CUSTOMER CHARACTERISTICS ANALYSIS

2021 RATES AND FEES STUDY

PREPARED BY:

CASTLE ROCK WATER
BUSINESS SOLUTIONS TEAM

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EXECUTIVE SUMMARY

As a part of the annual Rates and Fees Study, Castle Rock Water conducts an in-depth analysis of accounts in service to determine customer characteristics and consumption patterns. We start by looking at the most current billing data for 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 not skew 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 look 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.

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

Note: 5/8" meter size represents 0.67 SFE accounts throughout this document and these accounts have ¾" meters in service.

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

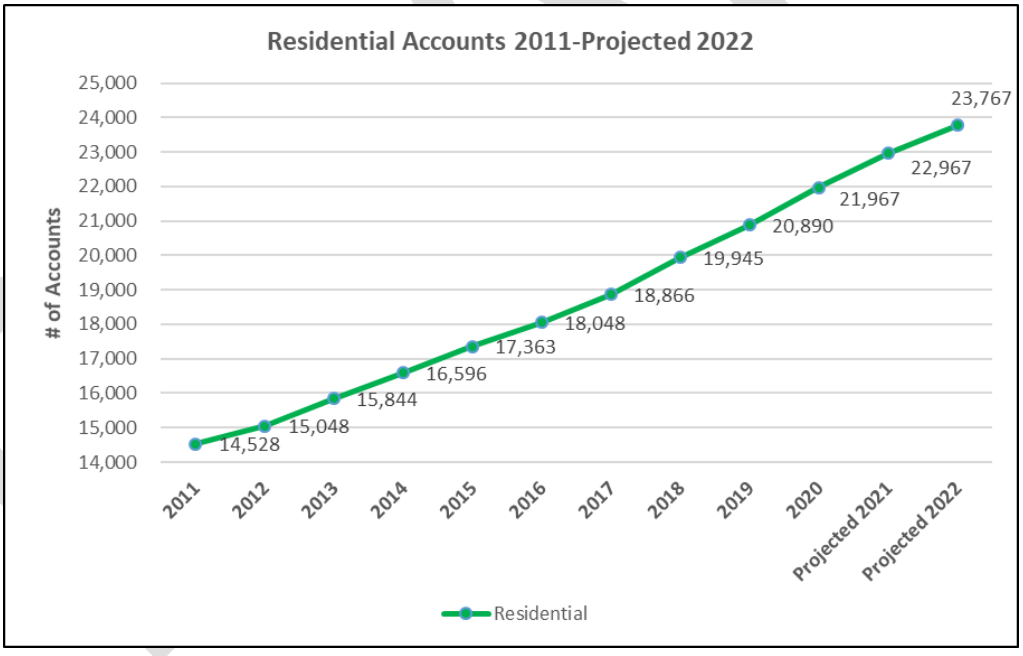
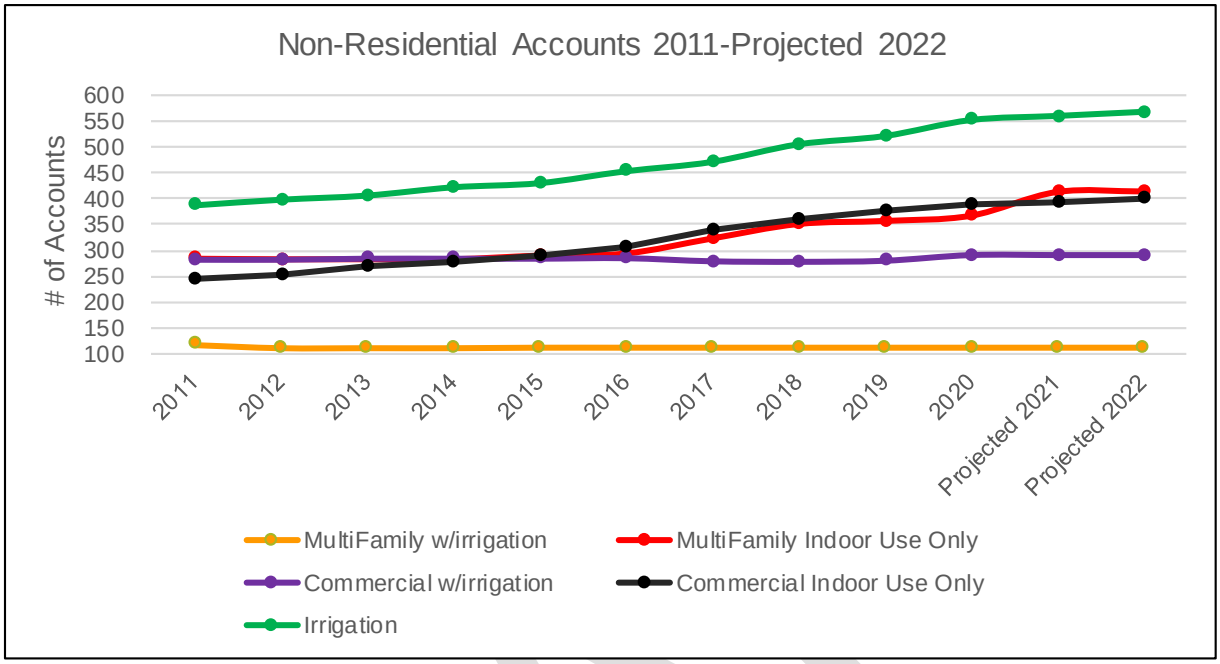


Chart 2 shows the number of non-residential accounts from 2011-2020. Non-residential accounts include multifamily. Over the last few years, we have started to see multifamily indoor use only actual accounts increasing. The projection for 2021 shows the biggest increase in recent years. However, the projection 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 and difficult to forecast. Growth projections are as follows by customer class:

2021 Projected New Accounts by Customer Class:

79	Residential (0.67 SFE)
921	Residential (1 SFE)
46	Multi-Family
8	Commercial
8	Irrigation
1,062	Total

2022 Projected New Accounts by Customer Class:

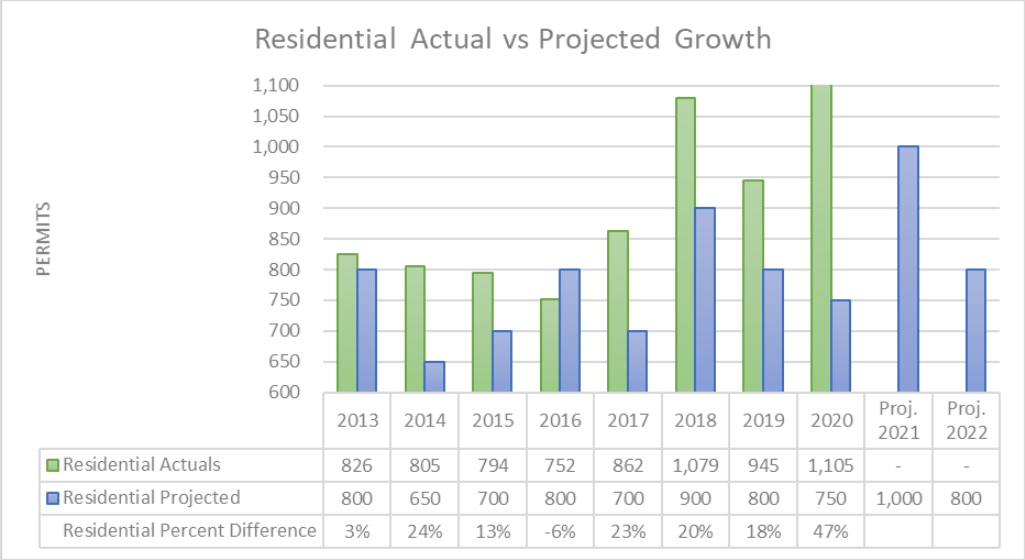
63	Residential (0.67 SFE)
737	Residential (1 SFE)
1	Multi-Family
5	Commercial
8	Irrigation
814	Total

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

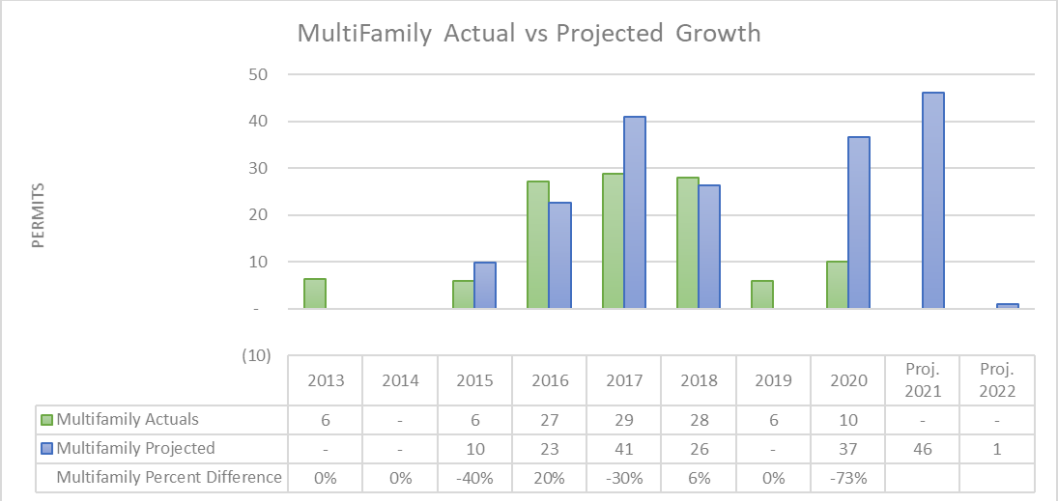
CRW has seen significant growth over the last several years. The projections received each year from the Town's Development Services Department are important components to the rate models and revenue projections when looking at needed rate or fee increases year over year. When looking at future projections 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



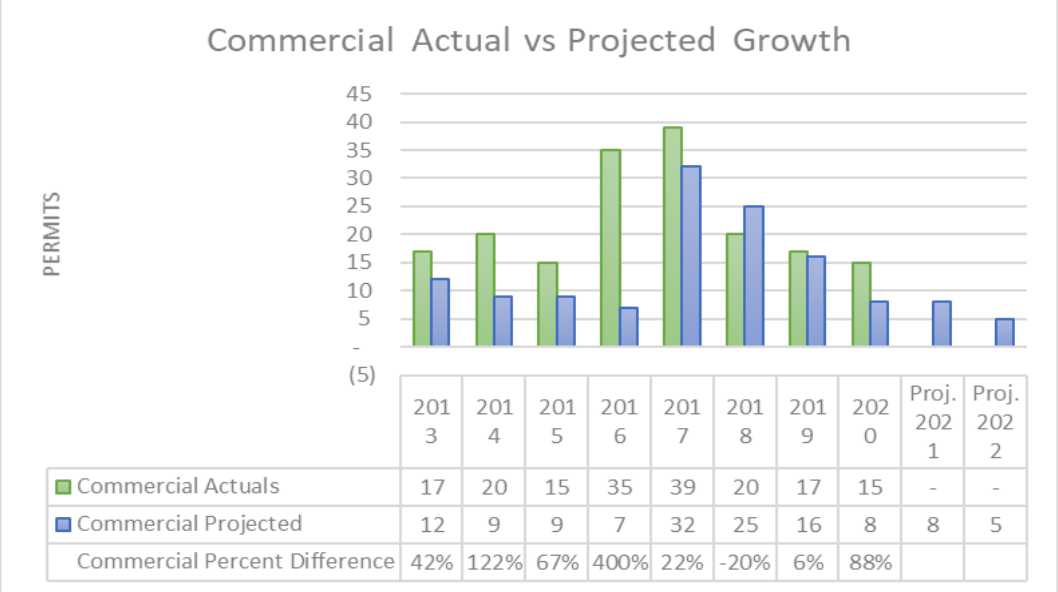
	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Residential Actuals	826	805	794	752	862	1,079	945	1,105	-	-
Residential Projected	800	650	700	800	700	900	800	750	1,000	800
Residential Percent Difference	3%	24%	13%	-6%	23%	20%	18%	47%		

CHART 4: MULTIFAMILY GROWTH



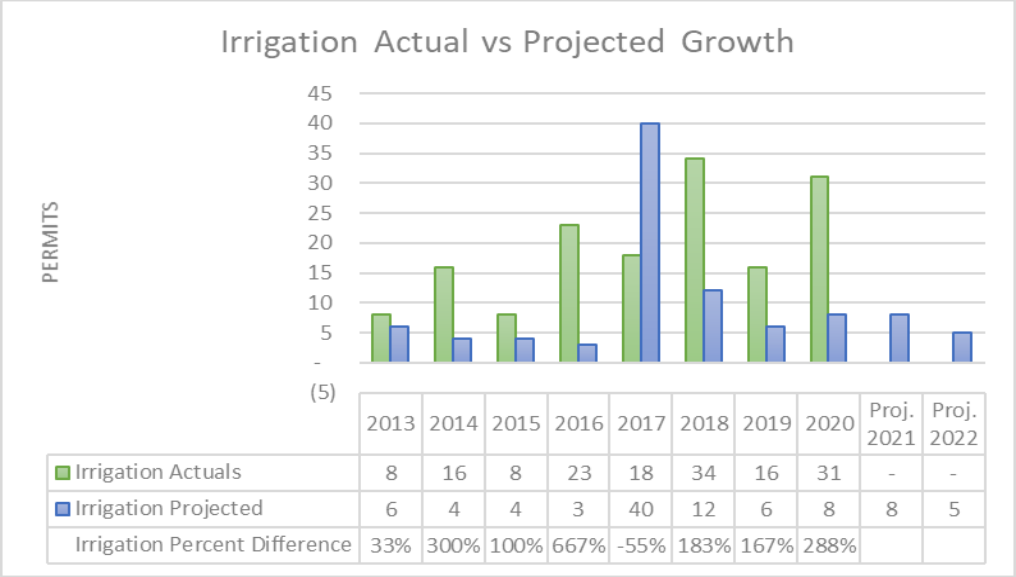
	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Multifamily Actuals	6	-	6	27	29	28	6	10	-	-
Multifamily Projected	-	-	10	23	41	26	-	37	46	1
Multifamily Percent Difference	0%	0%	-40%	20%	-30%	6%	0%	-73%		

CHART 5: COMMERCIAL GROWTH



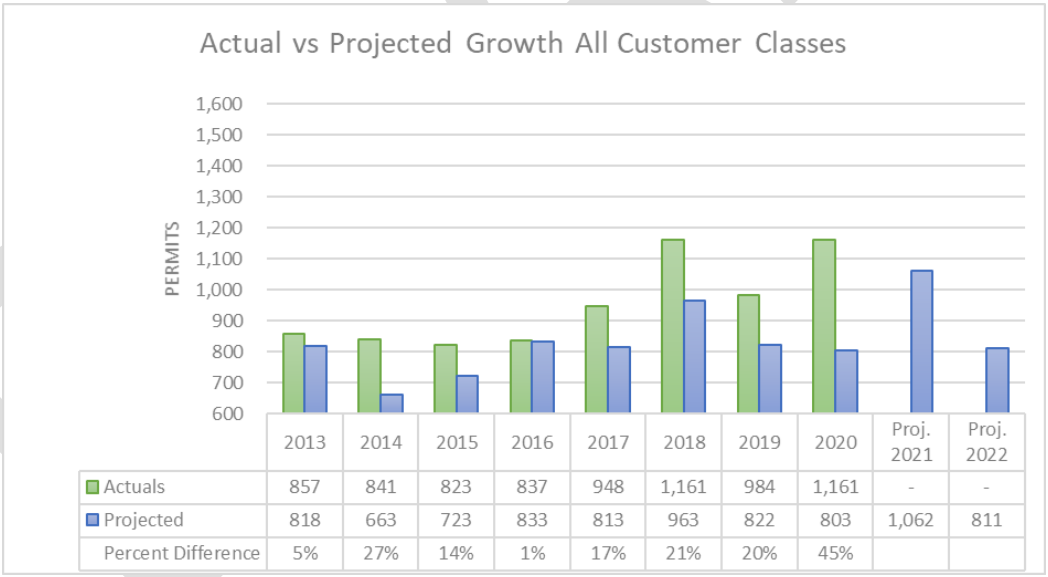
	2013	2014	2015	2016	2017	2018	2019	2020	Proj. 2021	Proj. 2022
Commercial Actuals	17	20	15	35	39	20	17	15	-	-
Commercial Projected	12	9	9	7	32	25	16	8	8	5
Commercial Percent Difference	42%	122%	67%	400%	22%	-20%	6%	88%		

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	5
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	811
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

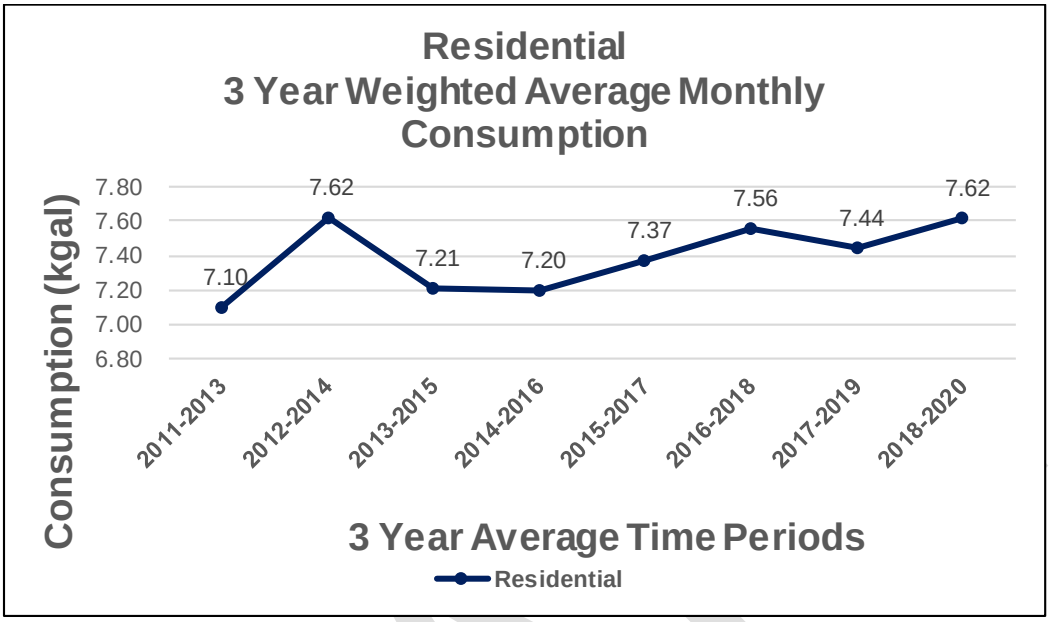
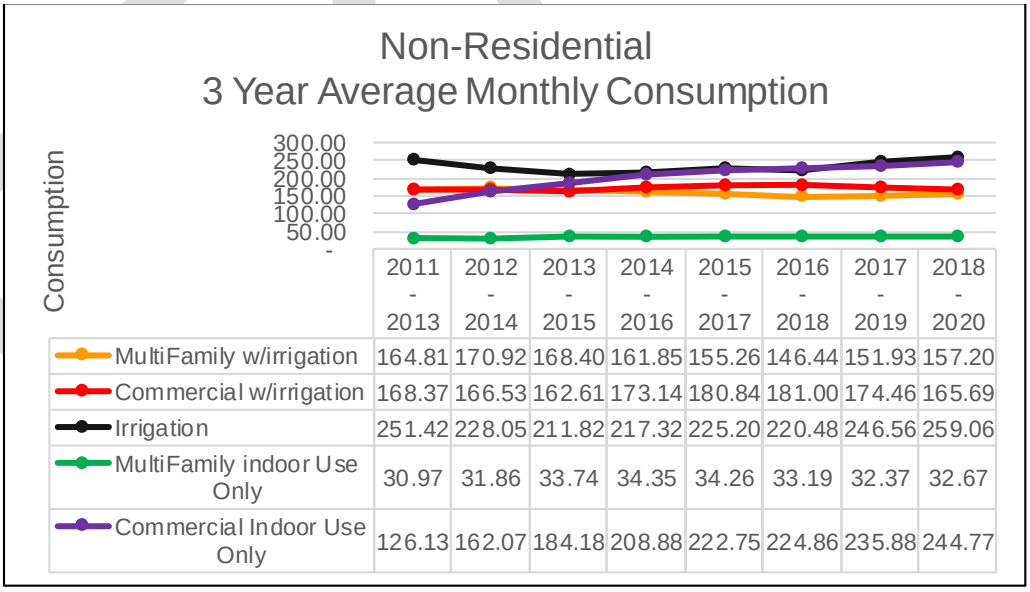


