide CRW with a thorough review of its SDFs and the underlying assumptions. The intent is to update assumptions from prior years and provide updated fees for 2022-2026.

System Development Fee Overview

The term system development fee (SDF) is used interchangeably with other similar terms in the water and wastewater utility industry to describe any fee or charge that recovers capital costs associated with system growth. Also known as tap fees, impact fees, system investment charges, plant investment fees and other terms; these fees are designed to recover the capital costs of growth from those causing the growth to occur, rather than from the utility's existing customer base. Figure 1 below details the combined SDF methodology.

Figure 1: System Development Fee Methodology

When properly designed, an SDF should be a one-time charge to new connections to the system that recovers the utility's investment to provide capacity to new growth, either as a capital improvement or an infrastructure expansion. At any given moment, a utility will have a certain amount of capacity in its system that is available to serve new customers while, at the same time, it will have plans for new capital improvements and/or facilities expansions to serve anticipated growth in demand. To the extent that the system has available capacity, it can be said that the utility has already made an investment in new capital improvements and/or facilities expansions whose cost remains unrecovered.

Without recovering investments in new capital improvements/facilities expansion, the utility would effectively be subsidizing growth at the expense of existing rate payers. For this reason, both existing and proposed investments in capacity are examined in calculating SDFs. The

rational nexus for such fees is always the unrecovered investment in available capacity, whether that capacity is existing or proposed.

In charging new customers for both past and new investments in capacity, the SDF, like other such fees, promotes a concept in utility rate making called intergenerational equity. The term intergenerational equity means that existing customers do not subsidize new customers and vice versa. In many communities this is often referred to as “growth pays for growth.” SDFs can be designed to avoid the subsidization of new growth. If such a policy is desired by a community, the SDF can include two components: a buy-in component for past investments in system capacity that remains available to serve the new connections and an improvement component for planned future investments to make additional capacity available to serve new customers. Deficiency remediation or in-kind replacement in the existing system should not be included in the fee calculations.

System Development Fees Methodology

There are a number of ways to calculate SDFs. The American Water Works Association (AWWA) describes two methodologies for calculation of such fees, called the equity buy-in approach and the incremental cost approach. The AWWA also acknowledges that a hybrid of both approaches may be most appropriate which is referred to as the combined method.

Equity Buy-In Approach

The equity buy-in method is most appropriate in situations where new customers can be served by the existing system. Under this method, new customers pay a proportionate share of the value of the existing facilities. The buy-in method determines the value of the existing system assets and divides it by the current total single family equivalents (SFEs) that can be served by the system. The result is one SDF per SFE. The AWWA recommends that the buy-in approach is best employed within systems that have adequate capacity to serve both existing and future customers without major system expansions and where existing facilities are not scheduled for replacement and/or upgrades in the short term.

Incremental Cost (Growth) Approach

The incremental cost method is most appropriate when the existing system is at or near its maximum capacity and new customers cannot be accommodated without significant investment in facilities. Under the incremental cost method new customers pay a proportionate share of the expansion related costs of the new facilities. The system investment charge is calculated using capital improvement programs (CIPs) maintained by staff. Total CIP dollars for growth are divided by total new SFEs able to be served to calculate the system investment charge per SFE.

Combined Approach

The combined approach can be the most appropriate method because new customers tend to use capacity available in the existing facilities (buy-in) as well as new capacity that the utility

must build in order to accommodate growth and the additional units or service (incremental cost). This method best conforms to “growth pays for growth” policies. To calculate the combined SDF per SFE, a weighted average of the fee calculated under the buy-in method and the fee calculated under the incremental cost is computed. This is the approach used for this study.

Valuation Approaches

The first step in developing the SDF under the equity buy-in method is to calculate the amount of existing system equity. Equity, as defined by generally accepted accounting principles (GAAP), is equal to total assets minus total liabilities of the system. However, because the accounting convention typically depreciates the system’s long-term assets (i.e. utility plant in service) under various depreciation techniques and because those techniques sometimes have little bearing on the actual condition or value of the utility’s assets, questions arise as to what is a fair valuation of the system’s existing assets.

Several approaches exist to estimate the value of the utility’s assets.

Original Cost Approach

The original cost approach is taken straight from the utility’s asset records. The original cost is that price paid for the asset at the time it was acquired and placed into service. The original cost is not adjusted for inflation or market revaluation.

Book Value Approach

The book value approach is also a direct descendant of the asset record. Book value is the value of the asset that remains once it has been adjusted for depreciation. Accumulated depreciation is deducted from the original cost of the asset to determine its book value as reported on the utility’s balance sheet.

Replacement Cost New Approach

The replacement cost new approach (RCN) revalues the original cost of the assets at today’s value, this taking into account inflation and market forces. To calculate the replacement cost of assets, the construction cost index (CCI) and, where applicable, the building cost index (BCI) provided by the Engineering News Record (ENR) database may be used instead of more exhaustive engineering studies. These indices are commonly used within the industry to restate the value of existing assets in current dollars. To use the CCI index, divide the current year index value by the index value for the year the particular asset was placed into service.

Replacement Cost New Less Depreciation Approach

The last method used is the replacement cost new less deprecation approach, or RCNLD. Under the RCNLD method, the replacement cost, calculated as described above, is adjusted for

accumulated depreciation. The accumulated depreciation used in the RCNLD method is not the same amount as that used in the net book value method described earlier. Instead, accumulated depreciation is expressed as a percentage of net book value such that the percentage of remaining asset value under RCNLD is equivalent to the percentage of remaining asset value as reported under the net book value method. This approach is used for the Town's study to reflect the value of the existing assets in today's dollars while acknowledging the depreciation that has occurred in the system.

Capacity Definitions for Buy-In Component

In the buy-in method, the next step is to define the capacity in the existing system. Typically, this is represented in million gallons per day (mgd) or similar measure. The capacity is then converted into the number of SFEs that can be served by the existing system. SFEs are defined based on the utility's policies. Total SFEs that can be served by the existing system less current SFEs actually using the system equals the capacity available for growth or new SFEs.

For purposes of this study, the existing users in the system were updated by CRW staff to reflect changes in requirements in the existing system. Please see the individual sections for the assumptions used in this year's study.

Multi-Purpose Project Cost Allocations

When calculating the improvement component of the SDF, the first step is to review the CIP and allocate the project costs between growth and non-growth.

A portion of any utilities capital improvement is planned for replacements and betterments to the existing utility plant. Capital improvements that benefit existing customers are not considered necessary for construction or expansion of facilities to serve new customers, and therefore are not properly included in the improvement portion of the SDF. To separate those improvements required for system growth and those that benefit only the existing utility customers, the utility has to allocate its CIP into growth-related portions.

Capacity Definitions for the Improvement Component

Unlike the calculation of existing SFEs for the buy-in portion, the improvement component focuses only on new utility connections. In order to project new utility connections, it is necessary for the utility to make an engineering assessment to determine the new capacity available to the system once the growth-related CIP projects are placed into service.

For purposes of this report, new SFEs able to be served by the growth-related CIP are based on Master Plan assumptions of capacity requirements per SFE and capacities of individual projects.

Assessment Schedule Development

SDFs are normally assessed based on the number of equivalent units a new customer represents. An equivalent unit equates different hydraulic demands, often represented by different sizes and types of meters, to a common denominator. For this study the common denominator is rated maximum flow of 30 gpm. Other demands calculated for new customers are used to calculate the appropriate number of SFEs by dividing those demands by the 30 gpm.

An assessment schedule based on this calculation of SFEs is used for this study. CRW may adjust its approach to match a particular meter size with a known hydraulic capacity. For this study, the assessment schedules for water, water resources and wastewater SDFs are presented for a set of meter sizes and types that are based on maximum manufacturer rated flow for those particular meters. Any different assumptions on hydraulic capacity will change the calculated SDF.

Equivalency Schedules

Equivalency schedules are used to determine the number of SFEs represented by different meter sizes. Equivalency schedules are used for several purposes, such as for calculating SDFs and monthly service charges by meter size. This section defines the equivalency schedules used in this study. Equivalency schedules are established to determine the water, water resources, and wastewater SDFs a new connection must pay, based on their representative SFE requirement for new capacity.

Schedule for SFEs

Water meters are sized to deliver a maximum amount of water. Therefore, the water meter hydraulic capacity reflects the potential demands a customer may place on the system. The actual use equivalency is calculated based on the average use per account by meter size for 2018-2020 three-year average of monthly consumption data. The calculation of existing SFEs for assessing SDFs for this study is based on the ratio of the actual use equivalency. The capacity required by a new connection is determined by a fixture count for residential connections and engineering calculations for commercial and irrigation connections.

Review of fixture counts for the typical single-family residential property indicates that the hydraulic capacity required is, on average, 30 gallons per minute (gpm) for a ¾" meter size. Since 2010 it has been determined that one SFE equals 30 gpm of maximum flow. The hydraulic equivalency method is used to determine the new SDF amounts per meter size and is presented in Table 11 below.

Table 11 Hydraulic Meter Equivalency Ratios	
Meter Size	**Equivalent Meter Ratios**
5/8" x ¾"	0.67
¾"	1.00
1"	1.67
1.5"	3.33
2" C2	6.67
2" T2	8.33
3" C2	16.67
3" T2	21.67
4" C2	33.33
4" T2	41.67
6" C2	66.67
6" T2	83.33

Water System Development Fees

This section outlines the steps and assumptions used to calculate the water SDFs using the combined approach, which was described above.

Equity Buy-In Component

The buy-in component is based on the equity buy-in approach and requires three steps:

1. Fixed Asset Valuation
2. Capacity Definition
3. Assessment Schedule Development

Fixed Asset Valuation

The value of the water fixed assets is based on an estimate of RCNLD, including construction work in progress for the current year that have capacity remaining to serve new customers. An estimate of the value of assets contributed by developers was excluded from the SDF calculation. In addition, the value was adjusted by the amount of principal on outstanding debt.

Existing debt will be repaid through rates and therefore is ineligible for repayment with water system development fees.

CRW's system is designed to meet the needs of its customers and provide safe and reliable water service throughout its service area. The system consists of individual components that serve a specific function. The model uses 11 different functions that each asset is assigned to. These include:

1. Source of supply
2. Treatment
3. Pumping
4. Transmission
5. Distribution
6. Storage
7. Buildings/Improvements
8. Administration
9. Tools/Equipment
10. Exclude from SDF
11. Meters/Services

Table 12 summarizes the asset values attributed to each function. Based on the analysis, the total value of the water system assets including construction work in progress for SDF purposes in fiscal year ending 2020 is $282.3 million. Many assets used in the distribution system are typically contributed by developers and thus excluded from the calculation of the buy-in component. To explicitly show the value of the excluded assets, the value of assets assigned to this function that is estimated to be contributed by developers was reassigned to the Exclude from SDF function. Of the total RCNLD value, $161.1 million is excluded from the SDF. The water system value, net of outstanding debt, used to calculate the buy-in component of SDFs is $121.2 million.

Table 12 Water Fund RCNLD System Value by Function	
Function	**RCNLD**
Source of Supply	$50,400,445
Treatment	$19,965,584
Pumping	$3,409,793
Transmission/Distribution	$25,550,104
Storage	$18,019,564
Buildings/Improvements	$3,873,788
Exclude from SDF	$161,069,599
Total	**$282,288,876**

Capacity Definition

The next step in determining the buy-in component is to define the system capacity. Under this approach the capacity is based on the unused capacity of the system for each function identified above. This data is provided by CRW engineers.

Table 13 lists the current capacities of each water system function. It also presents an estimate of the total capacity in the existing system and the unused capacity in the existing system that is available for growth. The assumption in this table is that one SFE requires 400 gallons of water per day for source of supply, treatment, storage pumping, transmission and distribution. Building capacities are based off of total square footage. Capacity in SFEs includes assumptions of peaking factors provided by the Engineering Manager and Public Works Design Guidelines. Peak day requirements are 2.2 times the average requirements of 400 gpd for source of supply, treatment and storage. Peak hour requirements are 5.5 times the average requirements of 400 gpd and are applied to pumping, transmission and distribution functions. Used capacity is calculated by taking the capacities existing SFEs in the system as of December 2020 and assuming 400 gpd times a peaking factor of 2.2 for each SFE. The assumed SFEs are applied to supply, treatment, pumping, transmission and distribution and storage. Used capacity for buildings and improvements are based on square feet of space per SFE. Unused capacity is the projected total available capacity minus the used capacity.

Table 13 Water Fund System Component Capacities						
Function	Capacities	Unit	Projected SFEs Available	Used Capacity (SFEs)	Unused Capacity (SFES)	Remaining Capacity
Source of Supply	20.58	MGD	23,386	18,141	5,245	22.4%
Treatment	21.61	MGD	24,557	18,141	6,416	26.1%
Pumping	45.86	MGD	20,845	18,141	2,704	13.0%
Transmission/Distribution	80.27	MGD	36,486	18,141	18,345	50.3%
Storage	34.41	MG	39,102	18,141	20,961	53.6%
Buildings/Improvements	48,218	Sq. Ft.	37,436	26,567	10,869	29.0%

Buy-In Component

The total costs to be recovered from the buy-in component of the water SDF are based on the percentage of remaining capacities by function calculated in Table 13 and the total system asset values shown in Table 14. Table 15 represents the total buy-in amount by function. The total amount attributable to the buy-in component is $37.8 million.

It is important to note that each of the two components of the water SDF assumes a weighted average of the system capacities by function. To calculate the buy-in component, the dollars by function were divided by the sum of the capacities of the existing system and capital improvements. The purpose of weighting the cost by the sum of capacities available is to calculate the combined fee. A new customer pays for one unit of capacity, rather than one unit of existing capacity and one unit of new capacity, hence the weighted average calculation.

Table 14 Water Fund RCNLD for Buy-In Totals				
Function	**System Value RCNLD**	**Less: Principal Credit**	**Remaining Capacity**	**Cost of Available Capacity RCNLD**
Source of Supply	$50,400,445	$1,166,713	22.4%	$11,042,058
Treatment	$19,965,584	$460,857	26.1%	$5,095,642
Pumping	$3,409,793	$78,707	13.0%	$432,120
Transmission/Distribution	$25,550,104	$4,304,319	50.3%	$10,682,212
Storage	$18,019,564	$415,938	53.6%	$9,436,509
Buildings/Improvements	$3,873,788	$89,417	29.0%	$1,098,761
Exclude from SDF	$161,069,599	$0	0.00%	$0
Total	**$282,288,876**	**$6,515,951**		**$37,787,303**

Improvement Component

The improvement component is based on CRW's updated CIP for the 2021 study. The total CIP from 2022 through 2060 for the water fund is approximately $310 million as shown in Table 15.

Table 15 Water Fund CIP Costs 2022-2060	
Function	**CIP Costs 2022-2060**
Source of Supply	$36,490,084
Treatment	$9,112,500
Pumping	$10,200,000
Transmission/Distribution	$40,400,500
Storage	$15,475,000
Buildings/Improvements	$1,881,344
Exclude from SDF	$196,209,907
Total	**$309,769,335**

To calculate an improvement component based on the incremental cost approach, the following three tasks must be completed:

1. Multi-Purpose Project Allocations

2. Capacity Definitions
3. Assessment Schedule Development

Multi-Purpose Project Allocations

Allocating the costs of multi-purpose projects is an integral part of calculating an improvement fee. A multi-purpose project is an improvement that will serve both growth and address existing needs. Few projects are designed and built exclusively to serve growth or solve an existing deficiency. Rather, projects are designed to maximize economies of scale in design and construction. Therefore, projects serving both growth and rehabilitation/upgrade (i.e., multi-purpose projects) are allocated to growth and non-growth.

In some cases, two or more capital projects are part of an improvement of a particular system function. To avoid potential double-counting of added capacities, all projects were first assigned to functions and then grouped into a project group. Table 16 shows the results of determining only the growth-related costs of the CIP after this project allocation step. Out of the $297.4 million CIP, $113.6 million is included in the improvement component calculation.

