CUSTOMER CHARACTERISTICS ANALYSIS

2019 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 FY2018. 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 FY2019 and FY2020.

An average consumption based on the most current three years (2016-2018) 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.

These individual three-year average consumption calculations provide the basis for meter equivalency factors. Starting in 2010 the Town implemented 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 (2016-2018) 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 calculate a typical customer's annual bill.

Billed usage by tier from 2012-2018 by customer class is analyzed to see if customers are staying within their budgeted 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 and surcharge (over 40,000 gallons per month).

We also look at the customers with a .67 SFE to see if their consumption patterns are meeting the intent of the program, to use a 3rd less water than an average ¾" residential customer's usage. Additional information such as .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.

Other areas within the study include consumption patterns based on watering schedules, consumption patterns based on water wiser designations, customer classes consumption based on irrigated areas, consumption patterns for customers designated as HOA's, bulk water accounts consumption and Town accounts consumption patterns over time.

Like the water fund, we also chart the number of accounts from the latest 2018 billing data plus growth projections 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 is the unit of measure in the other enterprise funds.

Various pieces of information from this analysis found throughout the individual sections of this report integrate 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 (Jan18-Dec18). This shows that 21,647 customers were receiving water service during this capture period. The FY2017 accounts based on 12 months of billing data (Jan17-Dec17) showed 20,472 customers were receiving water service. There are 1,175 more accounts in FY2018 than FY2017. 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 determine existing versus new system capacities and then used in the calculations within the cost of service models.

TABLE 1: ACCOUNTS BY METER SIZE & CUSTOMER CLASS (FY2018)

Meter Size	Residential	Multifamily	Commercial	Bulk	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	1,194	-	-	-	23	4	7	1,228
3/4"	18,728	14	127	96	152	101	120	19,338
1"	23	25	69	-	103	94	91	405
1.5"	-	55	50	-	137	109	81	432
2"	-	15	25	-	81	41	45	207
3"	-	2	5	-	7	2	14	30
4"	-	1	-	-	2	-	2	5
6"	-	-	2	-	-	-	-	2
Total	19,945	112	278	96	505	351	360	21,647

Chart 1 below shows the growth in residential accounts from 2011-2018 and the projected growth for FY2019 and FY2020. The projected growth for FY2019 and FY2020 remains strong at 800 permits forecasted for 2019 and 750 for 2020. The Town's Development Services Department provides the projected growth in accounts by customer class. Since 2013, the average number of accounts added per year is approximately 850.

CHART 1: RESIDENTIAL WATER ACCOUNTS

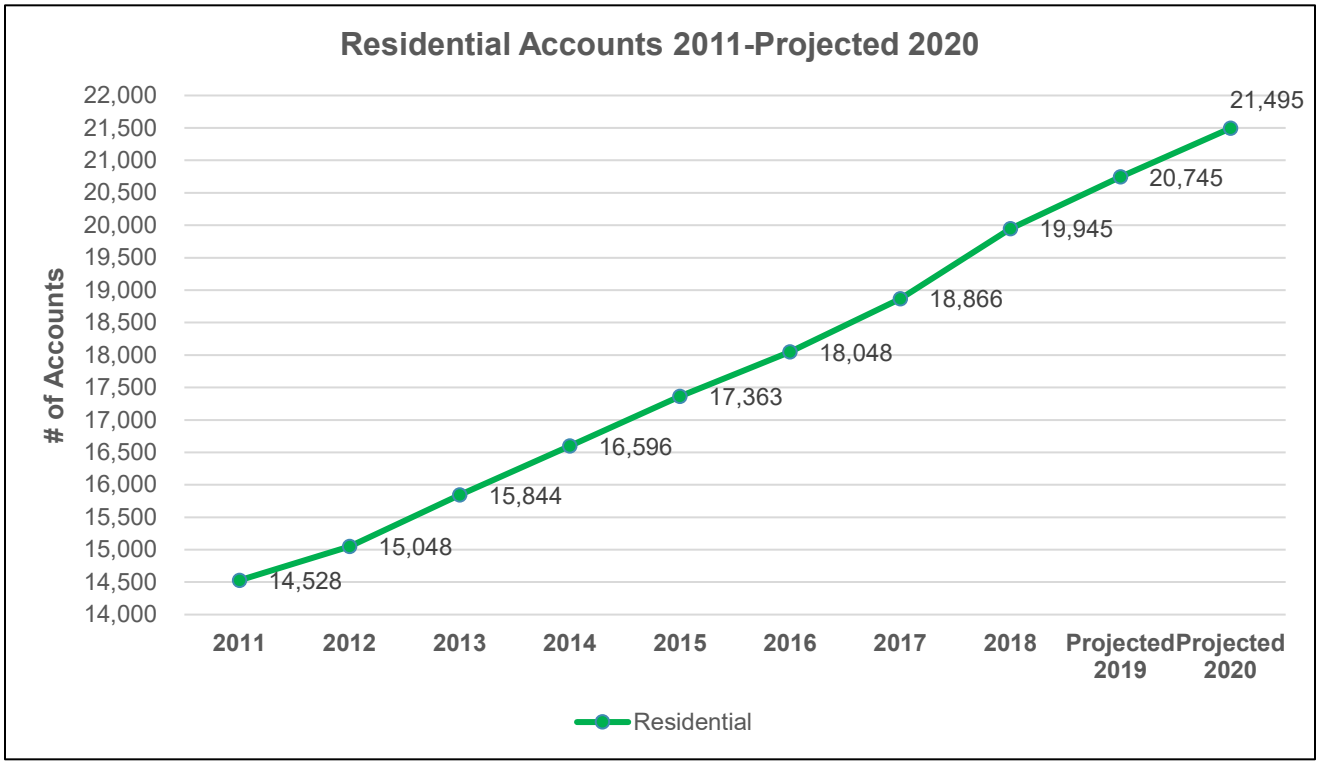
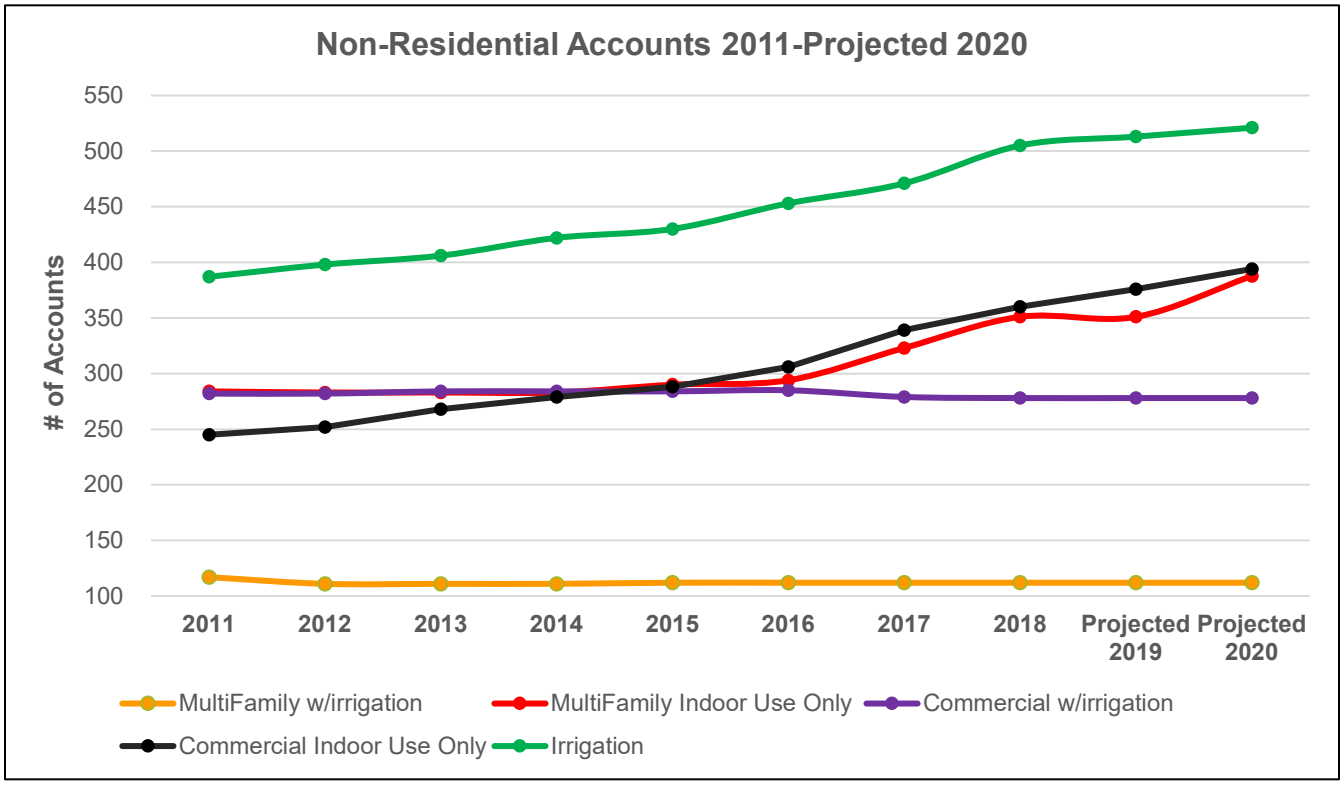


Chart 2 shows the number of non-residential accounts from 2011-2018. Over the last two years, we have started to see multifamily indoor use only actual accounts increasing with growth projections for this type of account increasing even further in FY2019 and FY2020. We are also seeing this trend in commercial indoor use only and irrigation customer classes due to new development.

CHART 2: NON-RESIDENTIAL WATER ACCOUNTS



Castle Rock Water projects FY2020 water accounts by using FY2018 billing data plus the projected growth for FY2019 and FY2020. The FY2020 water accounts are projected to equal 23,188, (21,495 for residential and 1,693 for non-residential). Growth projections are as follows by customer class:

2019 Projected Accounts by Customer Class:

48	Residential (.67 SFE)
752	Residential (1 SFE)
16	Commercial
8	Irrigation
824	Total

2020 Projected Accounts by Customer Class:

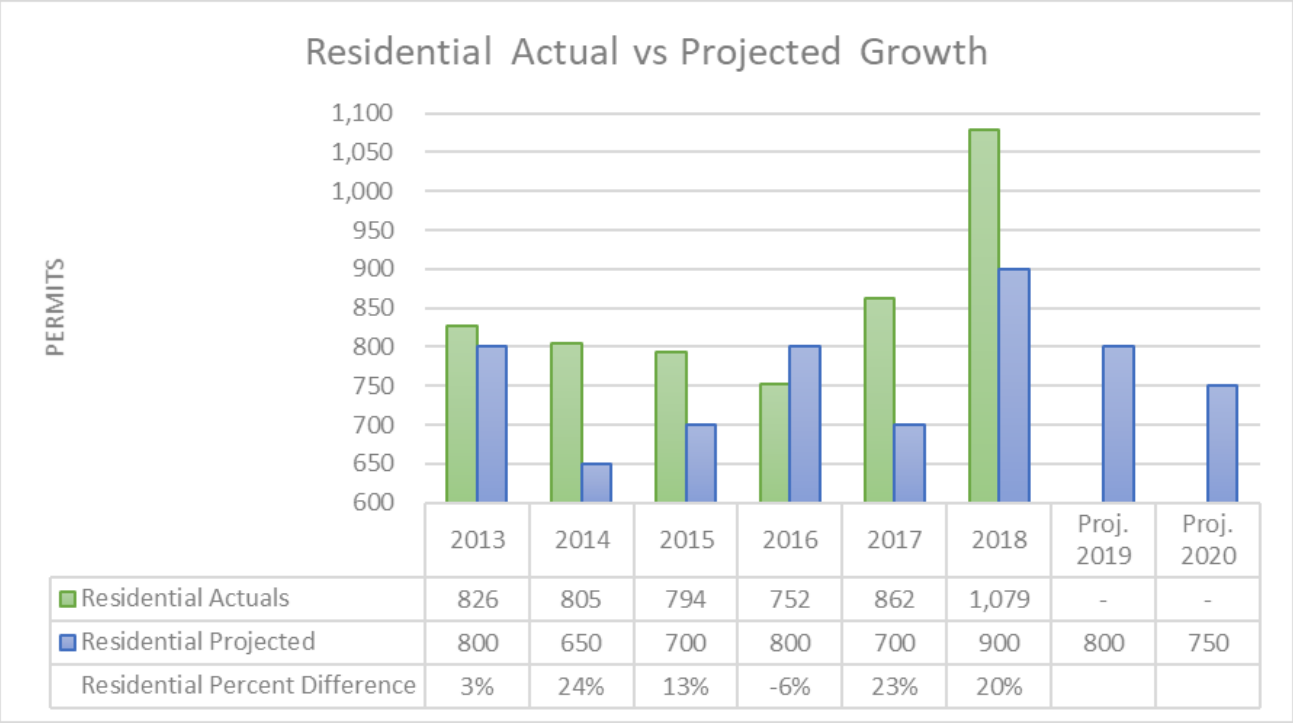
45	Residential (.67 SFE)
705	Residential (1 SFE)
37	Multi-Family
18	Commercial
8	Irrigation
813	Total

Projections are for 824 accounts for FY2019 and 813 accounts for FY2020 for a total increase thru FY2020 of 1,637.

2013-2018 ACTUAL GROWTH VERSUS PROJECTED GROWTH 2019-2020

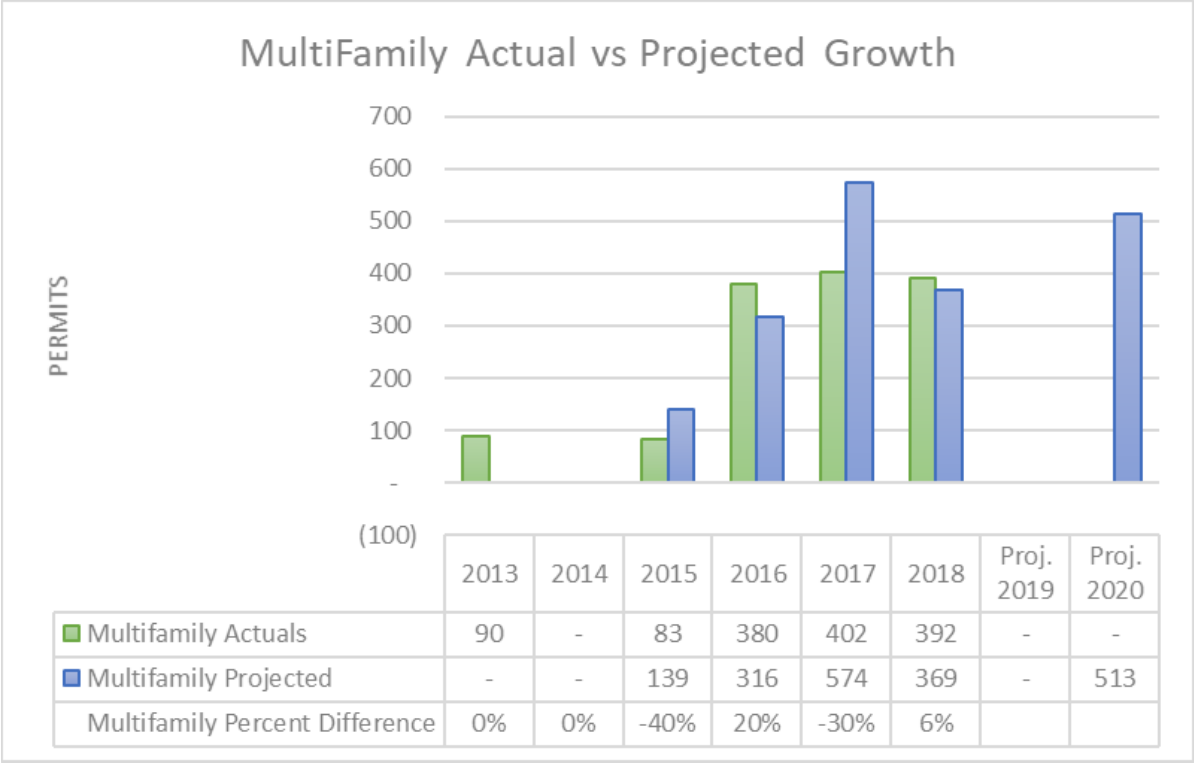
CRW has seen significant growth over the last several years. The projections received each year from Development Services are important components to the rates models and revenue projections when looking at needed rate or fee increases. When looking at future projections it is also important to look 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 3-5 break out residential, multi-family and commercial whereas Chart 6 is all customer classes combined. Multi-family permits shown in Chart 4 usually are master metered serving multiple units. For example projections for 2020 shows 513 permits for multifamily in Chart 5 which equates to 37 new water service accounts shown in Chart 2 above. Based on historical trends, the average number of units per master metered accounts is 14.

CHART 3: RESIDENTIAL GROWTH



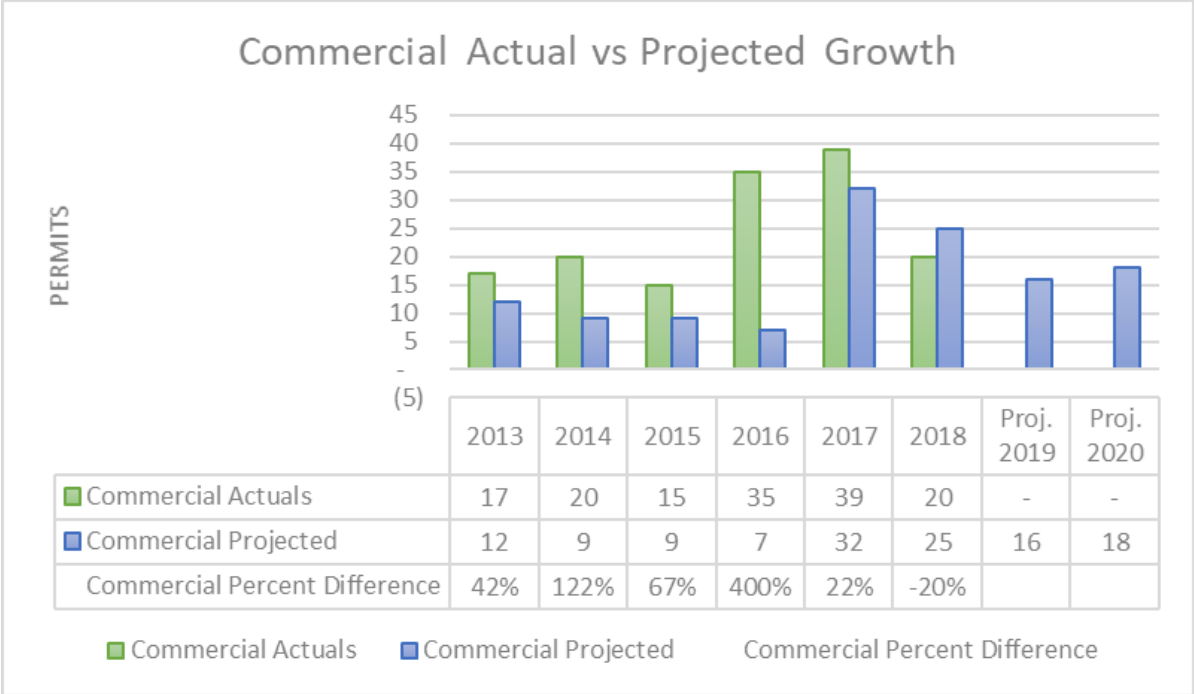
	2013	2014	2015	2016	2017	2018	Proj. 2019	Proj. 2020
Residential Actuals	826	805	794	752	862	1,079	-	-
Residential Projected	800	650	700	800	700	900	800	750
Residential Percent Difference	3%	24%	13%	-6%	23%	20%		

CHART 4: MULTIFAMILY GROWTH



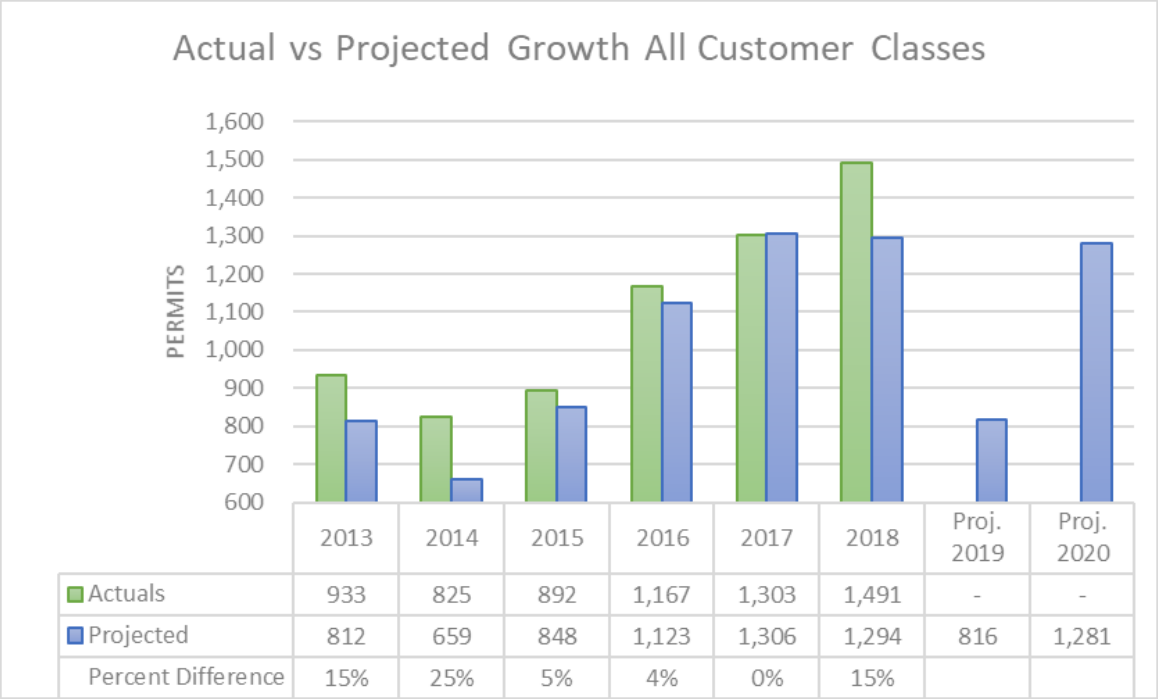
	2013	2014	2015	2016	2017	2018	Proj. 2019	Proj. 2020
Multifamily Actuals	90	-	83	380	402	392	-	-
Multifamily Projected	-	-	139	316	574	369	-	513
Multifamily Percent Difference	0%	0%	-40%	20%	-30%	6%		

CHART 5: COMMERCIAL GROWTH



	2013	2014	2015	2016	2017	2018	Proj. 2019	Proj. 2020
Commercial Actuals	17	20	15	35	39	20	-	-
Commercial Projected	12	9	9	7	32	25	16	18
Commercial Percent Difference	42%	122%	67%	400%	22%	-20%		

CHART 6: All CUSTOMER CLASSES GROWTH



	2013	2014	2015	2016	2017	2018	Proj. 2019	Proj. 2020
Actuals	933	825	892	1,167	1,303	1,491	-	-
Projected	812	659	848	1,123	1,306	1,294	816	1,281
Percent Difference	15%	25%	5%	4%	0%	15%		

3 YEAR AVERAGE CONSUMPTION BY CUSTOMER CLASS

Table 2 shows the 3-year average monthly consumption by meter size and customer class for 2016-2018 billing data. Table 2A shows the breakdown of the residential meter sizes shown in Table 2 and their individual applicable 3 year averages. Chart 7 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 19 accounts, the impact to the overall weighted average is significant.

