



## **In-House Stormwater Maintenance Saves Town \$100,000**

*By Jamie McCracken, Field Services Superintendent*

In August, the Stormwater Maintenance Team returned to Tributary B (a.k.a. Primrose), to make additional improvements downstream from where they previously cleared two 84-inch diameter pipes of sediment. The project, which involved installing a check dam, removing extensive amounts of sediment and vegetation from the channel, and re-sloping the sides, was initially intended to be completed by a contractor. However, due to the lowest bid being \$150,000, our maintenance team was certain they could provide a better product at a much more competitive price. After two weeks of hard work and removing nearly 1,800 cubic yards of material, the team completed the project at a cost of just under \$37,000.

This is another great example of how applying job knowledge and data from previous jobs can help our utility save our customers money. Although the team has a long list of upcoming and ongoing projects, the amount of savings possible increased the priority and yielded better results than spending an extra \$113,000 on a contractor. Excellent job by the Stormwater Maintenance and Engineering teams on a job well done!



*Channel before maintenance*



*Stormwater crew removing excess sediment*



*Continued on next page*

### OUR VISION

*We will be a national leader among water utilities focused on customer satisfaction and delivering outstanding quality and value.*

## Stormwater Maintenance, continued



*Channel after maintenance*

## New O&M Building Progress Update

*By John Hansen, Project Manager*

The Utilities Operations and Maintenance (O&M) Building received some “bones” this month with the welcome arrival of steel to the construction site. The contractor worked throughout August installing steel trusses, joists, beams, and other structural components of the building. The concrete masonry unit walls have been substantially completed with crews continuing to clean and patch areas as adjustments are needed to accommodate equipment and components throughout building. There have been some concerns raised in regards to the exterior color of the building. The current smurf-like appearance of the building is only a weatherproofing barrier over some of the concrete block and will soon be covered with metal panels of a more agreeable color.



*Bold new theme color for the Utilities Department?*

Roof decking was installed on the northwest corner of the building and the majority of concrete deck for the 2<sup>nd</sup> floor of the building was poured. With these areas now covered, activity within the building is beginning to increase. Wall framing has been completed in many areas and mechanical ducts, electrical conduit, and plumbing are also in progress. Stairway installation began at the end of the month and door and window frame installations are continuing. The concrete slab on grade was poured in the meter testing shop this month and the concrete outlet structure in the stormwater detention pond was also formed and poured. Construction of the building remains on track within the established budget (approximately \$4.5 million) and is on schedule for substantial completion in December 2015.



*Steel installation in progress*

# East Plum Creek Emergency Waterline Report Project

By Barbara Horton, Stormwater Engineer

In May 2015, the Town became aware of an exposed potable water line crossing East Plum Creek (EPC) at the Town's South Well Field, near the end of South Perry Street. The water line was originally constructed in the late 1980s with adequate cover and concrete encasement around the section of water line located under the EPC low flow channel alignment at the time. Over the past 20-30 years, the low flow channel has migrated further east. Higher than normal flows within EPC due to storm events this year resulted in bank erosion, and exposure of the shallower, un-encased section of water line.



The emergency repairs included removal and replacement of approximately 140 linear feet of water line in order to lower the line below the current streambed elevation. Additional concrete encasement was also constructed to provide additional protection for the replaced section of water line. Once the water line improvements were completed, the eastern bank was regraded and riprap protection was placed along the bend to prevent future erosion.



Several members of the Utilities staff worked together to ensure concerns with the exposed line were addressed on an accelerated schedule, and that no customers were impacted. For projects along EPC, Utilities also relies on our Parks Natural Resource Specialist to provide guidance for compliance with Habitat Conservation Plan requirements. Leonard Rice Engineers was consulted with to provide design support and environmental permitting services. 53 Corporation was awarded the contract to construct these improvements, which were completed in August.