Table 16
Water Fund
Growth-Related CIP Costs for Improvement Component

Function	Cost of New Capacity
Source of Supply	$36,490,084
Treatment	$9,112,500
Pumping	$10,200,000
Transmission/Distribution	$40,400,500
Storage	$15,475,000
Buildings/Improvements	$1,881,344
Exclude from SDF	$0
Total	**$113,559,428**

Capacity Definition

Table 17 summarizes the system capacities added for growth-related CIP projects by function. It also represents the estimated number of SFEs available for growth by function.

Table 17 Water Fund System Capacities for System Improvements			
Function	**New Capacities Added**	**Unit**	**Added SFEs**
Source of Supply	14.55	MGD	16,534
Treatment	5.47	MGD	6,216
Pumping	24.37	MGD	11,077
Transmission/Distribution	127.66	MGD	58,027
Storage	9.00	MG	10,227
Buildings/Improvements	10,869	SFE	10,869

Total Fee Calculation

The buy-in component is calculated using the current capacity of the system multiplied by the unsubscribed percent of capacity. This is then added to the projected new capacity being added for the improvement component of the fee. Table 18 below summarizes the total costs of the newly calculated fee by function.

Table 18 Water Fund Total Calculated Fee per SFE					
Function	**Net Asset and Capital Valuation**	**MGD[1]**	**Level of Service (gpd)**	**Equivalent SFEs**	**Calculated Fee per SFE**
Source of Supply	$47,532,142	19.17	880	21,779	$2,182
Treatment	$14,208,142	11.12	880	12,631	$1,125
Pumping	$10,632,120	30.32	2,200	13,781	$771
Transmission/Distribution	$51,082,712	168.02	2,200	76,372	$669
Storage	$24,911,509	27.45	880	31,188	$799
Buildings/Improvements	$2,980,105	24,869	1.288	19,308	$154
Total	**$151,346,731**				**$5,700**

[1]Buildings/ Improvements capacities are measured in sq.ft. while other functions are in MGD.

Results and Proposed Water SDF for 2022

As shown in Table 18, the total buy-in and improvement components are together calculating a total fee of $5,700 per SFE for 2022. CRW does not propose to raise the fee to this full value in 2022, but instead to raise the fee over five years to this value. For 2022, CRW proposes to implement a 7% increase which equals a $282 increase for a total SDF of $4,312.

Assessment Schedule

The final step in calculating the SDF for both the buy-in component and the improvement component is to determine the schedule of fees by meter size using hydraulic equivalencies as presented in Table 1. Table 19 represents the existing and proposed schedule of SDFs including both components by meter size.

Table 19
Water Fund
2022 Proposed SDF by Meter Size

Meter Size	Adopted 2021 SDF	Proposed 2022 SDF
5/8" x ¾"	$2,701	$2,890
¾"	$4,030	$4,312
1"	$6,731	$7,202
1.5"	$13,421	$14,361
2" C2	$26,883	$28,765
2" T2	$33,573	$35,923
3" C2	$67,187	$71,890
3" T2	$87,339	$93,453
4" C2	$134,333	$143,736
4" T2	$167,947	$179,703
6" C2	$268,707	$287,516
6" T2	$335,853	$359,363

Water Resources System Development Fees

This section outlines the steps and assumptions used to calculate the water resources SDFs using the combined approach, which was described above in the water fund sections.

Equity Buy-In Component

The buy-in component is based on the equity buy-in approach and requires the same three steps as described above in the water system development fees section.

Fixed Asset Valuation

The fixed assets for water resources are based on the same calculation as the water system development fees above, including the same 11 functions. Table 20 summarizes the asset values attributed to each function. Based on the analysis, the total value of the water resources system assets including construction work in progress for SDF purposes in fiscal year ending 2020 is $318.9 million. Assets used in the system that are contributed are excluded from the buy-in calculation. The value of assets to be contributed by developers was assigned to the Exclude from SDF function. Of the total RCNLD value, $63.7 million is excluded from the SDF calculation. For the buy-in component, the RCNLD value is approximately $255.2 million.

Table 20
Water Resources Fund
RCNLD System Value by Function

Function	RCNLD
Source of Supply	$123,571,698
Treatment	$54,891,249
Pumping	$11,295,385
Transmission/ Distribution	$3,711,127
Storage	$59,057,170
Buildings/Improvements	$2,695,831
Exclude from SDF	$63,676,065
Total	**$318,898,525**

Capacity Definition

The next step is to define system capacity based on the same functions used for fixed assets. Table 21 lists the current capacities of each water resources system function. It also presents an

estimate of the capacity in the existing system that is available for growth. One assumption used in the table is that one SFE requires 400 gallons of water per day on an average day basis. The peak day factor used is 2.2 and was derived by CRW's Engineering Manager and Public Works Design Guidelines. These numbers are both true for source of supply, treatment, pumping and transmission capacities. The amount of storage required per SFE is 0.45 acre feet per day, which is derived from the Town's Public Works Design Guidelines. Storage capacity is represented as MGD in the table.

Using the assumptions and the capacities for each function summarized in Table 21, the number of SFEs that can be served by each function is calculated. Subtracting the number of SFEs currently served by the utility generates the number of SFEs available for growth. A fundamental assumption regarding the SFEs currently served and the SFEs available for growth is that the original allocation of these components was to existing customers and future customers based on an assumption that these components would ultimately serve 105,000 people. In the current study, the total population to be served is assumed to be 150,000. At the present time, 50 percent of the SFEs that can be served (approximately 75,000 people) are existing users and 50 percent are new users. CRW determined its renewable water resources program allocation will be revised over time as population changes. Projects that have not been completed but are part of the water resources program are allocated in the same manner under the improvement component of the SDF.

Table 21
Water Resources Fund
System Component Capacities

Function	Capacities	Unit	Projected SFEs Available	Used Capacity (SFEs)	Unused Capacity (SFES)	Remaining Capacity
Source of Supply	4.10	MGD	4,659	2,330	2,330	50.0%
Treatment	6.00	MGD	6,818	3,409	3,409	50.0%
Pumping	0.00	MGD	0	0	0	0.0%
Transmission/Distribution	14.60	MGD	16,591	8,295	8,295	50.0%
Storage	17.02	MGD	19,336	9,668	9,668	50.0%
Buildings/Improvements	48,218	Sq. Ft.	37,436	26,567	10,869	29.0%

In order to assess SDFs, the number of SFEs a new customer represents is determined by an assessment of that customer's potential capacity needs using the hydraulic equivalencies identified in Table 1.

Buy-In Component

The total costs to be recovered from the buy-in component of the water resources SDF are based on the percentage of remaining capacities by function calculated in Table 21 and the total

system asset values shown in Table 22. The total amount attributable to the buy-in component is $101.9 million

Table 22
Water Resources Fund
RCNLD for Buy-In Totals

Function	System Value RCNLD	Less: Debt Credit	Remaining Capacity	Cost of Available Capacity RCNLD
Source of Supply	$123,571,698	$16,053,148	50.0%	$53,759,275
Treatment	$54,891,249	$6,972,890	50.0%	$23,959,179
Pumping	$11,295,385	$1,434,864	0.0%	$0
Transmission/Distribution	$3,711,127	$8,204,551	50.0%	($2,246,712)
Storage	$59,057,170	$7,502,092	50.0%	$25,777,539
Buildings/Improvements	$2,695,831	$342,454	29.0%	$683,284
Exclude from SDF	$63,676,065		0.0%	$0
Total	**$318,898,525**	**$40,540,000**		**$101,932,565**

Improvement Component

The improvement component is based on the updated water resources CIP from the updated planning process in 2021 and the review of renewable water supply projects. The total CIP from 2022-2060 is approximately $548.5 million as shown in Table 23.

Table 23
Water Resources Fund
CIP Costs 2022-2060

Function	CIP Costs 2022-2060
Source of Supply	$205,017,948
Treatment	$73,983,021
Pumping	$95,200,000
Transmission/Distribution	$130,719,080
Storage	$42,608,971
Buildings/Improvements	$928,627
Total	**$548,457,648**

To calculate an improvement component based on the incremental cost approach, the following three tasks must be completed:

1. Multi-Purpose Project Allocations
2. Capacity Definitions
3. Assessment Schedule Development

Multi-Purpose Project Allocations

Similar to the water system, the water resources capital improvement projects were first assigned to functions and then grouped into project groups. Table 24 shows the result of determining only the growth-related costs of the CIP after this project allocation step. Out of the $548.5 million CIP, $270.5 million is included in the improvement component calculation. For projects that were part of the original water resources program the split between existing and future customers is the same as it is for the buy in component. For projects that are new and are structured to serve a population beyond 150,000, the full cost is allocated to the improvement component of the SDF.

Table 24
Water Resources Fund
Growth-Related CIP Costs for Improvement Component

Function	Cost of New Capacity
Source of Supply	$169,549,360
Treatment	$21,573,875
Pumping	$26,268,000
Transmission/Distribution	$40,394,073
Storage	$11,777,791
Buildings/Improvements	$928,627
Total	**$270,491,725**

Capacity Definition

Table 25 summarizes the system capacities added for growth-related CIP projects by function.

Table 25 Water Resources Fund System Capacities for System Improvements	
Function	**Added MGDs**
Source of Supply	7.96
Treatment	21.00
Pumping	10.76
Transmission/Distribution	57.35
Storage	5.23
Buildings/Improvements	10,869 Sq. Ft.

Total Fee Calculation

The buy-in component is calculated using the current capacity of the system times the unsubscribed percent of capacity. This is then added to the projected new capacity being added for the improvement component of the fee. Table 26 below summarizes the total costs of the newly calculated fee by function.

Table 26 Water Resources Fund Total Calculated Fee per SFE					
Function	**Net Asset and Capital Valuation**	**MGD**	**Level of Service (gpd)**	**Equivalent SFEs**	**Calculated Fee per SFE**
Source of Supply	$223,308,634	10.01	880	11,375	$19,632
Treatment	$45,533,054	24.00	880	27,273	$1,670
Pumping	$26,268,000	10.76	880	12,227	$2,148
Transmission/Distribution	$38,147,361	64.65	880	73,466	$519
Storage	$37,555,330	13.74	880	15,611	$2,406
Buildings/Improvements(1)	$1,611,911	24,869.04	1.288	19,308	$83
Total	**$372,424,290**				**$26,458**

(1) Units are 24, 869.04 square feet divided by 1.288 sq. ft. per SFE

Results and Proposed Water Resources SDF for 2022

As shown in Table 26, the total fee is calculated to be $26,458 per SFE for 2022; however, CRW proposes to spread the increase out over five years with a 15% increase in 2022 followed by a 5% increase for 2023-2026. Based on this, the proposed fee for 2022 is $21,280.

Assessment Schedule

The buy-in component and the improvement component portion of the proposed SDF is based on meter size using the hydraulic equivalencies identified in Table 1.

Table 27 represents the existing and proposed schedule of SDFs by meter size. A 15.0% change in the water resources SDF is proposed for 2022.

Table 27
Water Resources Fund
Proposed SDF by Meter Size

Meter Size	Adopted 2021 SDF	Proposed 2022 SDF
5/8" x ¾"	$12,401	$14,261
¾"	$18,504	$21,280
1"	$30,909	$35,545
1.5"	$61,633	$70,878
2" C2	$123,452	$141,969
2" T2	$154,175	$177,301
3" C2	$308,536	$354,817
3" T2	$401,078	$461,240
4" C2	$616,887	$709,420
4" T2	$771,247	$886,934
6" C2	$1,233,958	$1,419,052
6" T2	$1,542,308	$1,773,654

Wastewater System Development Fees

This section outlines the steps and assumptions used to calculate the wastewater SDFs using the combined approach, which was described previously.

Equity Buy-In Component

The buy-in component is based on the equity buy-in approach and requires the same three steps as described above in the water system development fees section.

Fixed Asset Valuation

The fixed assets for wastewater are based on the same calculation as the water system development fees above.

The wastewater system is designed to collect wastewater from its customers and provide safe and reliable wastewater service throughout its service area. It is Plum Creek Water Reclamation Authority's (PCWRA's) and the Pinery Water and Sanitation District's (Pinery) responsibility to treat the wastewater for CRW. CRW's wastewater system includes individual components that serve 6 specific functions. To estimate the value of assets related to each function, the RCNLD value of each asset is allocated to one or more of these functions, typically referred to in wastewater systems as unit processes. However, note that the PCWRA Treatment Plant component is handled separately and for the Pinery the treatment component is paid directly to the Pinery. To calculate the buy-in component for the wastewater component for PCWRA, assets considered under the Treatment Plant unit process are CRW's share of cash-funded improvements at the Treatment Plant. The wastewater unit processes are:

1. Collection System
2. Interceptor System
3. Treatment Plant
4. Lift Station
5. Buildings/Improvements
6. Exclude from SDF

Table 28 summarizes the asset values attributed to each unit process. The total value of the wastewater system assets including construction work in progress for SDF purposes in fiscal year ending 2020 is $91.5 million. Many assets used in the collection system are typically contributed by developers and thus included in the exclude from SDF section of the buy-in component. Of the total RCNLD value, $47.4 million is excluded from the SDF. For establishing a buy-in SDF, the Town's wastewater system, net of outstanding debt is valued at approximately $44.1 million.

Table 28 Wastewater Fund RCNLD System Value by Function	
Unit Process	**RCNLD**
Collection System	$29,559,464
Interceptor System	$5,702,886
Treatment Plant	$8,862
Lift Station	$1,891,334
Buildings/Improvements	$6,924,075
Exclude from SDF	$47,372,831
Total	**$91,459,451**

Capacity Definition

The next step is to define system capacity based on the same functions used for fixed assets. Table 29 lists the current capacities of each wastewater system function, excluding PCWRA's treatment component. This table also represents an estimate of the capacity in the existing system that is available for growth. The interceptor system capacity required per SFE is approximately 440 gallons per day on a wet-weather peak capacity basis. This value is derived from CRW's master plan and the aggregate gpd peaking factor of 2.0 for interceptors.
Using these assumptions and the capacities for each function summarized in Table 29, the number of SFEs that can be served by each unit process is calculated. Subtracting the number of SFEs currently served generates the number of SFEs available for growth. A description of how the number of SFEs currently served by the wastewater system is estimated is shown below.

The number of SFEs currently using the wastewater system is based on different approaches depending on the system component.

Table 29 Wastewater Fund System Component Capacities						
Unit Process	**Capacities**	**Unit**	**Projected SFEs Available**	**Used Capacity (SFEs)**	**Unused Capacity (SFES)**	**Remaining Capacity**
Collection System	0.0	MGD	0	0	0	0.00%
Interceptor System	8.8	MGD	20,000	11,244	8,756	43.80%
Treatment Plant	7.1	MGD	16,136	11,244	4,892	30.30%
Lift Station	11.55	MGD	26,250	11,244	15,006	57.20%
Buildings/Improvements	48,218	SFE	37,436	26,567	10,869	29.00%

The currently used capacity for the Interceptor System and Lift Station components are determined based on actual flow data obtained from CRW's Engineering Manager.

The capacities have been reviewed for the wastewater system to ensure that the values used are appropriate.