TABLE 2: 3 YEAR AVG MONTHLY CONSUMPTION BY CUSTOMER CLASS & METER SIZE (2016-2018)

Meter Size	Residential	Multifamily	Commercial	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only
5/8"	5.44	-	-	37.24	3.13	2.36
3/4"	7.68	20.61	9.32	31.41	3.09	8.93
1"	18.69	31.60	31.38	70.74	13.59	25.15
1.5"	-	70.73	61.27	140.71	43.16	45.27
2"	-	99.91	67.03	220.88	72.91	72.19
3"	-	321.17	171.64	439.36	9.00	92.34
4"	-	334.62	-	602.99	-	1,327.78
6"	-	-	745.36	-	-	-

TABLE 2A: 3 YEAR AVG MONTHLY CONSUMPTION RESIDENTIAL METER SIZES (2016-2018)

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

CHART 7: 3 YEAR AVG MONTHLY CONSUMPTION ALL RESIDENTIAL ACCOUNTS

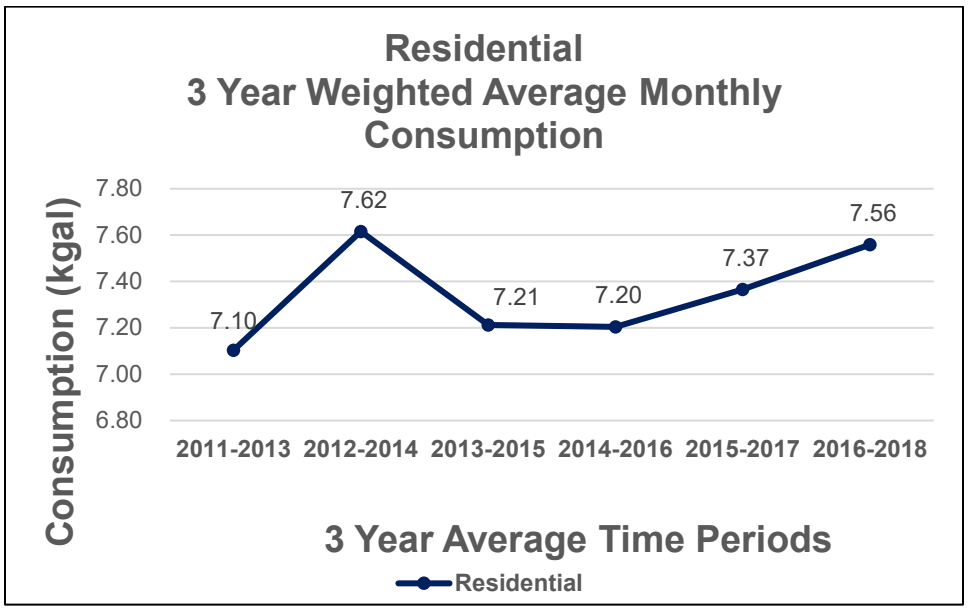
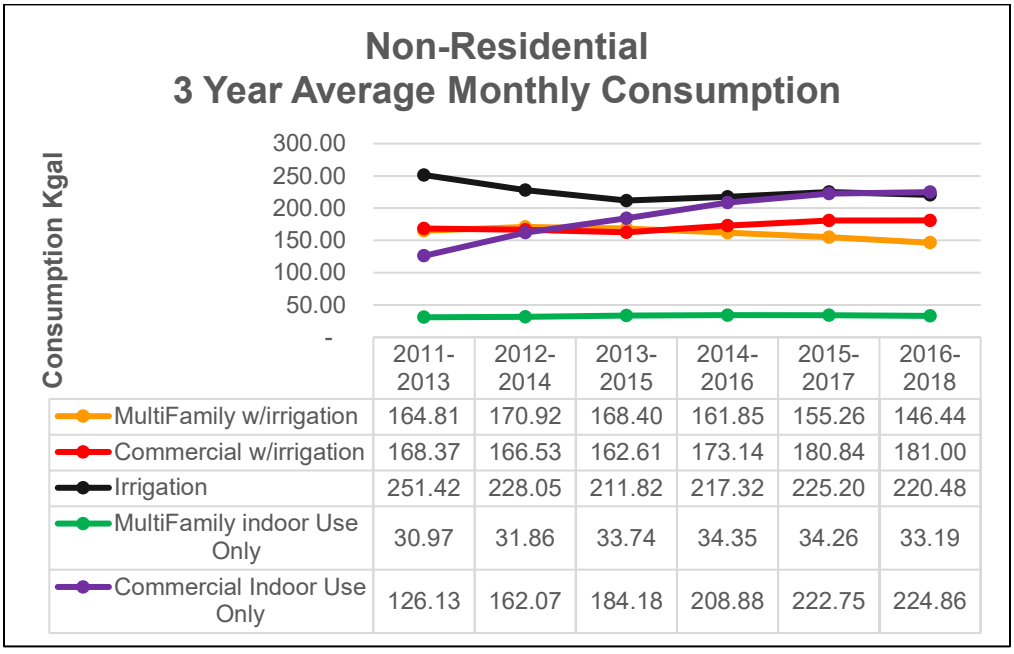


CHART 8: 3 YEAR AVG MONTHLY CONSUMPTION FOR ALL NON-RESIDENTIAL ACCOUNTS

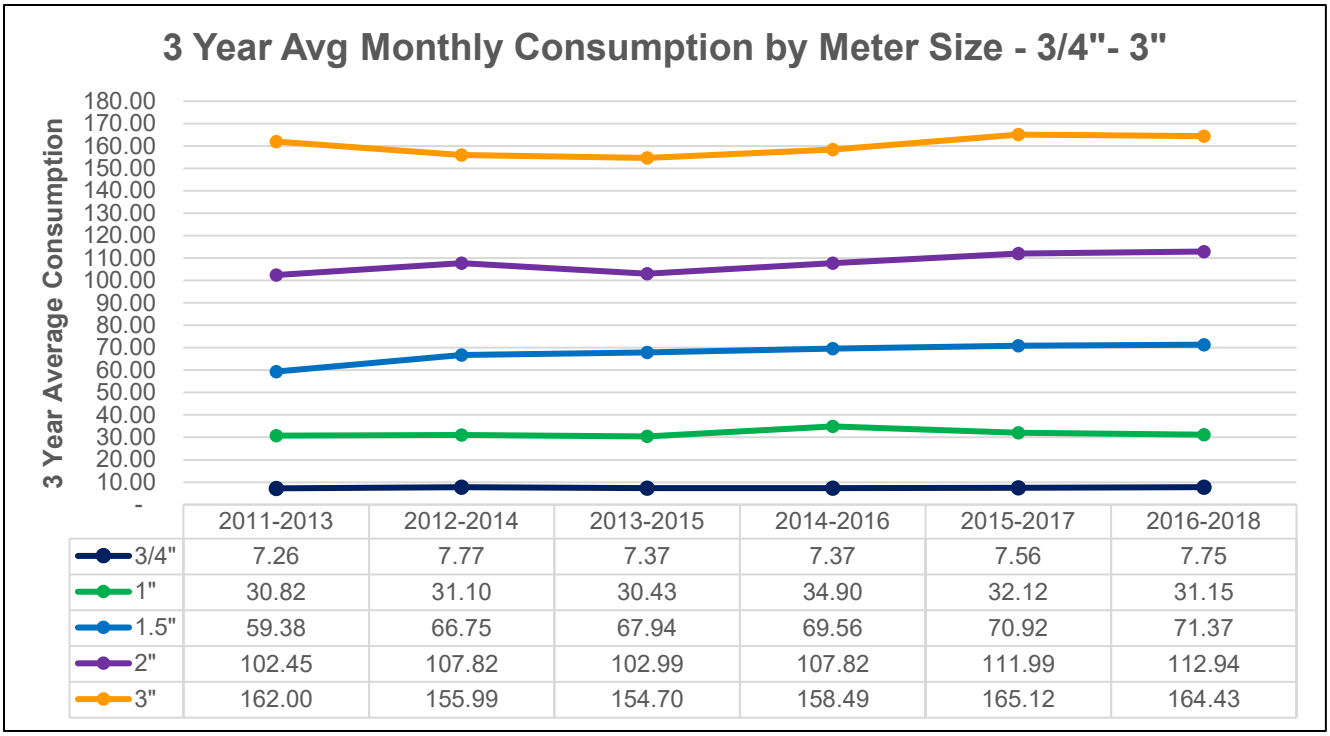


	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018
MultiFamily w/irrigation	164.81	170.92	168.40	161.85	155.26	146.44
Commercial w/irrigation	168.37	166.53	162.61	173.14	180.84	181.00
Irrigation	251.42	228.05	211.82	217.32	225.20	220.48
MultiFamily indoor Use Only	30.97	31.86	33.74	34.35	34.26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

The 3-year average monthly consumption shown above in Chart 8 is for all non-residential meter sizes combined by customer class. While all customer classes have stayed relatively flat, commercial indoor use only accounts 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 9 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.

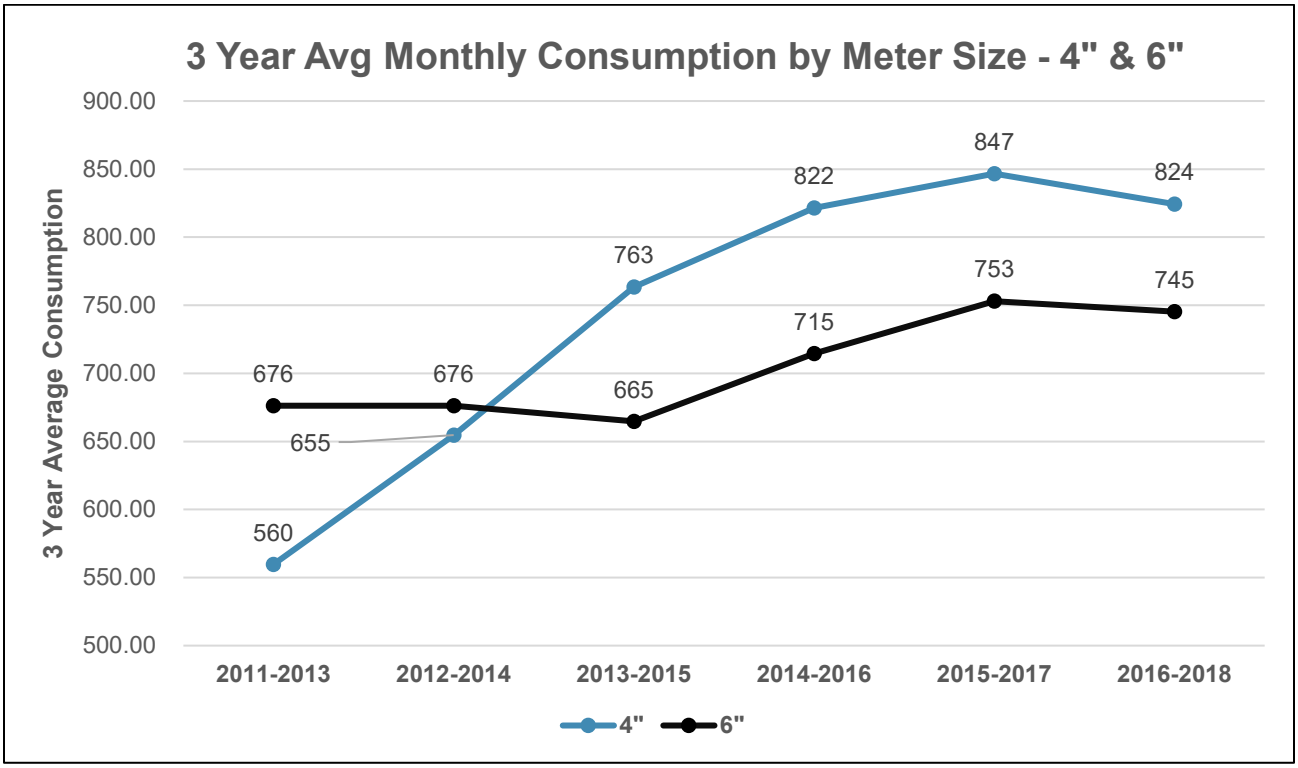
CHART 9: 3 YEAR AVG MONTHLY CONSUMPTION BY METER SIZE ¾″ to 3″ ALL CUSTOMER CLASSES



	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018
3/4"	7.26	7.77	7.37	7.37	7.56	7.75
1"	30.82	31.10	30.43	34.90	32.12	31.15
1.5"	59.38	66.75	67.94	69.56	70.92	71.37
2"	102.45	107.82	102.99	107.82	111.99	112.94
3"	162.00	155.99	154.70	158.49	165.12	164.43

Chart 10 below shows the average consumption for the two 6″ meters in service is trending downwards slightly over the last two comparison years. 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 10: 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 (2016-2018)

Meter Size	With Irrigation	Without Irrigation
5/8"	7.43	3.42
3/4"	10.11	4.36
1"	38.30	18.09
1.5"	85.62	43.29
2"	137.20	60.63
3"	200.46	103.44
4"	875.21	751.57
6"	876.45	561.83

CHART 11: 3 YEAR AVG MONTHLY CONSUMPTION ¾" METERS

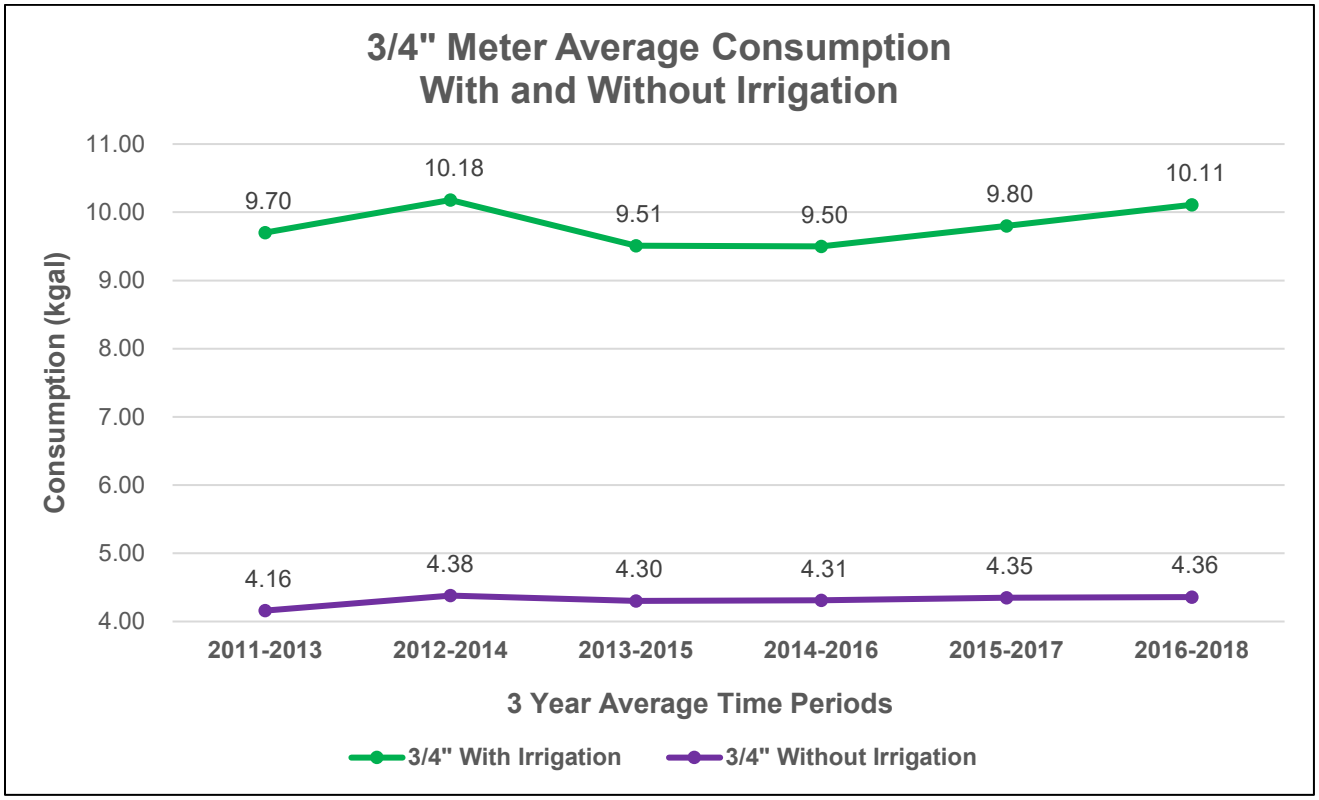


Chart 11 above shows that ¾" meter accounts usage "without irrigation" is very consistent from year to year. Approximately 97% of the ¾" meters are residential accounts. This trend indicates indoor water usage from year to year for these meters is staying consistent, even with the increase in the number of accounts. However, we are starting to see a slight trend upward in the

last two comparison periods for the ¾" meter usage "with irrigation" indicating that the irrigation usage for these accounts is trending slightly upward which is a pattern we will want to keep a focus on. Weather conditions and rainfall could be contributing factors.