CHART 9: 3-YEAR AVG MONTHLY CONSUMPTION - NON-RESIDENTIAL ACCOUNTS



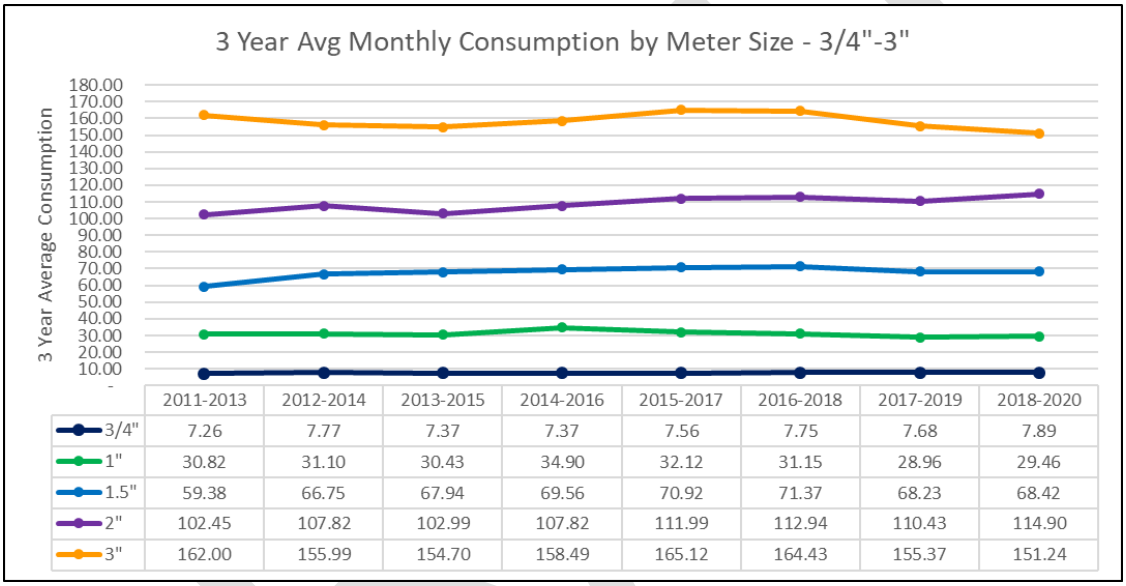
	2011 - 2013	2012 - 2014	2013 - 2015	2014 - 2016	2015 - 2017	2016 - 2018	2017 - 2019	2018 - 2020
MultiFamily w/irrigation	164.81	170.92	168.40	161.85	155.26	146.44	151.93	157.20
Commercial w/irrigation	168.37	166.53	162.61	173.14	180.84	181.00	174.46	165.69
Irrigation	251.42	228.05	211.82	217.32	225.20	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.

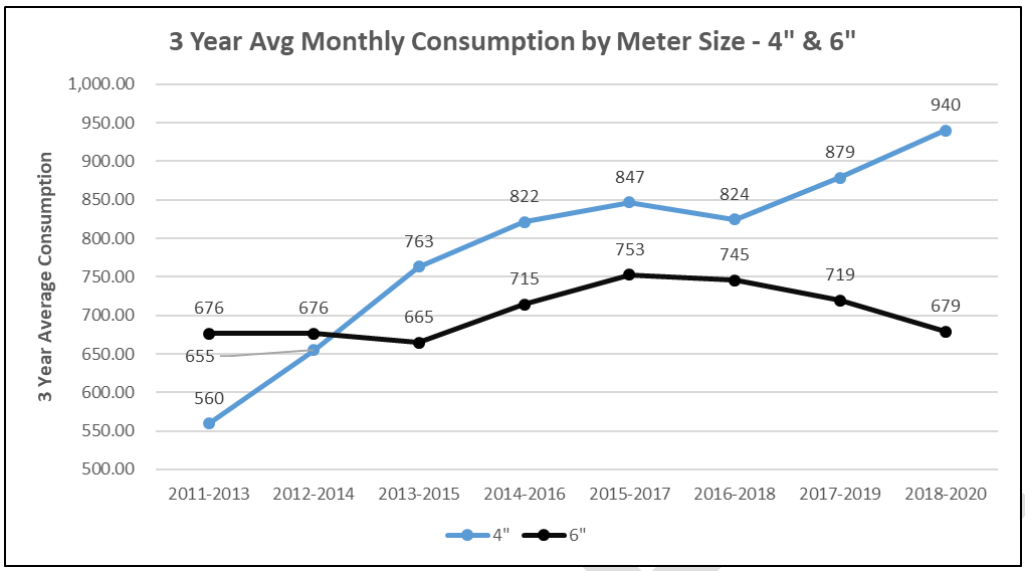
CHART 10: 3-YEAR AVG MONTHLY CONSUMPTION BY METER SIZE ¾″ to 3″ ALL CUSTOMER CLASSES



	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

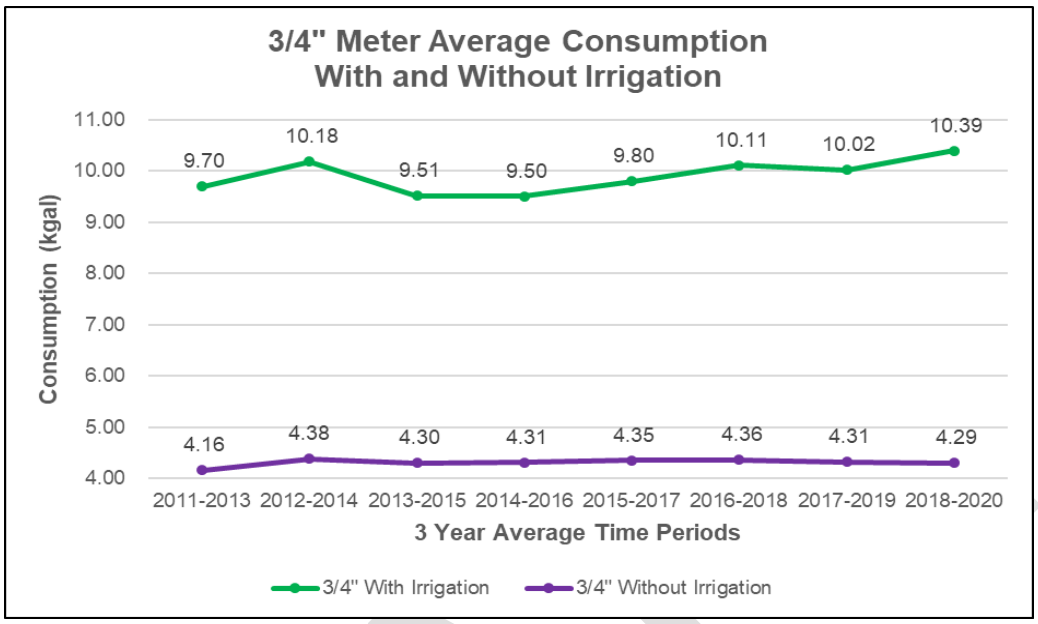


Chart 12 above shows that ¾" meter accounts usage "without irrigation" is very consistent from year-to-year. Approximately 97% of the ¾" meters are residential accounts. This trend indicates indoor water usage from year-to-year for ¾" meters is staying consistent, even with the increase in the number of accounts. We did see a slight decrease in 2019 followed by a slight uptick in 2020, mainly due to the weather conditions, rainfall and COVID.

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

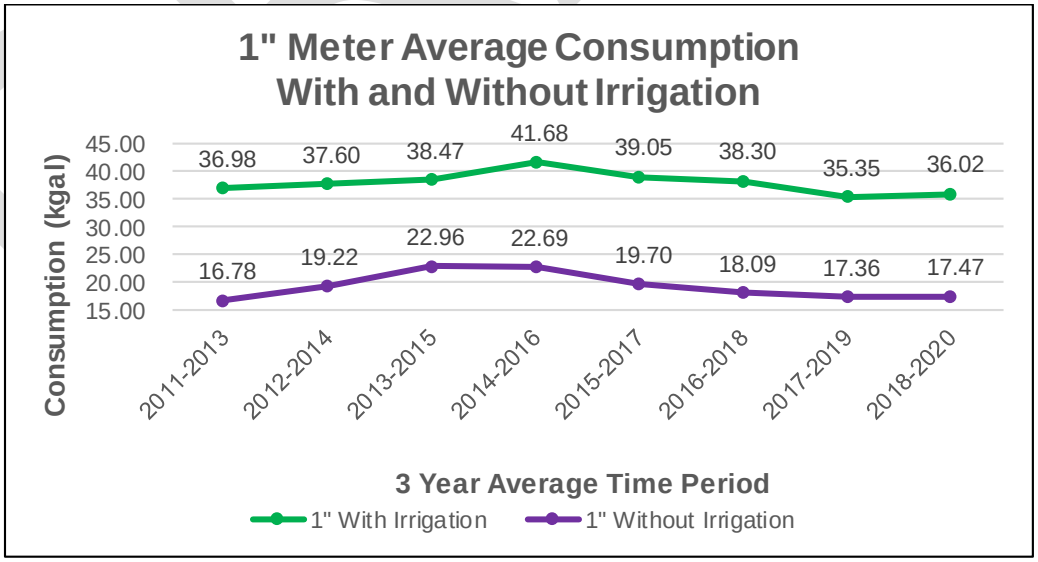


Chart 13 above shows that 1" meter accounts usage both with and without irrigation are showing downward trends over each of the years. There is a slight increase in the 2018-2020 study period, which is mainly due to increased use in the 2020 year, which is found to be from a dry irrigation season as well as different weather trends due to COVID.

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, overall even with the slight uptick in last period due to weather and COVID.

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

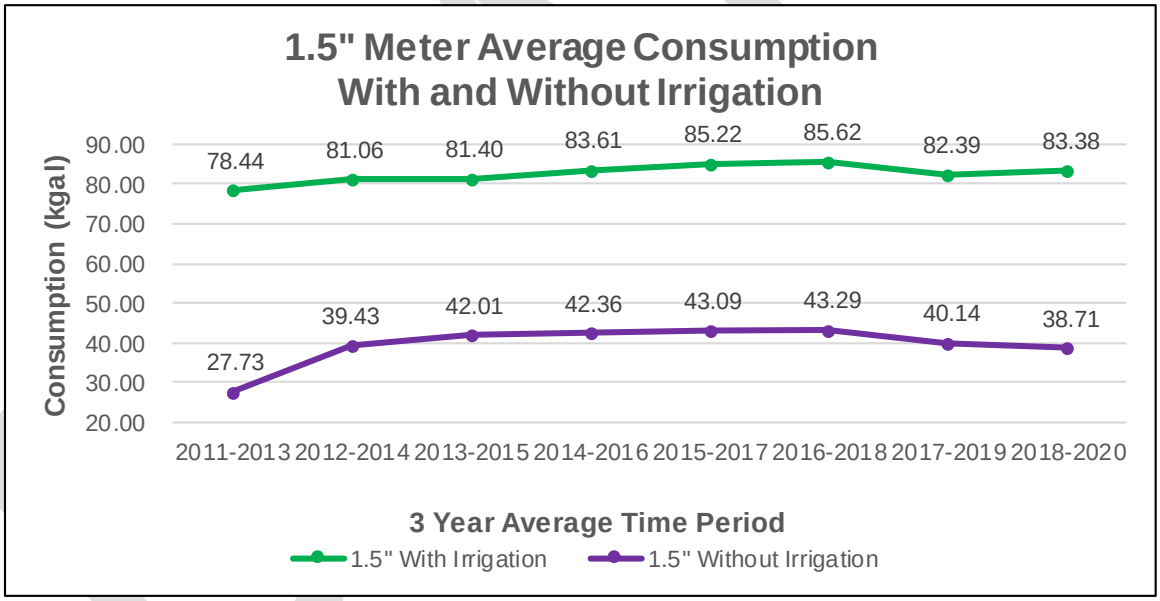


CHART 15: 3-YEAR AVG MONTHLY CONSUMPTION 2″ METERS

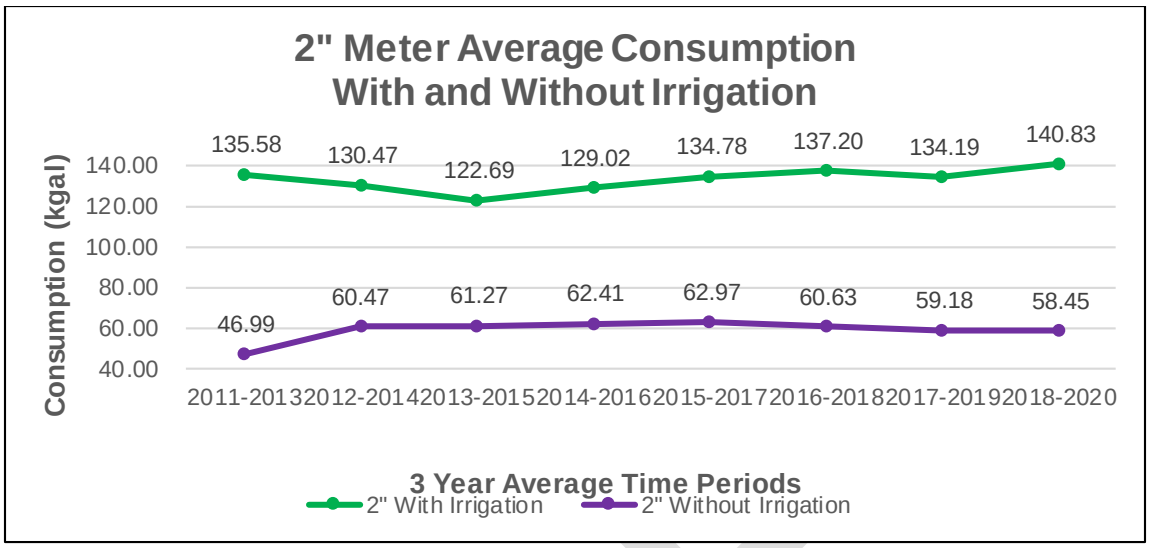


Chart 15 above for 2″ meters shows a fairly level use for the meters without irrigation with just a slight downward trend over the last few years and an up and down trend for the meters with irrigation with the highest average consumption during the last study period. This is due to dry weather in 2020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

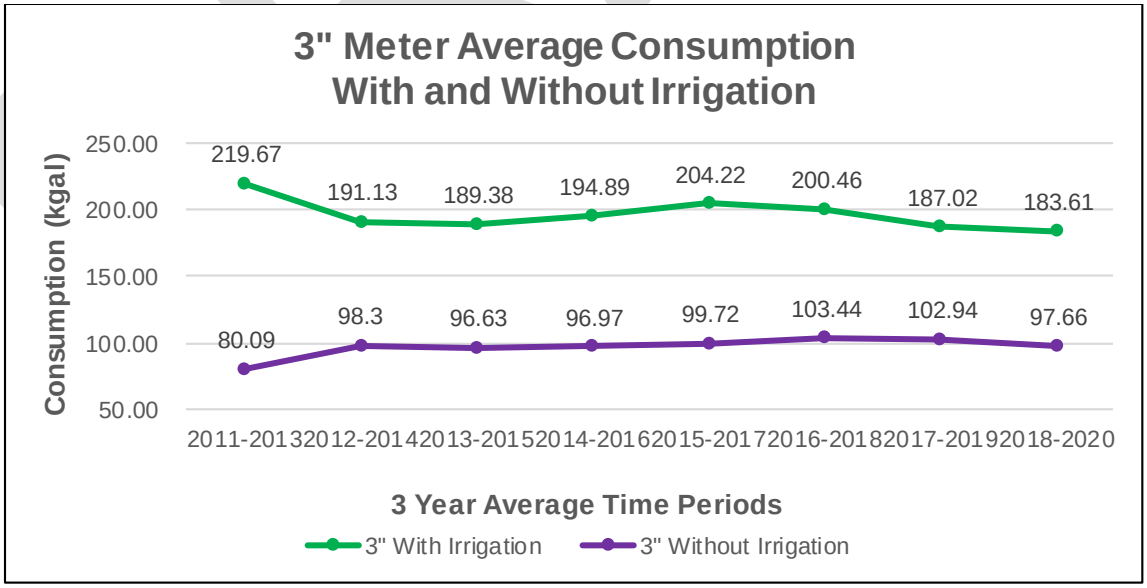
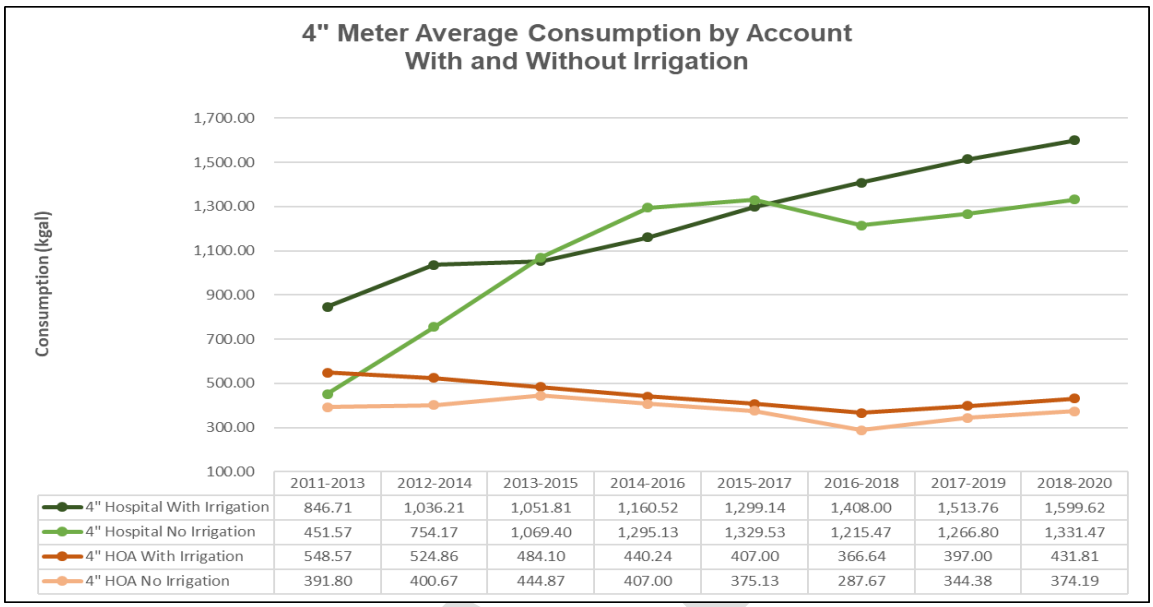