1. The collection system capacity is set at 0 since these are contributed assets and have no available capacity to absorb additional growth.
2. The interceptor system is split between the two primary interceptors that receive wastewater from the collection system and convey it to the water reclamation facility for treatment. The Plum Creek Interceptor conveys approximately two-thirds of the wastewater generated by the Town for treatment. This interceptor serves all parts of Town in the Plum Creek basin except for the Meadows. Capacity is a function of pipe diameter, pipe material and slope of the pipe, and this interceptor capacity is rated at 6.23 mgd based on the critical reach in this pipeline. The Meadows Interceptor conveys approximately one-third of the wastewater generated by the Town for treatment. This interceptor serves all the Meadows development. This interceptor capacity is rated at 2.58 mgd based on the critical reach in this pipeline.
3. Lift station capacity is the sum of all the individual lift station capacities and is collectively rated at 11.55 mgd. Used capacity reflects the sum of maximum daily flows observed in the lift stations.
4. Treatment system capacity is based on the Town's capacity in the PCWRA and the Pinery. PCWRA is rated for 7.1 mgd. CRW has 0.53 mgd capacity in the Pinery. CRW will add additional capacity through the PCWRA phase II plant expansion in 2040.

Buy-In Component

The total costs to be recovered from the buy-in component of the wastewater SDF are based on the percentage of remaining capacities by functions calculated in Table 32 and the total system

asset values shown in Table 30. The total amount attributable to the buy-in component is $5.5 million.

Table 30
Wastewater Fund
RCNLD for Buy-In Totals

Unit Process	System Value RCNLD	Less: Debt Principal	Remaining Capacity	Cost of Available Capacity RCNLD
Collection System	$29,559,464	$766,131	0.0%	$0
Interceptor System	$5,702,886	$56,792	43.8%	$2,471,720
Treatment Plant	$8,862	$88	30.3%	$2,660
Lift Station	$1,891,334	$18,835	57.2%	$1,070,392
Buildings/Improvements	$6,924,075	$68,953	29.0%	$1,990,329
Exclude from SDF	$47,372,831	$0	0.00%	$0
Total	**$91,459,451**	**$910,800**		**$5,535,101**

Treatment Fee Component

Part of the existing wastewater system serving CRW's customers is the treatment process and associated assets provided by PCWRA. The calculation of the treatment fee component was updated in 2018 to reflect all debt issues obtained by PCWRA for treatment plant improvements and costs associated with the cash payment for the two PCWRA capacity expansions. Table 31 represents the calculation and shows the total principal on debt for the treatment plant expansions. Capacity for new customers allows for approximately 22,955 SFEs. By dividing the cost of expansion-related capacity by 22,955 SFEs, the treatment fee component calculates to be $4,053 per SFE.

Table 31
Wastewater Fund
Treatment Fee per SFE

Unit Process	Cost of PCWRA Treatment Plant	Growth Percentage	Growth Portion of Treatment Cost	Added SFEs	Treatment Component per SFE
Treatment Component	$96,054,036	96.9%	$93,035,141	22,955	$4,053

Improvement Component

The improvement component is based on the updated CIP from an engineering review in 2021. The total CIP through 2060 is approximately $190.0 million as shown in Table 32.

Table 32
Wastewater Fund
CIP Costs 2022-2060

Unit Process	CIP Costs 2022-2060
Collection System	$1,326,212
Interceptor System	$7,973,395
Treatment Plant	$35,000,000
Lift Station	$0
Buildings / Improvements	$788,853
Exclude from SDF	$144,866,327
Total	**$189,954,787**

To calculate an improvement component based on the incremental cost approach the same steps are taken as in water and water resources and are shown below.

Multi-Purpose Project Allocations

Similar to the water system, only growth-related portions of projects can be included in the calculation. Projects were allocated serving both growth and rehabilitation/upgrade (i.e., multi-purpose projects) as either growth or non-growth. Out of $180.7 million of capital improvements, only $45.1 million is included in the improvement component calculation. The treatment plant CIP costs of $35.0 million are included in the Treatment fee component calculation in Table 33 rather than the improvement fee component.

Table 33 Wastewater Fund Growth-Related CIP Costs for Improvement Component	
Unit Process	**Cost of New Capacity**
Collection System	$1,326,212
Interceptor System	$7,973,395
Treatment Plant	$35,000,000
Lift Station	$0
Buildings / Improvements	$788,853
Total	**$45,088,460**

Capacity Definition

Table 34 summarizes the system capacities added by function.

Table 34 Wastewater Fund System Capacities for System Improvements	
Function	**Added MGDs**
Collection System	1.72
Interceptor System	11.35
Treatment Plant	3.00
Lift Station	0.00
Buildings / Improvements	10,869 SFEs

Total Fee Calculation

The buy-in component is calculated using the current capacity of the system times the unsubscribed percent of capacity. This is then added to the projected new capacity being added for the improvement component of the fee. Table 35 below summarizes the total costs of the newly calculated fee by function.

Table 35 Wastewater Fund Total Calculated Fee per SFE					
Unit Process	**Net Asset and Capital Valuation**	**MGD**	**Level of Service (god)**	**Equivalent SFEs**	**Calculated Fee per SFE**
Collection System	$1,326,212	1.72	440	3,909	$339
Interceptor System	$10,445,115	15.20	440	34,551	$302
Treatment Plant	$63,430,587	5.15	440	11,710	$4,053
Lift Station	$1,070,392	6.60	440	15,006	$71
Buildings / Improvements	$2,779,182	24,869.04	1.288	19,308	$144
Total	**$79,051,488**				**$4,909**

Results and Proposed Wastewater SDF for 2022

As shown in Table 35, the total fee is calculated to be $4,909 per SFE for 2022; however, CRW proposes to increase fees to this total amount over a five-year period with a 4% increase in 2022 followed by a 4% increase for 2023-2026. The 2022 proposed fee will be $4,184.

Assessment Schedule

As with the buy-in component, the improvement component portion of the proposed SDF is based on meter size using the hydraulic equivalencies in Table 1. Table 36 represents the existing and proposed schedule of SDFs by meter size using the hydraulic equivalencies.

Table 36 Wastewater Fund Proposed SDF by Meter Size		
Meter Size	**Adopted 2021 SDF**	**Proposed 2022 SDF**
5/8” x ¾”	$2,695	$2,803
¾”	$4,023	$4,184
1”	$6,718	$6,987
1.5”	$13,397	$13,933
2” C2	$26,833	$27,906
2” T2	$33,512	$34,852
3” C2	$67,063	$69,746
3” T2	$87,178	$90,665

4” C2	$134,087	$139,450
4” T2	$167,638	$174,344
6” C2	$268,213	$278,942
6” T2	$335,237	$348,646

Stormwater Development Impact Fees

Stormwater development impact fees (DIFs) were developed differently than the previous SDFs. The nature of stormwater improvements is such that with existing system improvements it is difficult to identify remaining capacity to serve growth; therefore, the incremental or improvement cost method was applied in the analysis. Additional capacity to serve growth also varies by drainage basin in CRW’s service area. Values are presented for both Cherry Creek Basin and Plum Creek Basin.

The assessment of stormwater DIFs also differs from the other funds. Stormwater flow is based on runoff and impervious area; therefore, assessment of stormwater DIFs is based on assumptions of runoff characteristics for different development types, i.e., single family detached, single family attached, multifamily, and commercial.

Stormwater Development Impact Fee Data

Four data elements are essential to calculating stormwater DIFs following the incremental cost methodology:

1. Capital Improvement Program (CIP)
2. Developable acres
3. Percent imperviousness by acre
4. Units per acre

The most recent assumptions of capital projects from the stormwater planning process in 2021 are used in this analysis. These improvements are divided among non-growth related, growth related and developer’s contribution costs. The value of improvements included in the stormwater DIF is $40.4 million and is represented in Table 37.

Table 37 Stormwater Fund Capital Improvement Cost Allocations	
Item	**CIP Costs 2022-2060**
Total Non-Growth Related Cost	$94,731,134
Total Growth Related Improvement Costs	$40,376,750
Developer's Contribution	$23,993,055
Total Capital Improvement Costs	**$159,100,939**
Growth Related Improvement Costs	
Total Cherry Creek Basin	$7,072,615
Total Plum Creek Basin	$33,304,135
Total Growth Related Improvement Costs	**$40,376,750**

Acres available to be developed by land use type were reduced to reflect construction anticipated through 2021. Table 38 represents developable acreage by land use type.

Table 38 Stormwater Fund Acreage to be Developed		
Land Use Type	**Cherry Creek Basin**	**Plum Creek Basin**
Single Family Detached	815	1,531
Single Family Attached	18	47
Multifamily	255	995
Commercial (Retail/Office)	252	442
Open Spaces	460	1,601
Total	**1,800**	**4,616**

Imperviousness percentages by land use type were based on the Urban Drainage and Flood Control District (UDFCD) Criteria Manual. For single family residential detached units, the percent imperviousness was determined based on the following assumptions:

- Density of 3 units per acre
- Typical two-story homes
- Average home size of 2,100 square feet (sq. ft.)

Using these assumptions and Figure RO-5 from the UDFCD Criteria Manual, single family residential detached percentage imperviousness was estimated to be 33 percent.

Table 39
Stormwater Fund
Percentage of Imperviousness by Acre

Land Use Type	Cherry Creek Basin	Plum Creek Basin
Single Family Detached	33%	33%
Single Family Attached	75%	75%
Multifamily	80%	80%
Commercial (Retail/Office)	80%	80%
Open Spaces	2%	2%

Units per acre are needed to determine the actual stormwater DIF per unit. Single family detached, single family attached and multifamily DIFs are assessed per dwelling unit, whereas commercial and industrial DIFs are assessed per 1,000 sq. ft. of building space. The units per acre were obtained from:

- Single family residential detached density of 3 units per acre from the water design criteria section of the Town of Castle Rock-public Works Regulations-February 12,1999
- Actual density in the Town as of July 2010 for single family residential attached (townhomes) and multifamily land use types
- Average Floor Area Ratio (FAR) for office space in Castle Rock from the Douglas County Community Planning and Sustainable Development Department for commercial/industrial land use. FAR is defined as a measure of development density. It is calculated as the building square footage divided by the building lot square footage.

Stormwater Development Impact Fee Equation

The equation below represents the calculation of stormwater DIFs:

$$C = \frac{[(DA*IMP)/TIA]*CIP}{DA}$$

$$DIF = C/U$$

Where:

C = Stormwater Capital Cost per Acre

DIF = Stormwater Development Impact Fee per Unit

DA = Developable Acres

IMP = Percent Imperviousness

TIA = Total Impervious Acres

CIP = Growth-Related Capital Improvement Plan Costs

U = Units per Acre

Steps to Calculate the Stormwater Fee

Step 1: Proportionate Share of Capital Costs

The first step in the fee calculation is to determine each land use type's proportionate share of capital costs. Developable acres by land use type and percent imperviousness are used to estimate the impervious acreage by land use type. The cost of stormwater improvements for new development is then apportioned across land use types by the percentage share of total impervious are of development. Tables 40 and 41 demonstrate the allocation of capital costs across land use types.

Table 40
Stormwater Fund
Allocation Factor of Capital Costs

	Impervious Acreage		Proportionate Share	
Land Use Type	**Cherry Creek Basin**	**Plum Creek Basin**	**Cherry Creek Basin**	**Plum Creek Basin**
Single Family Detached	269	505	38.58%	29.34%
Single Family Attached	14	35	1.99%	2.05%
Multifamily	203	796	29.15%	46.23%
Commercial (Retail/Office)	202	353	28.97%	20.52%
Open Spaces	9	32	1.32%	1.86%
Total	**697**	**1,721**	**100.00%**	**100.00%**

Table 41
Stormwater Fund
Capital Cost by Class

Land Use Type	Cherry Creek Basin	Plum Creek Basin
Single Family Detached	$2,728,546	$9,772,536
Single Family Attached	$140,535	$681,956

Multifamily	$2,061,421	$15,396,945
Commercial (Retail/Office)	$2,048,722	$6,833,020
Open Spaces	$93,390	$619,678
Total	**$7,072,615**	**$33,304,135**

Step 2: Capital Costs per Acre

The next step in the fee calculation is to calculate the capital cost per acre by land use type. The allocated costs by land use type are divided by the developable acres for this step. Table 42 shows the result of this step.

Table 42
Stormwater Fund
Capital Cost per Acre

Land Use Type	Cherry Creek Basin	Plum Creek Basin
Single Family Detached	$3,348	$6,383
Single Family Attached	$7,609	$14,507
Multifamily	$8,116	$15,474
Commercial (Retail/Office)	$8,116	$15,474
Open Spaces	$203	$387

Step 3: Stormwater DIF per Unit

The last step in the fee calculation is to calculate the stormwater development impact fee per unit of development. A unit is defined as a residential dwelling unit or 1,000 sq. ft. of retail/office/industrial development. The capital cost per acre for each land use type is presented in Table 45. The dollar amounts allocated to each land use type are divided by the number of units per acre to determine the fee per unit for each development type.
Single family detached and single family attached units per acre are 3 and 10, respectively. Multifamily development in the Town average 12 units per acre. For commercial/industrial development, the FAR from the Douglas County database shows that one acre of development has an average FAR of 0.37. This average FAR was verified with the projected non-residential development data from the Town's Development Services Department. Applying the average FAR is the most conservative approach to minimizing the overall increases to the stormwater development impact fees.

By multiplying one acre (43,560 square feet) by the FAR of 0.37, the result is 16,117 sq. ft. for each commercial/industrial building. The development impact fee for commercial and industrial development is based on each 1,000 sq. ft. of building space; therefore, the number of units per

acre for commercial/industrial development is 16.1. Dividing the capital cost per acre for each land use type by the number of units per acre results in the stormwater development impact fee per unit.

Table 43 shows the units per acre assumed for each land use type. Table 44 presents the recommended DIF per unit by land use type. Table 44 shows the model recommended development impact fees. Castle Rock is proposing to slowly increase the DIFs in the next five years to achieve these final recommended numbers. As such, in 2022 CRW proposes increasing by 4% for the Cherry Creek Basin and 8% for the Plum Creek Basin. This results in an increase in the Cherry Creek Basin of $36 and an increase of $114 for the Plum Creek Basin.

Table 43
Stormwater Fund
Number of Units per Acre

Land Use Type	Cherry Creek Basin	Plum Creek Basin
Single Family Detached	3	3
Single Family Attached	10	10
Multifamily	12	12
Commercial (Retail/Office)	16.1	16.1

Table 44
Stormwater Fund
DIF Per Unit

Land Use Type	Cherry Creek Basin	Plum Creek Basin
Single Family Detached	$1,116	$2,128
Single Family Attached	$746	$1,422
Multifamily	$676	$1,290
Commercial (Retail/Office)	$504	$960

Summary

The purpose of this study was to provide CRW with a thorough review of its SDFs and the underlying assumptions and provide updated fees for 2022 through 2026. The review is based on development fee approaches that are acceptable to the industry and to the State of Colorado's impact fee legislation. An annual review of growth, capital improvements and use of

revenues from SDFs continues to be made to allow CRW to proactively make changes, if needed.

Recommended SDFs for 2022-2026

The report shows how the fixed assets and CIP costs were calculated to determine the needed SDFs and DIFs for the funds for 2022-2026. Costs for capital improvements were maintained at 2021 dollars. In order to maintain SDF revenues to match increases in capital costs over time, staff is recommending an increase for 2022 in the SDFs for water, water resources, wastewater and stormwater DIFs for both the Plum Creek and Cherry Creek Basins. See the charts in the executive summary for these amounts and recommendations.

For a copy of the supporting data analysis, please contact Castle Rock Water at 720-733-6000.

Recommendations

As part of the 2021 Rates and Fees Study, Stantec Consulting Services Inc. reviewed CRW's methodology and findings and recommends Castle Rock Water do the following:

- Continue to work with engineering managers to evaluate and refine additional capacities provided by each capital improvement project.
- Continue to track changes in asset values and CIP costs used to calculate fees over time.
- Consider implementing annual increases to SDFs and DIFs over a five-year period to achieve the calculated SDFs and DIFs by 2026.
    - Adjust the Treatment Fee Component over the next five years to align the annual implemented fee with the calculated fee by 2026
    - Adjust the schedule of annual increases if cost changes indicate the need to update the fees during subsequent rates and fees studies
- Actively track SDF sources (revenues) and uses (expenses) of funds separately from operating funds. Consider working on the flow of funds during CRW's annual financial planning process to help determine if revenues collected from new customers are appropriately recovering the costs of growth.