CHART 12: 3 YEAR AVG MONTHLY CONSUMPTION 1" METERS

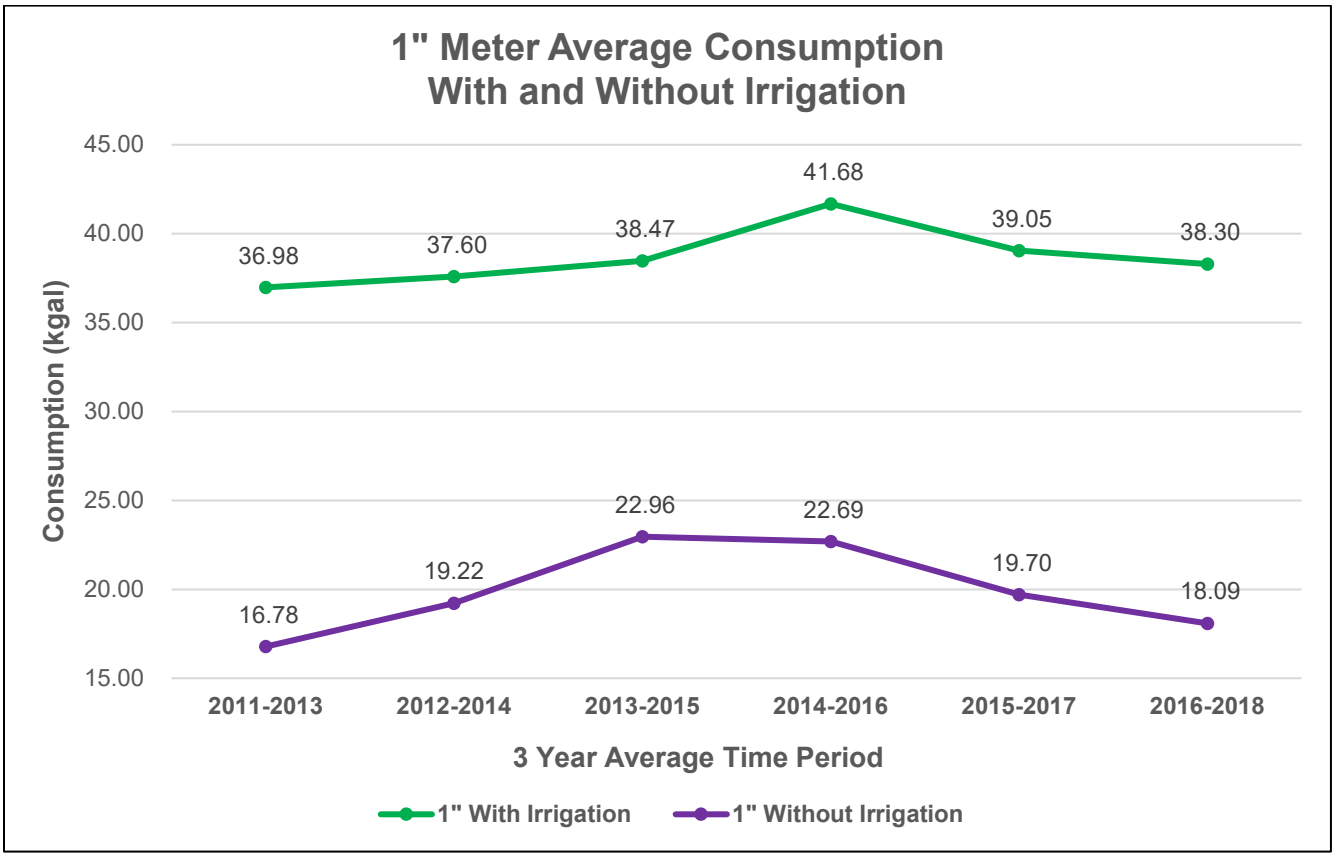


Chart 12 above shows that 1" meter accounts usage "without irrigation" is trending downward from year to year, which is a good trend to see. Despite an increase of 27 accounts over the last year in the 1" meter count, this trend indicates indoor water usage from year to year for meters this size are decreasing slightly. We are also starting to see a slight trend downward in the last two comparison periods for the 1" meter usage "with irrigation" indicating that the outdoor usage for these accounts is slightly trending downward.

Chart 13 below shows the accounts usage "without irrigation" for all 1.5" accounts is relatively flat over the comparison periods. Despite an increase of 28 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 are remaining steady. We are also seeing a relatively flat trend for the 1.5" meter usage "with

irrigation" indicating that the outdoor usage for these accounts is not trending up or down given the number of new accounts.

CHART 13: 3 YEAR AVG MONTHLY CONSUMPTION 1.5" METERS

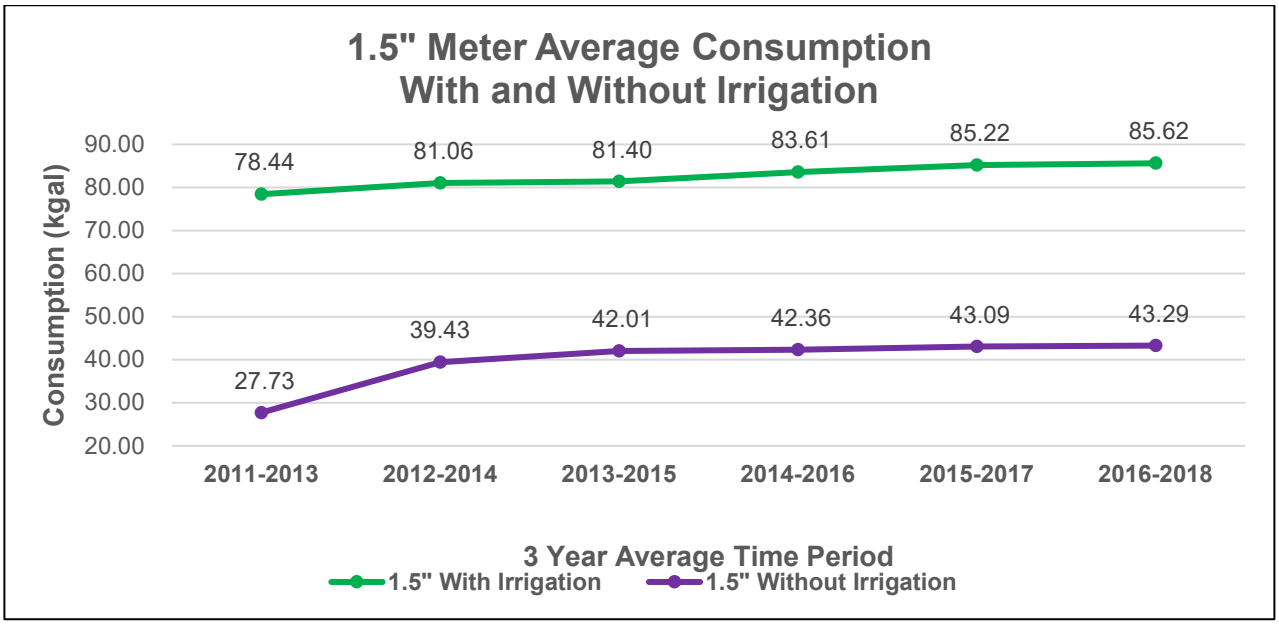


CHART 14: 3 YEAR AVG MONTHLY CONSUMPTION 2" METERS

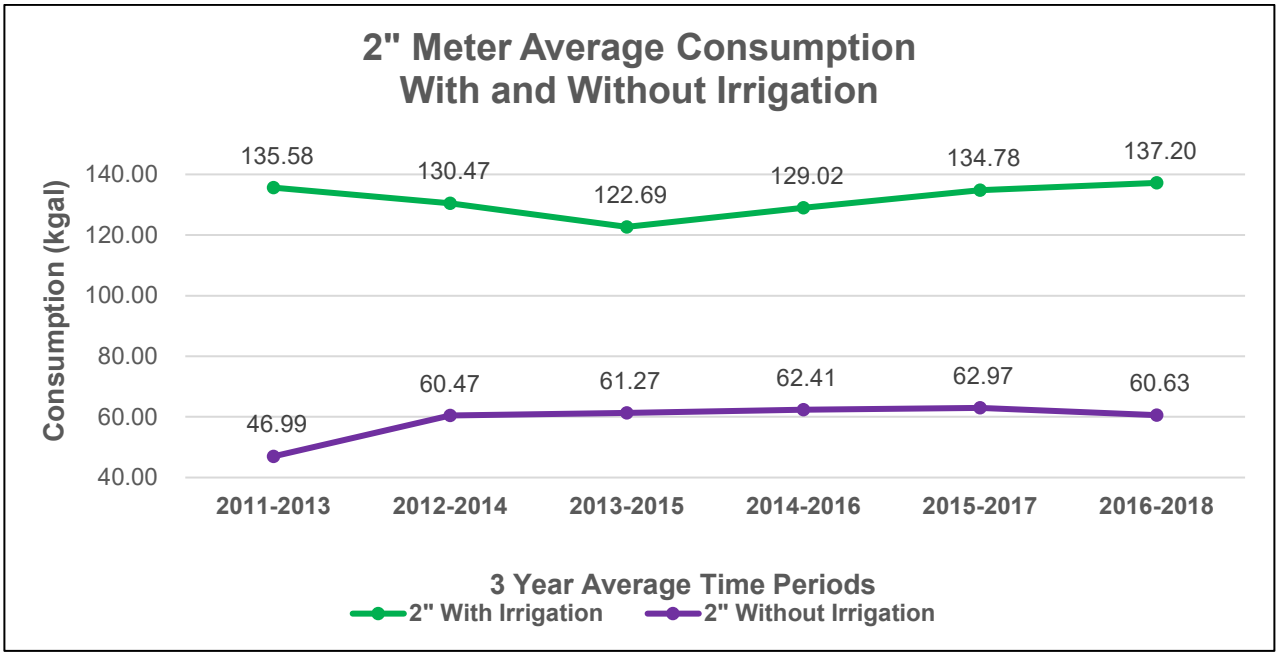


Chart 14 above for 2″ meters and Chart 15 below for 3″ meters both indicate that the consumption trends for these two larger types of meters are remaining relatively flat over the last two comparison periods for both the irrigation and winter seasons.

CHART 15: 3 YEAR AVG MONTHLY CONSUMPTION 3″METERS

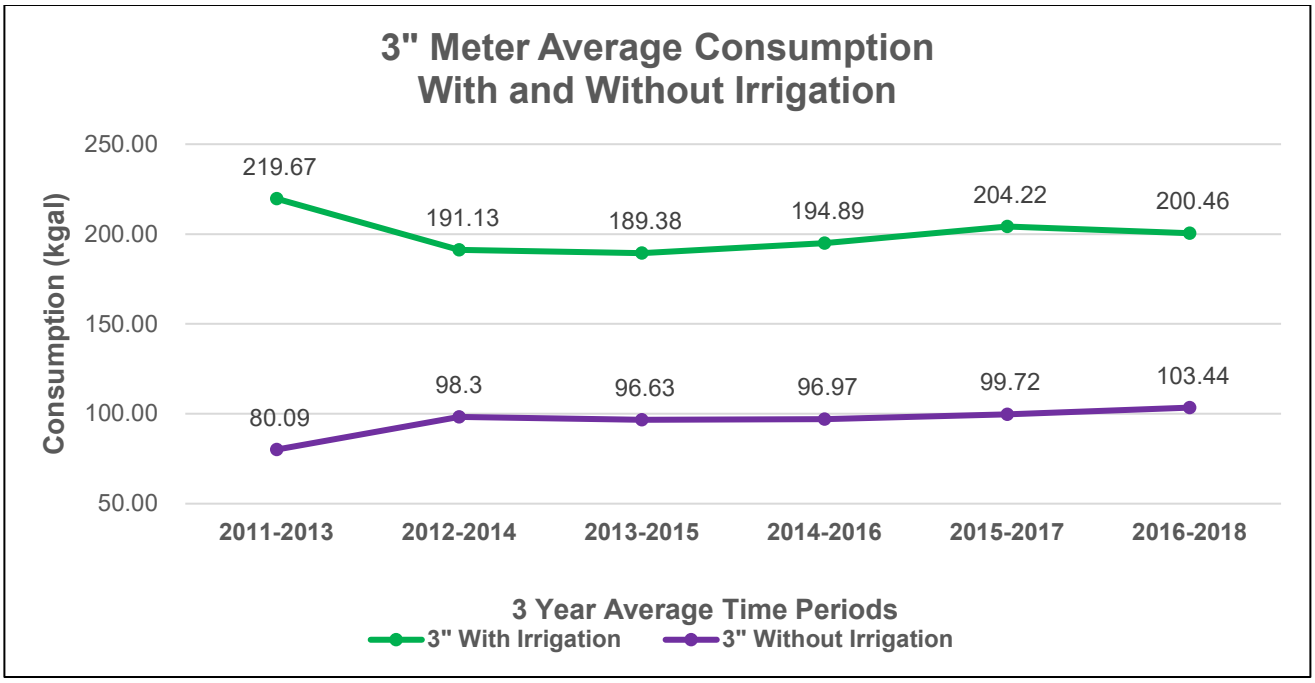


CHART 16: 3 YEAR AVG MONTHLY CONSUMPTION 4″ METERS

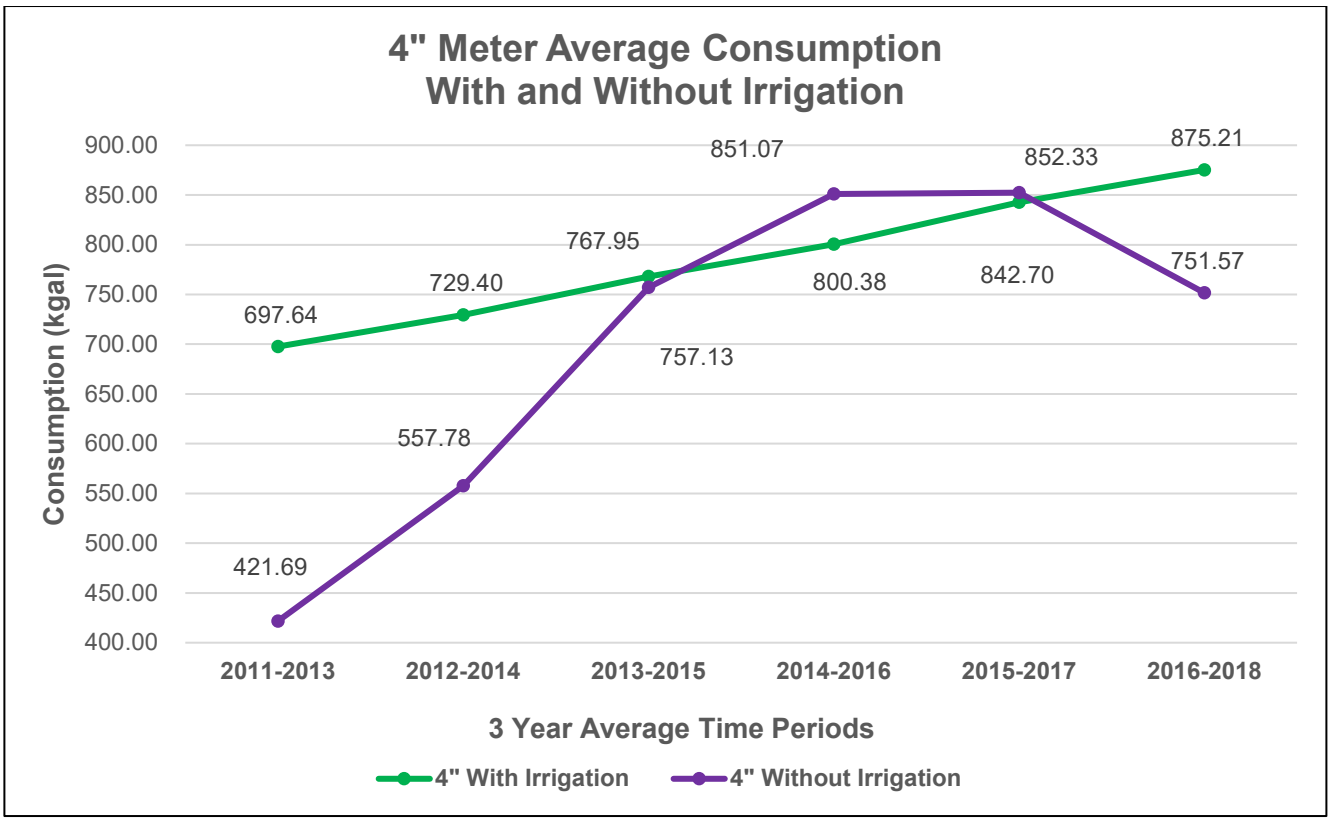
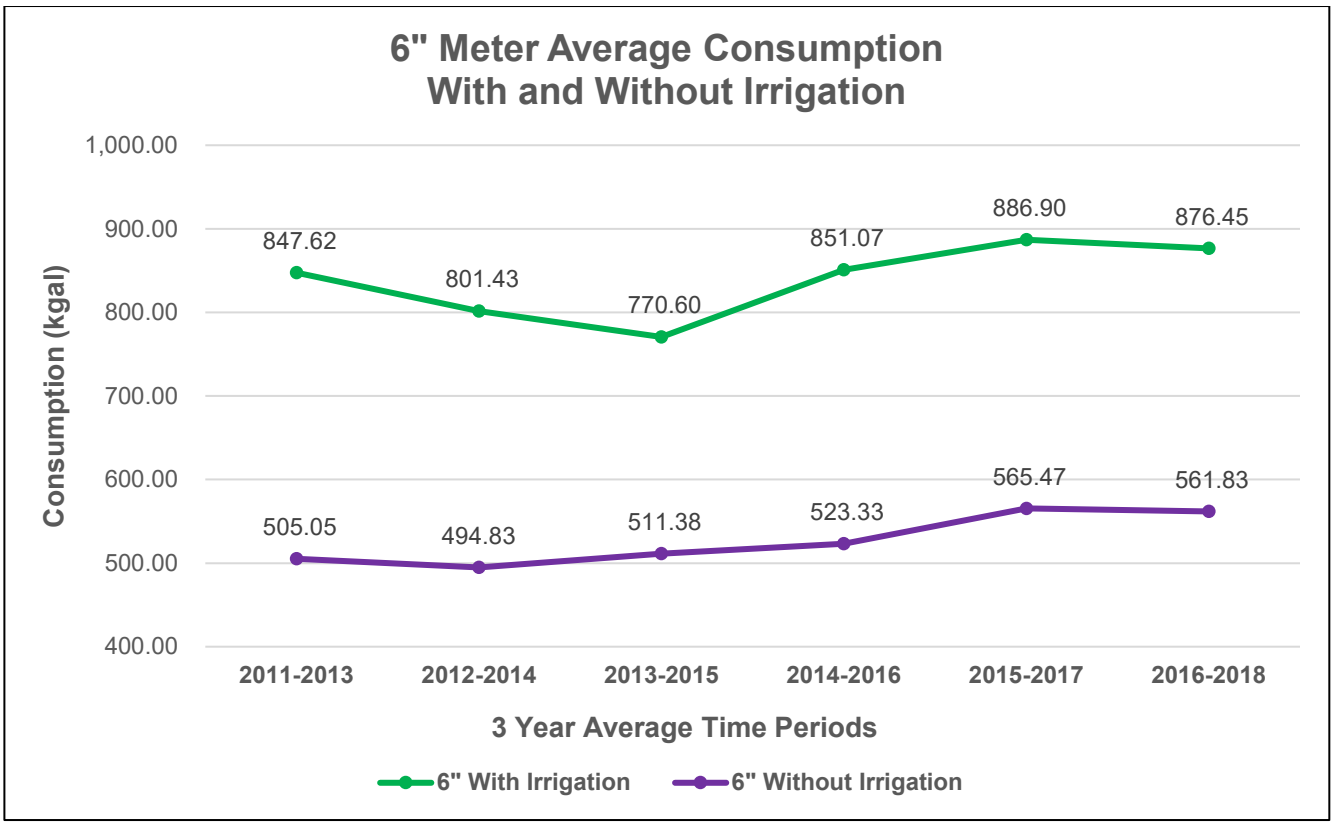


Chart 16 above shows mixed results when comparing the last two comparison periods. The consumption patterns for winter season are showing a steep decline while the consumption patterns for the irrigation season shows a steep increase.

Chart 17 for 6″ meters shows that the average monthly consumption for these 2 meters has remained consistent over the last few comparison periods.

CHART 17: 3 YEAR AVG MONTHLY CONSUMPTION 6" METERS



EQUIVALENCY FACTORS

There are two different types of equivalency factors. The first is the hydraulic capacity method 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

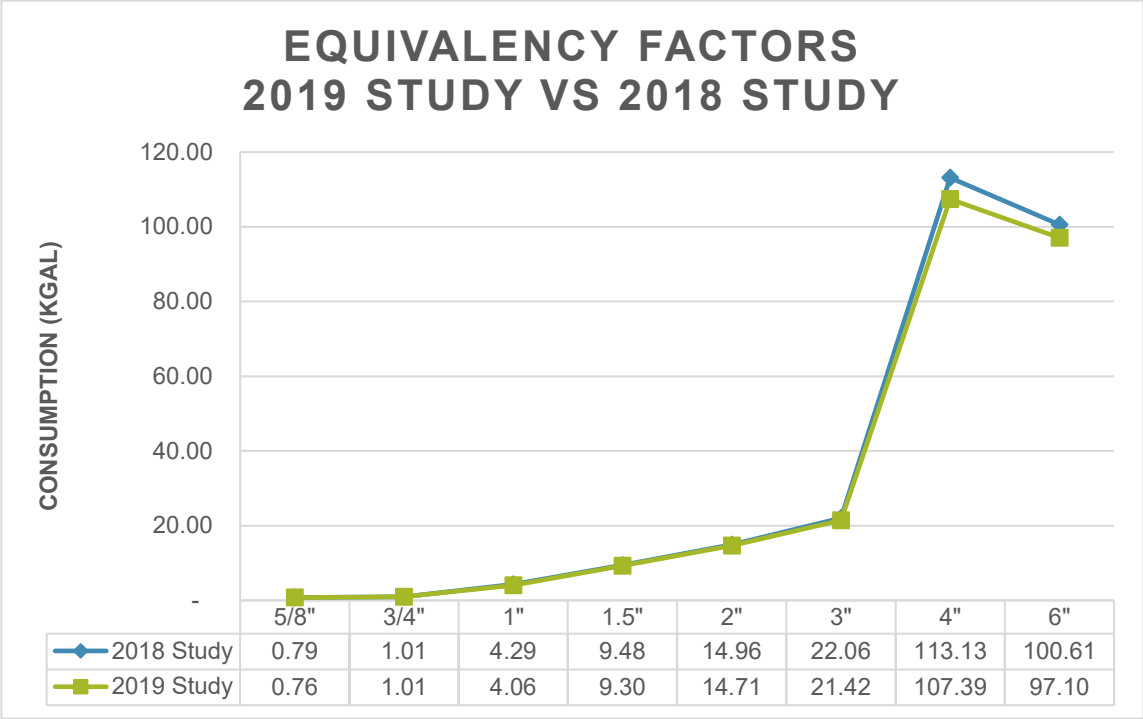
the equivalency factor times the number of meters which then equals the number of SFE's currently being served by the system.