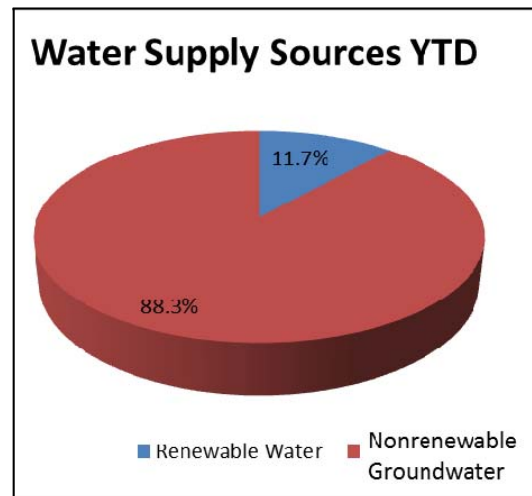


The total construction cost for the Emergency Repair Project is approximately \$139,000. Because this was an unanticipated and unbudgeted project, the Water Catastrophic Failure Reserve fund was utilized to cover engineering and construction costs.

## 2015 Water Demands

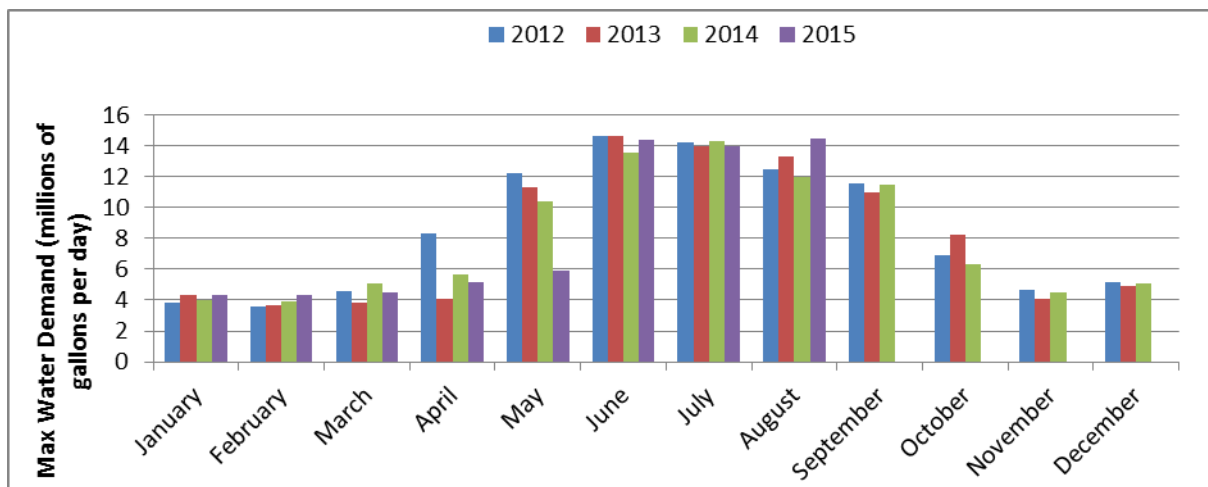
By: Heather Justus, Water Resources Program Analyst

The maximum daily water demands are plotted by month from 2012 to the current month. As observed, the maximum demand of 14.5 million gallons per day (MGD) for August is about the same as the July maximum of 14.0 MGD. Summer time maximum demands inform us of the size of the infrastructure necessary to provide water service over short periods of time and help us to plan future water resources needs. An average of the winter month (November, December, January, and February) usages, reflect indoor or base demand. The water demand total for August was 390 million gallons (MG), which was a 15% increase from the July 2015 total of 329.2 MG, and an increase (25%) from August 2014 demand of 291 MG.



The Town’s nine alluvial wells produced a total of 23.6 MG of renewable water during August, which represents 6% of the total water supply for the month and 11.7% (185 MG or 569 acre-feet) of the water supply year to date. The total renewable water produced since the opening of the PCWPF has surpassed 658 MG, which represents 11.5% of the Town’s total water supply since the alluvial wells began pumping in May of 2013. Currently, the Town’s renewable water rights surpass the capacity of the alluvial wells.