Please see Appendix C for study review letter from Stantec Consulting Services, Inc.

Appendix A

List of Acronyms

The following provides a list of acronyms used throughout the report and its meaning:

- AF: Acre Feet
- CIP: Capital Improvement Program
- DIF: Development Impact Fee
- ENR: Engineering News Record
- FAR: Floor Area Ratio
- FY: Fiscal Year
- GPD: Gallons Per Day
- GPM: Gallons Per Minute
- I&I: Inflow and Infiltration
- KGAL: Thousand (1,000) Gallons
- O&M: Operations and Maintenance
- PCWRA: Plum Creek Water Reclamation Authority
- PCWPF: Plum Creek Water Purification Facility
- RCNLD: Replacement Cost New Less Depreciation
- SDF: System Development Fee
- SFE: Single Family Equivalent
- Sq. Ft.: Square Feet

Appendix B

Definitions

The following are definitions used in this study:

- SDFs are one-time fees charged to new customers that are intended to recover the costs of investments in infrastructure and projects designed to provide capacity for new customers. These fees are calculated in a manner consistent with the Colorado Revised Statute (CRS) 29-20-104.5.
- SFEs or single-family equivalents define the relative size or demand of a specific account. One residential account equals one SFE. A multi-family or commercial account represents a multiple of residential accounts or SFEs, typically defined by water demand or wastewater flow. Town Municipal Code 13.02.10 defines an SFE as a relative measure of demand placed on the water, sewer and/or irrigation capital plant by an average single-family residential unit.
- Equivalency schedules are a set of calculated ratios, based on a ¾" Meter being 1 SFE, which help to define how many SFEs are represented by the different meter sizes. Equivalency schedules are also used to calculate the monthly service charges for water, water resources and wastewater service.
- Hydraulic equivalency schedules are based on the relative capacity of different meter sizes and meter types utilized to deliver water. Hydraulic equivalencies can also be based on relative potential demands of different customers. Based on characteristic hydraulic demands, a single-family meter size of ¾" x ¾" is designated 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 is compared 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.
- Actual use equivalency schedules are based on the relative average monthly water usage of the Town's customers. Average monthly use per account by meter size was calculated using a 2018 to 2020 three-year average of monthly consumption data. The average usage of a single-family residential meter size is designated as the base. The average usage of larger meter sizes is divided by the base usage to calculate equivalent ratios.

Appendix C

Stantec Consulting Services Inc. Study Review Letter

Stantec Consulting Services Inc.
370 Interlocken Boulevard Suite 300, Broomfield CO 80021-8012

September 14, 2021

Attention: Anne Glassman, Business Solutions Manager
Castle Rock Water
175 Kellogg Ct.
Castle Rock, CO 80109

Dear Anne,

Reference: Stantec Financial Review Services for Castle Rock Water's 2021 Rates and Fees Study, Volume 2 of 2, System Development Fees

As part of the 2021 Rates and Fees Study, Stantec Consulting Services Inc. (Stantec) was engaged by Castle Rock Water (CRW) to update the modeling tools used in the study with current data as well as provide review and feedback during the study of CRW's methodology and findings. In updating the modeling tools, Stantec has relied on the information and data presented by CRW without independent verification. During the course of the study, discussions with CRW staff focused on reasonableness of the data used, as well as financial policies and comparisons with best practices in the industry.

The approaches followed by CRW in calculating the water, water resources, and wastewater system development fees (SDFs), and the stormwater development impact fee (DIF), adhere to industry best practices. Both the American Water Works Association (AWWA) and Water Environment Federation (WEF) endorse these methods as acceptable approaches to calculating growth-related fees. By applying the hybrid approach for the three SDFs (water, wastewater, and water resources), CRW ensures new connections are paying for their share of existing available capacity (buy-in approach), in addition to paying for capital projects intended to provide additional capacity for new connections (incremental approach). This approach achieves intergenerational equity by placing new and existing customers on even footing, in terms of equity in CRW's systems. This approach also complies with the Colorado Revised Statutes on impact fees (CRS 29-20-104.5).

CRW has followed a consistent approach to calculating its SDFs and DIFs for many years. In 2020, Stantec provided a consolidated SDF for the water, water resources, and wastewater systems. The consolidated model evaluates SDFs following the same methodology as the individual models, with simpler modeling for a more intuitive approach. We used this same approach to update, review, and discuss the SDF approach and results.

As discussed in the 2020 study, SDFs require capacity analyses of CRW's capital improvement program (CIP) projects. We recommend that CRW continue to work with its engineering managers to evaluate and refine additional capacities each project provides.

Stantec also recommends that CRW continues to track changes in asset values and CIP costs used to calculate fees over time. The 2021 study data reflected a change in the Town of Castle Rock Finance Department tracking of certain assets, which had an impact on the SDF calculations. Tracking changes over time allows CRW to better explain changes in SDFs over time. Theoretically, assets should increase as CIP projects are completed, and decrease as existing assets are depreciated. As CIP projects and cost

Reference: **Stantec Financial Review Services for Castle Rock Water's 2021 Rates and Fees Study, Volume 2 of 2, System Development Fees**

estimates are evaluated and refined each year, CRW can better project expected changes in its SDFs as overall infrastructure values and capacities are updated.

In determining the Treatment Fee Component of the Wastewater SDF, the methodology uses the growth-related component of investments made in the Plum Creek Water Reclamation Authority (PCWRA) treatment plant. These investments are based on costs to expand and improve the system and are adjusted only when new expansions or improvements to the plant are needed. The Treatment Fee Component for 2021 includes the 2019 expansion costs and a second expansion for PCWRA. The calculated SDF for wastewater is actually lower than the calculated 2020 fee due to lower actual 2019 expansion costs. The 2020 fee was not implemented; however, Stantec recommends CRW adjust its Treatment Fee Component over the next five years to align the calculated fee with the implemented fee and our recommendations outlined below.

In past years, implemented increases in CRW's SDFs and DIFs were different than the model calculated fees. Calculated fees represent a defensible range of fees that could be implemented to recover the growth-related investments in CRW's systems. Implementing lower fees or no change in fees is a policy decision; however, this has long-term impacts on Castle Rock's balance between revenue sources and uses from new customers versus existing customers. Stantec recommends that CRW consider implementing annual increases to its SDFs over a five-year period to achieve the calculated SDFs and DIFs.

We also propose that CRW actively track SDFs sources (revenues) and uses (expenses) of funds separately from operating funds. Working on the flow of funds during CRW's annual financial planning process will help determine if revenues collected from new customers are appropriately recovering the costs of growth.

Stantec often advises utilities to apply an escalation factor to calculated SDFs to account for increases in costs of materials and other inputs to the construction of capital improvements. Stantec has previously recommended adjusting the fees only if necessary, during the annual rates and fees study when material changes are made to CRW's fixed assets and/or CIP. Given the current recommendation of implementing annual increases to the fees that achieve the methodology-calculated result over five years, Stantec advises adjusting the schedule if cost changes indicate the need to update the fees during subsequent rates and fees studies.

Finally, CRW's routine update of the Customer Characteristics report continues to provide clarity as to appropriate meter equivalency factors, thereby promoting intra class equity.

Stantec's specific recommendations for CRW's SDFs and DIF are found in the Summary of the Volume 2 of 2 System Development Fees Report.

We enjoyed the opportunity to work with you and your staff on this study. Please contact me at (330) 271-9125 if you have any questions.

Regards,

Reference: **Stantec Financial Review Services for Castle Rock Water's 2021 Rates and Fees Study, Volume 2 of 2, System Development Fees**

Carol Malesky
Principal, Financial Services

Phone: 330-271-9125
carol.malesky@stantec.com

STAFF REPORT

To: Honorable Mayor and Members of Town Council

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

Date: September 7, 2021

Title: 2021 Rates and Fees Study Discussion / Direction

Executive Summary

A primary goal of the annual rates and fees study is to evaluate the long-term financial plan for Castle Rock Water (CRW) to ensure that future rates and fees will cover future costs of service.

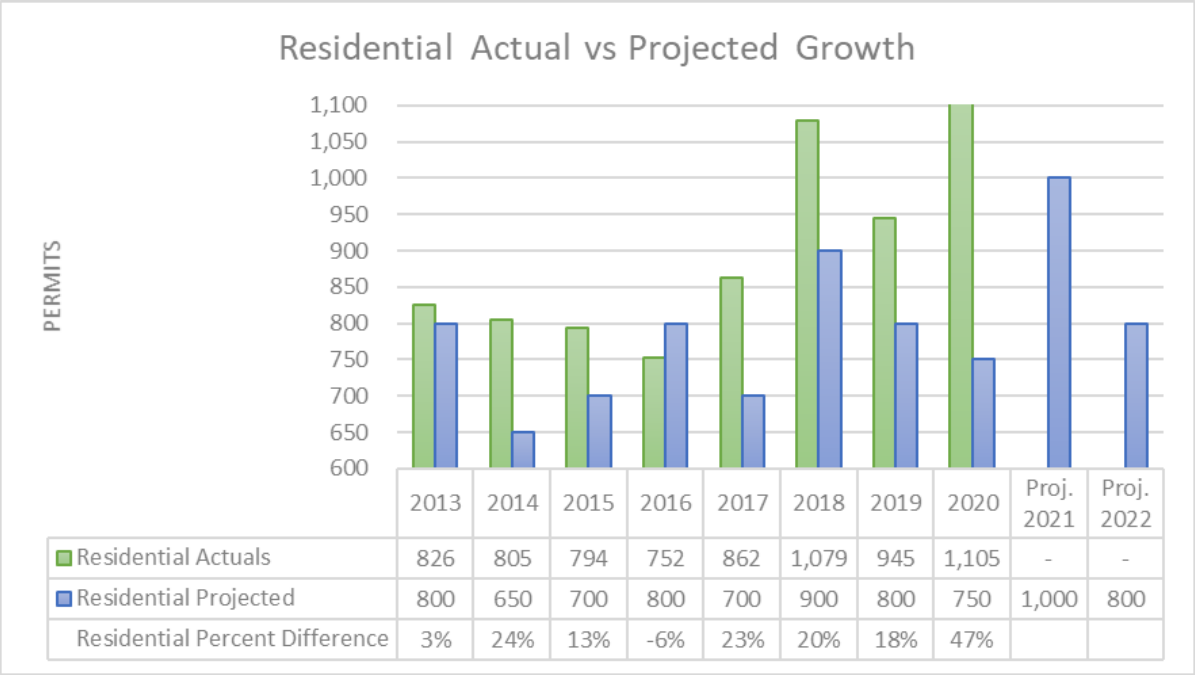
Table 1 summarizes the recommended 2022 residential rates from this year's study (2021 Study) compared to the 2021 adopted rates and projected 2022 rates from last year's study (2020 Study) for a typical single-family equivalent (SFE).

Table 1: Summary of Recommended Residential Rates

	2021 Adopted Rates	"2021 Study" Proposed 2022 Rates	$ Change	% Change	"2020 Study" Proposed 2022 Rates
Water, Fixed	$9.54	$9.54	$0.00	0.0%	$9.83
Water, Tier 1, Volumetric	$2.82	$2.82	$0.00	0.0%	$2.90
Water, Tier 2, Volumetric	$5.74	$5.74	$0.00	0.0%	$5.91
Water, Tier 3, Volumetric	$8.56	$8.56	$0.00	0.0%	$8.82
Water, Surcharge, Volumetric	$8.56	$8.56	$0.00	0.0%	$8.82
Water Resources, Fixed	$26.15	$26.93	$0.78	3.0%	$26.93
Wastewater, Fixed	$9.02	$8.57	($0.45)	(5.0%)	$9.02
Wastewater, Volumetric	$6.39	$6.07	($0.32)	(5.0%)	$6.39
Stormwater, Fixed	$7.12	$7.30	$0.18	2.5%	$7.33
Total Fixed	$51.83	$52.34	$0.51	1.0%	$53.11

Key assumptions for growth projections, customer characteristics, capital improvement plans, fund balances, and revenue and expenditures forecasts were reviewed and updated by staff to determine the impact they each have on the recommended rates. The water supply and demand model was also evaluated taking the growth projections in Chart 1 below in mind to make sure that the capital plan was keeping pace with growth and that the timing of capital projects continues to be appropriately scheduled.

Chart 1: Residential Actual Growth Compared to Projected Growth



	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Residential Actuals	826	805	794	752	862	1,079	945	1,105	-	-
Residential Projected	800	650	700	800	700	900	800	750	1,000	800
Residential Percent Difference	3%	24%	13%	-6%	23%	20%	18%	47%		

There were no major changes to customer characteristics affecting this year's recommendations. With respect to capital plans, there were some significant changes to the five-year capital plans, but there were also several major changes to the long term (>5 years out) capital plan which were made for this study year. Upcoming regulatory changes were incorporated into the project planning including changes to the lead and copper rules and future rules being developed now that will impact reuse water (specifically direct potable reuse). Significant changes to the five-year capital plan by enterprise are summarized in Table 2 and in more detail below.

Table 2: 5 Year CIP and Long Term CIP Differences

Fund	2021 Study CIP 2022-2026	2020 Study CIP 2021-2025	Variance	2021 Study CIP thru 2060	2020 Study CIP thru 2060	Variance
Water	$45,819,547	$36,766,344	$9,053,203	$302,853,812	$259,883,000	$42,970,812
Water Resources	$96,907,950	$59,199,312	$37,708,638	$525,619,757	$470,313,328	$55,306,429
Stormwater	$13,932,056	$15,315,609	$(1,383,553)	$135,107,884	$130,531,063	$4,576,821
Wastewater	$25,741,188	$27,673,508	$(1,932,320)	$186,916,719	$171,459,381	$15,457,338
Total All Funds	**$182,400,741**	**$138,954,773**	**$43,445,968**	**$1,150,498,172**	**$1,032,186,772**	**$118,311,400**

Water Fund:

- Added Advanced Metering Infrastructure (AMI) in the 5-year planning period of $5.7M for water fund's 50% portion of the project
- Added well redrill and raw water pipeline for Bell Mountain Ranch for $4.2M to be constructed in 2022 as well as upgrades to the Bell Mountain Water Treatment Plant for regional use.

Water Resources Fund:

- Added Advanced Metering Infrastructure (AMI) in the 5-year planning period of $2.8M for water resources fund's 25% portion of the project
- Added $10.0M for Newlin Gulch Pipeline and Pump Station
- Added $14.4M for water rights acquisitions
- Added $5.2M for Cherry Creek Basin Infrastructure
- Added $13.0M for WISE Infrastructure for the Parker Midsection Pipeline Project

Stormwater Fund:

- Added $0.30M in funding for corrugated metal pipe rehabilitation
- Added $0.25M in funding for updating drainageway master plans

Wastewater Fund:

- Added Advanced Metering Infrastructure (AMI) in the 5-year planning period of $2.8M for water resources fund's 25% portion of the project

Castle Rock Water is also adding a wheeled excavator that will be spread across all four enterprise funds for maintenance of infrastructure.

The primary factors affecting revenue and expenditure forecasts in the rate models are as follows:

1) Included in the staffing plan for 2022 are three new full time equivalents (FTEs) which include a Meter Services Technician, Water Plant Operator and a Stormwater Conveyance System Operator. There are 11 total FTEs added from 2023 through 2026.

2) Changed timing of many capital projects consistent with water supply and demand model as well as availability of capital reserves.

3) Updated capital plan costs consistent with current capital project cost estimates and changes to the Engineering News Record Construction Cost Index (ENRCCI).

4) Added new long term capital projects to meet needs of growth.

5) Provided for improvements to the system where necessary to meet upcoming regulatory changes, and make sure rehabilitation and replacement of existing infrastructure was covered.