Chart 18 compares the equivalency factors calculated from the most current rates and fees study to the prior year study. As seen in the chart no major variances exist from study to study so no methodology change is recommended to the 2019 study.

TABLE 4: 2019 STUDY ACTUAL USE EQUIVALENCY FACTORS (BASED ON 3 YEAR AVG. 2016-2018)

Meter Size	Residential	Multifamily	Commercial	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Equivalency Factor
5/8"	0.71	-	-	4.85	0.41	0.31	0.76
3/4"	1.00	2.68	1.21	4.09	0.40	1.16	1.01
1"	2.43	4.12	4.09	9.22	1.77	3.28	4.06
1.5"	-	9.21	7.98	18.33	5.62	5.90	9.30
2"	-	13.02	8.73	28.77	9.50	9.40	14.71
3"	-	41.84	22.36	57.24	1.17	12.03	21.42
4"	-	43.59	-	78.55	-	172.97	107.39
6"	-	-	97.10	-	-	-	97.10

CHART 18: EQUIVALENCY FACTORS 2019 STUDY COMPARED TO THE 2018 STUDY



REPRESENTATIVE CUSTOMER BY CUSTOMER CLASS

Customer data for the last three years (2016-2018) 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 (Jan18-Dec18).
- 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.

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) calculated by averaging the total potable water consumption used by the customer in the months of November-February is 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 a $36/SFE monthly fee for wastewater is used.

During this study period, for single-family residential customers, the average AWMC is 5,000 gallons (water available at Tier 1) and the monthly wastewater charge is $36/SFE. Irrigation does not typically have winter consumption, however as shown below there is a small amount that is consumed due to leaks, winterization late or early in the season.

TABLE 5: REPRESENTATIVE CUSTOMER BY CLASS
2018 BILLING DATA

Customer Class	Meter Size	Total Annual Consumption (kgal)	Average Monthly Consumption (Jan-Dec 2018) (kgal)	Average Winter Monthly Consumption (kgal)	Average Irrigation Monthly Consumption (kgal)
Residential	¾″	84.97	7.88	4.30	10.38
Multifamily (with irrigation)	1.5″	925.28	71.33	51.07	86.31
Commercial (with irrigation)	¾″	108.32	8.83	6.33	10.60
Irrigation	¾″	376.38	31.72	5.44	33.09
Multifamily Indoor Use Only	¾″	107.44	3.00	3.11	2.93
Commercial Indoor Use Only	¾″	89.73	9.50	8.11	10.46

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 2018 through December 2018. Charts 19-23 compare the total water usage by tier for each customer class for the years 2012-2018. 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 2018-DECEMBER 2018

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	109,402	-	44,864	154,266	-
Commercial w/ Irrig	71,576	35,470	23,705	130,751	-
Irrigation	-	314,749	43,446	358,195	-
MultiFamily	87,049	-	16,302	103,351	-
MultiFamily w/ Irrig	56,161	21,090	11,959	89,210	-
Residential	837,578	754,298	162,876	1,754,752	12,966
Total Kgals	**1,161,766**	**1,125,607**	**303,152**	**2,590,525**	**12,966**
Tier % of Total	45%	43%	12%	100%	

TABLE 7: BILLED USAGE BY SEASON BY CUSTOMER CLASS BY TIER JANUARY 2018-DECEMBER 2018

Winter Season

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	44,963	-	12,457	57,420	-
Commercial w/ Irrig	29,028	-	5,083	34,111	-
Irrigation	-	-	2,534	2,534	-
MultiFamily	36,052	-	5,307	41,359	-
MultiFamily w/ Irrig	23,045	-	2,525	25,570	-
Residential	334,895	-	60,242	395,137	365
Total Kgals	**467,983**	**-**	**88,148**	**556,131**	**365**
Tier % of Total	84%	0%	16%	100%	

Irrigation Season

Class	Tier 1	Tier 2	Tier 3	Total	Surcharge
Commercial	64,439	-	32,407	96,846	-
Commercial w/ Irrig	42,548	35,470	18,622	96,640	-
Irrigation	-	314,749	40,912	355,661	-
MultiFamily	50,997	-	10,995	61,992	-
MultiFamily w/ Irrig	33,116	21,090	9,434	63,640	-
Residential	502,683	754,298	102,634	1,359,615	12,601
Total Kgals	**693,783**	**1,125,607**	**215,004**	**2,034,394**	**12,601**
Tier % of Total	34%	55%	11%	100%	

CHART 19: COMMERCIAL CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2018

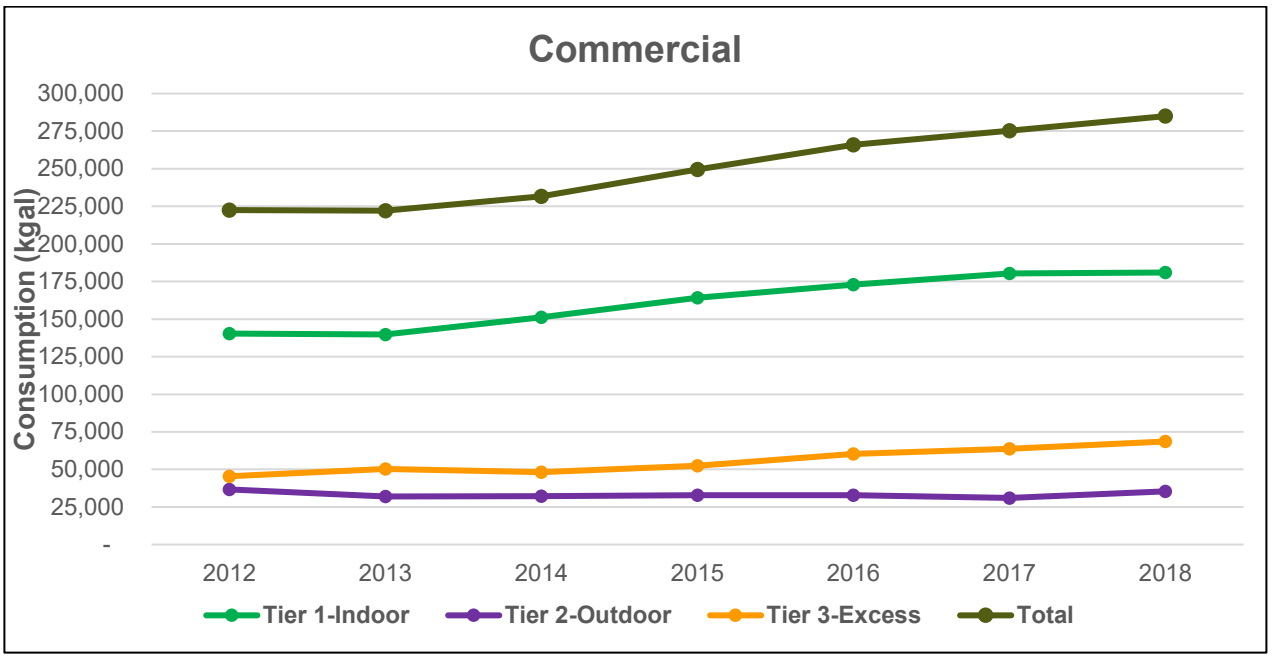


CHART 20: MULTIFAMILY CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2018

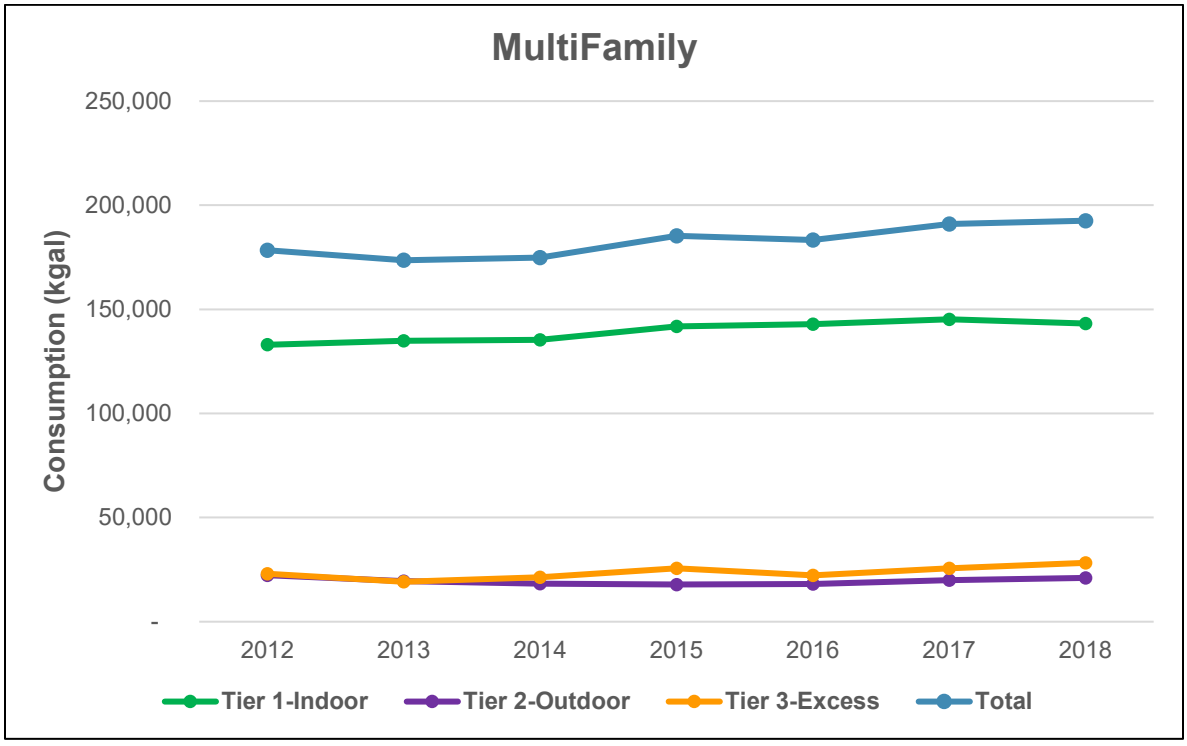


CHART 21: IRRIGATION CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2018

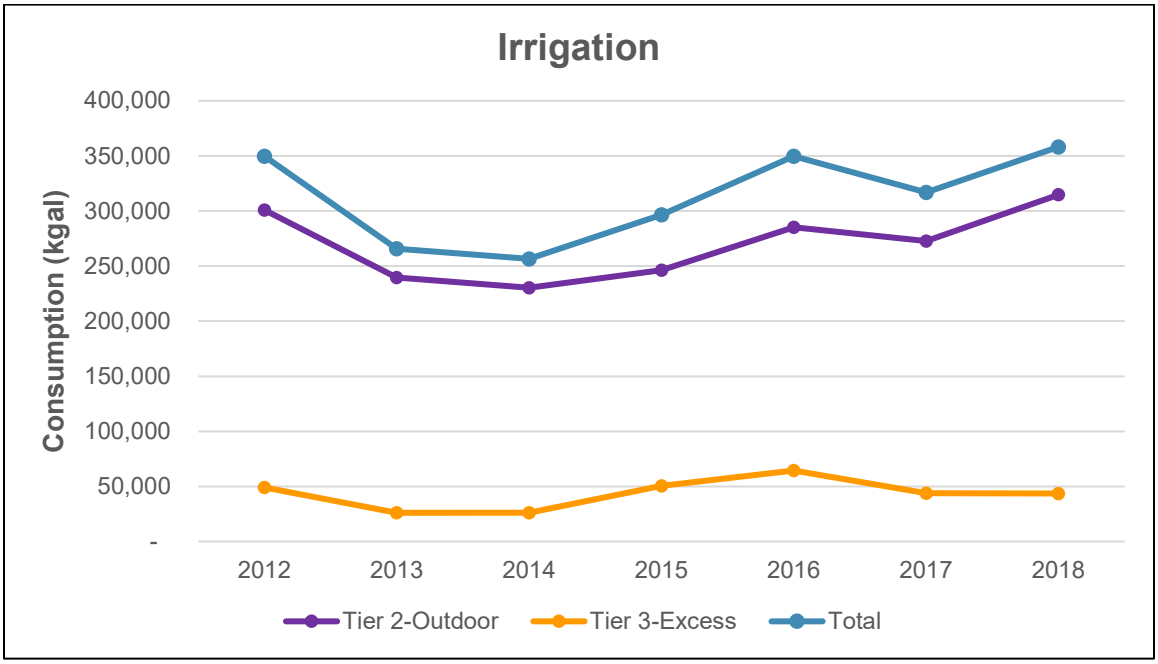


CHART 22: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE BY TIER 2012-2018

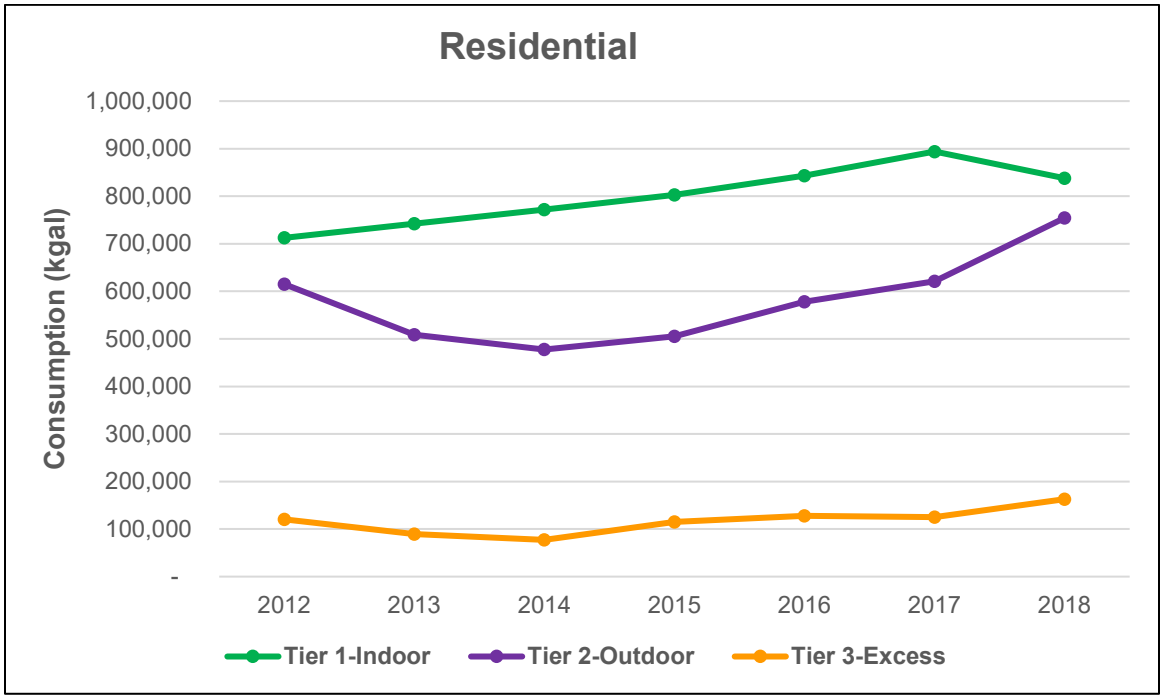
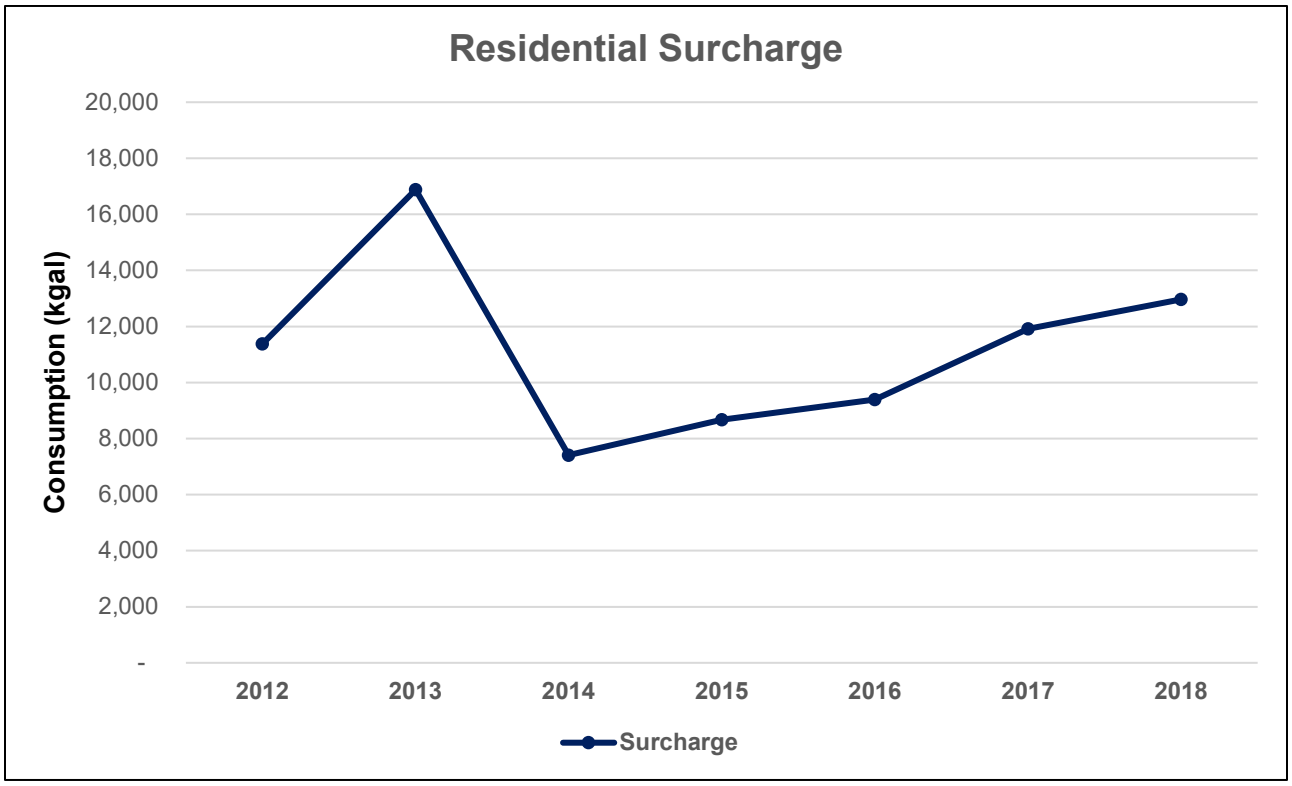


CHART 23: RESIDENTIAL CUSTOMER CLASS ANNUAL BILLED USAGE SURCHARGE ONLY 2012-2018



Charts 19-20 show that even though growth has continued through 2018 consumption by tier for Commercial and Multifamily customer classes have remained consistent. However, Chart 21 shows that even with the addition of 34 new accounts from 2017 to 2018, those customers are staying within Tier 2 since Tier 3 usage has remained virtually flat. Residential account usage by tier in Chart 22 appears to be trending in the opposite direction. With the addition of more accounts, the usage across all accounts is decreasing in Tier 1 and increasing in Tiers 2 and 3.

Surcharge usage has started to trend upward again over the last few years. In the 2018 study, Castle Rock Water analyzed the impact on accounts if the surcharge started at 30,000 gallons or 35,000 gallons rather than 40,000 gallons that is currently in place.

Chart 24 shows the surcharge threshold comparison for the 2019 study. Chart 25 shows the surcharge threshold comparison for the 2018 study.

The analysis conducted in the 2019 study showed in 2018 there were 627 residential customers who were at or over the 40,000 gallons per month threshold during January 2018-December

2018 billing data. When taking the same billing data and lowering the threshold to 35,000 gallons, 1,038 residential customers were impacted. When lowering the threshold to 30,000 gallons, significantly more customers at 1,932 are impacted. In conclusion, reducing the 40,000 gallons surcharge threshold to 30,000 gallons impacts approximately 9.69% of the residential customers and accounts for 2.19% of the total residential consumption. Most of the consumption charged in surcharge is the result of a leak. Based upon Castle Rock Water's leak policy, if the leak is fixed and consumption patterns return to normal, the surcharge amount credits back to the customer's account.