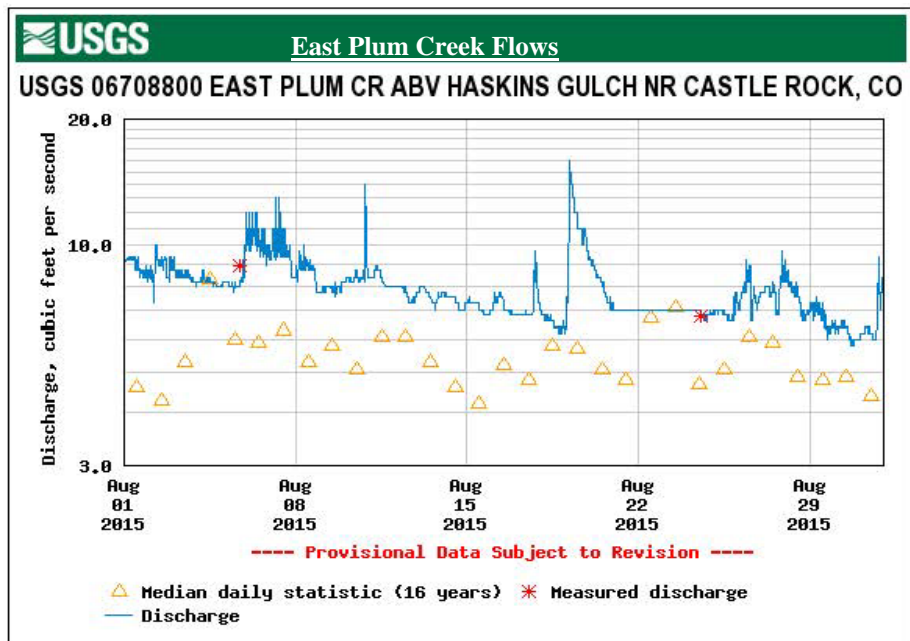
### Maximum Daily Water Demands



The flow hydrograph represents stream flows in East Plum Creek taken from the stream gauge located at Haskins Gulch. The hydrograph shows that the Plum Creek basin experienced stream flows between 8 to 40 cubic feet per second (cfs). There have been several active calls on the main stem of the South Platte River. Several of the calls have higher adjudication dates than our Meadows Alluvial Wells which is our Central Well Field. This means that those wells are now out-of-priority, so the depletions from those wells will now be covered by our nontributary return flows and/or our Douglas Park water rights. This also means that the Town will now have slightly less reusable water going down Plum Creek. The priority date on a river call may change each day depending on the stream flow available, and the seniority of the diversions that need water on that day.

*Continued on next page*

## 2015 Water Demands, *continued from previous page*



## AUGUST LEVELS OF SERVICE

### Drinking Water Compliance

Castle Rock Water will deliver water that meets or exceeds both Primary Drinking Water Regulations and Secondary Maximum Contaminant Levels 100% of the time. Sixty routine samples were completed. All samples were within the parameters set forth by the Safe Drinking Water Act and Colorado Drinking Water Standards.

### Pressure Adequacy

< 1% of our customers will experience less than 43 pounds per square inch (psi) of pressure at the meter during normal operations. There was a pressure problem with two pressure reducing valves. The pressure has now been stabilized. No one was out of water and no service was interrupted. .

### Drinking Water Supply Outages

<5% of our customers will experience water outages for one or more event totaling more than 30 hours/year. Less than 5 percent of customers experienced a water outage this month; however, the following issues were reported:

- One service line leak on Coachhouse Loop. The repair was made within two hours, and only one customer was out of water for 15 minutes.
- Circular main line break in Johnson Dr. Repairs were made without any service disruptions.
- One service line break on Starry Night Loop. The repair was made within two hours, and service was disrupted to five houses for about 20 minutes.
- Leaking valve at Fifth and Wilcox. Repairs were made overnight and no customers were without service.
- Leaking valve at Plum Creek and Perry. Repairs were made overnight and no customers were without service

### Sewer System Effectiveness

<1% of our customers will experience a sewer backup caused by the utility's sewer system per year. There were no sanitary sewer issues this month.