CHART 17: 3-YEAR AVG MONTHLY CONSUMPTION 4″ METERS

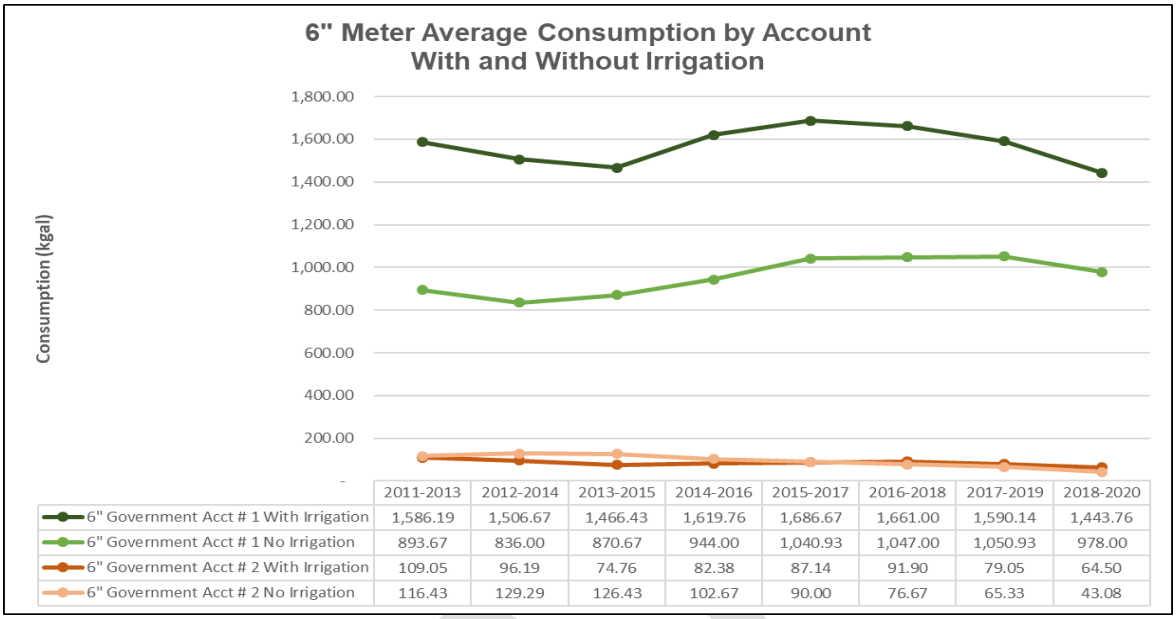


	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020
4" Hospital With Irrigation	846.71	1,036.21	1,051.81	1,160.52	1,299.14	1,408.00	1,513.76	1,599.62
4" Hospital No Irrigation	451.57	754.17	1,069.40	1,295.13	1,329.53	1,215.47	1,266.80	1,331.47
4" HOA With Irrigation	548.57	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. In last year's study, these meters were individually analyzed based on the types of customers within that meter size. 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 characteristic 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.

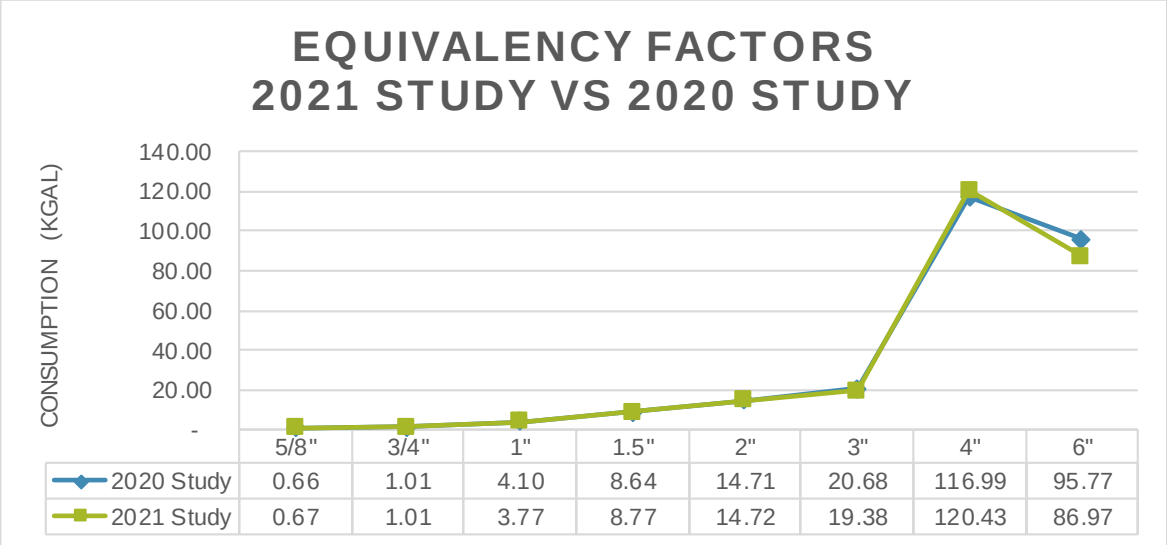
Table 4 calculates equivalency factors by customer class and meter size based on a ¾" single-family residential customer. The equivalency factor in Table 4 is an input into the system development fees model used to calculate the number of SFE's. This is achieved by multiplying the equivalency factor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

TABLE 4: 2020 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 to 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 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 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, 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

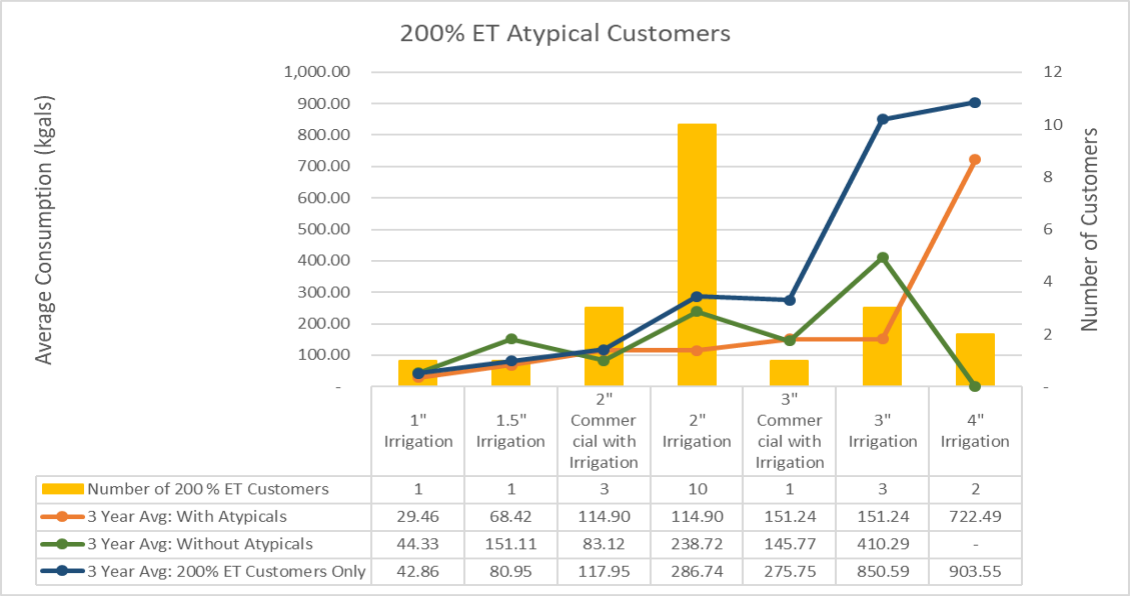
In addition to completing the three-year average consumption comparisons, CRW looks at atypical customers. Atypical can be defined as a customer whose consumption patterns are not typical of an average customer in that same meter size and/or customer class due to the nature of their business or varying water needs/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. 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. They remain in the average calculations: snowbirds, medical facilities other than the hospital, Castle Rock Water facilities, and the fairgrounds. Customers designated with a 200% ET are programmed athletic fields.

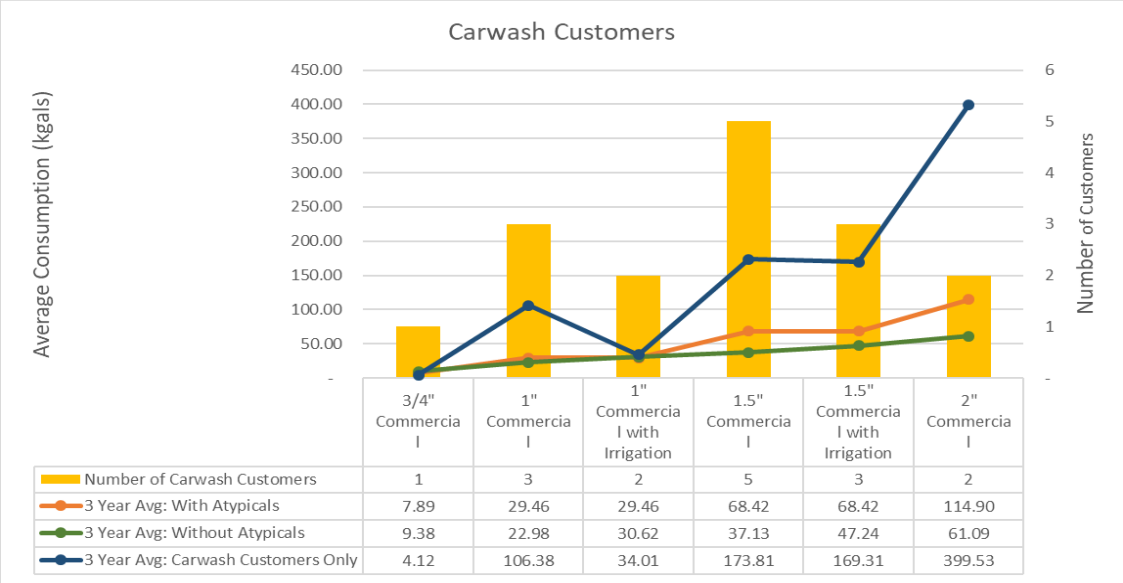
Charts 20 through 23 show the number of customers in each atypical class, the 3-year average with the atypical customers included, the 3-year average without the atypical customers included and the 3-year average of the atypical class by itself.

CHART 20: 200% ET ATYPICAL CUSTOMERS



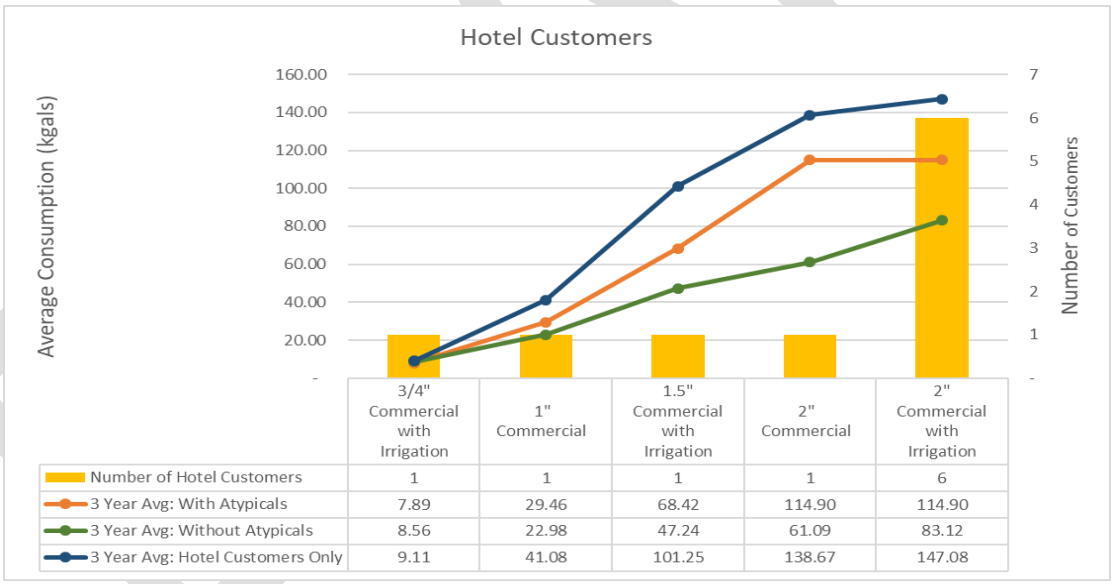
	1" Irrigation	1.5" Irrigation	2" Commercial with Irrigation	2" Irrigation	3" Commercial with Irrigation	3" Irrigation	4" Irrigation
Number of 200% ET Customers	1	1	3	10	1	3	2
3 Year Avg: With Atypicals	29.46	68.42	114.90	114.90	151.24	151.24	722.49
3 Year Avg: Without Atypicals	44.33	151.11	83.12	238.72	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 CUSOTMERS



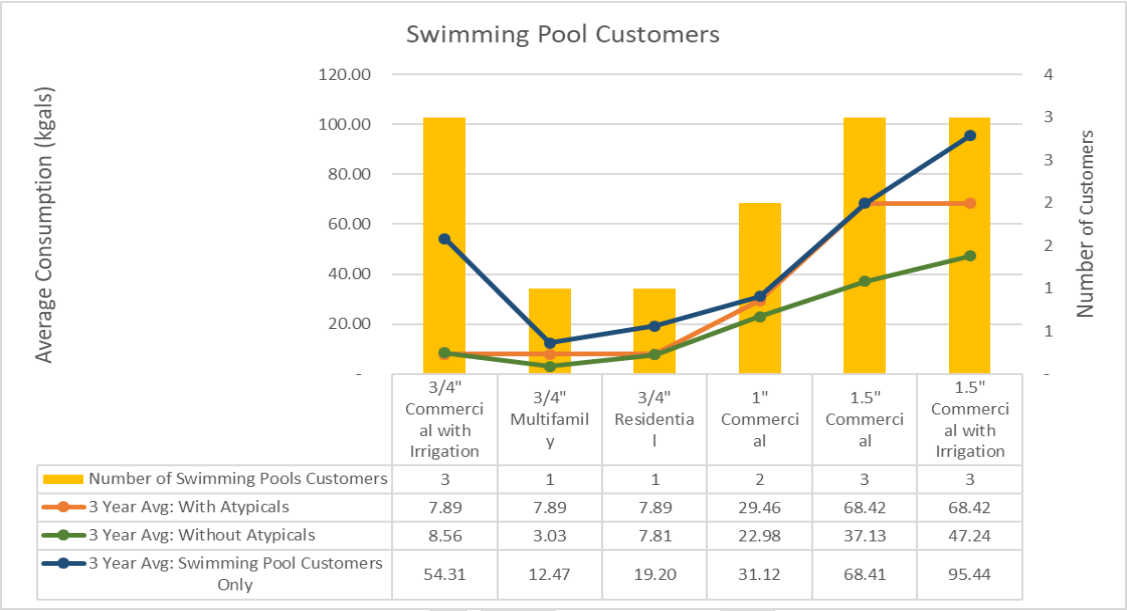
	3/4" Commercial	1" Commercial	1" Commercial with Irrigation	1.5" Commercial	1.5" Commercial with Irrigation	2" Commercial
Number of Carwash Customers	1	3	2	5	3	2
3 Year Avg: With Atypicals	7.89	29.46	29.46	68.42	68.42	114.90
3 Year Avg: Without Atypicals	9.38	22.98	30.62	37.13	47.24	61.09
3 Year Avg: 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 the years 2012-2020. Surcharge revenue funds 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