Chart 25 shows the same information from the 2018 study. Although the number of customers impacted in the 35,000 and 40,000 thresholds have increased in the 2019 study, the results for the 30,000 threshold customers impacted show a significantly higher result in the 2019 study. Table 8 shows a comparison of the impact in consumption and the number of customers over the last 3 years should the threshold be changed.

CHART 24: SURCHARGE THRESHOLD COMPARISON – 2019 STUDY

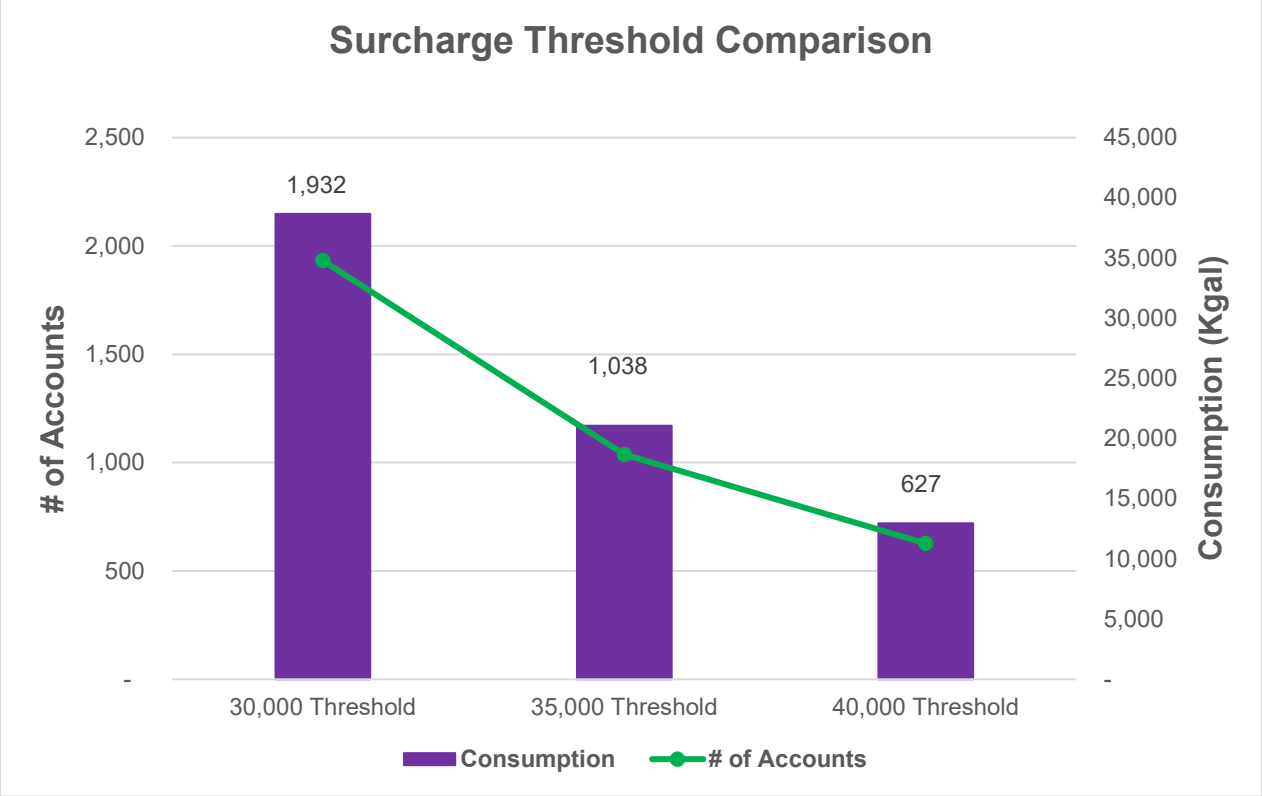


CHART 25: SURCHARGE THRESHOLD COMPARISON – 2018 STUDY

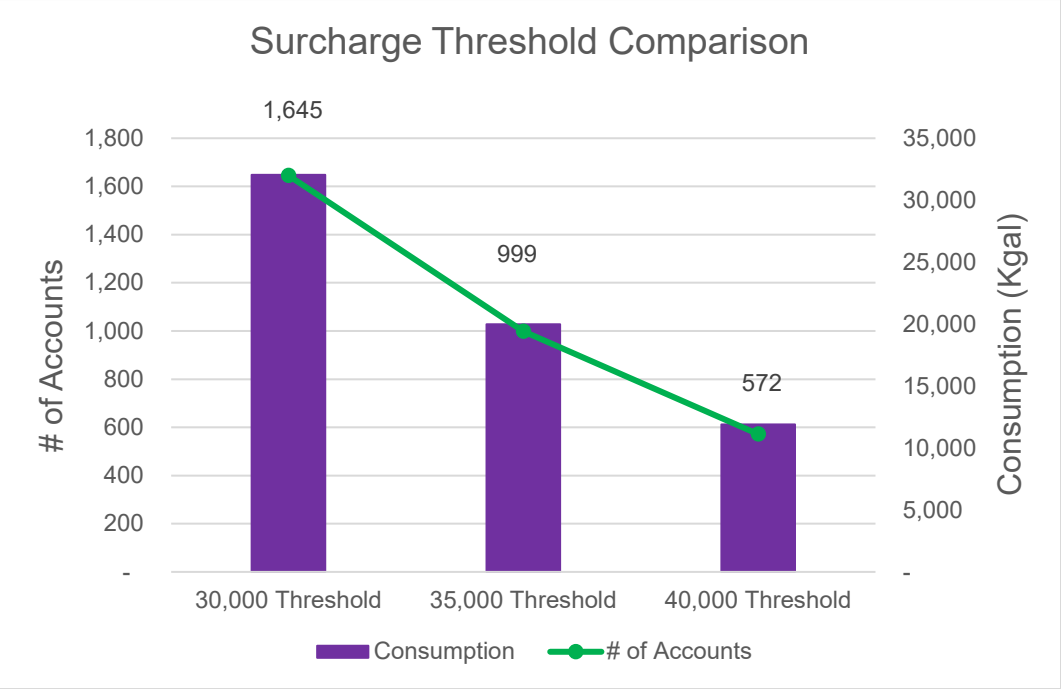


TABLE 8: RESIDENTIAL SURCHARGE THRESHOLD COMPARISON BY YEAR

	2016	2017	2018
# of Customers Surcharge – 40K	485	572	627
# of Customers Surcharge – 35K	805	999	1,038
# of Customers Surcharge – 30K	1,347	1,645	1,932
Usage in Surcharge 40K threshold (kgals)	9,388	11,913	12,966
Usage in Surcharge 35K threshold (kgals)	15,661	19,981	21,073
Usage in Surcharge 30K threshold (kgals)	26,056	32,049	38,656
% Increase in Accounts	3.95%	4.53%	5.72%
% of Residential Accounts in Surcharge	2.69%	3.03%	3.14%

We also look at Tier 3 usage to see how many customers used Tier 3 only once or twice in the year versus how many used Tier 3 consistently throughout the year. For the 2019 study, the data shows that during irrigation season 63% of the customers only hit Tier 3 once or twice and 73% of the customers only hit Tier 3 once or twice in the winter season.

TABLE 9: TIER 3 CUSTOMER USAGE – 2018 BILLING DATA

Tier 3	# Users	# Users 1 or 2 Month	# Users 3 or More Months	% of Users 1 or 2 Months	% of Users 3 or More Months
Residential-IRR	7,133	4,527	2,606	63%	37%
Residential-WIN	14,906	10,853	4,053	73%	27%
Total	**22,039**	**15,380**	**6,659**	**70%**	**30%**

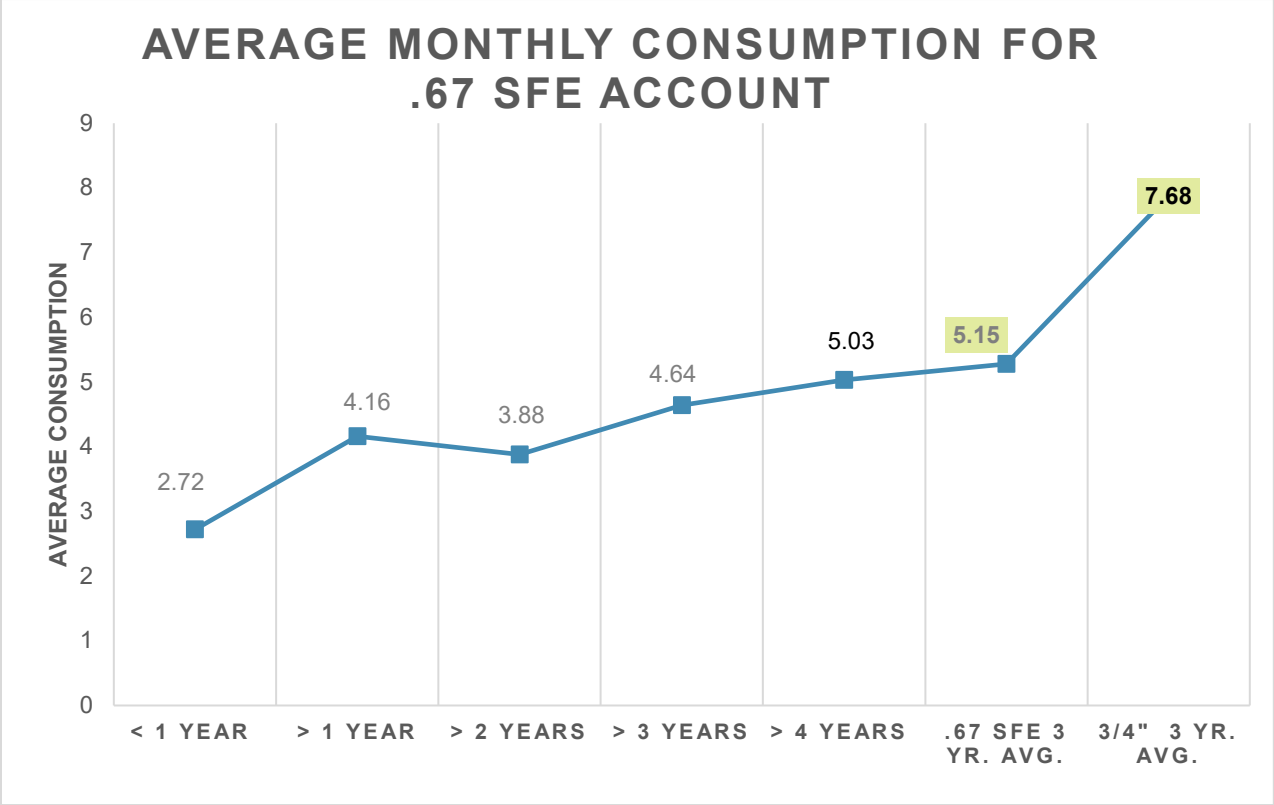
TABLE 10: ANNUAL CONSUMPTION AND REVENUES BY TIER – 2018 BILLING DATA

Residential Tier	Consumption		Revenues	
Tier 1	837,578	47%	$ 2,361,969	30%
Tier 2	754,298	43%	$ 4,171,268	53%
Tier 3	162,876	9%	$ 1,183,974	15%
Surcharge	12,966	1%	$ 107,488	1%
Total	**1,767,718**	**100%**	**$ 7,824,700**	**100%**

5/8" ACCOUNTS - .67 SFE

Castle Rock Water evaluated these accounts to determine performance relative to the goal of 67% of average residential use. A more detailed evaluation showed that certain homebuilders were not meeting the intent, while others were. Changes made to the fixture count criteria and administrative approval process intends to bring these types of accounts more into line with the expectation of the program. As shown in Chart 26 below, the 7.88 is the average monthly consumption for a ¾" residential account or one SFE, whereas the 5.28 is the monthly consumption that a .67 SFE account should be using. Although the 4 year average remains under the requirement, the average continues to rise year over year.

CHART 26: .67 SFE ACCOUNTS CONSUMPTION BY YEAR



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 a square. 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 2018 based on the assigned symbols mentioned above. 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 other two sets of customers. One reason for this is the number of customers for each schedule. Square has the most at 7,699 customers, circle is second with 6,236 customers and diamond has the least with 6,011 customers based on the 2018 billing data.

With the non-residential customers, the west side appears to be smaller or have less usage each year than the east side customers. The east side has more customers at 1,005 than the west side at 624 customers based on the 2018 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 demands.

CHART 27: RESIDENTIAL IRRIGATION SEASON USAGE BY WATERING SCHEDULE

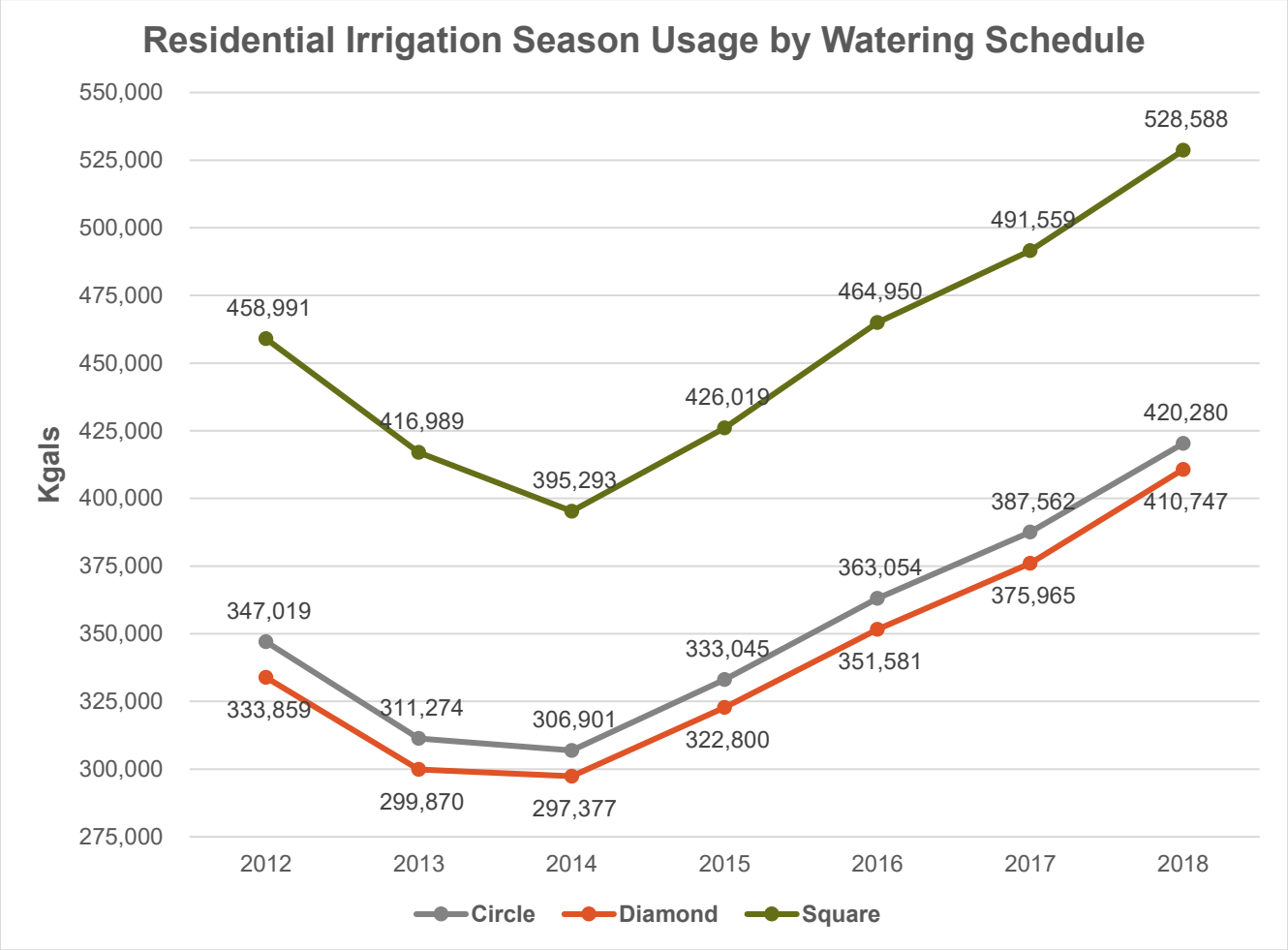
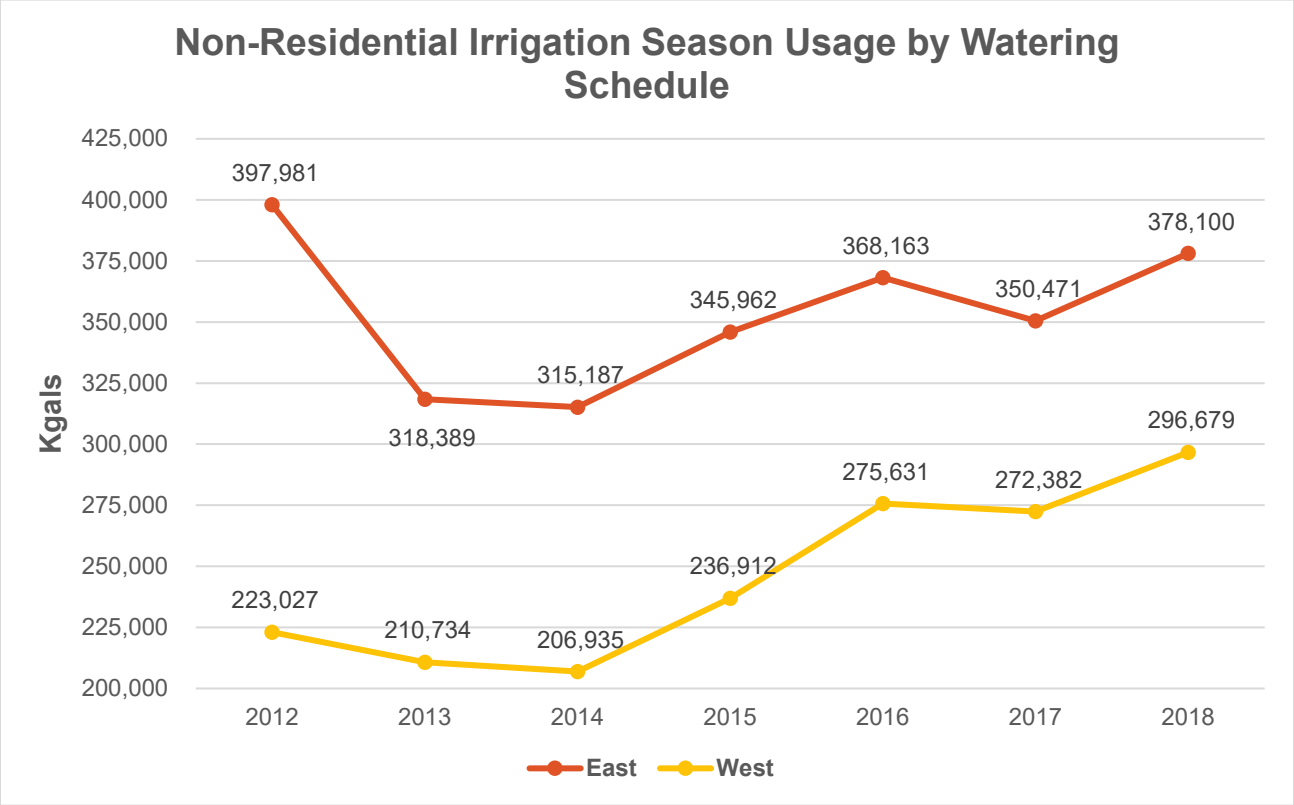


CHART 28: NON-RESIDENTIAL IRRIGATION SEASON USAGE BY WATERING SCHEDULE



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 the every third day watering schedule. However, residential customers must still water between the hours of 8:00 p.m. and 8:00 a.m.

In order to see the success of the program, CRW completed some analysis on the water wiser accounts consumption patterns before and after taking the class. In order to analyze these customers, CRW looked at three different data sets. These three customer 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 11: 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	8.3	70%
24 Months	8.9	8.3	62%
12 Months	8.6	8.2	57%

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 70% of people have decreased their average usage, which means that 30% 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 57% of users decreased their usage and at 24 months consumption this increased to 62%. There is room for improvements for 30% of the water wiser customers.

NON-RESIDENTIAL IRRIGATION BUDGETS

In the 2018 study, Castle Rock Water looked at non-residential irrigation accounts to determine if these accounts fell within the landscaping guidelines for using a hybrid grass versus a Kentucky blue grass. Kentucky Blue Grass requires 31 inches of supplemental irrigation whereas a Texas Hybrid requires 19 inches of supplemental irrigation. Kentucky Blue Grass, prior to July 2003, was allowed. However, any accounts started after July 2003 will have individualized adjusted budget allocations.