Table 3 provides context for the recommended rate action by providing the history of rate action over the last five years as well as a comparison to the Consumer Price Index (CPI) and the ENRCCI.

Table 3: 5 Year Rate Increase History, CPI and ENR CCI

Rate Increase History					
Fund	**2017**	**2018**	**2019**	**2020**	**2021**
Water	3%	0%	3%	0%	0%

Water Resources	0%	0%	0%	0%	0%
Stormwater	4%	0%	0%	0%	0%
Wastewater	0%	0%	0%	(3%)	0%
Consumer Price Index (CPI) History					
	2016	**2017**	**2018**	**2019**	**2020**
CCI	2.8%	3.4%	2.7%	1.6%	1.6%
Engineering News Record Construction Cost Index (ENR CCI) History					
	2016	**2017**	**2018**	**2019**	**2020**
ENR	2.5%	3.3%	3.2%	2.8%	3.0%

Table 4 summarizes the proposed system development fees (SDFs) for 2022 per SFE.

Table 4: Summary of Recommended System Development Fees (SDFs)

	2021 Adopted SDFs	"2021 Study" Proposed 2022 SDFs	$ Change	% Change	"2020 Study" Proposed 2022 SDFs
Water	$4,030	$4,312	$282	7.0%	$4,151
Water Resources	$18,504	$21,280	$2,776	15.0%	$19,059
Wastewater	$4,023	$4,184	$161	4.0%	$4,144
Stormwater, Plum Creek	$1,425	$1,539	$114	8.0%	$1,468
TOTAL Plum Creek	**$27,982**	**$31,315**	**$3,333**	**11.9%**	**$28,822**
Stormwater, Cherry Creek	$911	$947	$36	4.0%	$939
TOTAL Cherry Creek	**$27,468**	**$30,723**	**$3,255**	**11.8%**	**$28,293**

The SDF models show that Castle Rock Water could increase SDFs by 20 to 40 percent depending on the enterprise fund. The financial model shows that these increases can be implemented over time to provide the funding for projects needed to serve the ongoing growth. For SDFs related to new development, Castle Rock Water recommends an increase of $3,333 per SFE in the Plum Creek Basin and an increase of $3,255 per SFE in the Cherry Creek Basin, about a 11.9% percent increase for each basin. This recommendation is consistent with Town Council's policy on SDFs that growth pays for growth.

Several factors are driving the recommended increases in SDFs identified in the SDF model and financial model. First, Castle Rock continues to see strong growth in both residential and non-residential customers from existing entitlements in Town. There are also a number of extraterritorial commitments coming online and future annexations under consideration. To keep pace with this population increase, additional projects have been added to the long term plan over the last several years and the infrastructure and capital costs for these projects are now better defined. Additional infrastructure and the costs for that infrastructure have also been identified to meet the increased peak demands from a larger customer base. Next, the pace of growth has exceeded projections as shown in Chart 1. This drives the need to build projects to meet annual water supply needs sooner creating the need to generate more revenue sooner. It also

requires building peak demand capacity sooner than expected. For example, recent growth has driven the need for additional water SDFs for new wells to help fill the supply needs until longer term renewable water projects can be completed. If growth was occurring more slowly, these wells might not have been needed. Project costs continue to rise year over year as shown in the ENRCCI. The future costs of water rights purchases are expected to increase drastically due to recent purchase activity values, specifically the bid on the Castle Pines North Metro District water rights in the middle South Platte River. Finally, the details and needs of some of our longer term projects are becoming more defined as implementation occurs.

The proposed SDF changes keep Castle Rock competitive with other surrounding South Metro water providers who also need to fund investments in long-term renewable water supply as shown in Table 5 below:

Table 5: Comparison of System Development Fees (SDFs) – Plum Creek Basin

Community	2021 Adopted Fees w/CRW 2022 Proposed
Denver Water	$ 7,710.00
Colorado Springs Utilities	$ 8,401.00
Inverness Water and Sanitation District	$ 9,174.00
City of Loveland	$ 9,967.00
Centennial Water and Sanitation District (5 units/acre)	$ 14,901.00
City of Fort Lupton	$ 17,864.00
Meridian Service Metropolitan District	$ 18,000.00
City of Greeley	$ 18,402.00
City of Fountain (Fountain Creek Basin area)14	$ 19,449.00
Centennial Water and Sanitation District (3 units/acre)	$ 19,709.00
City of Fountain (Jimmy Camp Creek Basin area)14	$ 23,314.00
Cottonwood Water and Sanitation District	$ 26,740.00
East Larimer County Water District	$ 27,908.60
Thornton Water	$ 30,962.00
Castle Rock Water (Plum Creek Basin)	$ 31,315.00
Thornton Water (within Big Dry Creek Basin Area)	$ 31,454.00
City of Fort Collins5, 6, 7	$ 33,504.09
City of Brighton (Metro Wastewater Reclamation District area)15	$ 34,321.00
City of Brighton (South Beebe Draw Metro District area)15	$ 34,496.00
Parker Water and Sanitation District	$ 35,800.00
Stonegate Village Metropolitan District	$ 36,052.88
East Cherry Creek Valley Water and Sanitation District (West Toll Gate Creek Storm Drainage Basin)	$ 37,280.00
Arapahoe County Water and Wastewater Authority†	$ 37,618.00
East Cherry Creek Valley Water and Sanitation District (Piney Creek Storm Drainage Basin)	$ 37,750.00
East Cherry Creek Valley Water and Sanitation District (No Name Creek Storm Drainage Basin)	$ 39,330.00
Pinery Water and Sanitation District	$ 43,685.00
Sterling Ranch CAB	$ 45,370.00
Roxborough Water and Sanitation District	$ 47,167.00
Castle Pines North Metropolitan District	$ 51,242.00

Staff recommends moving forward with these proposed rates and fees, finalizing the "2021 Study" report and all of the associated data, bringing the appropriate ordinances to Town Council for approval on September 21, 2021, and December 7, 2021 and incorporating the proposed rates and fees into the 2022 proposed budget. Concurrent with the preparation of the proposed rates and fees for 2022, staff has updated the Financial Management Plan (FMP), to ensure the study is consistent with the goals of the FMP, which are:

- To minimize debt carrying costs at or below industry standards. *CRW continues to stay in the top 25% in the industry with the lowest debt.*

- To minimize risk by keeping fixed versus variable revenues and expenses equal to or matching where possible. *CRW focuses on keeping these matched to the extent possible while still sending a conservation oriented message with a variable rate. CRW's success with balancing the revenues and expenses for fixed and variable components is shown in Chart 7 below.*

- To keep costs at or under budget for capital and operational budgets each year by fund and to continuously strive towards more efficient operations. *As shown in Table 6 below, CRW is keeping costs under budget.*

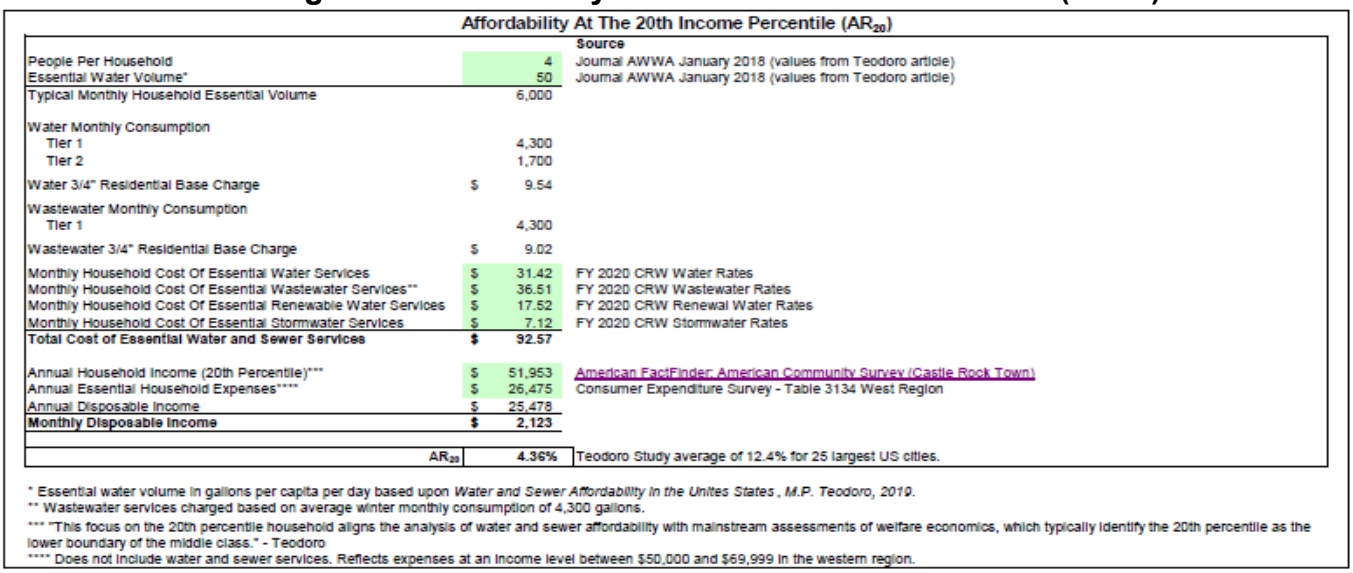
- To keep our rates and fees competitive with surrounding communities. *CRW rates and fees compare somewhere in the middle of the benchmarking as seen in the rates comparisons in Charts 2-3 and the system development fees in Chart 5.*

- To keep adequate reserves and maintain fund balances between minimums and maximums. *CRW continues to maintain adequate reserve balances in all funds for operating, catastrophic event, rate revenue stabilization and capital reserve.*

- *To* keep rates and fees affordable within various national affordability indices. *Last year CRW had Stantec's help in looking at two affordability methods created by Teodoro. The first of these shown below in Figure 1 is the Affordability at the 20th Income Percentile (AR20). This method measures the affordability of the average water and wastewater bill to the 20th percentile income. This indicates that of the monthly disposable income for this group, 4.36% is spent on essential water and wastewater usage for CRW. The average for large cities is 12.4%, which puts CRW well below average, a positive result.*

  The second method, shown in Figure 2 below is the Basic Household Water and Sewer Cost Expressed in Terms of Hours of Labor at Minimum Wage (HM). This metric shows the number of hours required for one to work at minimum wage to pay the monthly water bill. For CRW this has come in at 7.71 hours. The average for large cities is at 10.1, which puts CRW slightly below average, again a positive result.

Figure 1: Affordability at the 20th Income Percentile (AR20)

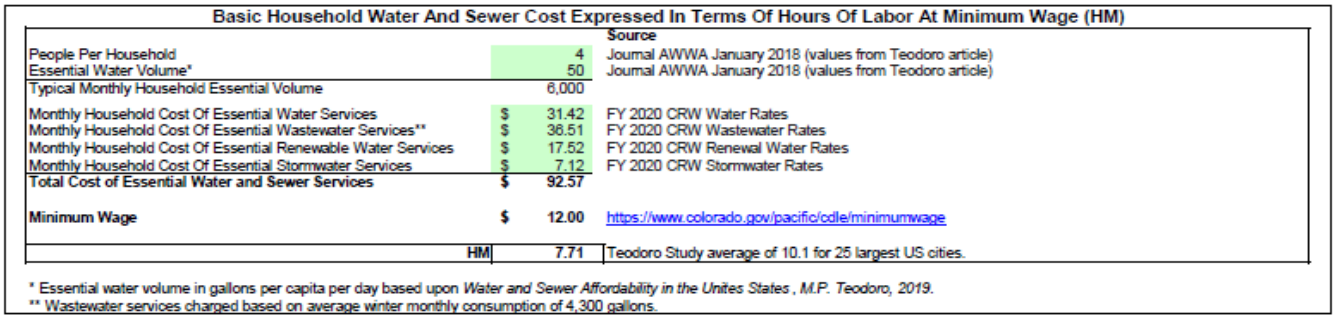


Affordability At The 20th Income Percentile (AR_{20})

			Source
People Per Household		4	Journal AWWA January 2018 (values from Teodoro article)
Essential Water Volume*		50	Journal AWWA January 2018 (values from Teodoro article)
Typical Monthly Household Essential Volume		6,000	
Water Monthly Consumption			
Tier 1		4,300	
Tier 2		1,700	
Water 3/4" Residential Base Charge	$	9.54	
Wastewater Monthly Consumption			
Tier 1		4,300	
Wastewater 3/4" Residential Base Charge	$	9.02	
Monthly Household Cost Of Essential Water Services	$	31.42	FY 2020 CRW Water Rates
Monthly Household Cost Of Essential Wastewater Services**	$	36.51	FY 2020 CRW Wastewater Rates
Monthly Household Cost Of Essential Renewable Water Services	$	17.52	FY 2020 CRW Renewal Water Rates
Monthly Household Cost Of Essential Stormwater Services	$	7.12	FY 2020 CRW Stormwater Rates
Total Cost of Essential Water and Sewer Services	**$**	**92.57**	
Annual Household Income (20th Percentile)***	$	51,953	American FactFinder: American Community Survey (Castle Rock Town)
Annual Essential Household Expenses****	$	26,475	Consumer Expenditure Survey - Table 3134 West Region
Annual Disposable Income	$	25,478	
Monthly Disposable Income	**$**	**2,123**	
AR_{20}		4.36%	Teodoro Study average of 12.4% for 25 largest US cities.

* Essential water volume in gallons per capita per day based upon *Water and Sewer Affordability in the Unites States , M.P. Teodoro, 2019.*
** Wastewater services charged based on average winter monthly consumption of 4,300 gallons.
*** "This focus on the 20th percentile household aligns the analysis of water and sewer affordability with mainstream assessments of welfare economics, which typically identify the 20th percentile as the lower boundary of the middle class." - Teodoro
**** Does not include water and sewer services. Reflects expenses at an income level between $50,000 and $69,999 in the western region.

Figure 2: Basic Household Water and Sewer Cost Expressed in Terms of Hours of Labor at Minimum Wage (HM).



Basic Household Water And Sewer Cost Expressed In Terms Of Hours Of Labor At Minimum Wage (HM)

			Source
People Per Household		4	Journal AWWA January 2018 (values from Teodoro article)
Essential Water Volume*		50	Journal AWWA January 2018 (values from Teodoro article)
Typical Monthly Household Essential Volume		6,000	
Monthly Household Cost Of Essential Water Services	$	31.42	FY 2020 CRW Water Rates
Monthly Household Cost Of Essential Wastewater Services**	$	36.51	FY 2020 CRW Wastewater Rates
Monthly Household Cost Of Essential Renewable Water Services	$	17.52	FY 2020 CRW Renewal Water Rates
Monthly Household Cost Of Essential Stormwater Services	$	7.12	FY 2020 CRW Stormwater Rates
Total Cost of Essential Water and Sewer Services	**$**	**92.57**	
Minimum Wage	**$**	**12.00**	https://www.colorado.gov/pacific/cdle/minimumwage
HM		7.71	Teodoro Study average of 10.1 for 25 largest US cities.

* Essential water volume in gallons per capita per day based upon *Water and Sewer Affordability in the Unites States , M.P. Teodoro, 2019.*
** Wastewater services charged based on average winter monthly consumption of 4,300 gallons.

- To develop regional partnerships to provide economies of scale to reduce total costs of infrastructure to our customers. *CRW has formed many partnerships with individual water providers like Dominion and Parker and regional organizations such as South Metro Water Supply Authority, WISE Authority, Plum Creek Water Reclamation Authority (PCWRA), and Cherry Creek Project Water Authority, just to name a few.*

- To be an industry leader in the application of financial management benchmarking ourselves against others locally and nationally. *Castle Rock Water has thirty different key performance objectives and indicators (KPIs) with measurable outcomes. Many of which are benchmarked against other water providers nationally, regionally and locally. More information and results for these KPIs are available in our strategic plan.*

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

Castle Rock Water (CRW) Commission reviewed at least one aspect or component of the annual rates and fees study process and the 2019-2021 rates and fees studies at each of their meetings from October 2019 to July 2021 to provide staff with input. For a complete list of topics, please see the CRW Commission agendas.