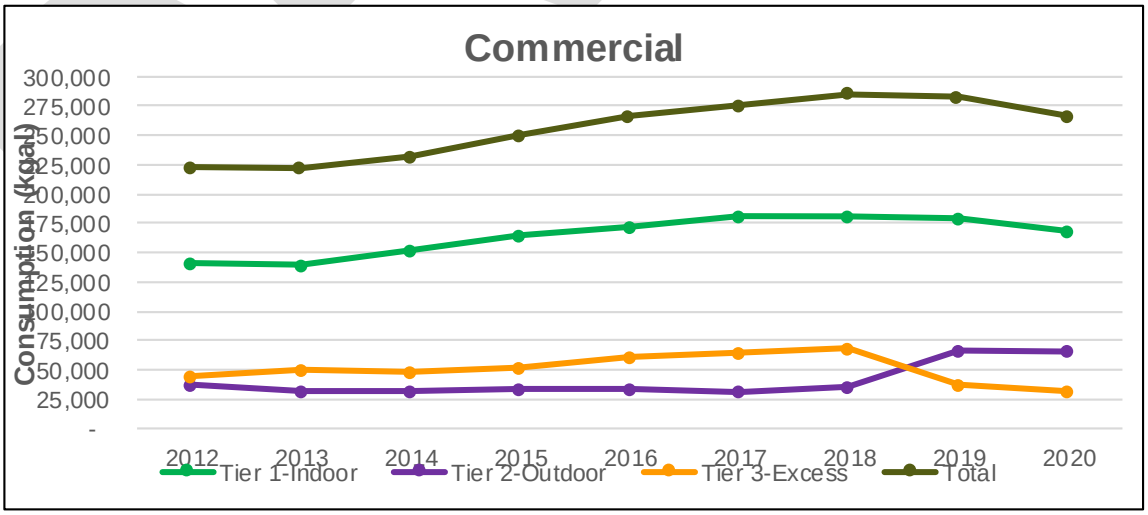


CHART 25: MULTIFAMILY CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2020

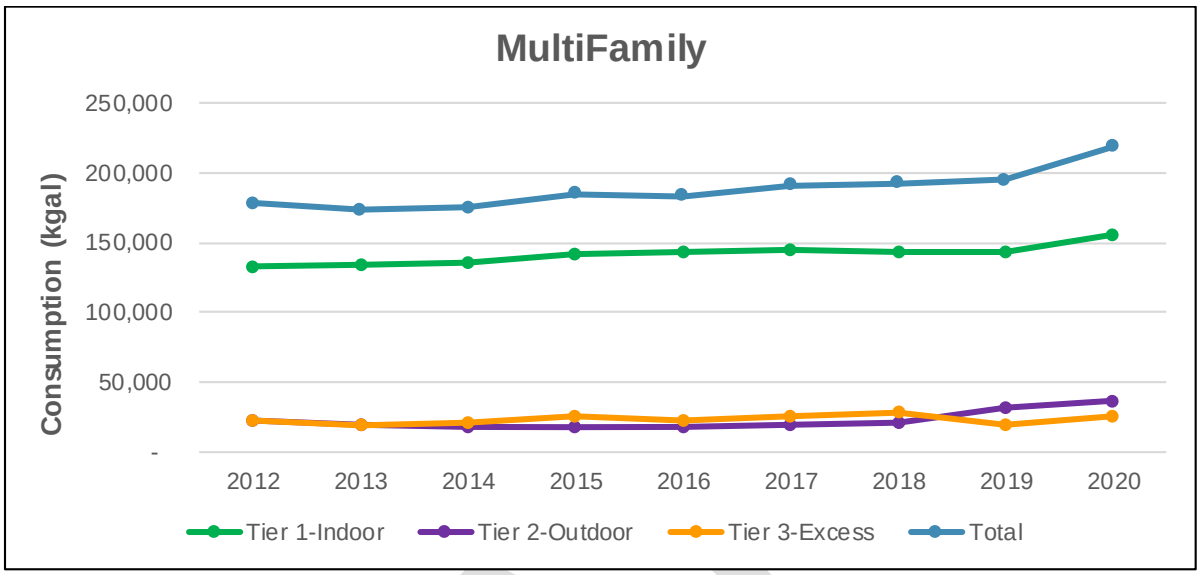


CHART 26: IRRIGATION CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2020

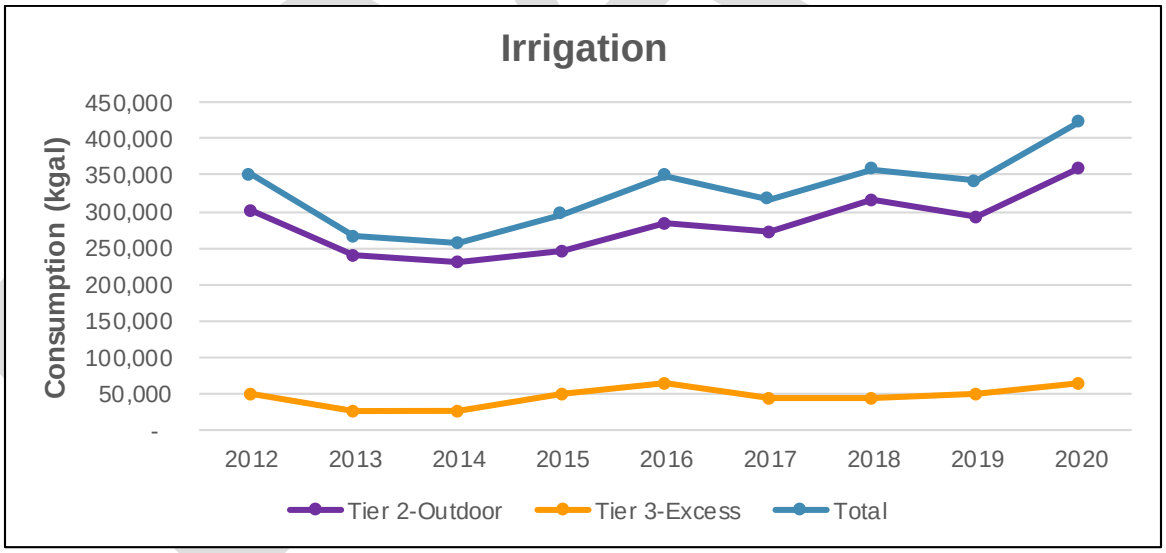


CHART 27: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2020

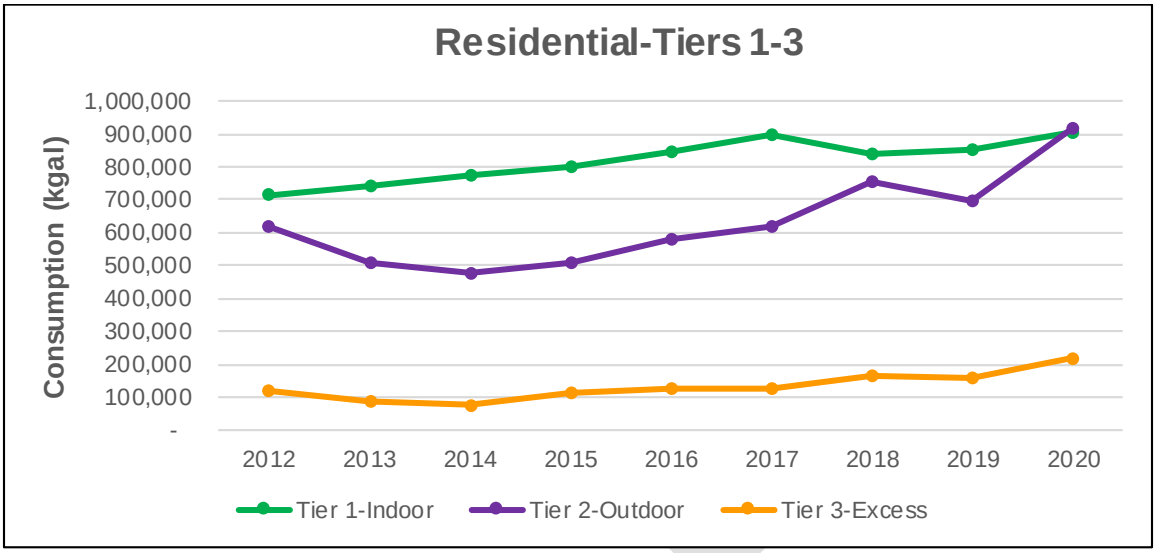
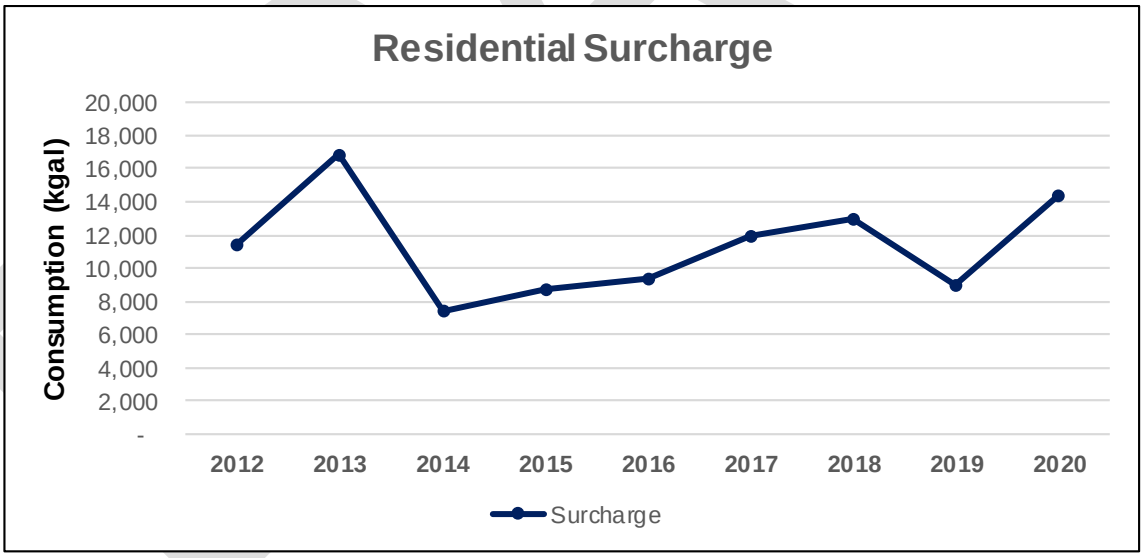


CHART 28: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE SURCHARGE ONLY 2012-2020



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

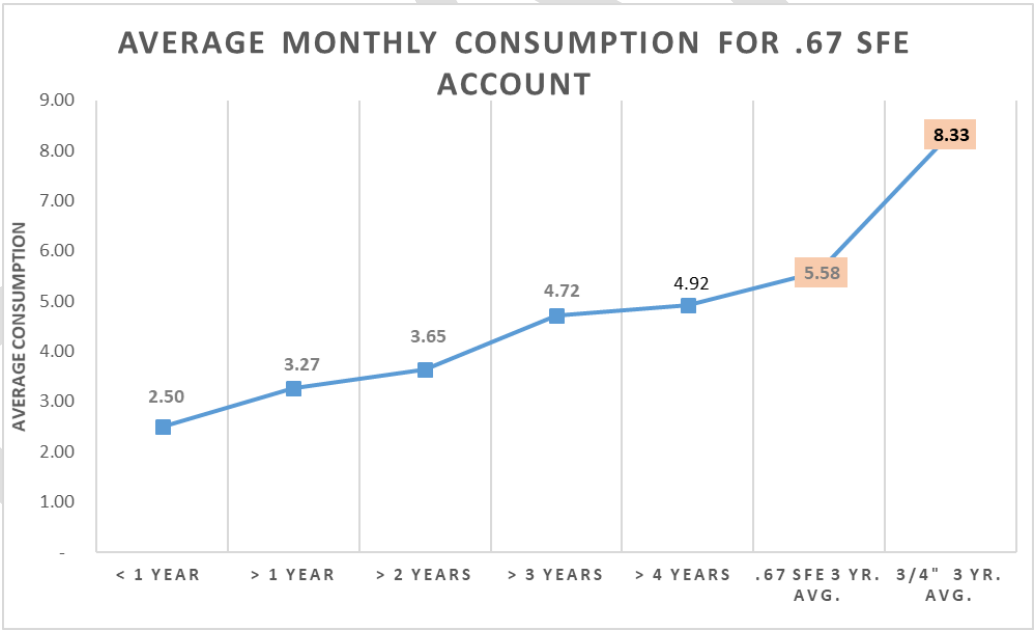
along with Surcharge usage in Chart 28. This is most likely due to the dry weather and more people at home during the pandemic.

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 a 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

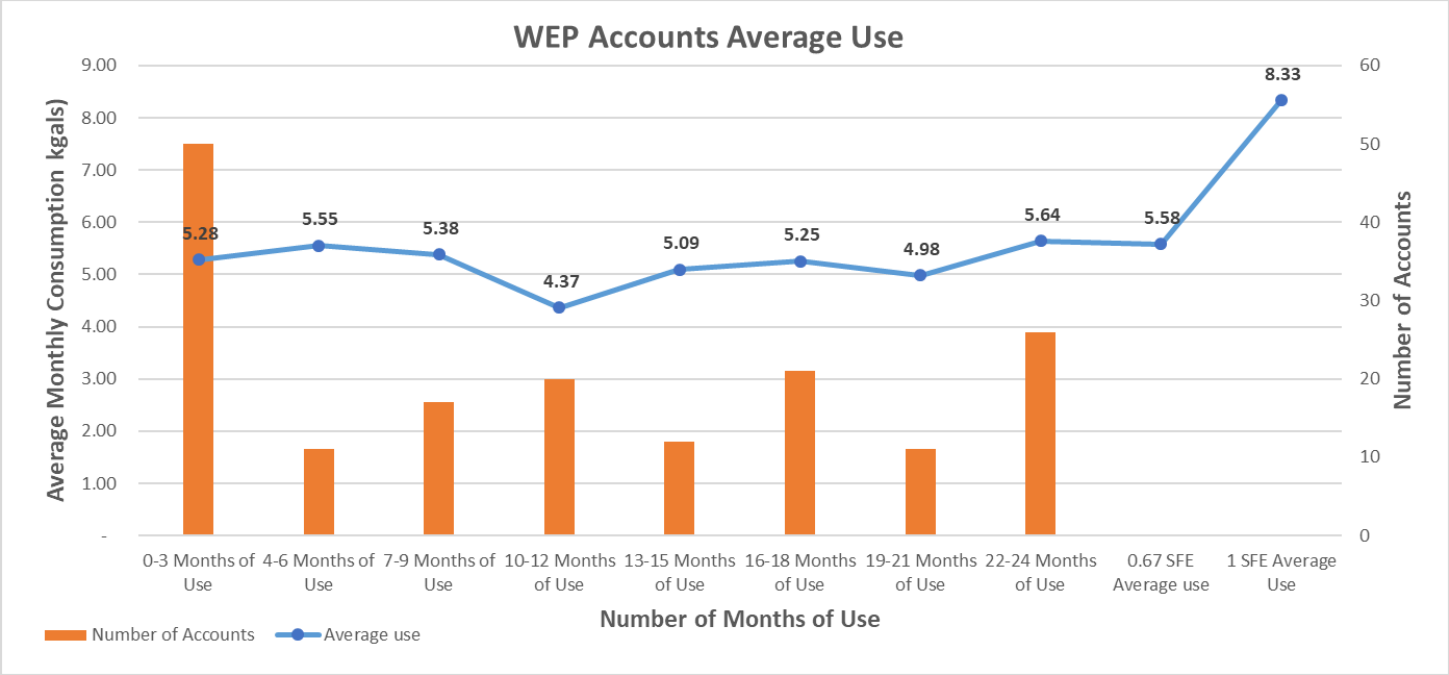
New to Castle Rock Water in 2019 were water efficiency plan accounts. These are accounts that must meet the criteria for a water efficiency plan. As of the end of 2020 there were 168 approved accounts that met the criteria. Table 8 below shows 10 customers were over the average usage in

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 kgals and above	10
5.58 - 8.33 kgals	38
2.29 - 5.58 kgals	77
0.00 - 2.29 kgals	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

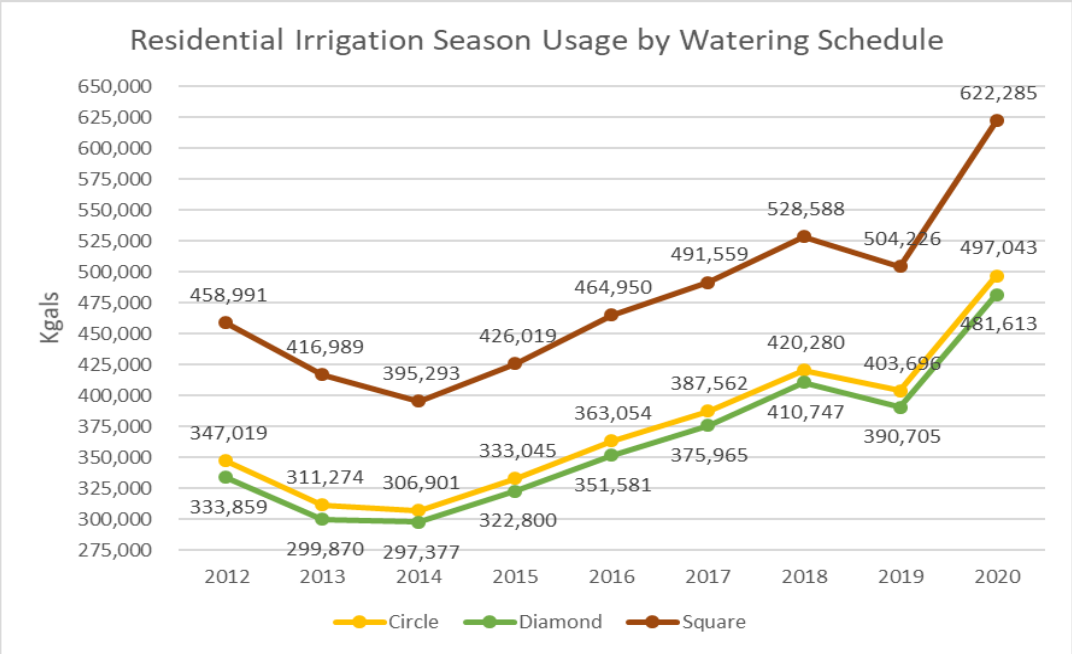
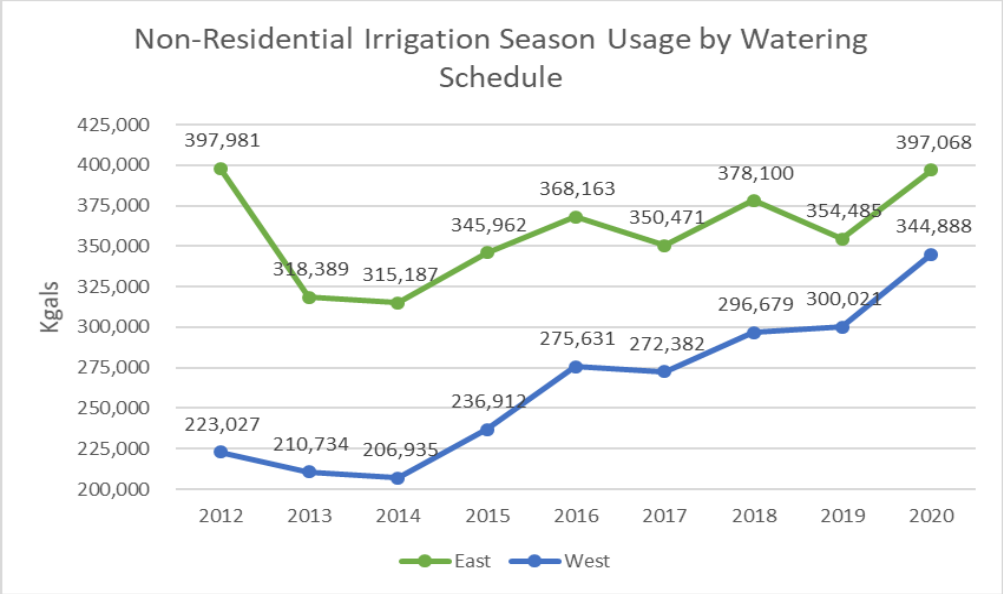


CHART 32: NON-RESIDENTIAL IRRIGATION SEASON USAGE BY WATERING SCHEDULE



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 to further analyze these statistics.