With a new flyover in October 2018, approximately 893 non-residential irrigation accounts have updated irrigation areas and plant types identified. This sets the new water budget allocations effective for the 2020 irrigation season. Each customer will receive a new map and graph showing their new water budget. Customers will have all of 2019 to make changes to their irrigation systems with no financial consequences. Table 12 is only an estimate of the project impact.

TABLE 12: IRRIGATION CUSTOMERS BUDGET ALLOCATION COMPARISON

Customer Class	# of Accounts	2018 Actual Water Usage (kgals)	2019 Allocated Budget (kgals)	2020 Adjusted Budget (kgals)	Consumption Difference (kgals)	% Difference
Commercial w/Irrigation	278	95,280	78,781	44,777	34,004	43%
Irrigation	503	355,493	714,105	339,218	374,887	52%
Multifamily w/Irrigation	112	63,640	34,873	27,587	7,286	21%
Total	**893**	**514,413**	**827,759**	**411,582**	**416,177**	**50%**

IMPACT OF IRRIGATED AREAS (SQUARE FEET)

Chart 29 shows the number of residential accounts by irrigated area. Chart 30 shows the average monthly consumption by irrigated area. As you would expect the more irrigated area, the more the average consumption per month. Chart 31 shows total usage by irrigated area for commercial accounts. Chart 32 shows average monthly consumption for commercial accounts by irrigated area.

CHART 29: RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

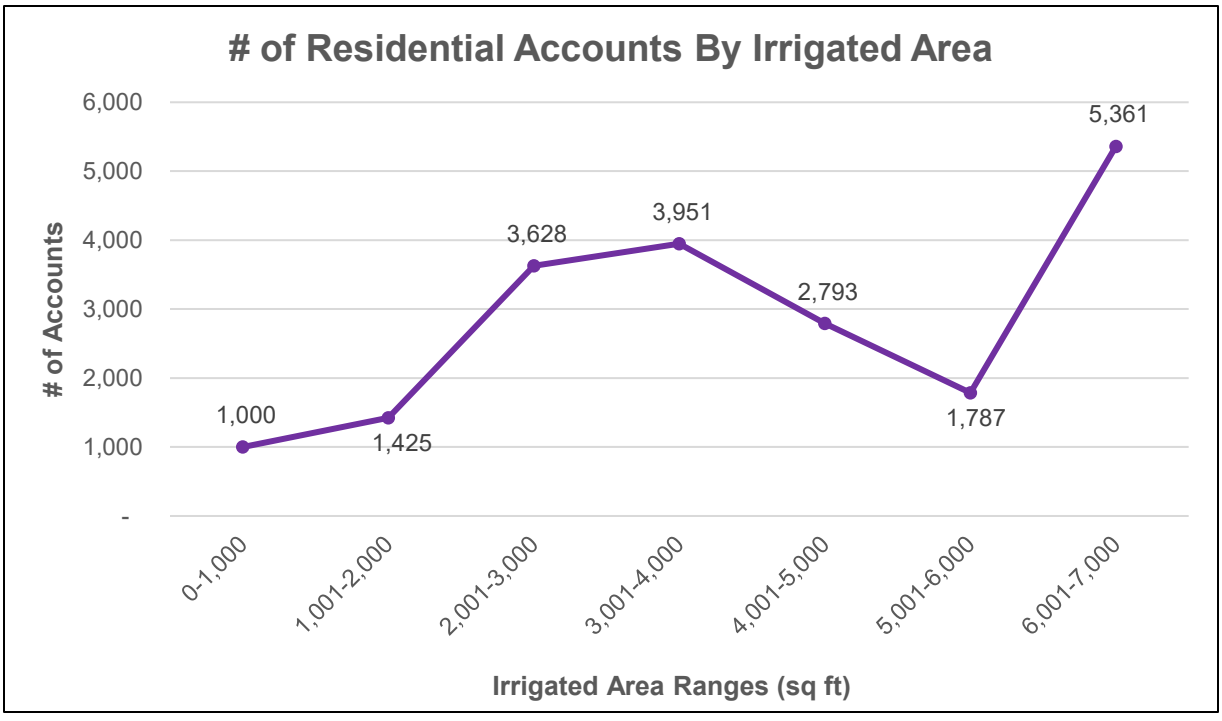


CHART 30: RESIDENTIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA

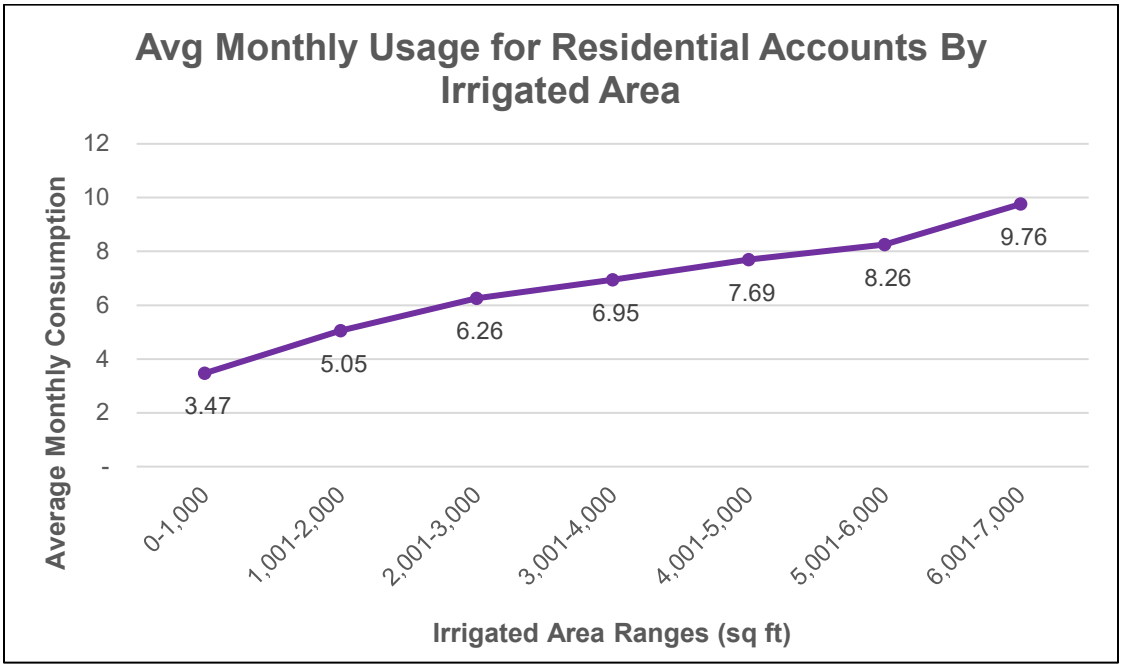


CHART 31: COMMERCIAL ACCOUNTS BY IRRIGATED AREA

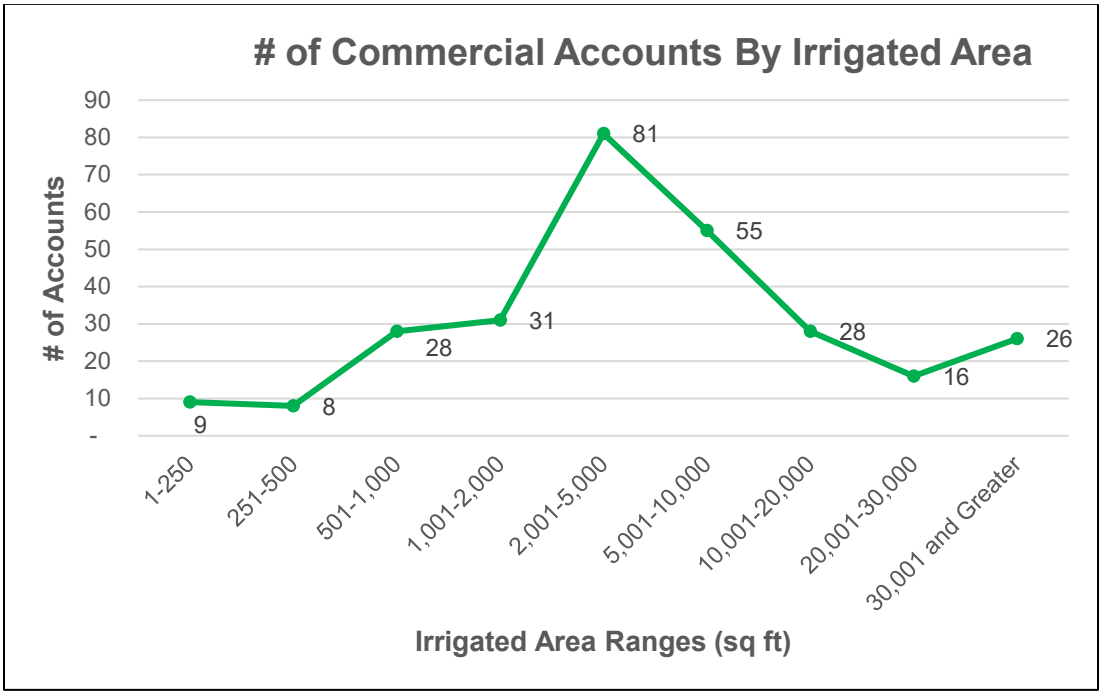
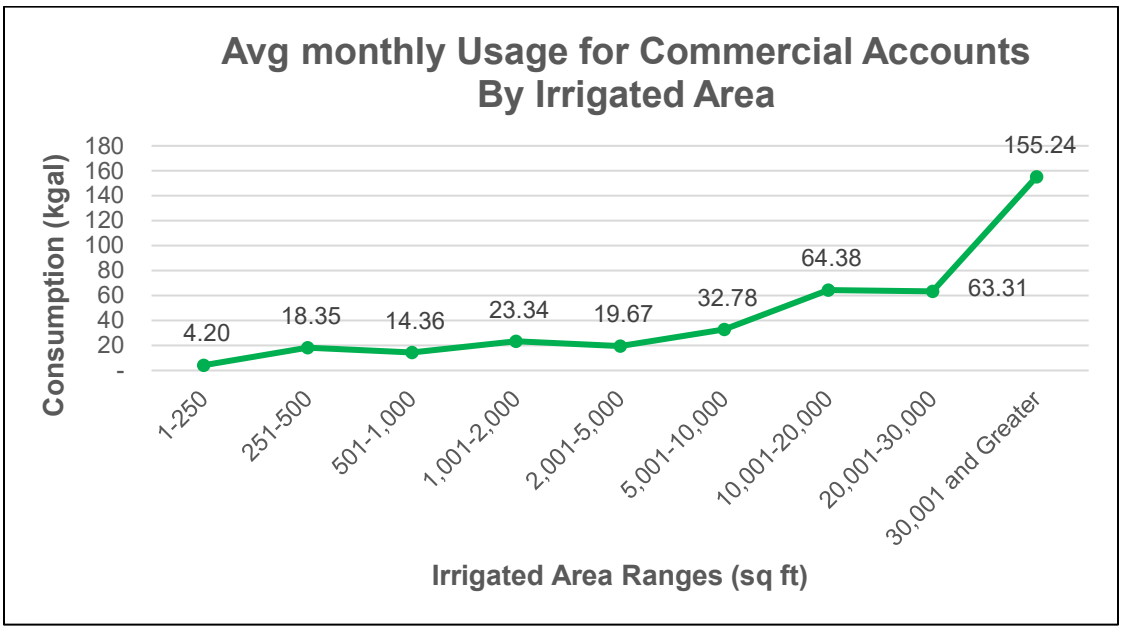


CHART 32: COMMERCIAL AVERAGE MONTHLY CONSUMPTION BY IRRIGATED AREA



HOA'S AVERAGE MONTHLY CONSUMPTION

CHART 33 AVERAGE MONTHLY CONSUMPTION FOR ALL HOA'S (85) COMBINED

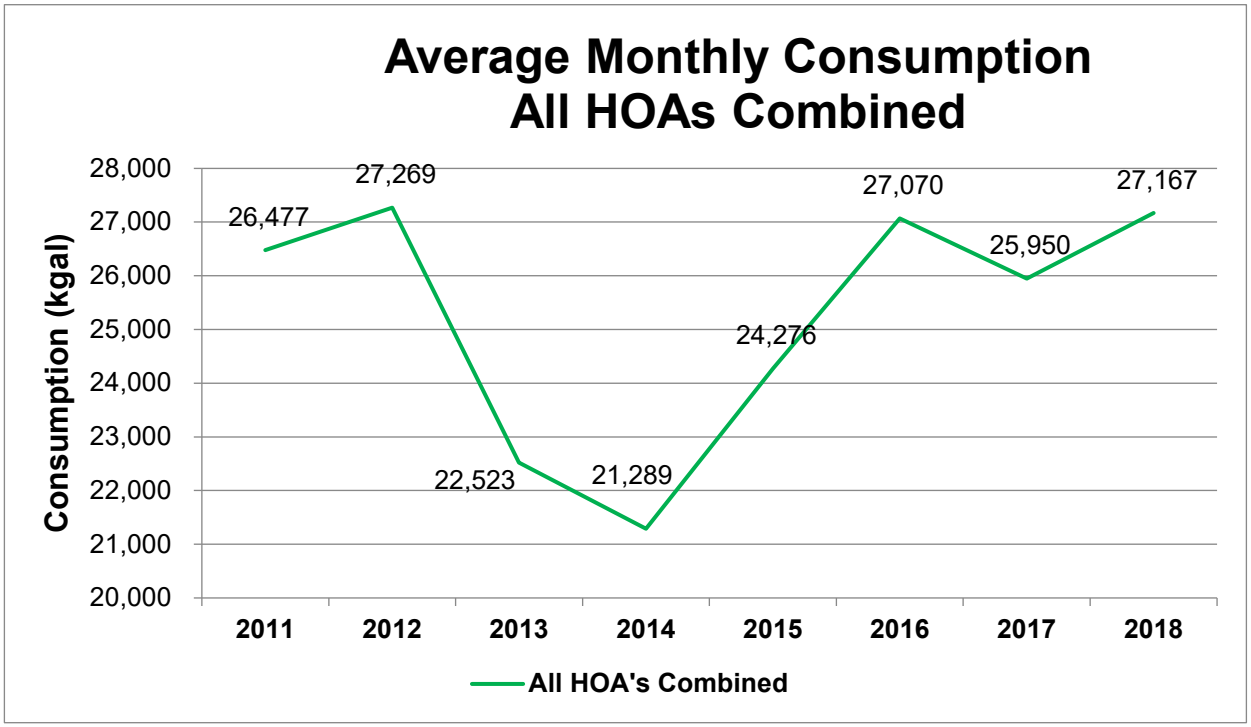
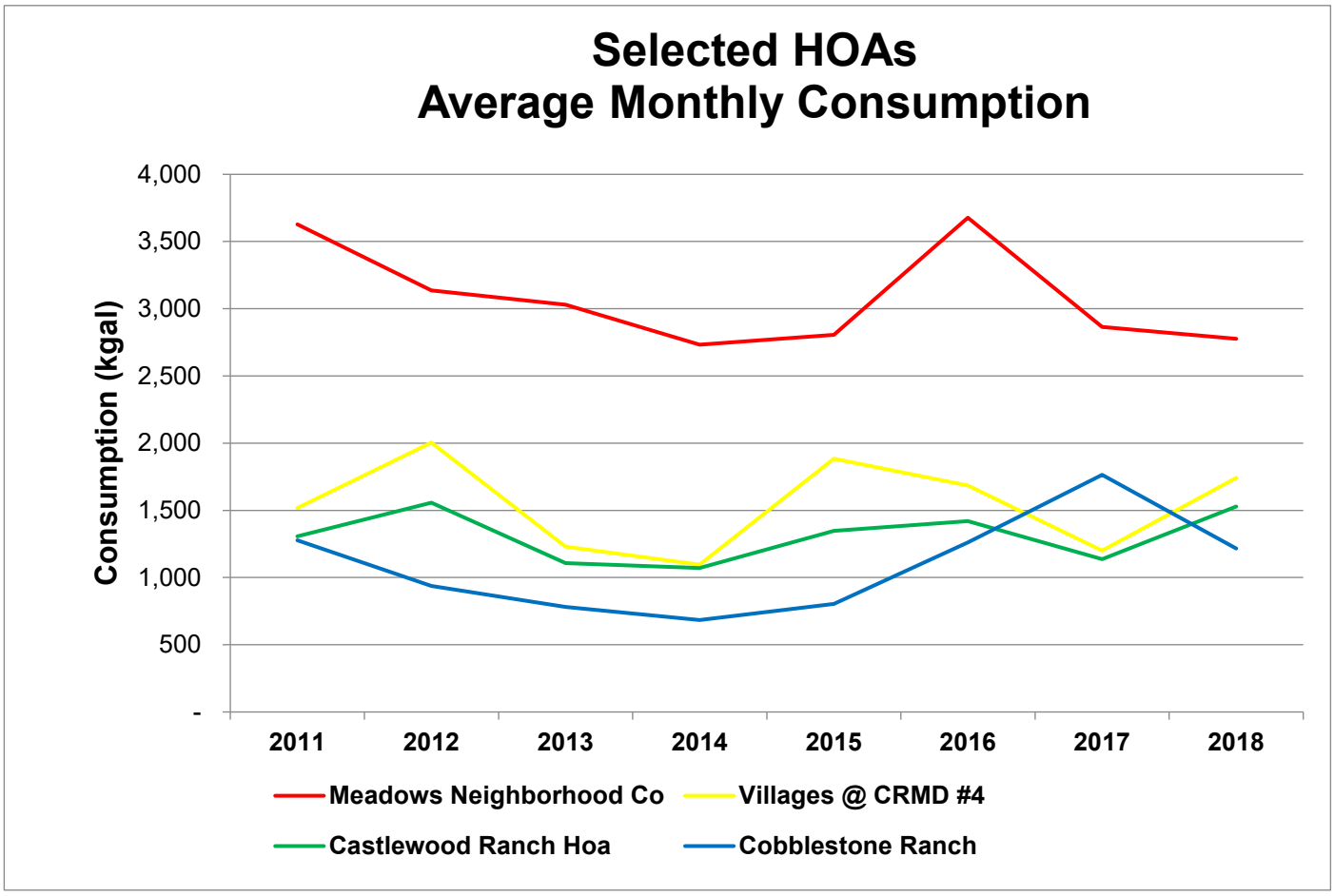


Chart 34 shows four HOA's that were selected at random to show the average monthly consumption patterns for these user types.