On May 26, 2021, CRW Commission reviewed the Customer Characteristics Analysis for the 2021 rates and fees study with staff.

On July 28, 2021, the results of the 2021 annual rates and fees study were presented to CRW Commission by staff for discussion and direction. CRW Commission was supportive of staff recommendations at this time.

On August 25, 2021, the staff recommendation for 2022 rates and fees was reviewed in detail with the CRW Commission. The CRW Commission unanimously recommended Council adopt the proposed 2022 rates and fees as presented by staff.

Notification and Outreach Efforts

The proposed SDFs have been sent to the Economic Development Council (EDC) for distribution to the home builders, developers and other interested parties among the development community.

CRW presented the proposed SDFs at the Developer's Roundtable on August 18, 2021.

CRW presented the proposed SDFs to the EDC Water Subcommittee on August 20, 2021.

Discussion

For common understanding, "rates" refers to the collective monthly fixed charges and volumetric rates billed to existing customers. "System Development Fees" is a general term used for Water, Water Resources and Wastewater System Development Fees (SDFs) and Stormwater Development Impact Fees (DIFs). Water, Water Resources and Wastewater SDFs are calculated and assessed at the time of permitting for the right to access existing system capacity or for payment of a proportionate share of the capital cost required for new capacity to meet the potential demand the new customer is expected to place on the system. SDFs ensure that growth pays for the cost of growth. Also paid at the time of permitting, Stormwater DIFs are a proportionate share of the cost to add stormwater capital facilities to manage the runoff created by the impervious surfaces of new construction in the Plum Creek or Cherry Creek Basin.

For the fifth year in a row, CRW has engaged Stantec Consulting Services, Inc. to assist with preparation of the Study. To reduce costs, CRW staff continued to prepare the Customer Characteristics Analysis in-house for the 2021 Study. However, to provide a variation in the review process, Stantec prepared the System Development Fees models, Financial Rate Models, and the Cost of Service Models for the 2021 Study.

The "2021 Study"
The steps for completing this year's study, as in previous studies, are grounded in industry standards for cost-of-service ratemaking as summarized in the American Water Works Association's AWWA Manual M1. As in prior years, work products include the following:

1. Growth Forecast
2. Customer Characteristics Analysis
3. Capital Improvement Projects Forecast Updates
4. Revenue and Expenditures Forecast Updates (in conjunction with budgeting)
5. Rates & Fees Modeling
6. Cost of Service Modeling
7. Community Engagement

Growth Forecast
The growth forecast for customers in Town continues to be developed in conjunction with Development Services based on both historical performance, discussions with developers and home builders, and anticipated changes to economic conditions in the coming year. Customers that may be served through extraterritorial agreements are evaluated by CRW and added to the totals within the Town boundaries as appropriate. Growth forecasts include all customer classes converted to single family equivalents. For the 2021 rates and fees study the growth forecast for the next five years was estimated as follows:

2022 868 SFEs (potential 321 additional SFEs from Bell Mountain)
2023 863 SFEs
2024 853 SFEs
2025 843 SFEs
2026 832 SFEs

For years beyond the five-year window, CRW used an average value of 721 single family equivalents for future growth of the customer base in the financial models. Based on these growth projections build-out in the community and service to extraterritorial areas could occur by 2056, assuming current maximum estimated build-out of 155,000 people is reached.

New customers provide revenues through SDFs to fund growth-related capital projects and the monthly revenues to fund the remaining costs as an existing rate customer. Actual growth in 2020 was strong with a continuation into 2021. So far, 2021 is matching expectations with 543 (as of June 2021) new customer meter sets year to date compared to 477 as of June 2020. If growth falls short of this forecast, revenues are at risk with the severity and service delivery impacts dependent upon the depth of the shortfall. Growth in 2022 and beyond is difficult to predict. As a result, CRW uses a conservative approach to estimating future growth. If growth falls short of current forecasts, revenues in 2022 and beyond could fall short of requirements for the current capital plans requiring a delay on some of these projects. Similarly, if growth significantly exceeds current forecasts, capital projects will need to be moved forward. CRW uses our water supply and demand model to evaluate the pace of growth as it relates to our capital improvement plans to ensure that we have the ability to react to changes in actual growth relative to the projected growth.

Customer Characteristics Analysis

The Customer Characteristics Analysis was reviewed with the CRW Commission in May of this year. A complete copy of the report is available from CRW. There were no major changes to customer characteristics affecting this year's rates and fees recommendations as noted in the Executive Summary.

Capital Improvement Projects Forecast Updates

A complete discussion of the capital improvement project forecast updates was provided in the Executive Summary. As noted in this summary, significant additions were made to the long term capital plan. Costs for renewal and rehabilitation of existing infrastructure, improvements to existing infrastructure to meet upcoming regulatory requirements, infrastructure additions driven by the renewable water program and an updated growth forecast are incorporated into the study. Capital costs are escalated by 3.00% per year in future years past 2022 consistent with the latest ENRCCI in the financial model.

Revenues and Expenditures Forecast Updates

As in previous years, complete revenue and expenditure forecast updates were prepared along with the budgeting process. Table 6 outlines the comparison of the 2021 Budget and 2021 YE Estimates to the 2022 Proposed Budget.

Table 6: 2021-2022 Budget Comparison

Account Type	Category	2021 Budget	2021 YE Estimates	2022 Budget	2021 YE Estimates to 2022 Budget % Change
Revenues	Charges for Service	$43,018,705	$43,587,128	$45,732,600	4.9%
	Contributions & Donations	$31,825	$571,825	$426,925	(25.3%)
	Fines & Forfeitures	$394,450	$303,160	$500,950	65.2%
	Intergovernmental Revenue	$350,000	$350,000	$150,000	(57.1%)
	Investment Earnings	$532,975	$380,394	$1,097,112	188.4%
	Licenses & Permits	$12,000	$10,000	$8,000	(20%)
	Other Revenue	$4,390,455	$3,884,932	$867,159	(77.7%)
	System Development Fees	$23,660,371	$30,119,782	$32,109,340	6.6%
	Transfers In	$6,323,582	$63,999	$64,000	0.0%
Total Revenues		**$78,714,363**	**$79,271,220**	**$80,956,086** [(1)]	**2.1%**
Expenses	Capital	$69,532,508	$50,141,972	$63,538,837	26.7%
	Debt & Financing	$6,004,265	$6,004,420	$6,921,200	15.3%
	Personnel	$10,044,159	$10,405,840	$11,238,600	8.0%
	Services & Other	$22,729,483	$19,996,976	$21,448,185	7.3%
	Supplies	$2,800,029	$2,702,817	$3,442,381	27.4%
	Transfers Out	$7,008,718	$699,925	$594,558	(15.1%)
Total Expenses		**$118,119,162**	**$89,951,950**	**$107,183,761**	**19.2%**

(1) The 2022 budgeted revenues do not include revenues associated with the proposed rate increases as those have not yet been approved by Council. The proposed rate increases will bring the revenue budget for 2022 to $84.6M if approved.

The combined 2022 revenue budget (not including rate increases) for the department is $81 million and represents a 3 percent increase from the 2021 budget, and a 2 percent increase from the 2021 year-end estimates. The increase is primarily due to growth in the customer base and increases in system development fees.

The combined 2022 expenditure budget associated with the major functions for the various Castle Rock Water enterprises is approximately $107 million, a decrease of 9 percent from the 2021 amended budget and an increase of 19 percent over the 2021 year-end estimate. These changes are due to large changes in proposed capital spending in 2022 relative to 2021. Capital budgeting is variable based on long-term project planning and opportunity. Expenditures over revenues are handled using capital reserves saved and built up from previous excess revenues.

With respect to the operational budgets, the total combined budget for 2022 is approximately $43.6 million. This is a 10 percent decrease to the 2021 Amended Budget and a 10% percent increase from the 2021 year-end estimates. The big change relative to the 2021 Amended Budget is driven by large transfers which were not required in 2021 but had been budgeted. The increase over the 2021 year-end estimate is primarily due to increases in debt costs as the new stormwater bank loan begins to be paid back, increases in personnel costs both for new full time equivalents and an 8% increase in medical costs, increases in the amount of WISE water that will be taken as WISE ramps up towards full deliveries, and increased costs for supplies. The department is requesting three new positions in 2022, a Meter Services Technician, a Stormwater Field Services Operator, and a Water Treatment Plant Operator.

The 2022 capital budget across the Castle Rock Water Enterprises is approximately $63.5 million, a 9 percent decrease over the 2021 Amended Budget and a 27 percent increase over the 2021 year-end estimates. Revenue and expense forecasts were completed through 2026 and then escalated in the models for years passed 2026.

Fund Balances

Based on the revenue and expense forecasts, fund balances are reviewed through 2026 closely and more generally through the entire modeling period out to 2060. Savings in actual costs and the timing of spending on capital costs verses budgets each year have helped to keep fund balances stable throughout the years and projections through 2026 continue this trend. Fund balances need to be built up with capital reserves ahead of large capital projects to ensure the money is available to proceed on the projects when the projects are needed to meet growth and other service goals. Fund balances are then draw down significantly as capital reserves are spent on these projects. Keeping close tabs on the fund balances ensures that there are no negative impacts on the long term financial plan when large projects must be funded.

Fund balance for the Water Fund is projected to dip below average values of $17M through 2025 and then recover in 2026 to above average levels. In the Water Resources Fund, values have been slowly dropping for the last five years and will drop to a low of about $17M (significantly below the $71M average) due to spending on large capital projects in 2022 and 2023. Fund balance then recovers to above $50M by 2026 ahead of large expenditures planned on the Box Elder Project in the late 2020s. Current modeling indicates that debt issuance may be needed in the late 2020s to meet the full capital needs of the Box Elder Project by 2030. Stormwater Fund balance hit a high value in 2020 of around $15M associated with the Bank Loan and then is projected to fall rapidly through 2025 as large capital investments are completed associated with that loan and other major capital projects are started. Wastewater Fund balance dropped to very low levels in 2019 as investments in the wastewater treatment plant were made. For this fund, balance is expected to recover and grow through 2026 ahead of future wastewater plant improvements and expansions.

Rate Revenue

The combined 2022 revenue projection for the department assuming the recommended rates and fees is $84.6 million and represents an 8 percent increase from the 2021 budget, and a 7 percent increase from the 2021 year-end estimates. The increase is primarily due to growth in the customer base and increases in system development fees. Proposed increases in the Water Resources and Stormwater fixed fees are offset by proposed decreases in the Wastewater fixed fee and variable rate. While fixed revenues in the four enterprise fund models are set to generally trend up with the projected growth, variable revenues can be difficult to predict. These variable revenues are subject to two primary drivers, 1) weather and 2) national, state and local pressure to conserve water or at least use it more efficiently. For the 5-year planning period, CRW is forecasting annual increases of about 5% per year through 2026. As always, CRW is aware of the need to be cautious when projecting rate revenues due to the unpredictability of weather, conservation efforts and sustainable growth.

Non-Rate Revenues

Non-rate revenues are generated through charges and fees for miscellaneous or ancillary services not accessed or used by the broader customer base. These special charges should recover the actual cost of service delivery consistent with cost-of-service principles and Town financial policies. Recovering costs directly from customers that access those services also enhances equity. These charges can also help manage demand for those services as well as address customer behavior patterns. In the case of customer behavior patterns, CRW may set a special charge above the cost of service. Two recent examples of this include the Residential Landscape and Irrigation Inspection Fee and Meter Set Inspection Fees. CRW is having issues with home builders failing these inspections multiple times which is creating resource issues for the department. As such, these fees have been set to escalate after each failed inspection. Other special charges include late charges, disconnection charges, service transfer charges and administrative related fees, just to name a few. Proposed special charges for 2022 are shown in Table 7 below.

Staff has found a more efficient way to process the administrative lien and recording fees electronically which has significantly reduced the proposed fee for 2022. The fee to perform a bulk hydrant meter and backflow inspection has increased due to the average time it takes to reach the various developments, who typically are the users of the bulk hydrant meters. Each bulk hydrant meter is calibrated when it is returned and before being issued to a new customer. Most of those calibrations are done in-house by staff, however there are times they are submitted to a third party to calibrate. The $150 fee captures the in-house costs.

Table 7: Special Charges/Fees

Special Charge (Fee)	Cost of Service	Adopted 2021 Fee Amounts	Proposed 2022 Fee Amounts	Benchmark Range	Benchmark Average
Returned Payment Charge	$27.86	$30.00	$30.00	$15.00-$75.00	$29.37
Water Service Transfer Fee	$37.52	$40.00	$40.00	$12.00-$100.00	$38.00
Administrative Lien & Recording Fee	$69.19	$92.00	$69.00	$13.00-$90.00	$51.60
Bulk Water Read Fee – Via Phone	$12.64	$12.00	$13.00	$50.00	$50.00
Bulk Water Read Fee – Via On Site	$70.23	$67.00	$71.00	$25.00-$250.00	$90.00
Bulk Hydrant Meter & Backflow Inspection	$86.66	$75.00	$90.00	$25.00-$75.00	$49.60
Bulk Hydrant Inspection No Show	$49.70	$43.00	$50.00	Not Available	Not Available

Trip Charge					
Bulk Hydrant Meter Calibration	$190.96	$150.00	$150.00	$75.00-$350.00	$212.50
Customer Requested Meter Bench Test (Passing Meter)	$47.00	$47.00	$47.00	$0-$165.00	$82.33
Delinquency Disconnection/Reconnection	$43.78	$45.00	$45.00	$15.00-$300.00	$81.18
Customer Requested Service Disconnection/Reconnection	$83.58	$80.00	$84.00	$20.00-$100.00	$60.16
Canyons South Meter Lockout	$97.23	$95.00	$98.00	Not Available	Not Available
Meter Set Re-inspection (1st inspection included in meter set fees)(1)	$49.06	$50.00	$50.00	$25.00-$1,500.00	$209.18
Irrigation Permit	$610.00	$555.00	$610.00	Not Available	Not Available
Landscape Contractor Registration	$59.05	$65.00	$65.00	Not Available	Not Available
Residential Landscape & Irrigation Inspection(2)	$42.54	$37.00	$45.00	Not Available	Not Available
Irrigation Permit Re-inspection	$109.82	$105.00	$110.00	Not Available	Not Available
Irrigation Disconnection/Reconnection (due to non-compliance	$83.58	$80.00	$84.00	Not Available	Not Available
Temporary Sod Exemption	$8.82	$8.00	$9.00	Not Available	Not Available

(1) The proposed fee doubles after each failed inspection for the reinspection, e.g. after the second failed inspection, the reinspection fee will go to $100, after the third it will go to $200, and so on.
(2) The proposed fee doubles after each failed inspection for the reinspection, e.g. the second inspection will cost $90, the third inspection $180, and so on.

Personnel

The 2022 budget includes three new full time equivalents (FTEs). These include a Meter Services Technician, Water Plant Operator and a Stormwater Conveyance System Operator. From 2023 to 2026, CRW is projecting adding eleven FTEs including a stormwater inspector, conservation technician, two network and controls positions, and a field services operator in 2023; a plant mechanic, field services operator and customer service representative in 2024; a plant mechanic and lab supervisor in 2025; and a field services operator in 2026. The Study reflects updated personnel cost allocations across the four enterprises to capture cost-of-service impacts on personnel resources, as well as Town-wide changes to the pay and benefits plans. After 2026, costs for personnel are escalated by 1.55% which is the current CPI.

Electricity

The third largest operating cost, electricity, reflects full operation of the Plum Creek Water Purification Facility and other treatment plants, alluvial and groundwater well operations and pumping associated with water and wastewater service. CRW has implemented an energy management and system optimization plan to maximize the efficiency of electrical usage. Electricity costs for the five-year period are projected to increase by 5% per year. After 2026, electricity costs are escalated by 1.55% consistent with the current CPI.