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

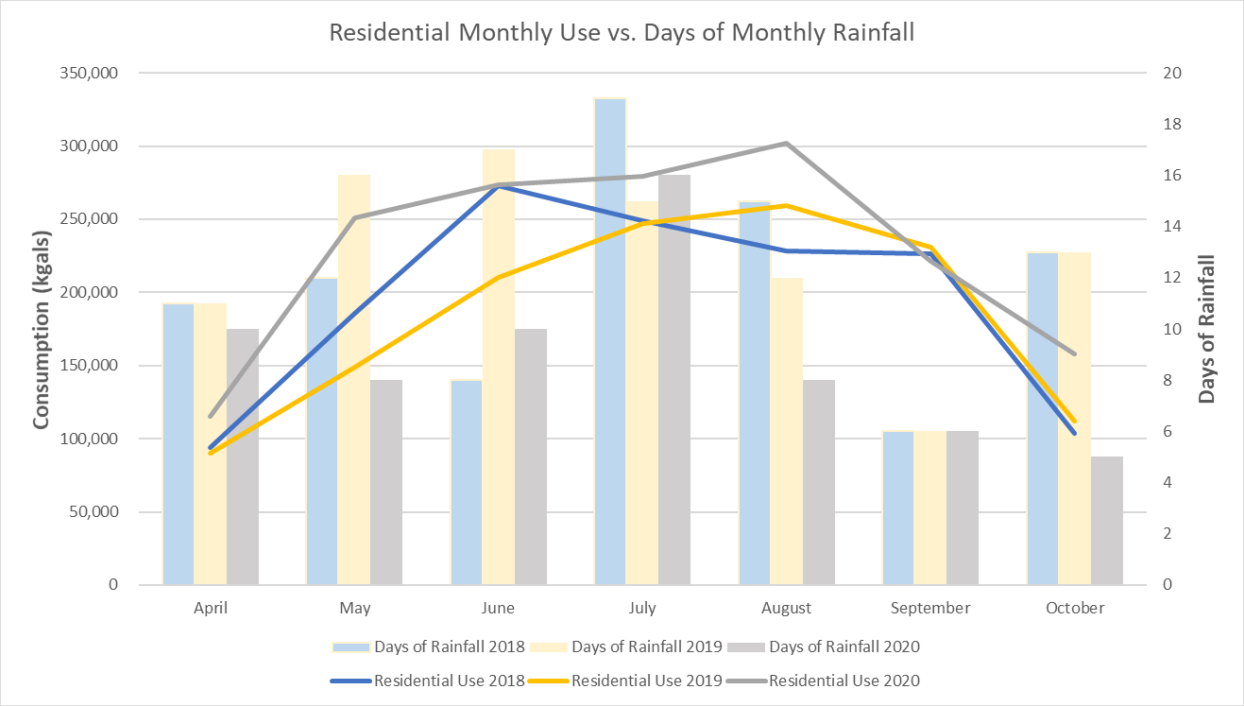


CHART 34: IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL

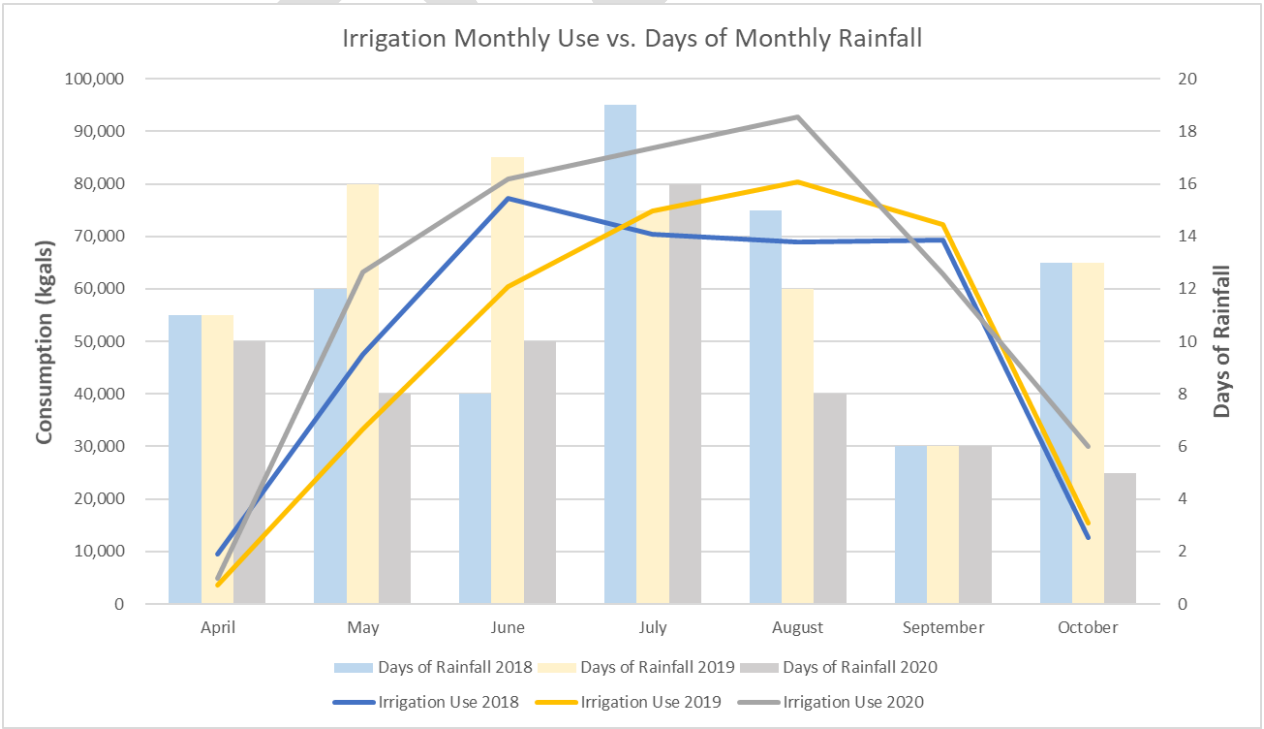


CHART 35: MULTIFAMILY WITH IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL

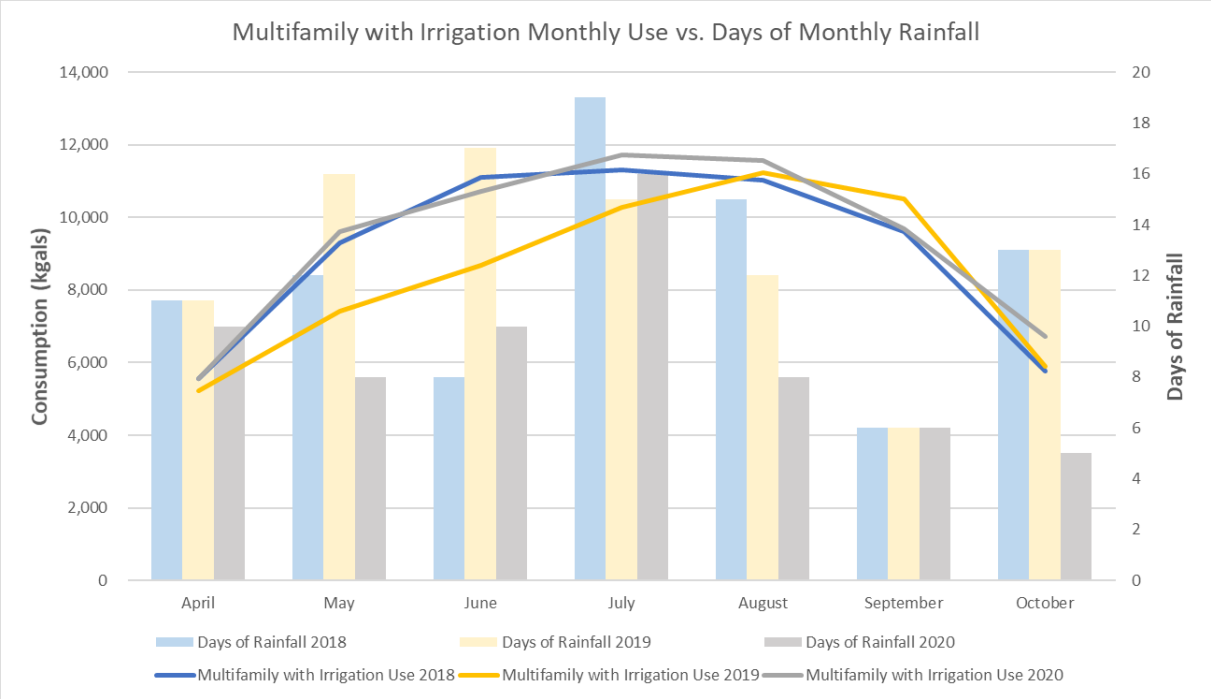
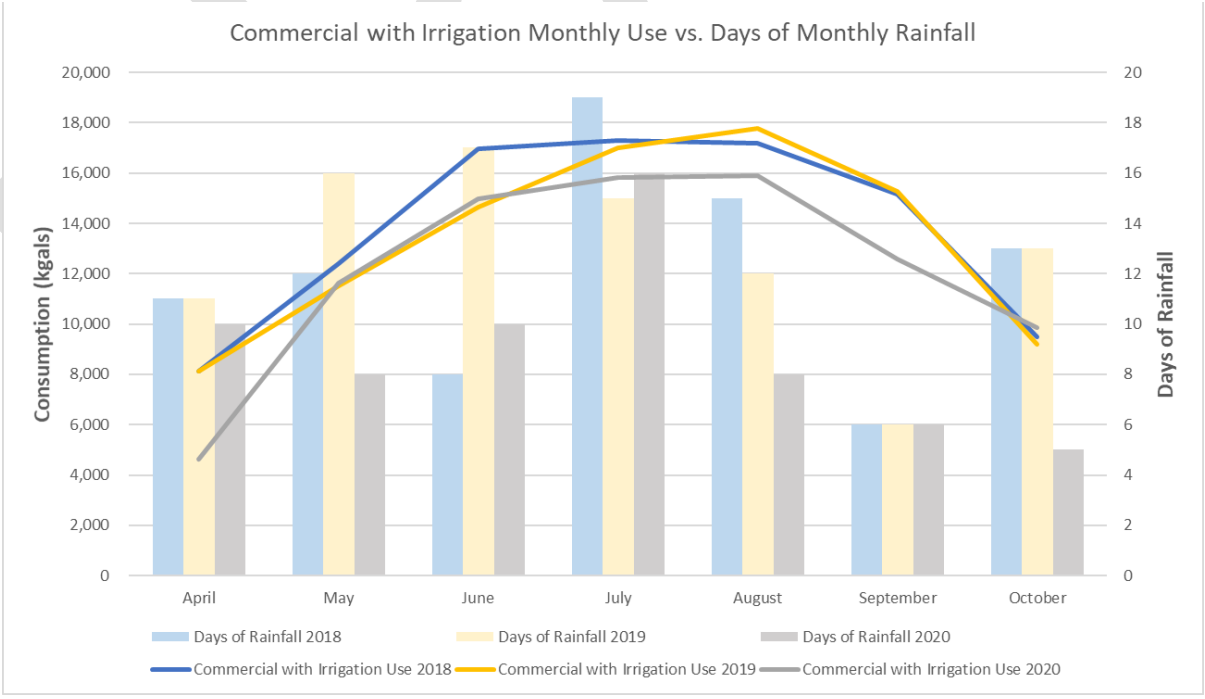


CHART 36: COMMERCIAL WITH IRRIGATION MONTHLY USAGE VS. DAYS OF MONTHLY RAINFALL



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.

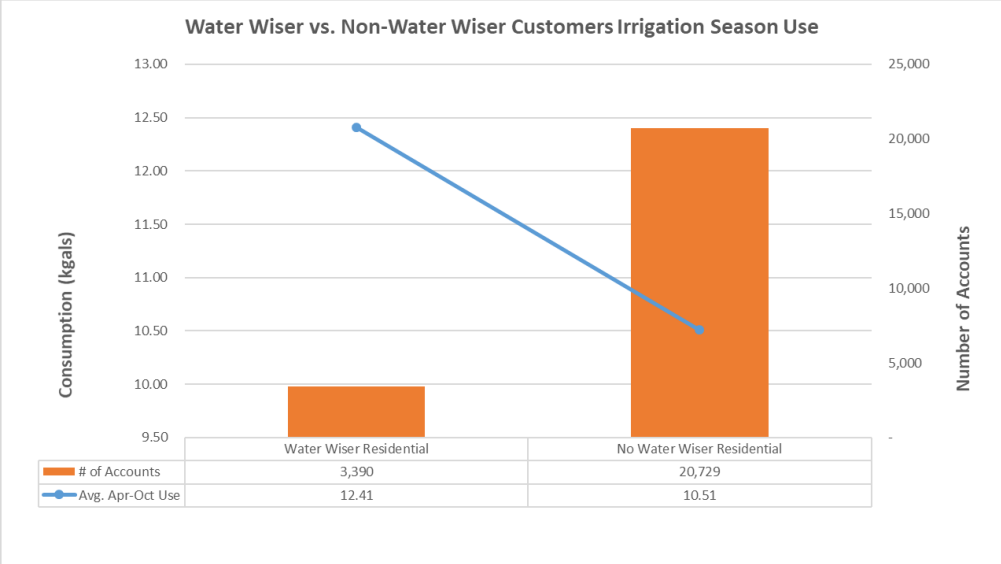
TABLE 9: BEFORE AND AFTER WATER WISER AVERAGE USAGE

# 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%

The chart 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 to see how the water wiser customers compare to the non-water wiser customers was to look at the average irrigation usage (April through October) of each customer class that has water wiser customers. This includes the residential customer class. 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

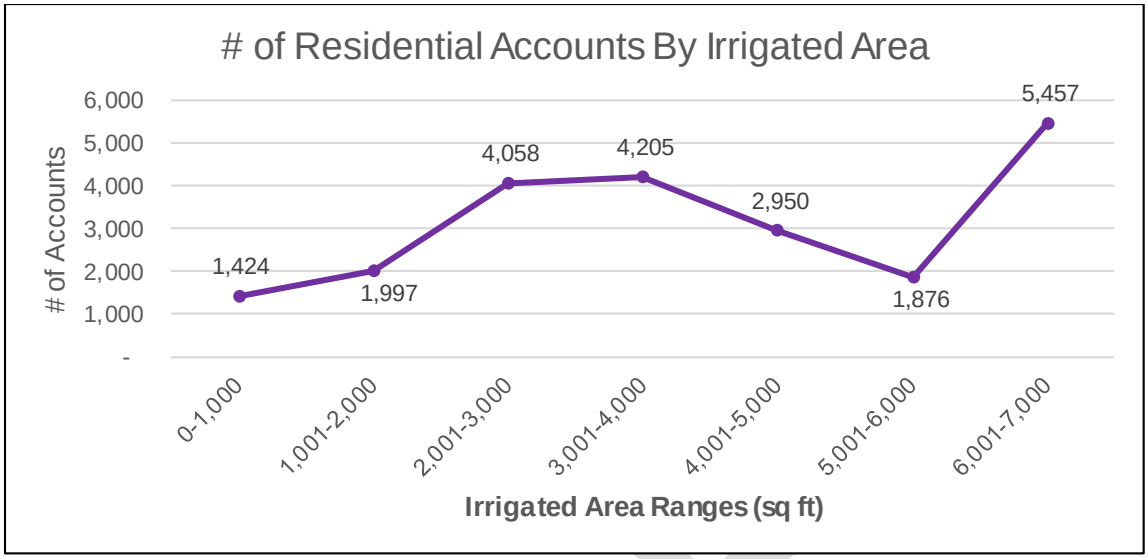


CHART 39: RESIDENTIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA

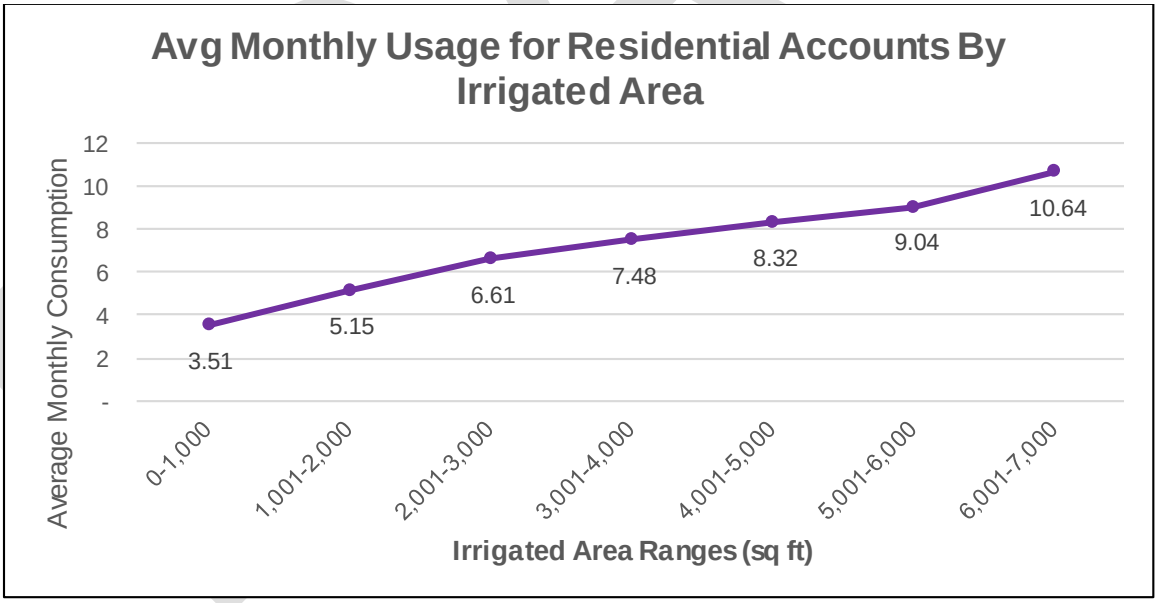


CHART 40: COMMERCIAL ACCOUNTS BY IRRIGATED AREA

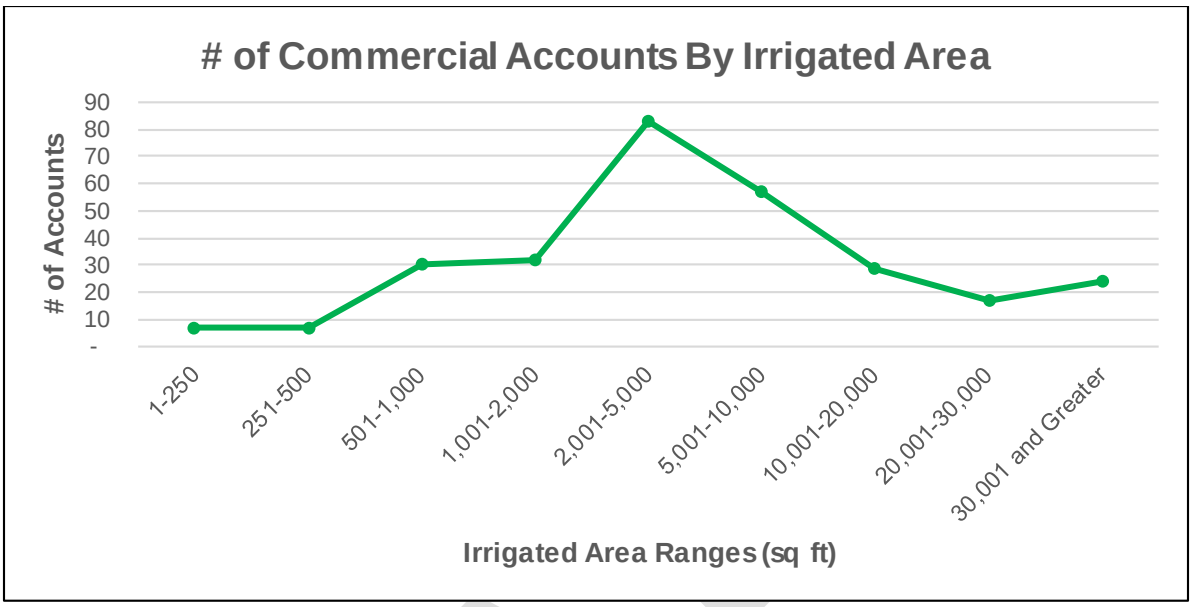
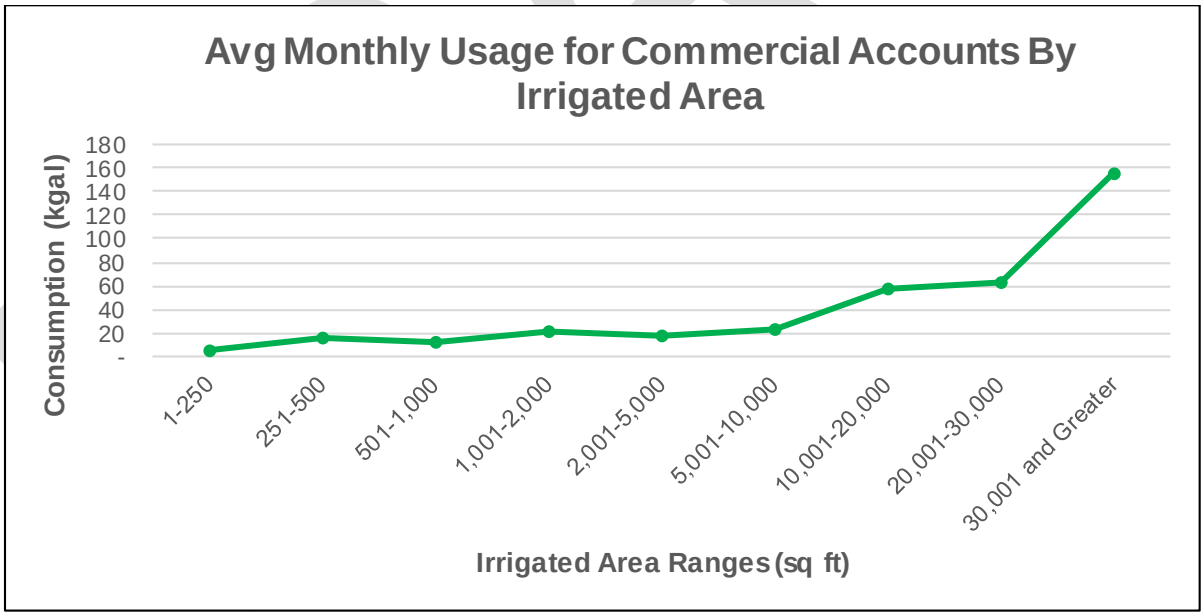