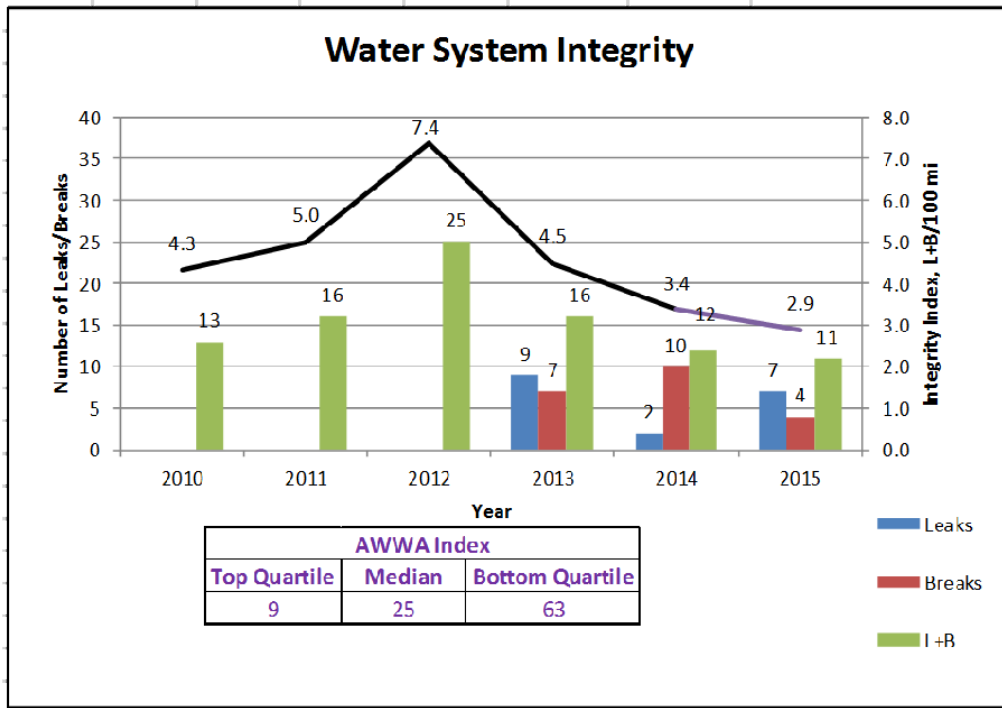
### Hydrant Meter Permits

Thirty-two (32) open meter permits.

### Backflow Prevention Devices

Mailed approximately 45 backflow test letters for devices due in August.

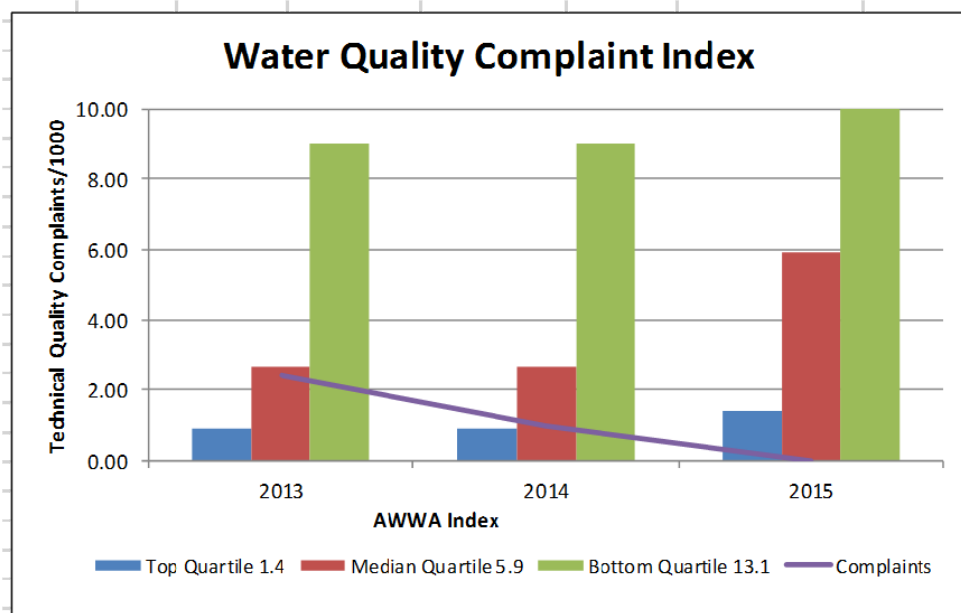
# Water System Integrity



There were four service line breaks, and one main line break this month. An overall rating of 2.88 breaks per 100 miles kept us in the top quartile as compared to national standards for 2014. We are on-track to be in the top quartile again in 2015 based on performance year-to-date.