Operations & Maintenance

Cost projections include operating and maintenance costs for CRW. These costs are mostly steady with slight increases over the five-year planning period with the exceptions of the following key items:

- Meter costs under supplies are going up significantly due to costs from the manufacturer but also to a certain extent as we transition to advanced metering infrastructure
- Operating costs for WISE will continue to increase as the full quota of Castle Rock's WISE water is delivered with that occurring in 2026
- Stormwater is adding significant operational costs associated with a program for the inspection of aging corrugated metal stormwater pipes

This results in increases of 28% over the five-year period or approximately 6% per year. To ensure only costs needed are included in the budget, line item details are reviewed. With the construction of new wells, PCWRA expansion, PCWPF expansion and other various projects being completed operating costs are still being collected to better understand the increase each year as our infrastructure and assets grow. After 2026, operations and maintenance costs in the model are increased by 1.55% consistent with the 2020 CPI.

Rates and Fees and Cost of Service Modeling

Once the first four steps are completed, the capital plan is put into the SDF models along with the projected new SFEs that this capital will support. Proposed SDFs from these models are then put into time based financial models otherwise known as the rates and fees models, one for each enterprise. These models look at financial data through 2060. For purposes of this year's models, no debt issuances have been included. CRW then works to ensure that over the modeling period (out to 2060):

- there are no large rate increases forecasted (greater than 5%) to be needed
- fund balances are maintained within reasonable limits according to upcoming capital needs through 2060
- minimum reserves are maintained for all enterprises throughout the study period

If these conditions are not met, adjustments are made to the capital plan and operating expenses where changes can be made without impacting levels of service to balance these items. Revenue requirements for each enterprise are then determined from the models based on the change in revenue needs for each enterprise according to the forecasted capital and operational expenses. Once the total revenue requirements are identified in each enterprise, cost of service models are used to spread those revenue requirements over the different customer classes according to usage by each customer class to ensure equity. The end results are the rates and fees recommendations.

Proposed Rates and Fees for 2022 through 2026

Based on impacts of the revised capital plan and projected system growth by fund as well as the other key changes, the "2021 Study" has resulted in projected required rate revenue increases as shown in Table 8 below.

Table 8: Rate Required Revenue Increases by Enterprise – "2021 Study"

	2022	2023	2024	2025	2026
Water Fund	0.0%	3.0%	3.0%	3.0%	3.0%
Water Resources	3.0%	3.0%	3.0%	3.0%	3.0%
Stormwater	2.5%	3.5%	3.5%	3.5%	3.5%
Wastewater	(5.0%)	0.0%	0.0%	0.0%	0.0%

After careful planning and review of operating costs and capital plans in this year's study, the overall impact will be a 3.0% increase in Water Resources, 2.5% increase in Stormwater and a 5% decrease in Wastewater. However, rates must ramp up slowly over time in order to ensure we can fund the large capital needs associated with these projects over the next 10 years.

For the "2021 Study", there is a slight decrease in the average annual bill for the typical residential customer due to the rate changes being recommended in 2022. For other customer classes, there is either a slight decrease to the annual bill or a slight increase depending on customer usage patterns. For example, irrigation only customers will see a slight increase to their annual bills since they do not use wastewater. Table 9 summarizes these impacts to typical annual utility bills for various customer classes.

Table 9: 2022 Rate Adjustment Recommendations and Total Typical Annual Utility Bills

Customer Class	2021 Actual Typical Annual Bill	"2021 Study" Proposed 2022 Typical Annual Bill	$ Change	% Change	"2020 Study" Proposed 2022 Typical Annual Bill
Residential ¾" Meter	$1,285.17	$1,275.93	($9.24)	(0.7%)	$1,311.28
Commercial Indoor ¾" Meter	$2,117.35	$2,124.44	$7.09	0.3%	$2,166.12
Commercial Indoor 1½ " Meter	$9,001.56	$8,947.88	($53.68)	(0.6%)	$9,172.10
Commercial w/Irrigation ¾" Meter	$2,656.75	$2,674.11	$17.36	0.7%	$2,721.70
Commercial w/Irrigation 2" Meter	$16,243.81	$16,187.73	($56.08)	(0.3%)	$16,602.99
Multi-family Indoor ¾" Meter	$1,026.10	$1,016.67	($9.43)	(0.9%)	$1,044.43
Multi-family w/Irrigation 1½" Meter	$10,553.08	$10,443.87	($109.21)	(1.0%)	$10,747.15
Irrigation ¾" Meter	$2,373.55	$2,382.91	$9.36	0.4%	$2,444.76
Irrigation 2" Meter	$17,078.30	$17,191.17	$112.87	0.7%	$17,200.53

As a part of the presentation of the proposed rates and fees for 2022, Castle Rock Water compared the 2022 proposed rates and fees with other similar water providers in the South Metro area. Many of the water providers do not provide stormwater services, so we show these separately for accurate comparison purposes. The benchmarking comparisons include all fees related to water, water resources, and wastewater services. These fees have different names across the various water providers including for example water and sewer service fixed and volumetric fees, water resource fees, renewable water fees, capital improvement fees, sewer system replacement fund fees, and groundwater protection fees.

Staff compared rates to other South Metro water providers for a typical winter usage of 5,000 gallons and a typical summer usage of 15,000 gallons. While we did compare the proposed rates and fees to other providers in Colorado, these comparisons are not

apples to apples comparisons due to the local challenges faced by South Metro water providers. In summary, the South Metro water providers are generally currently operating on deep groundwater and are in the midst of building renewable surface water systems. A number of the systems have implemented monthly fees similar to Castle Rock's water resources fee including Castle Pines Metro, Meridian, Pinery, Stonegate, East Cherry Creek and Roxborough. Others have incorporated these fees into their standard water rates or utilized tax mill levies.

The comparison results to other South Metro water providers are shown in Charts 2 and 3 below. As indicated above, it is important to note that a number of the South Metro water providers have their revenues supplemented by tax mill levies to help with renewable water investments. The charts below show the approximate impact this has on the cost of service for a typical residential customer based on the average median price of a home in Douglas County of $542,000 (http://www.douglas.co.us/documents/douglas-county-demographics-summary.pdf). This mill levy was distributed across twelve equal payments for comparison sake even though this will typically be paid in fewer installments. The results of this comparison of proposed 2022 rates and fees for Castle Rock to 2021 current rates and fees for other providers indicate that Castle Rock's rates and fees are comparable to other area providers even before those providers make changes for 2022. Once 2022 rates and fees are available for the other area providers, CRW will update these charts and ensure they are available on our website.

Chart 2: Typical Monthly Winter Bill (per 5,000 gallons)

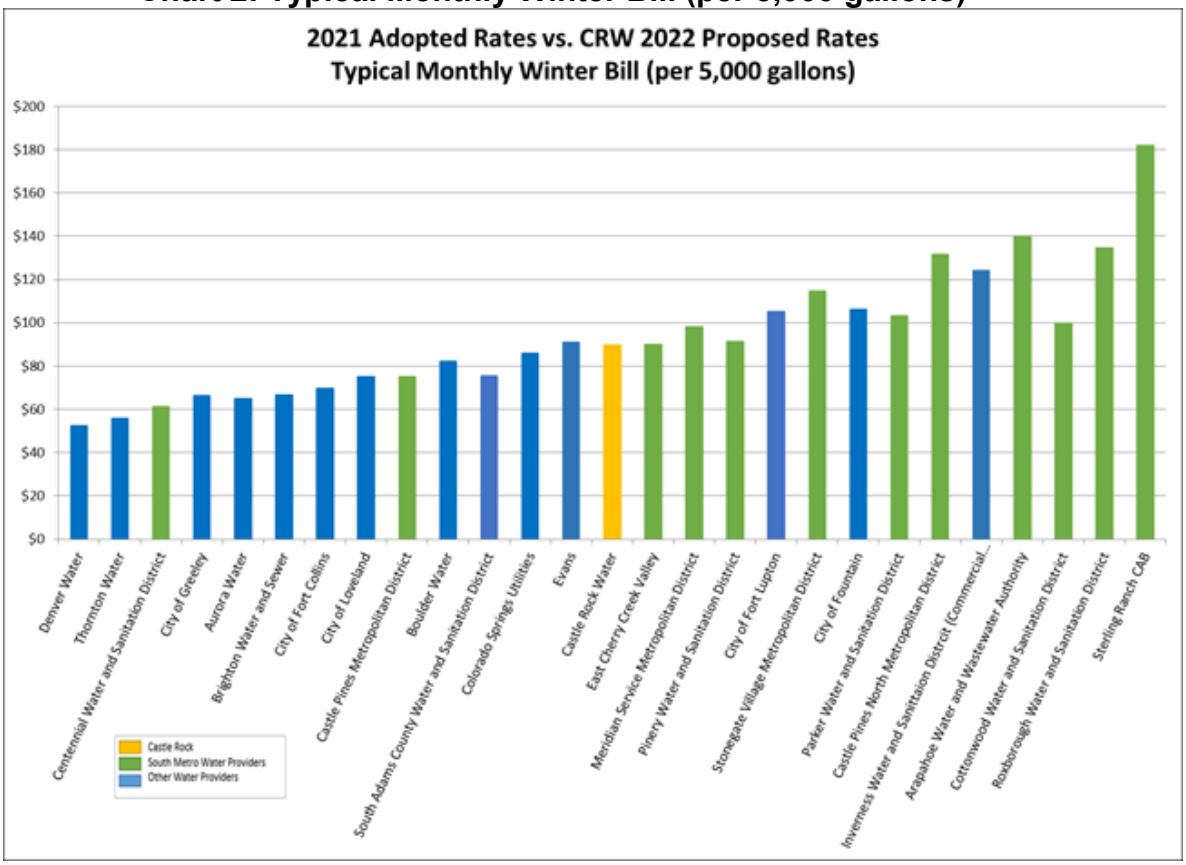
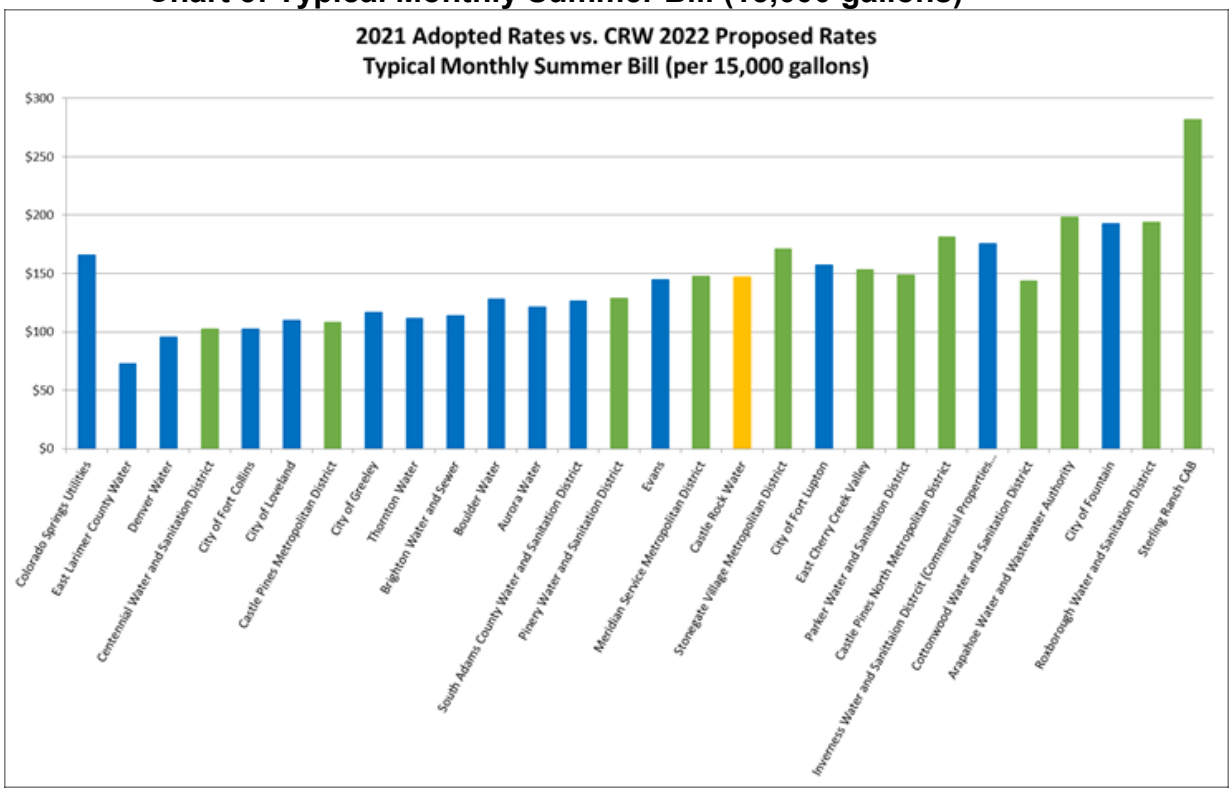
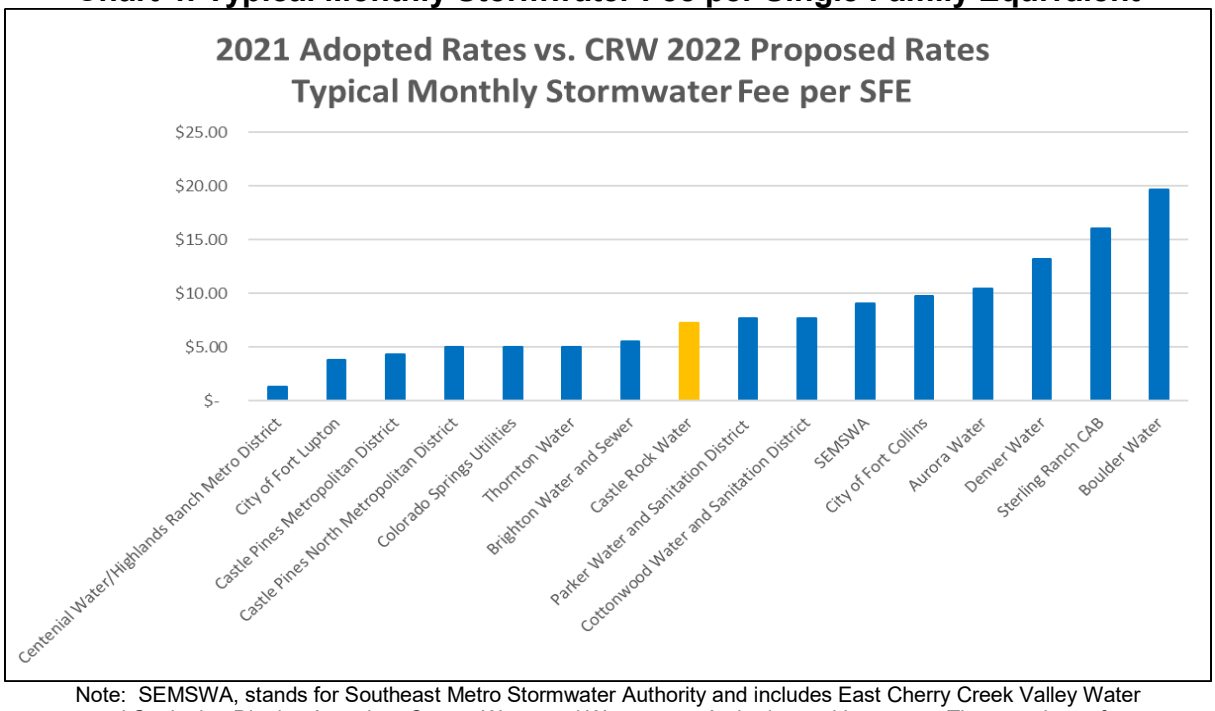


Chart 3: Typical Monthly Summer Bill (15,000 gallons)



Similar comparisons for stormwater fees are in Chart 4 below. While this is not a comprehensive list of all providers, it shows some of the key stormwater providers in our area. The data indicates that Castle Rock's proposed fees are consistent with many of the other local providers. It is important to note that some jurisdictions handle stormwater through general taxes instead of having a stormwater utility. The results of the comparisons are as follows:

Chart 4: Typical Monthly Stormwater Fee per Single Family Equivalent



Note: SEMSWA, stands for Southeast Metro Stormwater Authority and includes East Cherry Creek Valley Water and Sanitation District, Arapahoe County Water and Wastewater Authority, and Inverness. The rate shown for Parker Water and Sanitation District is through the Town of Parker and is the 2019 rate.