CHART 41: COMMERCIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA



HOA'S AVERAGE MONTHLY CONSUMPTION

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

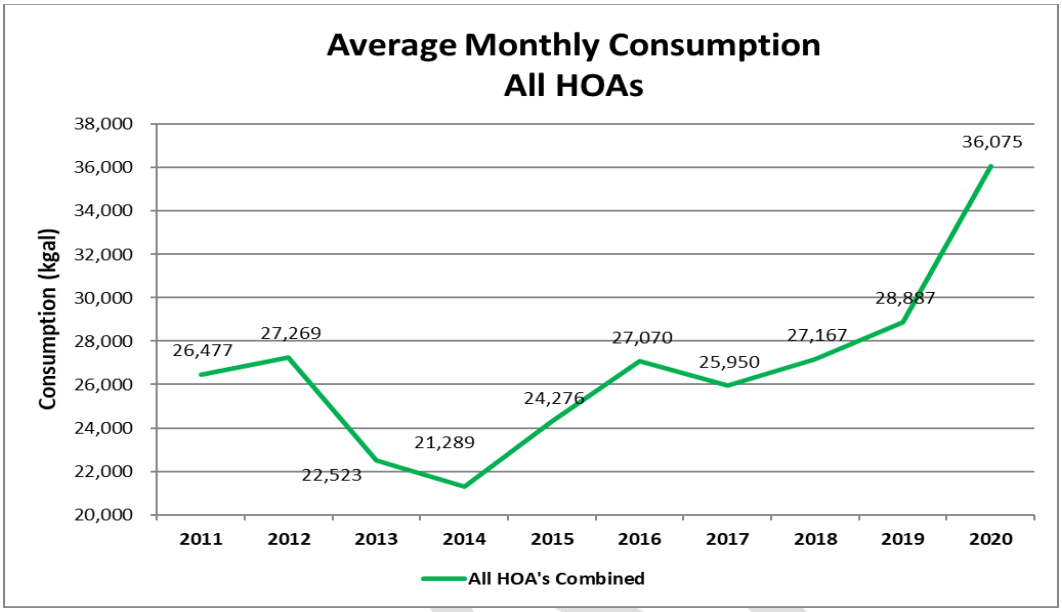
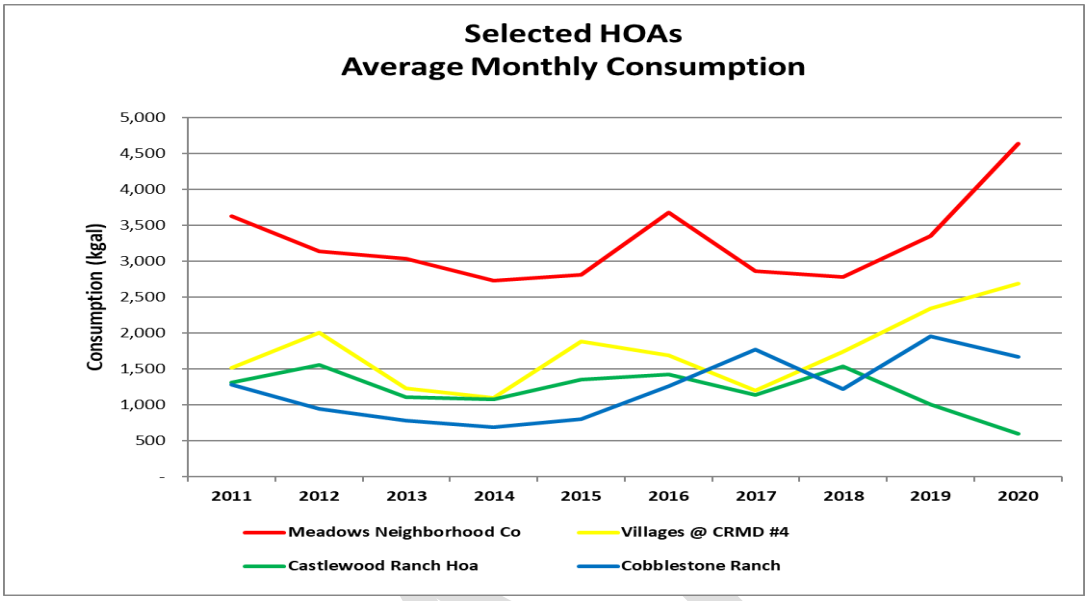


Chart 43 shows four HOAs that were selected at random out of the 98 in total to show the average monthly consumption patterns for these user types. In looking at Chart 43, it seems the Meadows Neighborhood Company is heavily impacting the overall increase in all HOA's combined for 2020 as shown in Chart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