# Water Quality Complaints

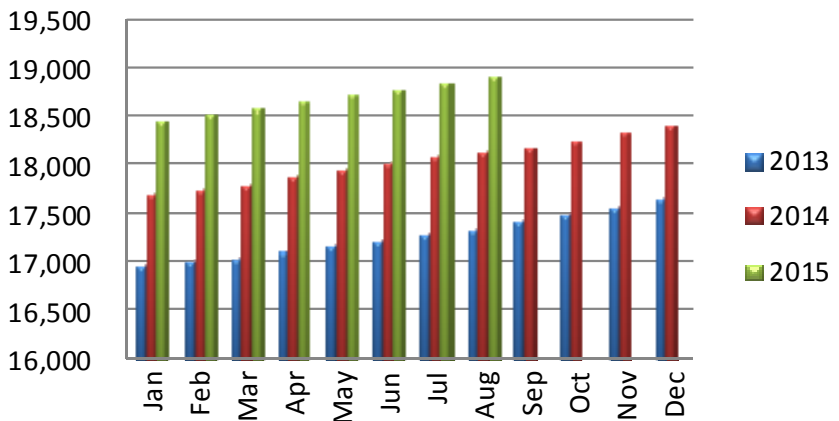
There were no water quality complaints in August 2015. Castle Rock Water compared favorably to industry standards falling just outside the top quartile (best of the best) for this metric in 2014. Year-to-date we are on-track to be in the top quartile this year. For more information, view the current water quality report at [CRgov.com/waterquality](http://CRgov.com/waterquality).



## Meters



## Meters Read



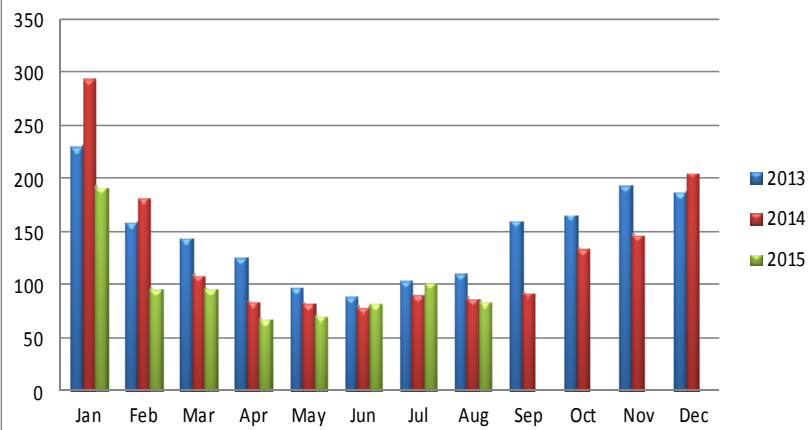
The meters read continues to increase month-to-month due to new residential and commercial accounts, with a significant increase from August 2014.

The pace of meter set inspections remained steady month to month due to new residential and commercial development.

**Meter set inspections of 137 this month sets a record for the highest amount of meter set inspections recorded to date.**

The actual meter sets of 74 is the number which passed inspection. We work with builders on failing meter sets to bring them into compliance for reinspection.

## Skipped Reads



Skipped reads in August 2015 are consistent with the previous two years as a result of the continued maintenance and repair efforts on meter infrastructure. The American Water Works Association (AWWA) standard is 2%, so at 0.44% we still continue to stay well below the industry average.

*Skipped reads of 68 in April 2015 set a record for the lowest amount of skipped reads since Utilities has been tracking this metric.*

## Why is this important?

It is a strong indication of the level of preventative maintenance being done by our team. A skipped read is indicative of a problem with the meter. Less skipped reads means more properly working meters, which is good for all our customers.