CHART 34: SELECTED FOUR HOA'S AVERAGE MONTHLY CONSUMPTION



MONTHLY CONSUMPTION BY SUBDIVISION

CHART 35: MEADOWS AVERAGE MONTHLY CONSUMPTION

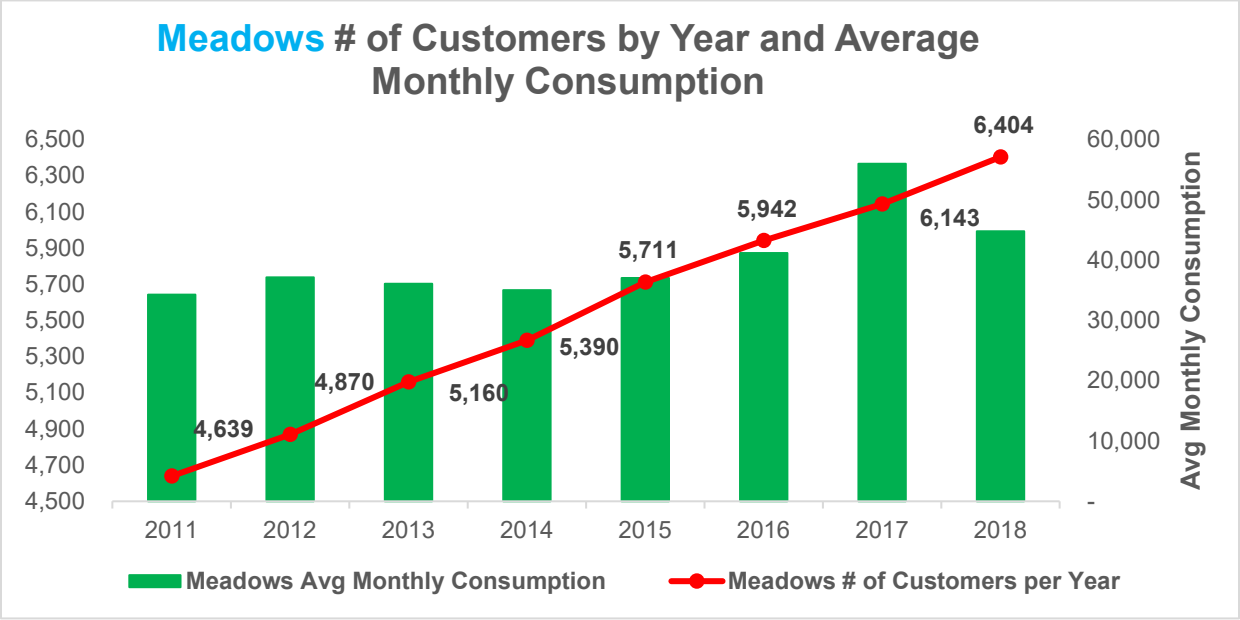


CHART 36: MEADOWS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

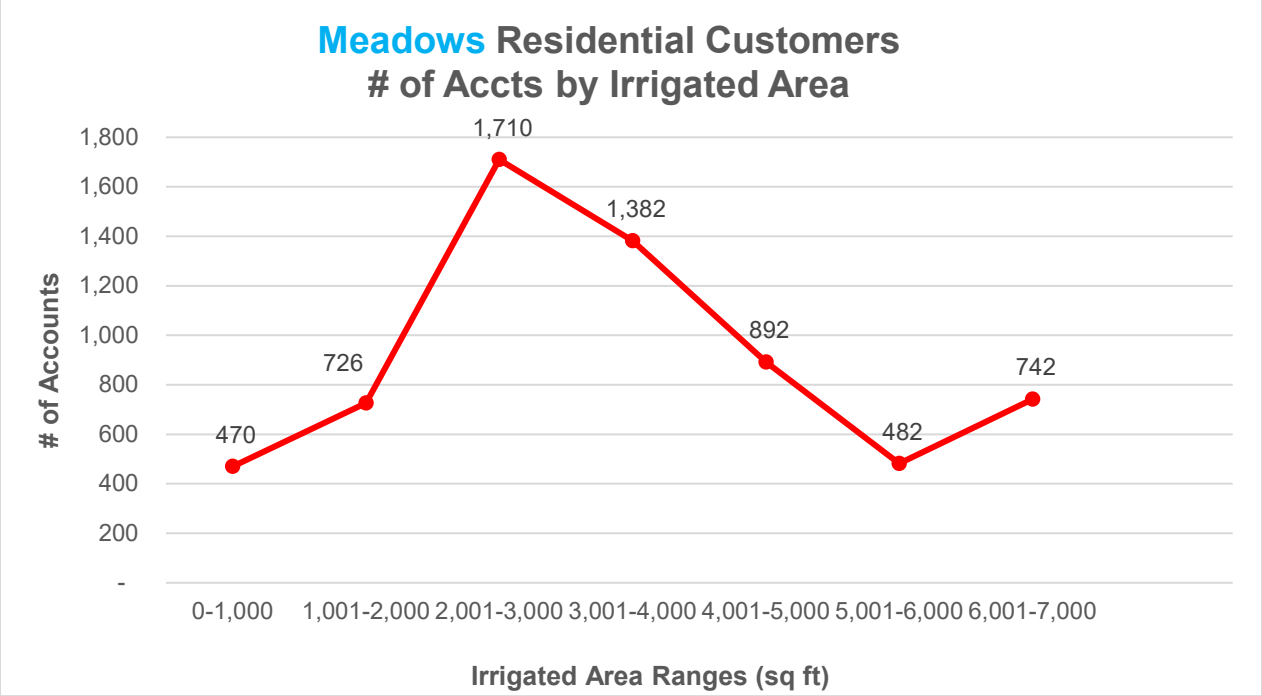


CHART 37: FOUNDERS AVERAGE MONTHLY CONSUMPTION

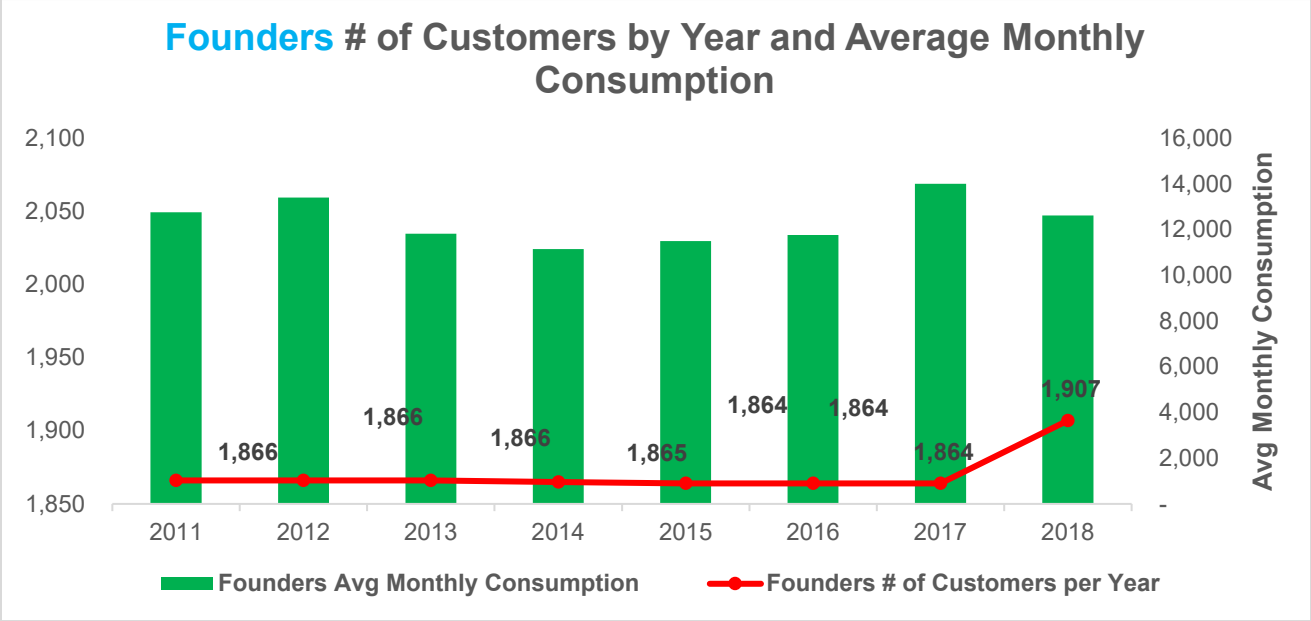


CHART 38: FOUNDERS RESIDENTIAL ACCOUNTS BY IRRIGATED AREA

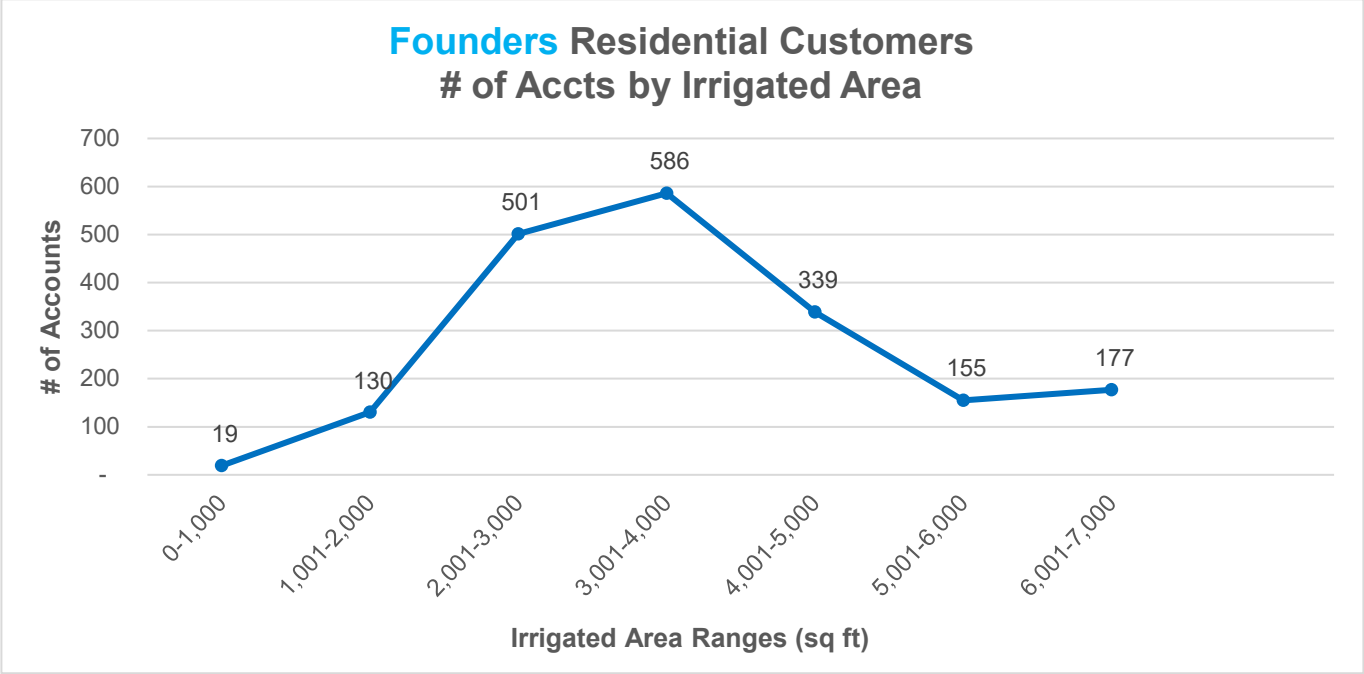


CHART 39: PLUM CREEK AVERAGE MONTHLY CONSUMPTION

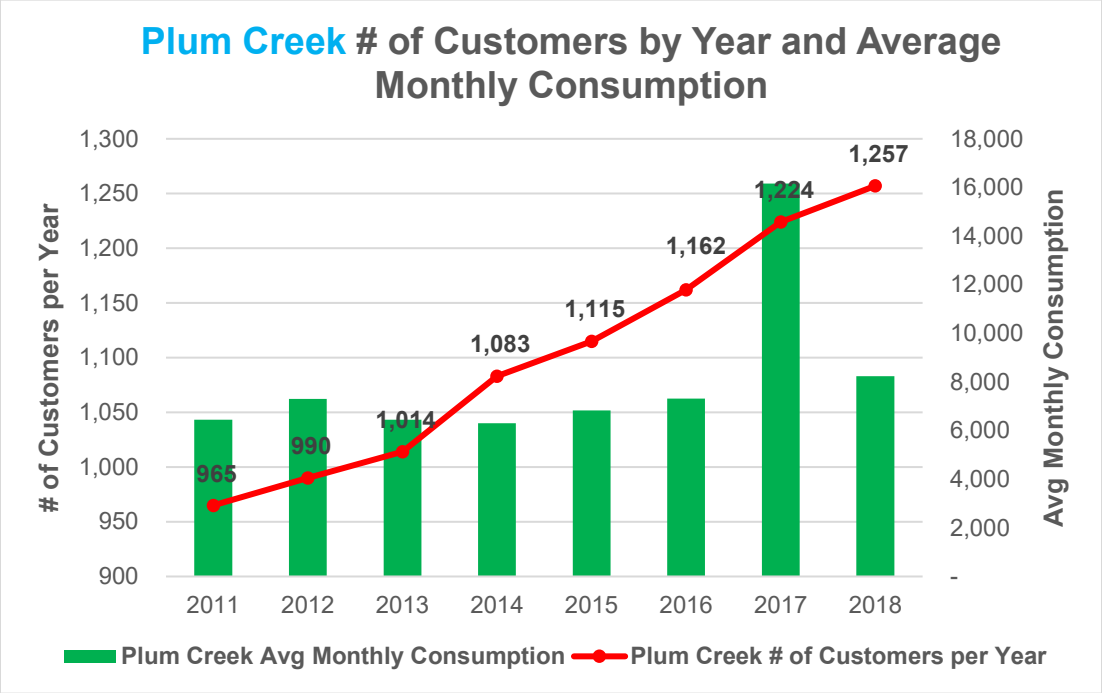
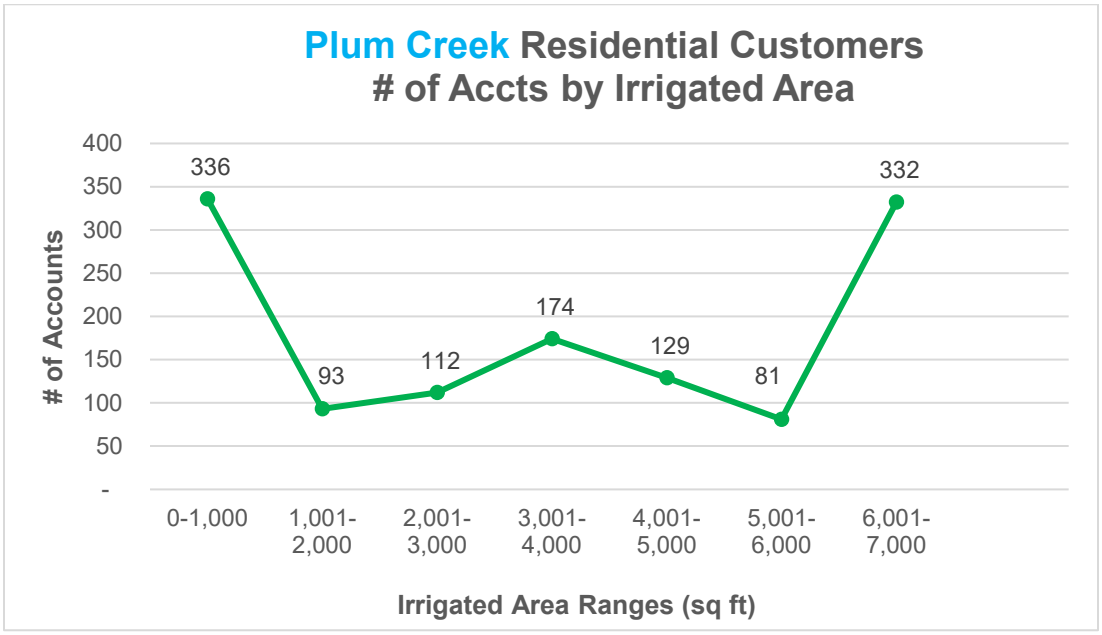


CHART 40: PLUM CREEK RESIDENTIAL ACCOUNTS BY IRRIGATED AREA



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 2018. These accounts vary from year to year based on the need and demand of the customers using the program.

CHART 41: BULK HYDRANT AND STATION ACCOUNTS

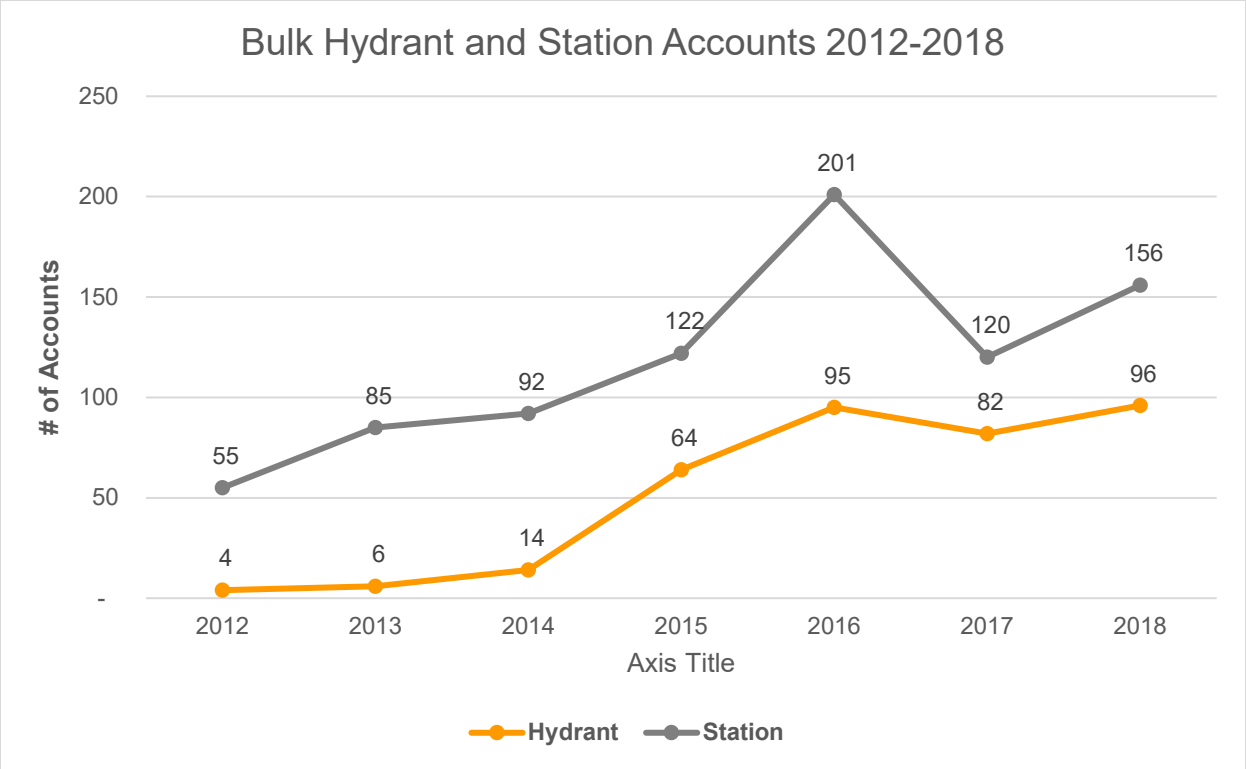


CHART 42: BULK HYDRANT USAGE

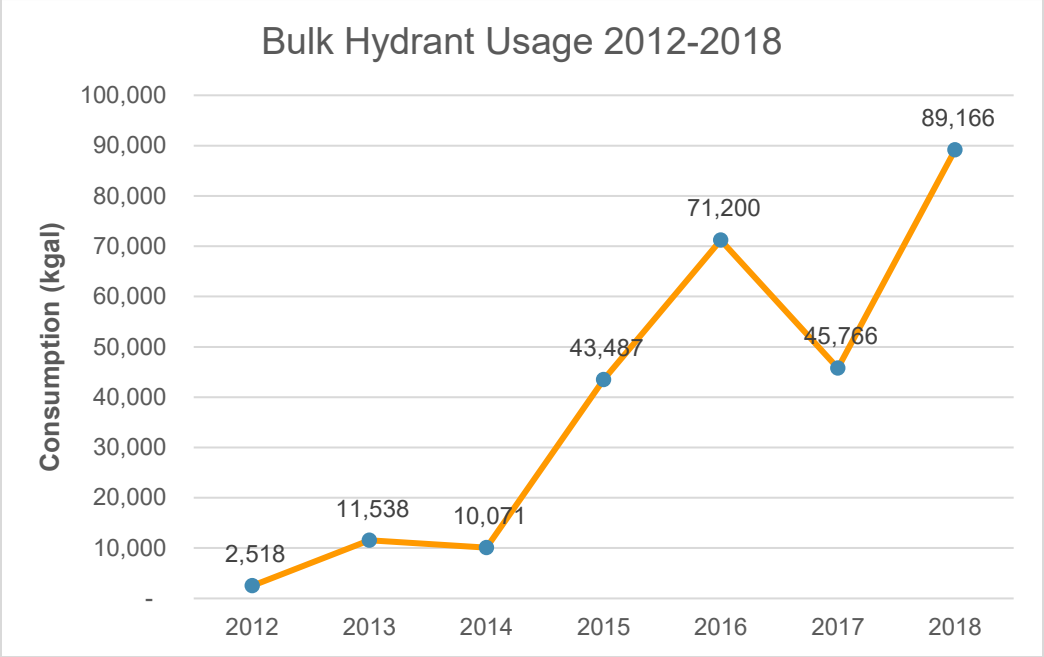
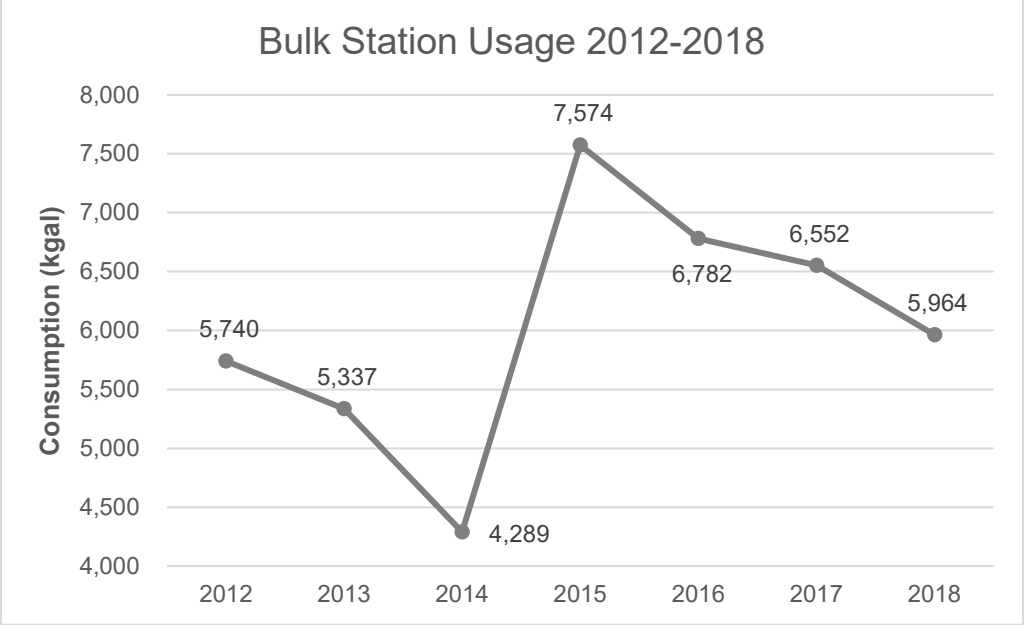


CHART 43: BULK STATION USAGE



TOWN ACCOUNT CONSUMPTION

Below is a chart showing overall town consumption from 2012 to 2018. From 2017 to 2018 consumption increased slightly, which was mainly due to the Parks Department.