CHART 43: SELECTED FOUR HOA'S AVERAGE MONTHLY CONSUMPTION



MONTHLY CONSUMPTION BY SUBDIVISION

CHART 44: MEADOWS AVERAGE MONTHLY CONSUMPTION

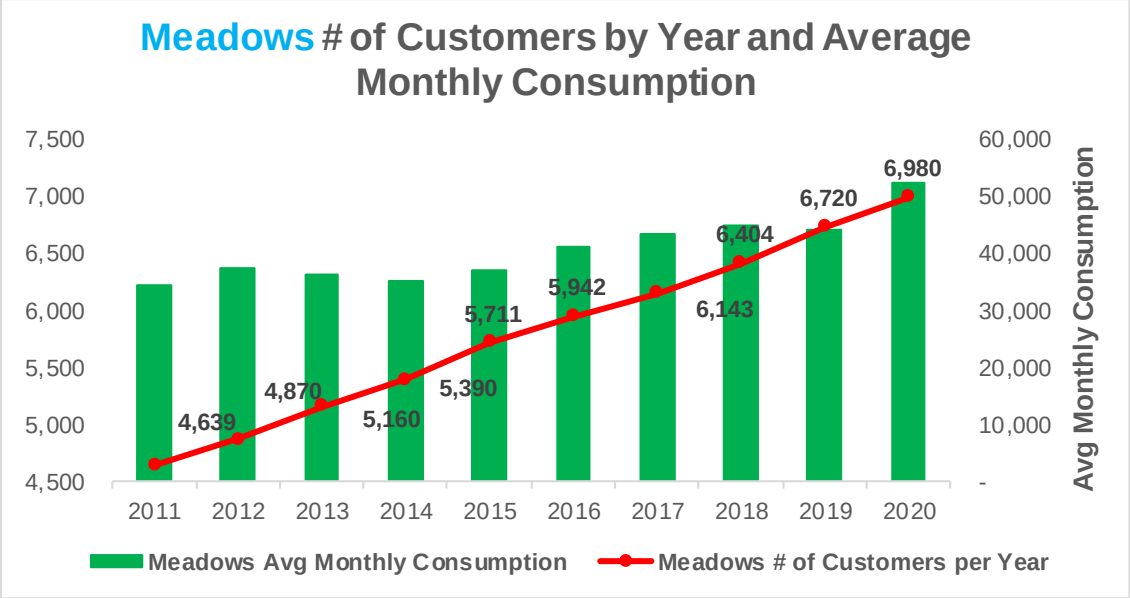


CHART 45: MEADOWS AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

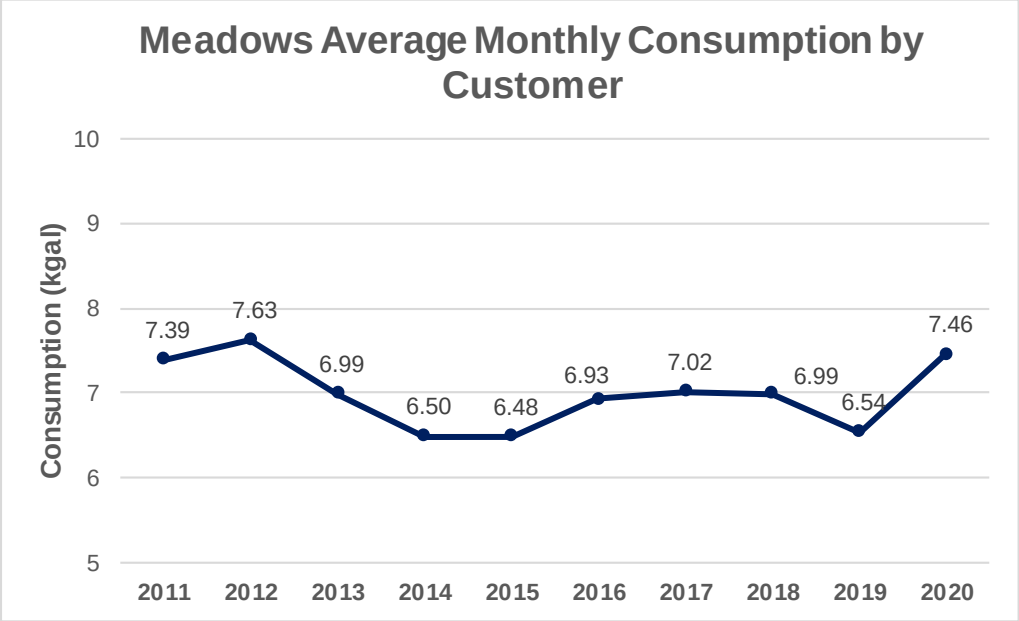


CHART 46: MEADOWS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

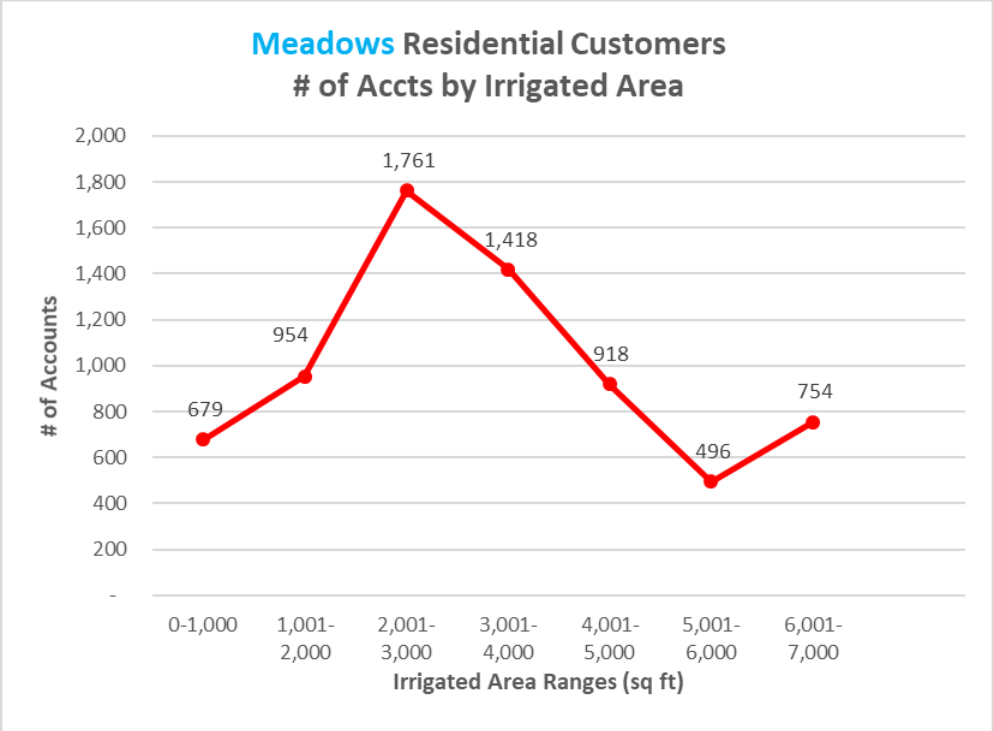


CHART 47: MEADOWS RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER

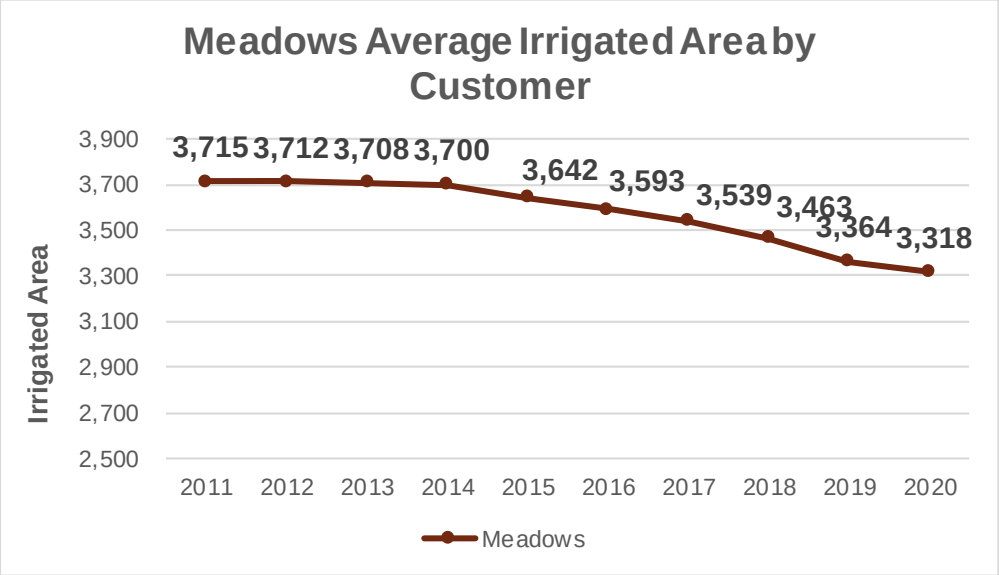


CHART 48: FOUNDERS AVERAGE MONTHLY CONSUMPTION

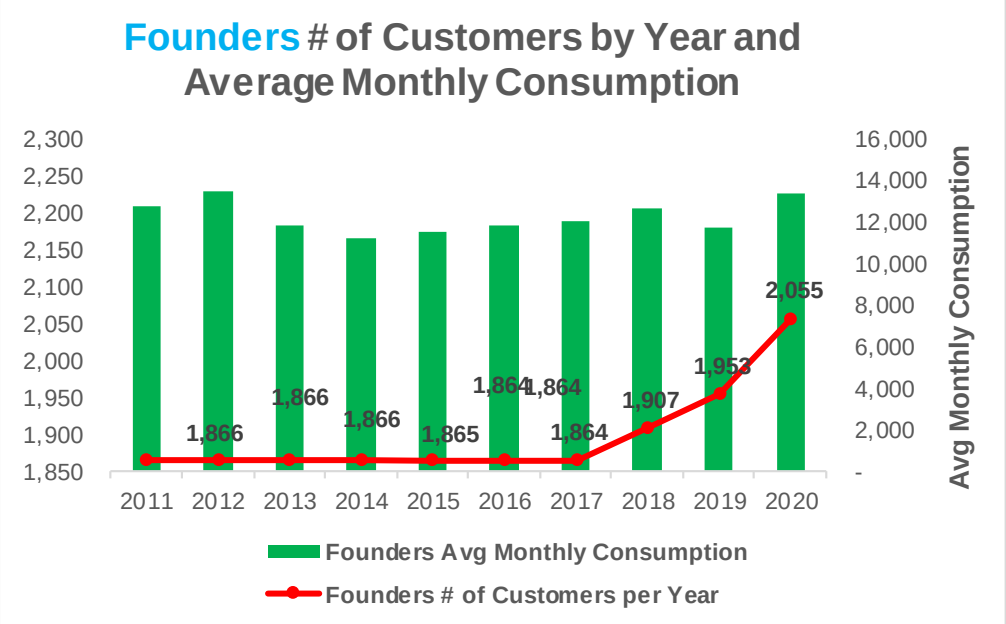


CHART 49: FOUNDERS AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

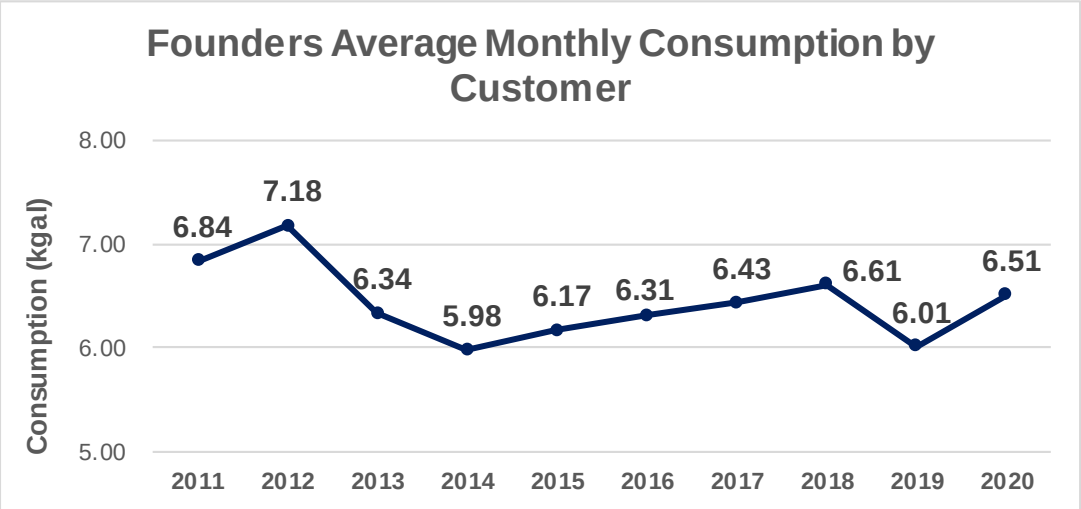


CHART 50: FOUNDERS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

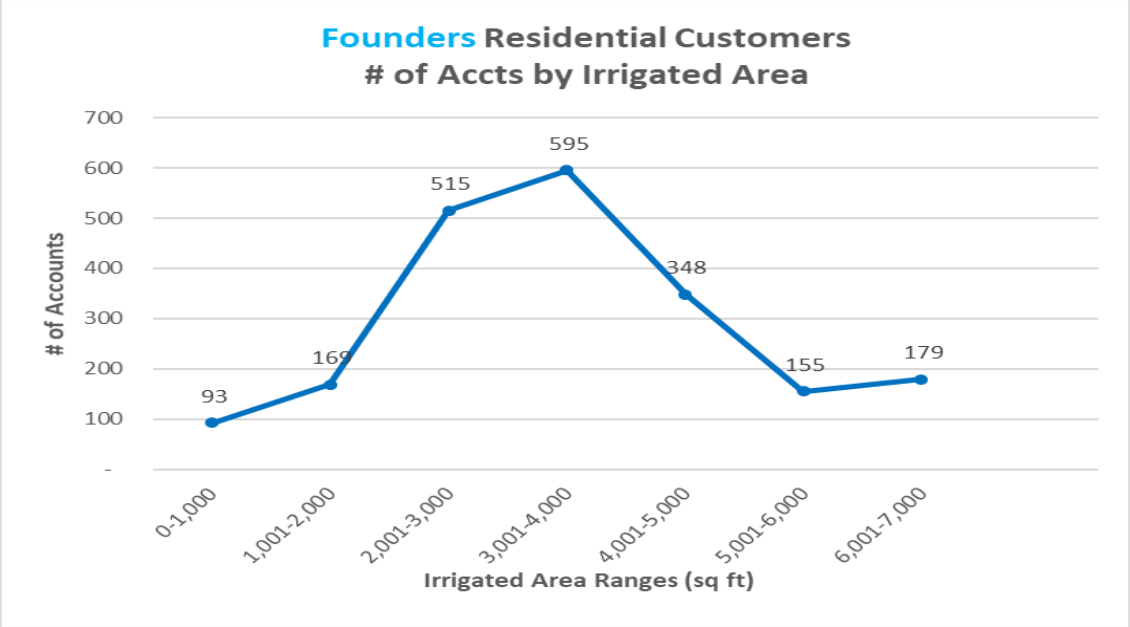
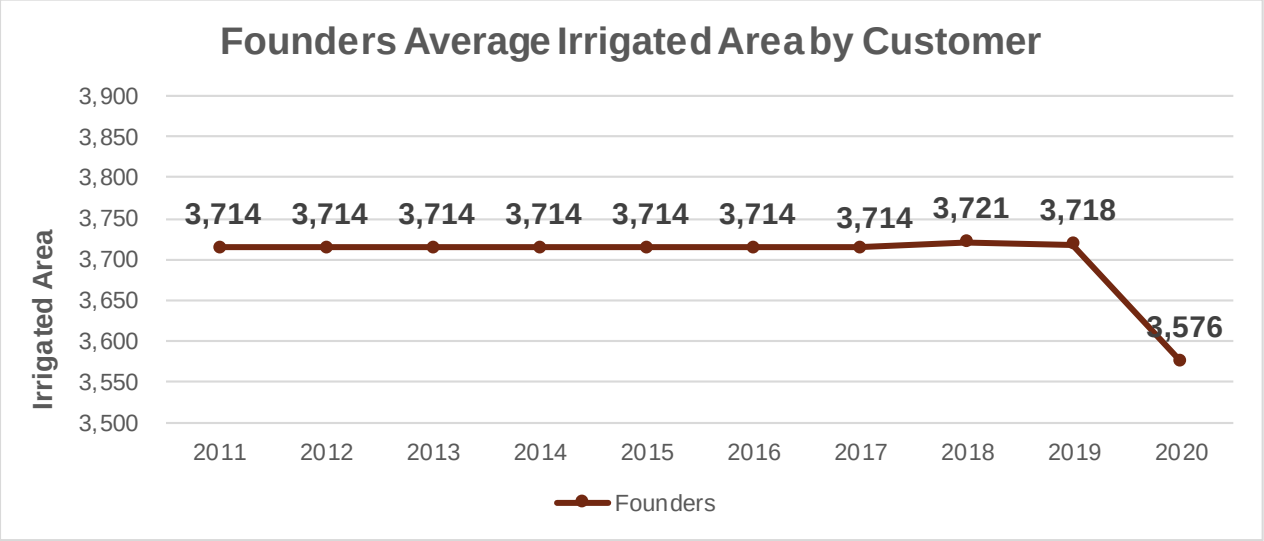


CHART 51: FOUNDERS RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER



*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

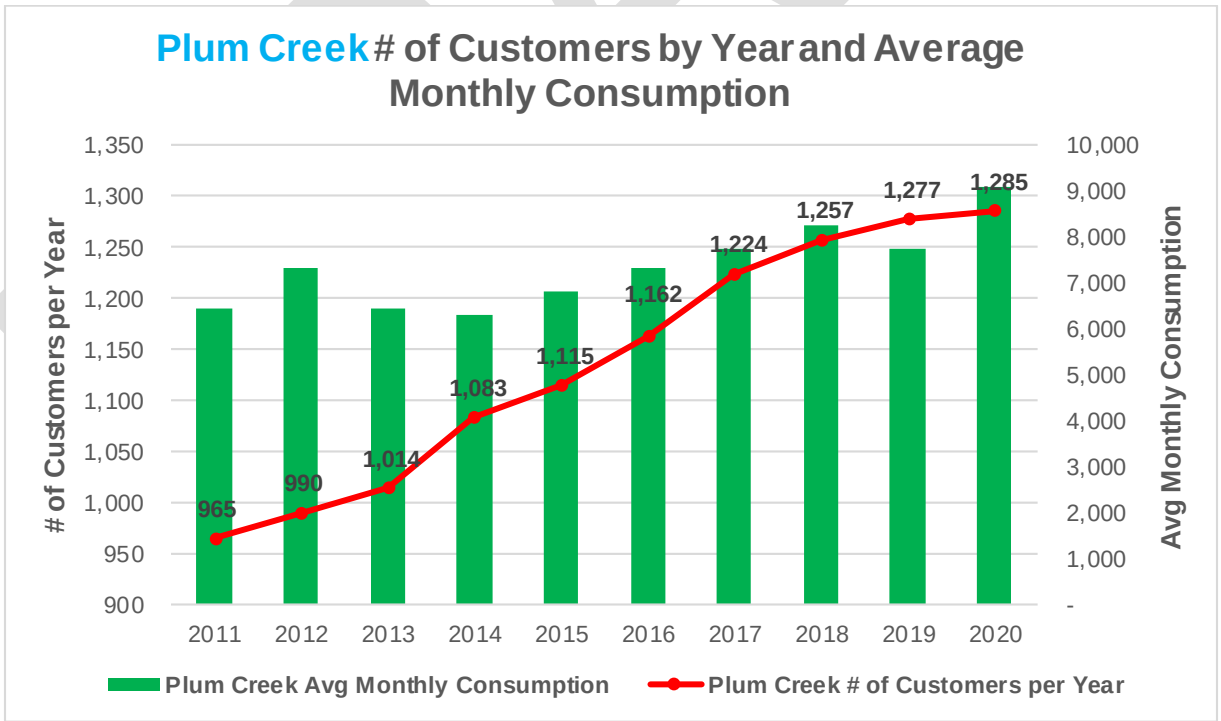


CHART 53: PLUM CREEK AVERAGE MONTHLY CONSUMPTION BY CUSTOMER

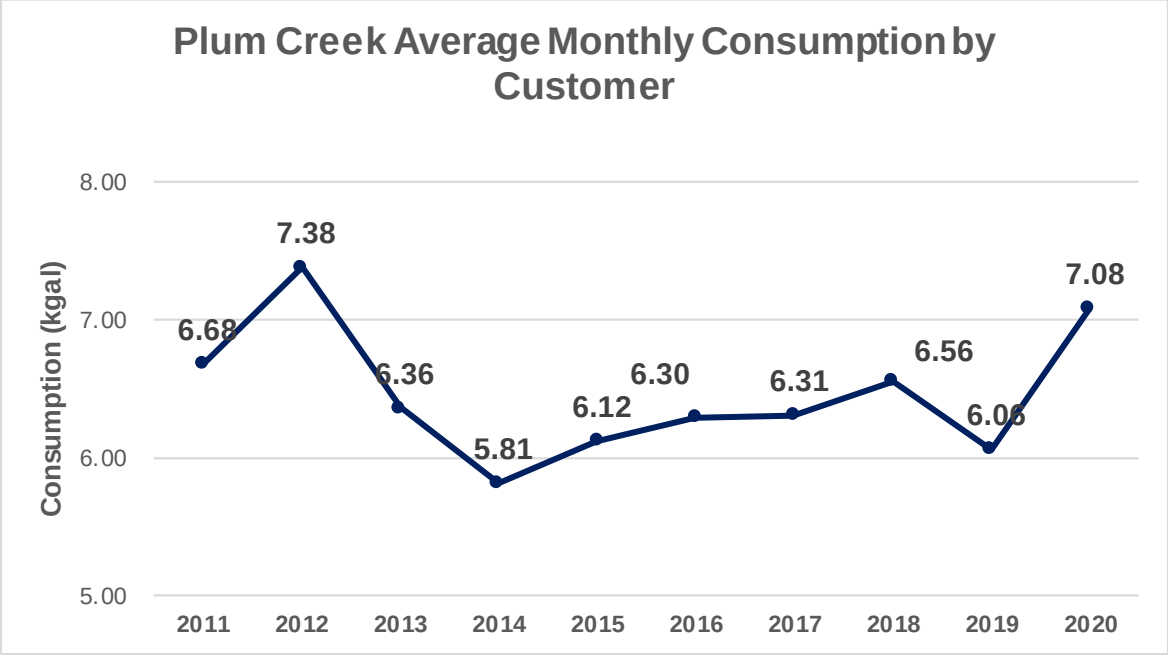


CHART 54: PLUM CREEK RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

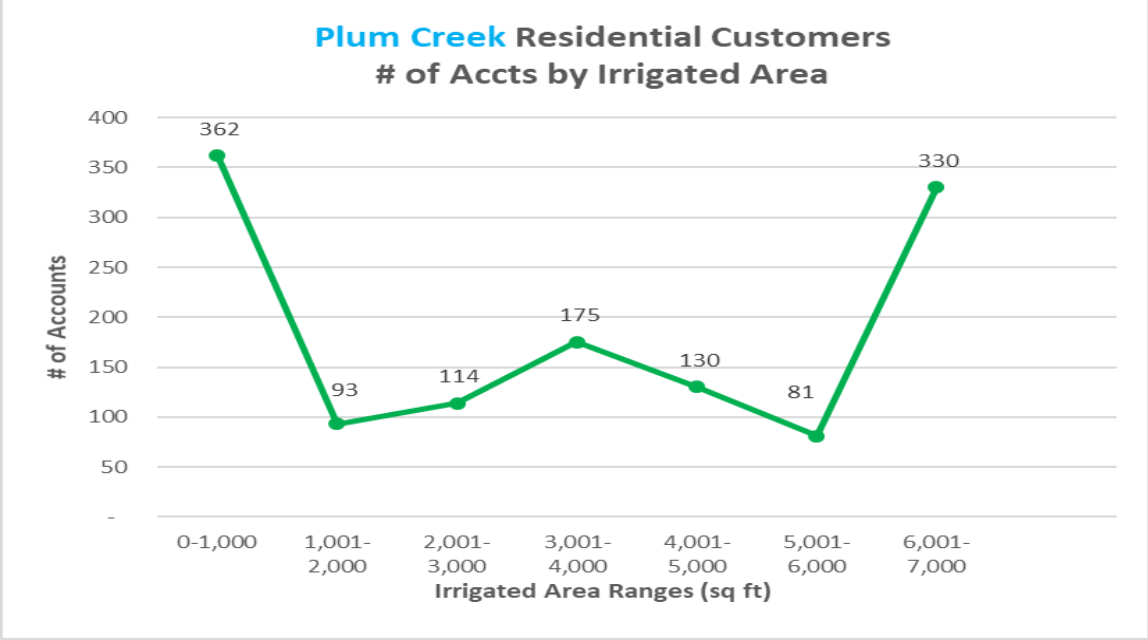
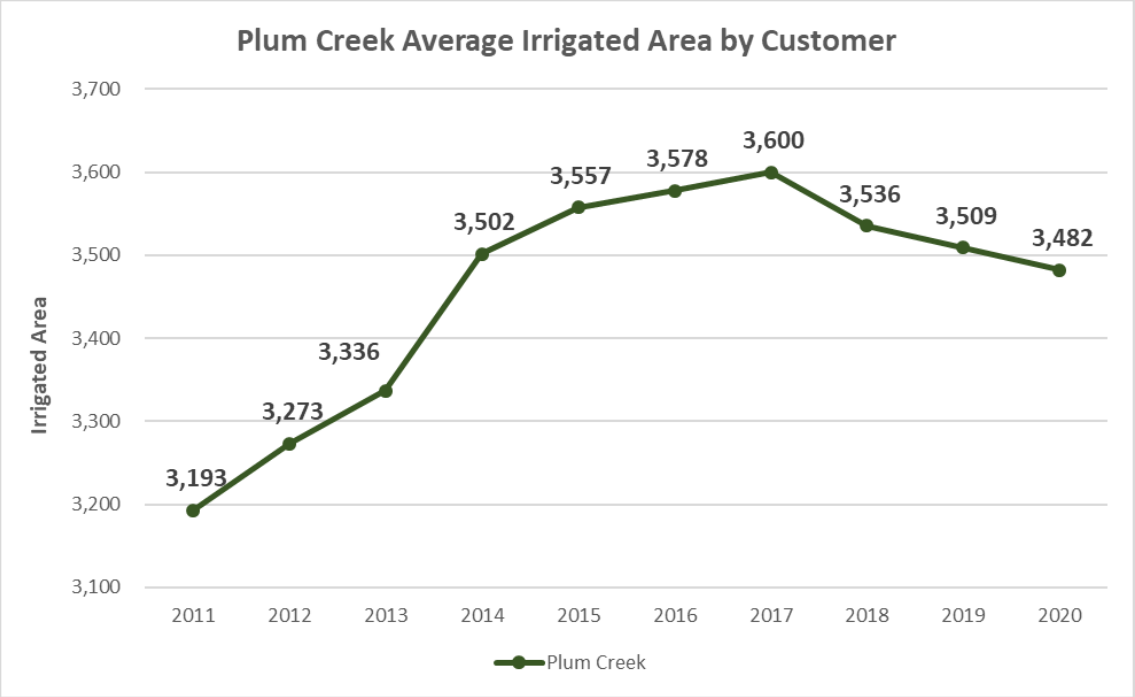


CHART 55: PLUM CREEK RESIDENTIAL ACCOUNTS IRRIGATED AREA BY CUSTOMER



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. The data indicate the need for water was down in 2020. This can be explained by contractors and other bulk users not having a need for extra water use. This could have been due to COVID as well as different scopes on the projects that are utilizing bulk water.