# CERTIFICATIONS

The water, wastewater and stormwater utility business is highly technical and regulated. As such, Castle Rock Water has to maintain an extensive staff of professionally licensed individuals. Most of these licenses require specialized education and the passing of state testing, as well as proof of continuing education. Below is a list of those passing various certifications this month:

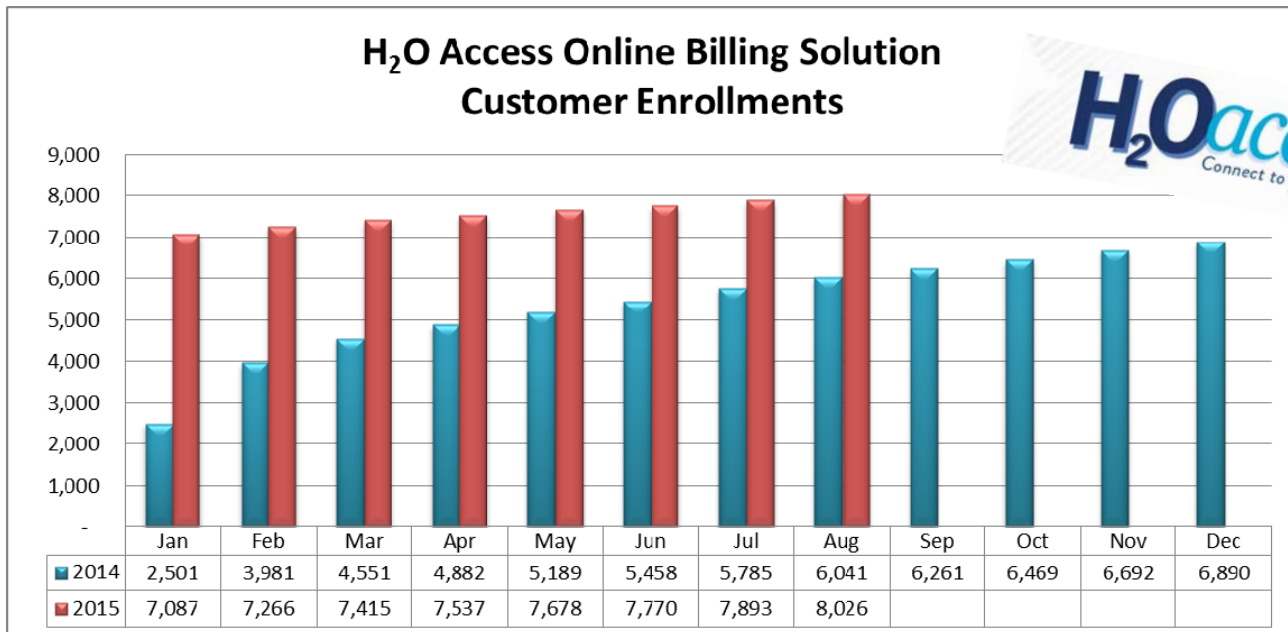


**Dwight Keller**  
Collection 1

## Customer Statistics

By: Anne Glassman, Business Solutions Manager