CHART 44: TOWN CONSUMPTION

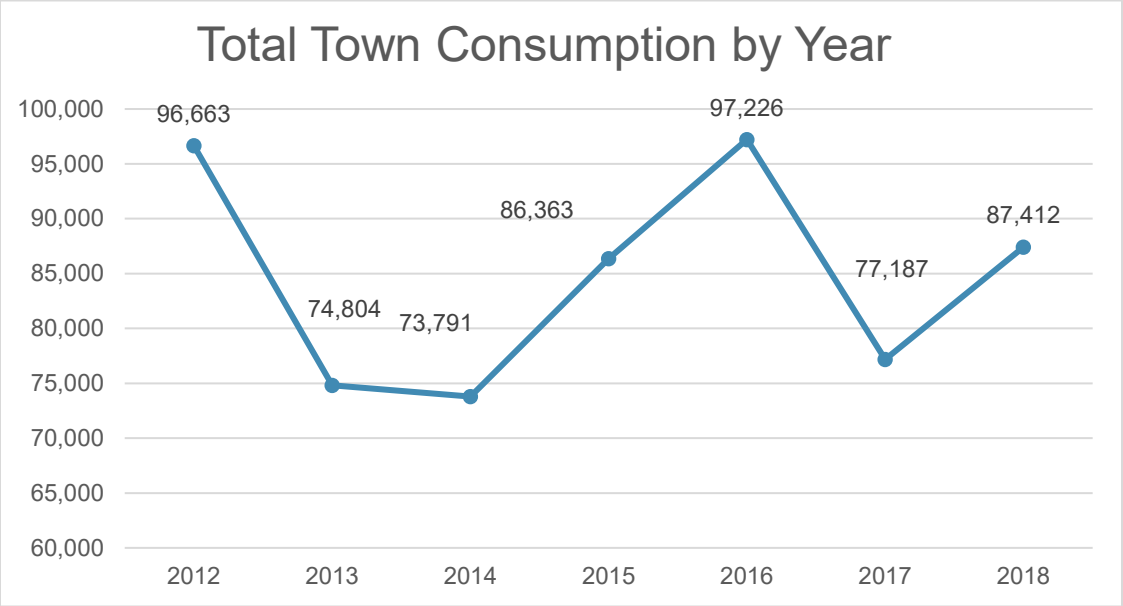


TABLE 13: TOWN CONSUMPTION BY YEAR AND DEPARTMENT (Kgal)

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

WASTEWATER ENTERPRISE FUND

NUMBER OF ACCOUNTS BY METER SIZE & CUSTOMER CLASS

Table 14 shows the number of accounts by meter size and customer class using 12 months of billing data (Jan18-Dec18). This shows that 20,868 customers were receiving wastewater service during this capture period. The FY2017 accounts based on 12 months of billing data (Jan17-Dec17) shows that 19,742 accounts were receiving wastewater service. There are 1,126 more accounts in FY2018 than FY2017.

There are approximately 779 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 thus not utilizing the Town's wastewater services.

TABLE 14: ACCOUNTS BY METER SIZE & CUSTOMER CLASS (FY2018)

Meter Size	Residential	Multifamily	Commercial	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	1,194	-	-	4	7	1,205
3/4"	18,572	14	124	101	114	18,925
1"	22	25	67	94	86	294
1.5"	-	55	48	109	81	293
2"	-	15	25	41	44	125
3"	-	2	5	2	13	22
4"	-	1	-	-	1	2
6"	-	-	2	-	-	2
Total	19,788	112	271	351	346	20,868

CHART 45: RESIDENTIAL WASTEWATER ACCOUNTS

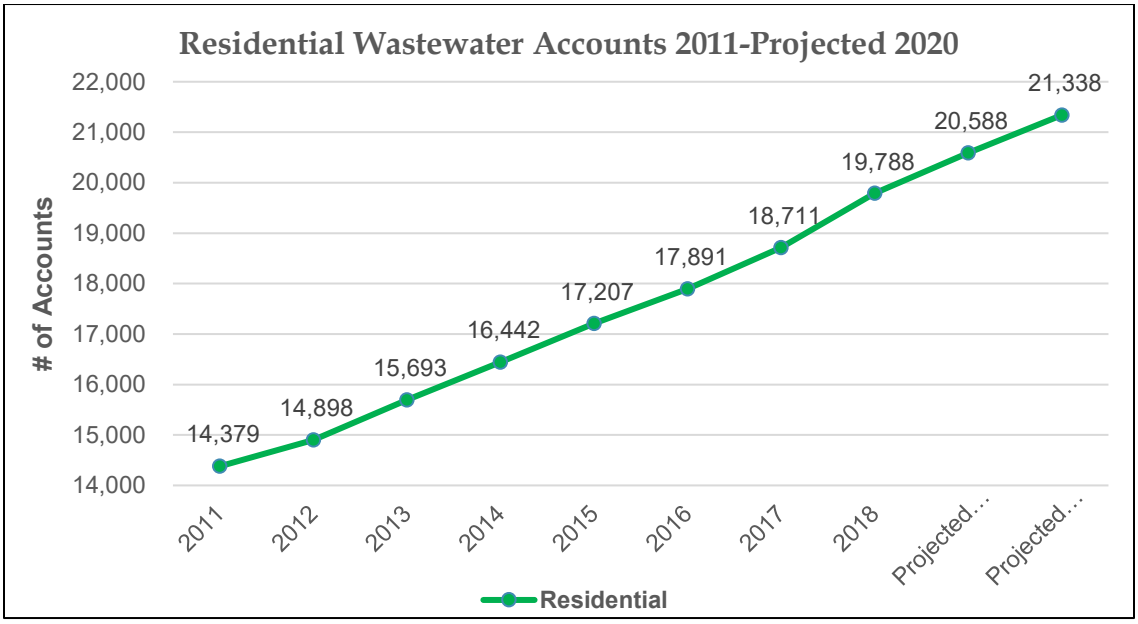
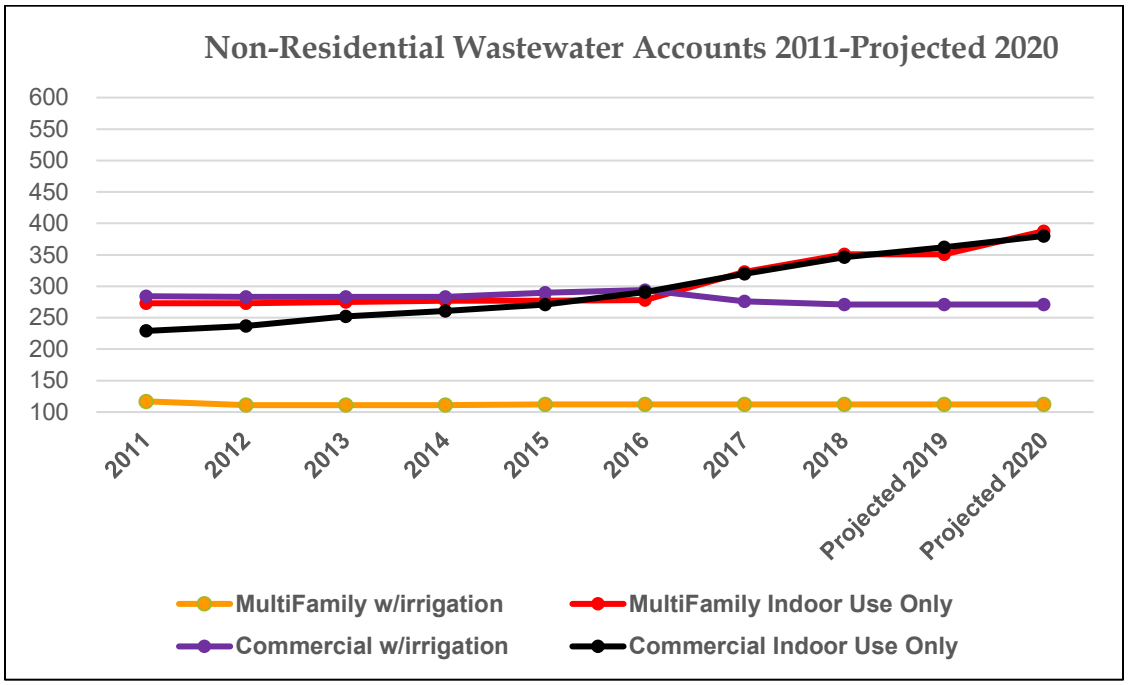


CHART 46: NON-RESIDENTIAL WASTEWATER ACCOUNTS



Castle Rock Water projects FY2020 wastewater accounts by using 2018 billing data plus projected growth for FY2019 and FY2020. The FY2020 wastewater accounts are projected to equal 22,489 (21,338 for residential and 1,151 for non-residential).

2019 Projected Accounts by Customer Class:

48 Residential (.67 SFE)
752 Residential (1 SFE)
16 Commercial
816 Total

2020 Projected Accounts by Customer Class:

45 Residential (.67 SFE)
705 Residential (1 SFE)
37 Multi-Family
18 Commercial
805 Total

Total growth of 816 accounts is projected for FY2019 and 805 for FY2020 for a total of 1,621 projected for the wastewater fund thru FY2020.

WATER RESOURCES ENTERPRISE FUND

NUMBER OF ACCOUNTS BY METER SIZE & CUSTOMER CLASS

Table 15 shows the number of accounts by meter size and customer class using 12 months of billing data (Jan18-Dec18). This shows 21,634 accounts served by the water resources enterprise fund. The FY2017 accounts based on 12 months of billing data (Jan17-Dec17) showed 20,461 water resources accounts. There are 1,173 more accounts in FY2018 than in FY2017.

TABLE 15: ACCOUNTS BY METER SIZE AND CUSTOMER CLASS (FY2018)

Meter Size	Residential	Multifamily	Commercial	Bulk	Irrigation	MultiFamily Indoor Use Only	Commercial Indoor Use Only	Total
5/8"	1,193	-	-	-	23	4	7	1,227
3/4"	18,729	14	127	96	152	101	120	19,339
1"	23	25	69	-	103	94	90	404
1.5"	-	55	50	-	132	109	81	427
2"	-	15	25	-	76	41	45	202
3"	-	2	5	-	6	2	14	29
4"	-	1	-	-	2	-	1	4
6"	-	-	2	-	-	-	-	2
Total	19,945	112	278	96	494	351	358	21,634

CHART 47: RESIDENTIAL WATER RESOURCES ACCOUNTS

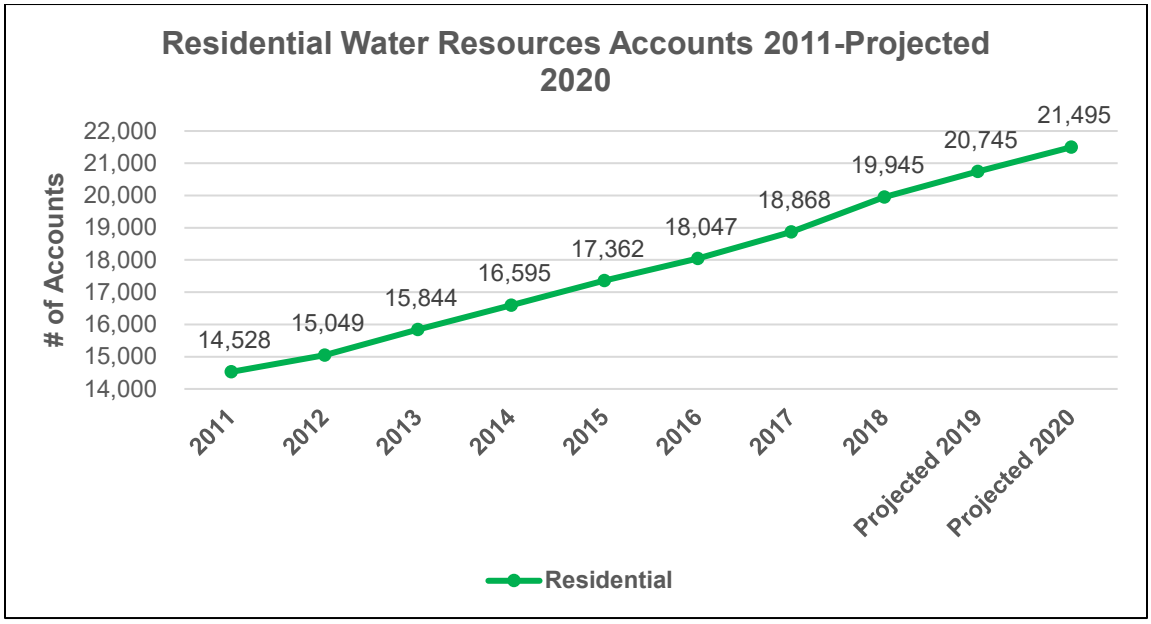
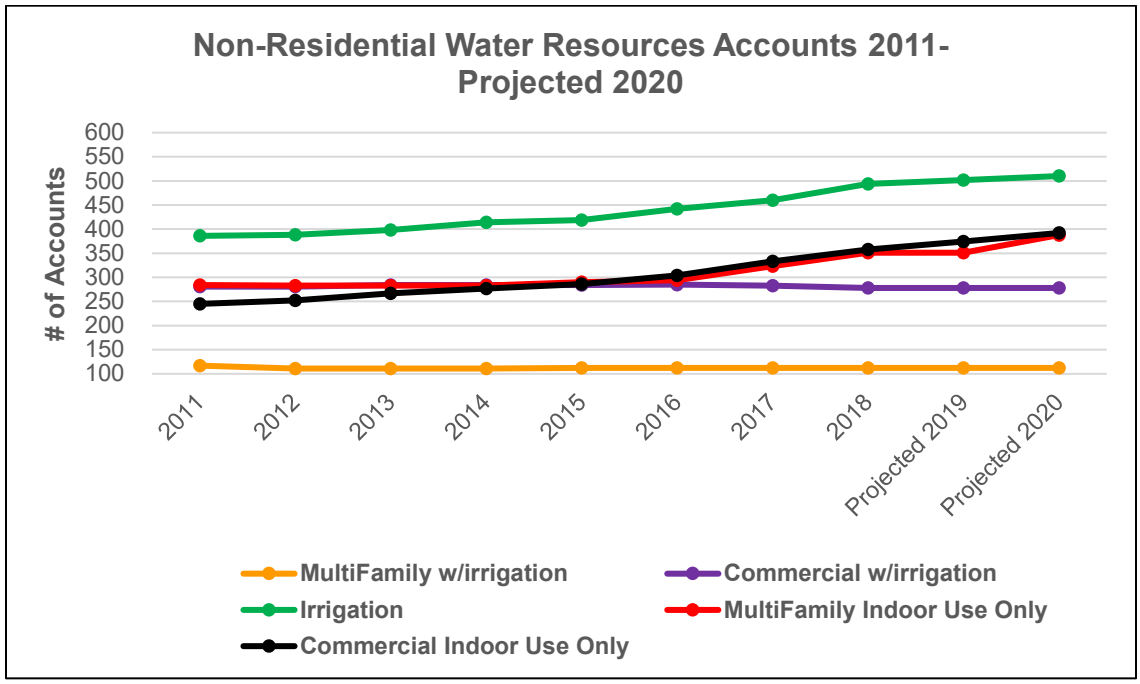


CHART 48: NON-RESIDENTIAL WATER RESOURCES ACCOUNTS



Castle Rock Water projects FY2020 water resources accounts by using 2018 billing data plus projected growth for FY2019 and FY2020. The FY2020 water resources accounts are projected to equal 23,271 (21,495 for residential and 1,776 for non-residential).

2019 Projected Accounts by Customer Class:

48 Residential (.67 SFE)
752 Residential (1 SFE)
16 Commercial
8 Irrigation
824 Total

2020 Projected Accounts by Customer Class:

45 Residential (.67 SFE)
705 Residential (1 SFE)
37 Multi-Family
18 Commercial
8 Irrigation
813 Total

Total growth of 824 accounts is projected for FY2019 and 813 for FY2020 for a total of 1,637 projected for the water resources fund thru FY2020.

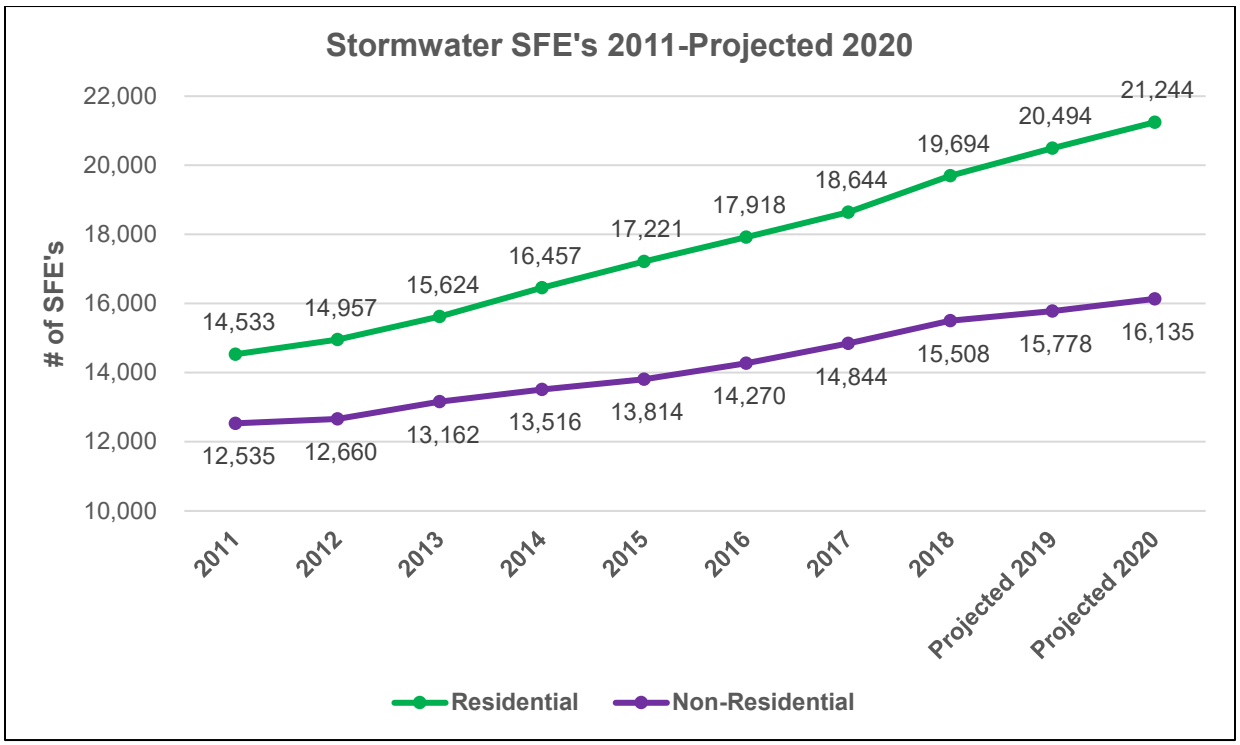
STORMWATER ENTERPRISE FUND

Table 16 shows stormwater average monthly SFEs based on 12 months of billing data (Jan18-Dec18). This shows that 35,202 SFE's were receiving stormwater services during this capture period. The FY2017 billing data (Jan17-Dec17) showed 33,488 SFE's receiving stormwater services. There are 1,714 more SFE's in FY2018 than FY2017.

TABLE 16: STORMWATER SFE'S (JAN 18-DEC 18)

Total Monthly SFE's	
Residential	19,694
Non-Residential	15,508
Stormwater SFE's	35,202

CHART 49: STORMWATER SFE'S



Castle Rock Water shows FY2020 projected stormwater SFE's based on 12 months of billing data (Jan18-Dec18) plus projected growth for FY2019 and FY2020. The FY2020 stormwater SFE's are projected to equal 37,379 (21,244 for residential and 16,135 for non-residential).

2019 Projected Accounts (SFE's)

800	Residential
112	Detached in Cherry Creek Basin
688	Detached in Plum Creek Basin
270	Commercial in the Plum Creek Basin
1,070	Total

2020 Projected Accounts (SFE's)

750	Residential
218	Detached in Cherry Creek Basin
532	Detached in Plum Creek Basin
358	Commercial in the Plum Creek Basin
1,108	Total

Total growth projected for the stormwater fund is 1,070 SFEs in FY2019 and 1,108 for FY2020.