Table 10 summarizes proposed fixed charges for 2022 from this year's study.

Table 10: Single Family Residential Fixed Charges

	2021 Actual Typical Bill	"2021 Study" Proposed 2022 Typical Bill	$ Change	% Change	"2020 Study" Proposed 2022 Typical Bill
Water	$9.54	$9.54	$0.00	0.0%	$9.83
Water Resources	$26.15	$26.93	$0.78	3.0%	$26.93
Wastewater	$9.02	$8.57	($0.45)	(5.0%)	$9.02
Stormwater	$7.12	$7.30	$0.18	2.5%	$7.33
TOTAL	**$51.83**	**$52.34**	**$0.51**	**1.0%**	**$53.11**

System Development Fees

System development fees (SDFs) are a function of year-end 2020 fixed assets, 2021 year-end estimates of capital improvement project costs, 2022 through 2060 capital improvement project plans, and system capacity for water, water resources, and wastewater and developable acres for stormwater.

Growth forecasts and increases to the capital plans in the "2021 Study" indicate that total SDFs for a typical SFE will need to increase from the 2021 adopted fees. The "2021 Study" indicates fees will need to increase in 2022. The recommended increase this year is 11.9% percent as shown in Table 11. While the fee models indicate a much

larger increase could be applied, the financial plan and fund balances over time show that these fees can be increased slowly over time to meet the long term needs.

Table 11: Single Family Equivalent System Development Fee Comparison

PLUM CREEK BASIN

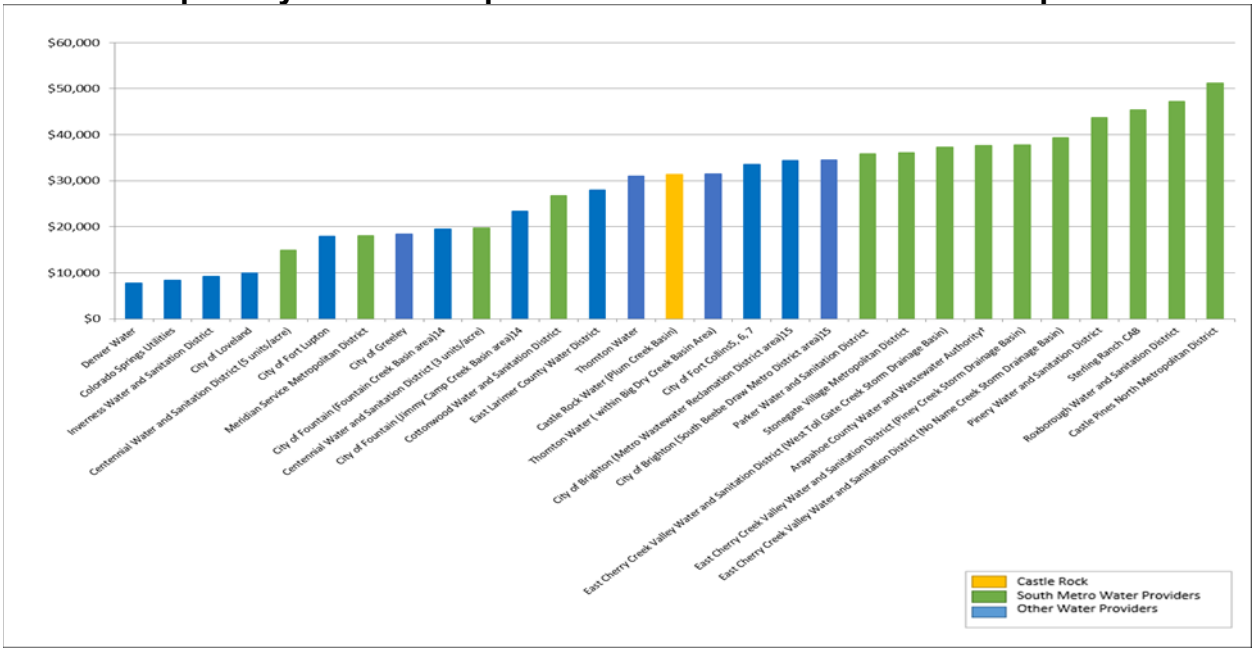
	2021 Actual Fees	"2021 Study" Proposed 2022 Fees	$ Increase (Decrease)	% Change	"2020 Study" Proposed 2022 Fees
Water	$4,030	$4,312	$282	7.0%	$4,151
Water Resources	$18,504	$21,280	$2,776	15.0%	$19,059
Wastewater	$4,023	$4,184	$161	4.0%	$4,144
Stormwater	$1,425	$1,539	$114	8.0%	$1,468
TOTAL	**$27,982**	**$31,315**	**$3,333**	**11.9%**	**$28,822**

CHERRY CREEK BASIN

	2021 Actual Fees	"2021 Study" Proposed 2022 Fees	$ Increase (Decrease)	% Change	"2020 Study" Proposed 2022 Fees
Water	$4,030	$4,312	$282	7.0%	$4,151
Water Resources	$18,504	$21,280	$2,776	15.0%	$19,059
Wastewater	$4,023	$4,184	$161	4.0%	$4,144
Stormwater	$911	$947	$36	4.0%	$939
TOTAL	**$27,468**	**$30,723**	**$3,255**	**11.8%**	**$28,293**

As part of the review of proposed fees, Castle Rock Water reviewed SDFs compared to other providers in our area and Colorado. Stormwater development impact fees were not included in the evaluation since many providers do not provide this service. SDFs include water and sewer tap fees, water development fees, outfall development fees (for reservoirs), metro sewer charges, construction water charges, renewable water fees, and water resource fees. See results of the benchmarking comparisons for SDFs in the following chart.

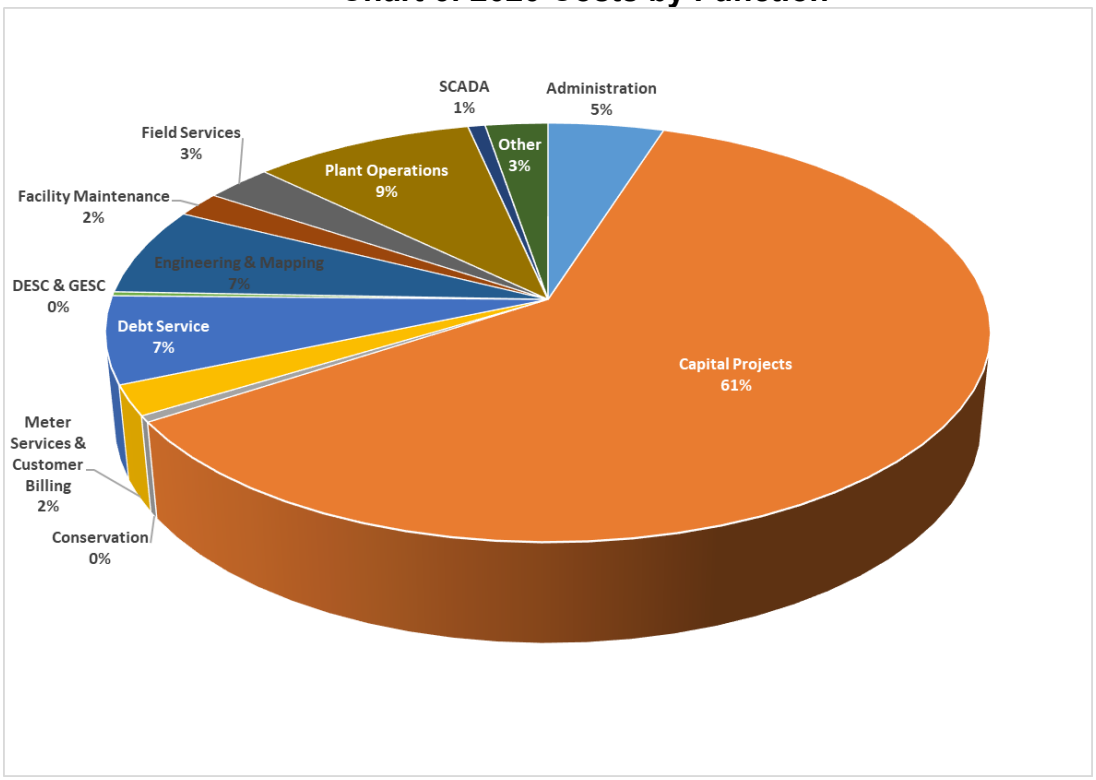
Chart 5: SDF Rate Comparison with Surrounding Communities
2021 Adopted System Development Fees w/ Castle Rock 2022 Proposed Fees



Utilization of Rates and Fees

Chart 6 summarizes how revenues are typically used by CRW using actual expenditures from 2020.

Chart 6: 2020 Costs by Function

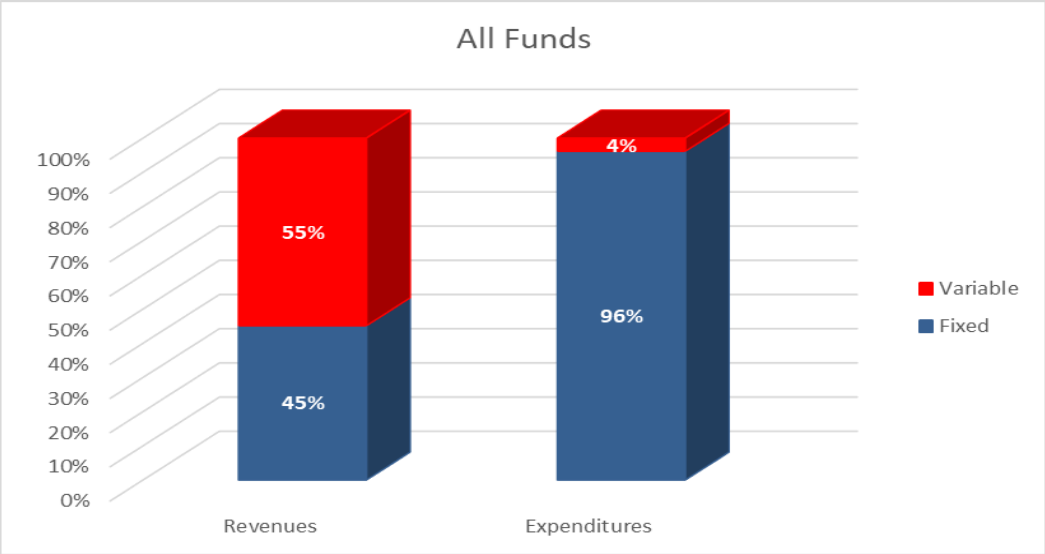


From this chart, it is clear that the Capital Project Plan is a very significant portion of the rates and fees needed for operation of the funds. The infrastructure intensive nature of

the business results in significant fixed costs. Castle Rock Water wants to continue to implement a strategy, to the extent possible within our cost-of-service model, which matches fixed revenues with fixed costs to ensure revenue stability thereby minimizing the potential for future rate shocks. This strategy also takes into account the need to incentivize water conservation and efficiency through variable rates for water use.

Chart 7 shows the breakdown between fixed and variable revenues and expenses for the fiscal year ending 2020. The split between fixed and variable revenues are fairly equal with the largest variable revenue being metered water sales. The majority of expenditures for CRW are fixed in nature with the largest operational cost being personnel costs.

Chart 7: Fixed Versus Variable Revenues & Expenditures



Bulk Water Program

Castle Rock Water provides customers with two options for bulk water. For the larger users typically (5,000+ gallons a day) a bulk water hydrant meter and permit are an option. These are typically development projects needing bulk water for dust control, grading, etc. The second option is access to the bulk water station. This is for the smaller users, typically less than 5,000 gallons a day, however there is not a minimum requirement.

Monthly consumption averages for bulk hydrant customers put a similar demand and usage on the system as a 1.5-inch meter. Therefore, the monthly service charges for water and water resources are the same for this customer class as other 1.5-inch meter customers. Table 12 shows no proposed changes to the bulk hydrant rates for 2022 except for a 3% increase in the monthly renewable water fixed service charge applicable to all customers.

Table 12: Bulk Hydrant Meter Rate Comparison

	Adopted 2021 Rates	Proposed 2022 Rates	$ Change	Benchmark Range	Benchmark Average
Monthly Water Fixed Service Charge	$18.78	$18.78	$0.00	Not Available	Not Available
Water Volumetric Rate (per 1,000 gallons)	$7.86	$7.86	$0.00	Not Available	Not Available
Monthly Renewable Water Fixed Service Charge	$187.50	$193.13	$5.63	Not Available	Not Available
Monthly Permit Fee	$300.00	$300.00	$0.00	$0-$325.00	$170.88
Refundable Deposit-Hydrant Meters	$2,600.00	$2,600.00	$0.00	$0-$6,000	$1,801.41

Monthly consumption averages for bulk station customers put a similar demand and usage on the system as a ¾" meter. Therefore, the monthly service charges for water and water resources are the same for this customer class as other ¾" customers. Even though bulk station applicants are asked where the water will be used, there is no guarantee that they are not taking the water out of Castle Rock and the basin. To account for this, bulk station customers are charged 125% of the maximum outdoor Tier 2 irrigation rate. The 125% is in line with what CRW is allowed to charge for extraterritorial agreements according to municipal code.

Table 14: Bulk Station Rate Comparison

	Adopted 2021 Rates	Proposed 2022 Rates	$ Change	Benchmark Range	Benchmark Average
Monthly Water Fixed Service Charge	$9.54	$9.54	$0.00	Not Available	Not Available
Water Volumetric Rate (per 1,000 gallons)	$9.82	$9.82	$0.00	Not Available	Not Available
Monthly Renewable Water Fixed Service Charge	$26.15	$26.93	$0.78	Not Available	Not Available
Bulk Station Refundable Deposit	$225.00	$225.00	$0.00	Not Available	Not Available

Schedule

The current schedule for the 2021 Rates and Fees Study targets the following milestones.

- Castle Rock Water Commission Meeting 7/28/2021
- Castle Rock Water Commission Meeting 8/25/2021
- Town Council Update/Discussion 9/7/2021
- Town Council 1st Reading 9/21/2021
- Town Council 2nd Reading 12/7/2021
- Implementation 1/01/2022

Staff Recommendation

Based on the "2021 Study" staff recommends the following changes to the 2022 rates and SDFs for a SFE.

Water Fund

1. Fixed Monthly Charge – No Change
2. Volumetric Rates – No Change
3. System Development Fee – 7% Increase

Water Resources Fund

1. Fixed Monthly Charge – 3% Increase
2. System Development Fee – 15.0% Increase

Stormwater Fund

1. Fixed Monthly Charge – 2.5% Increase
2. Development Impact Fee – 8.0% Increase Plum Creek Basin and 4.0% Increase Cherry Creek Basin

Wastewater Fund

1. Fixed Monthly Charge – 5% Decrease
2. Volumetric Rate – 5% Decrease
3. System Development Fee – 4% Increase

Staff recommends moving forward with these recommended rates and fees, finalizing the “2021 Study” report and all of the associated data, and bringing the appropriate ordinances to Town Council for approval in accordance with the proposed schedule.