CHART 56: BULK HYDRANT AND BULK STATION ACCOUNTS

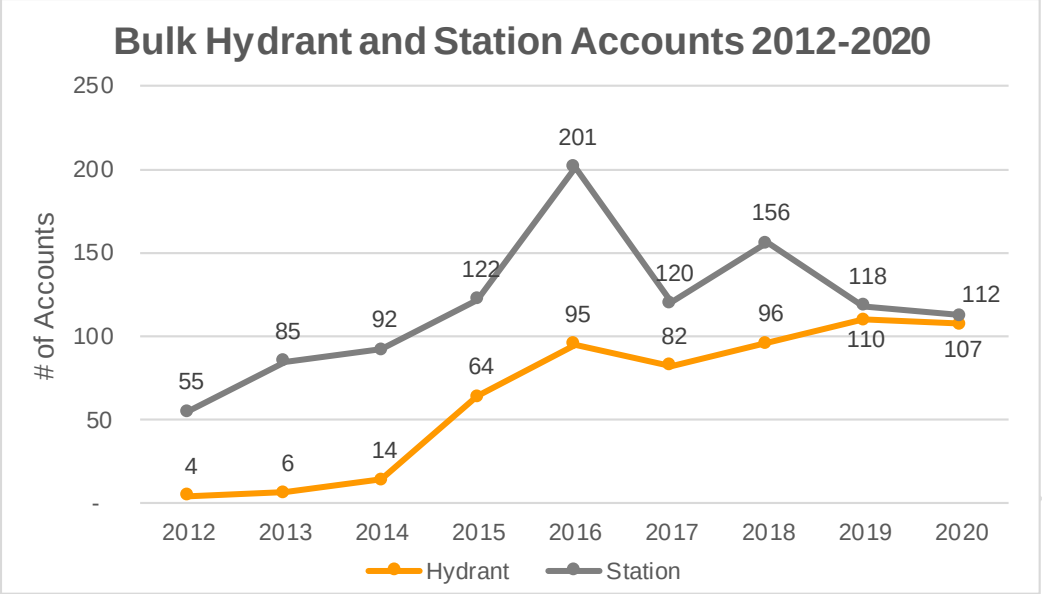


CHART 57: BULK HYDRANT USAGE

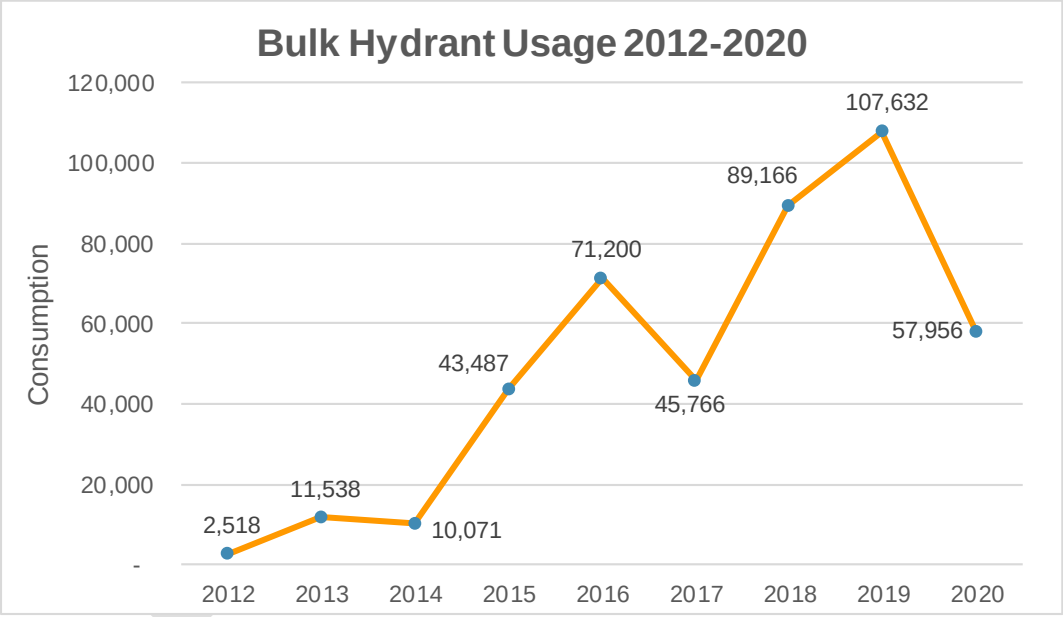
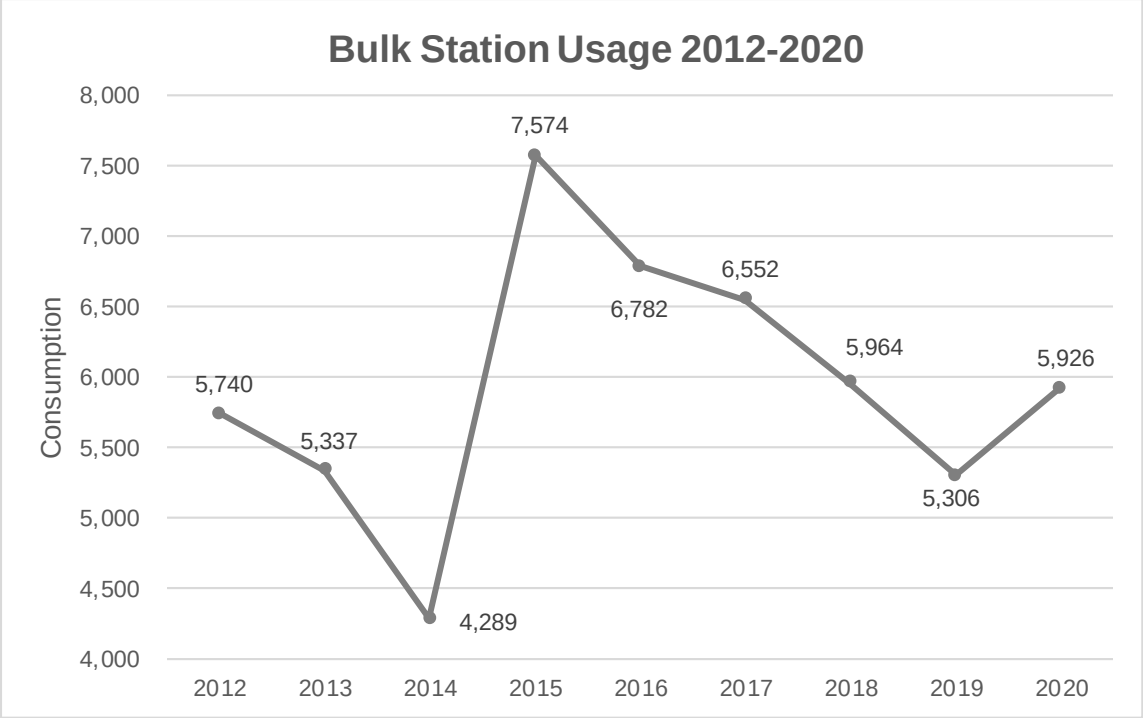


CHART 58: BULK STATION USAGE



TOWN ACCOUNT CONSUMPTION

Below is a chart showing 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

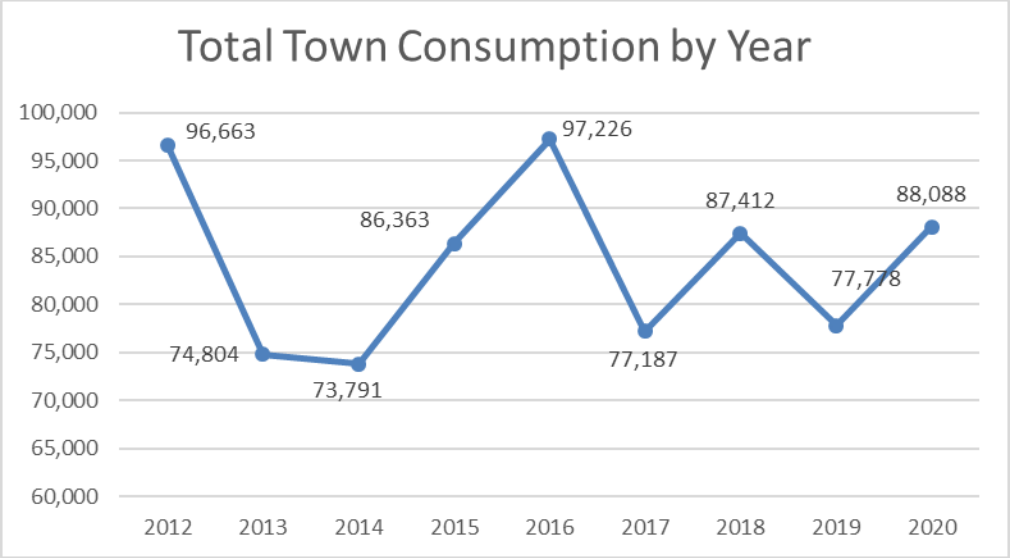


TABLE 10: TOWN CONSUMPTION BY YEAR AND DEPARTMENT (Kgal)

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) shows 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

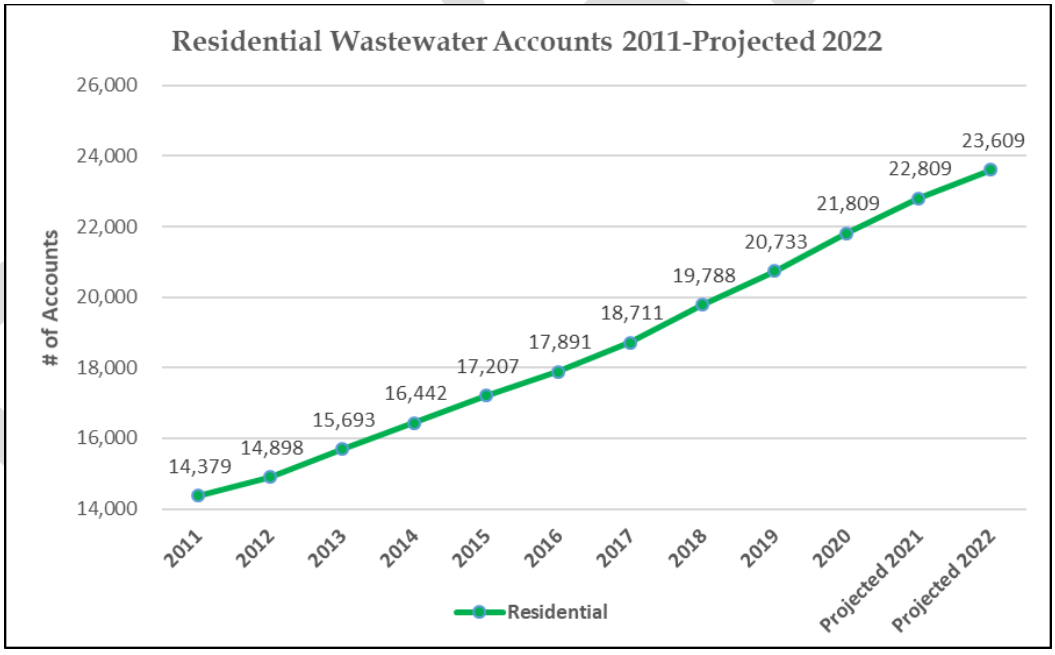
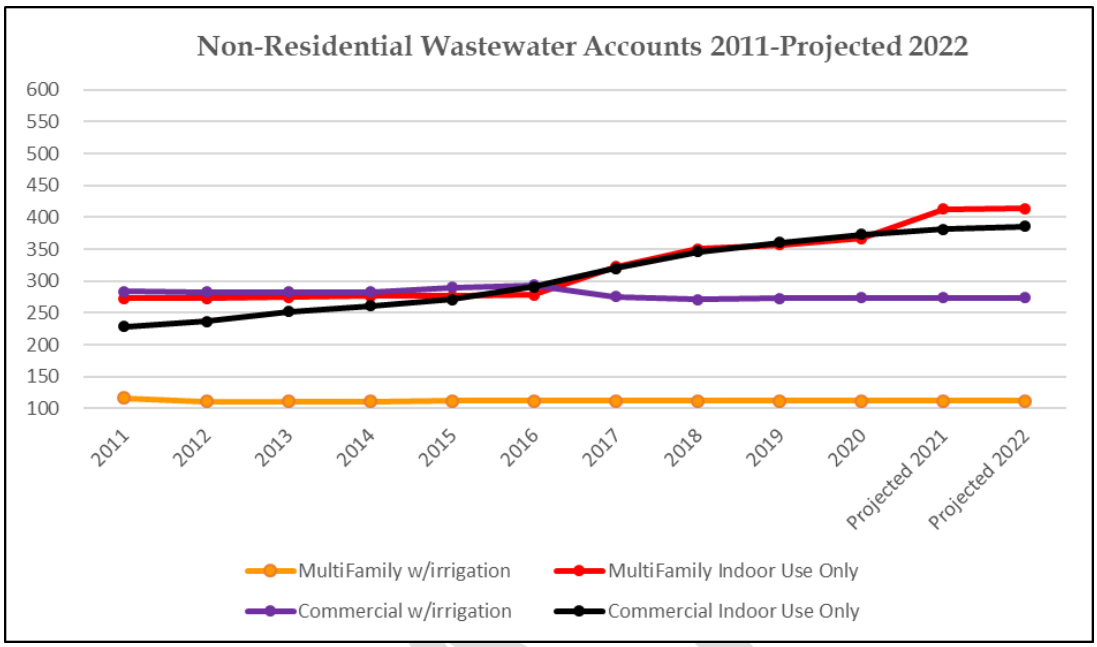


CHART 61: NON-RESIDENTIAL WASTEWATER ACCOUNTS



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:

79 Residential (0.67 SFE)
921 Residential (1 SFE)
46 Multi-Family
8 Commercial
1,054 Total

2022 Projected New Accounts by Customer Class:

63 Residential (0.67 SFE)
737 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

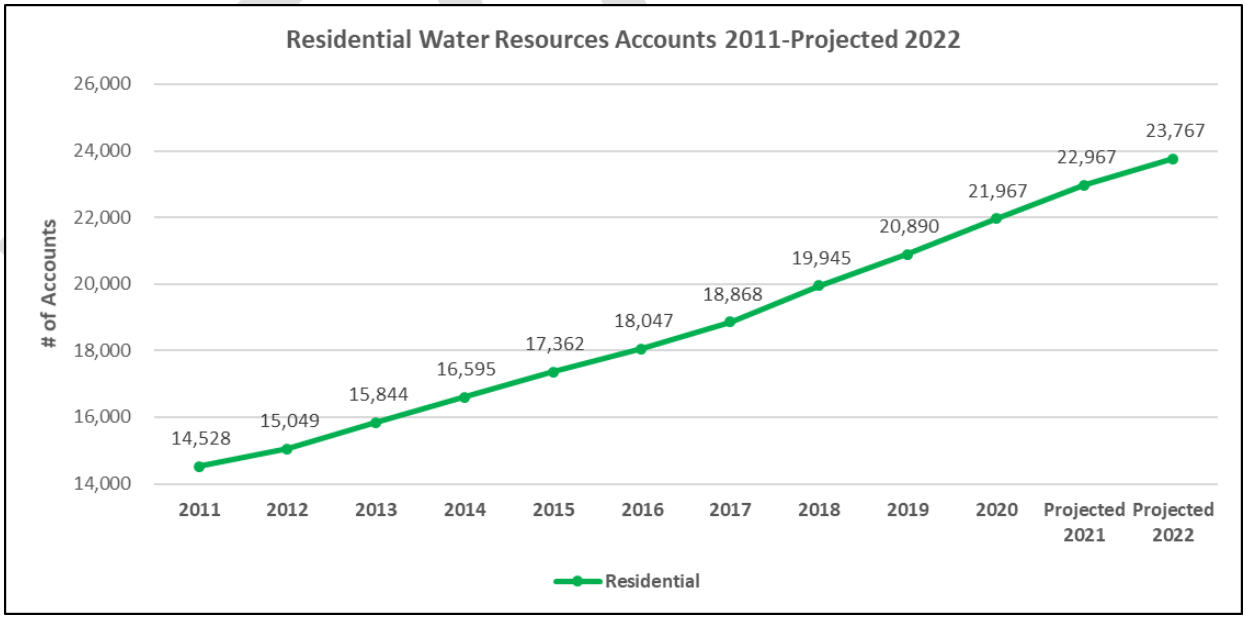
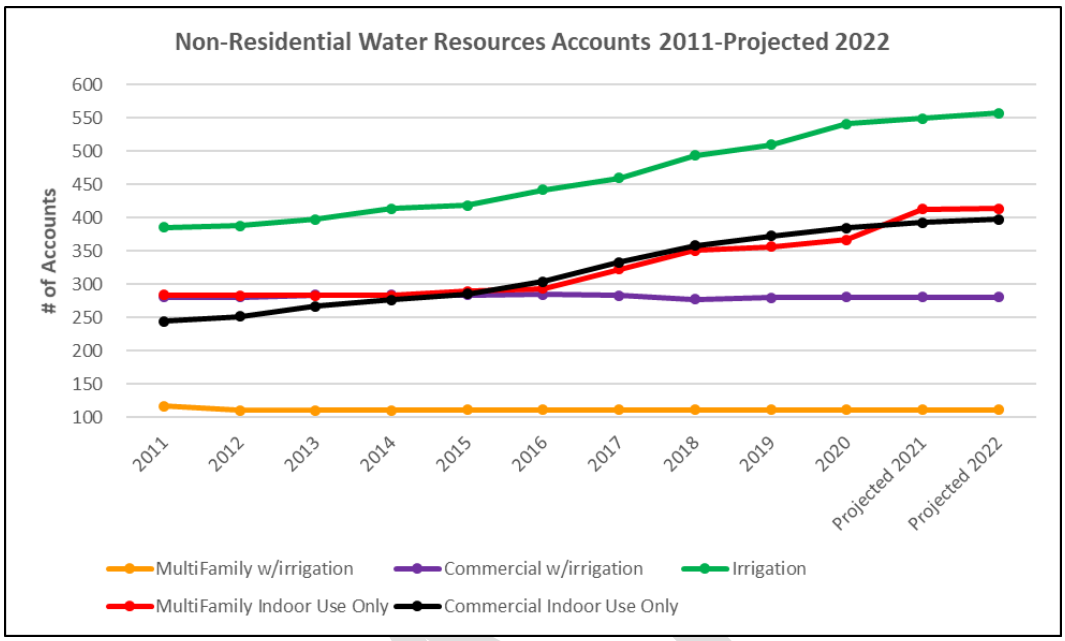


CHART 63: NON-RESIDENTIAL WATER RESOURCES ACCOUNTS



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:

79 Residential (.67 SFE)
921 Residential (1 SFE)
46 Multi-Family
8 Commercial
8 Irrigation
1,062 Total

2022 Projected New Accounts by Customer Class:

63 Residential (.67 SFE)
737 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.

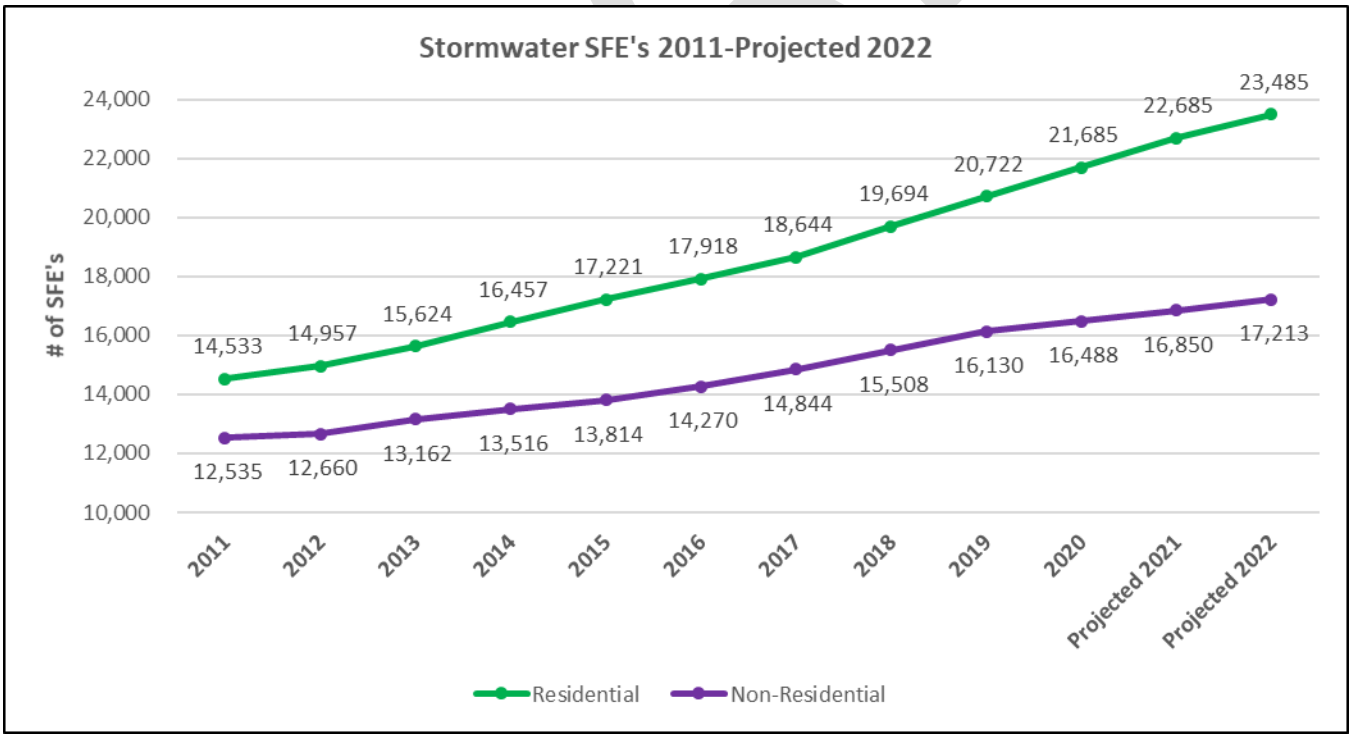
STORMWATER ENTERPRISE FUND

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 for FY2022.