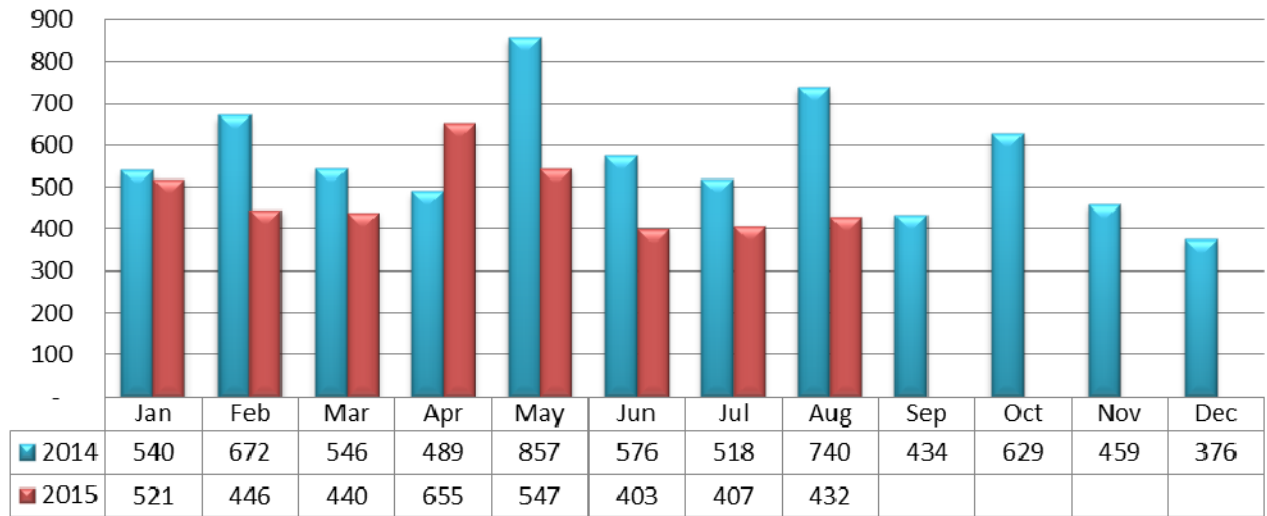
Our Business Solutions Team continues to track a host of statistics and data as we continue to evaluate our levels of service and look for efficient ways to improve on these levels.



The H<sub>2</sub>OAccess online billing solution was launched in January 2014. The number of customers who have enrolled in online bill pay and have also chosen to go paperless remains steady at 52%. However, the number of customers enrolling in the service is steadily increasing month to month.

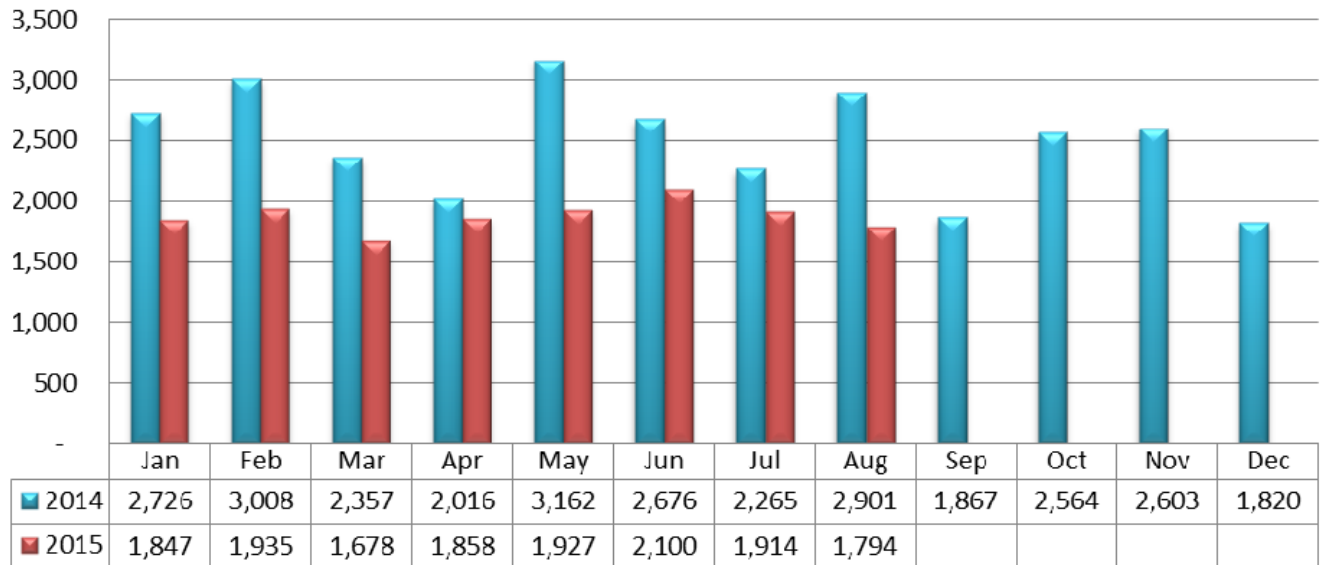


## Walk-In Customers



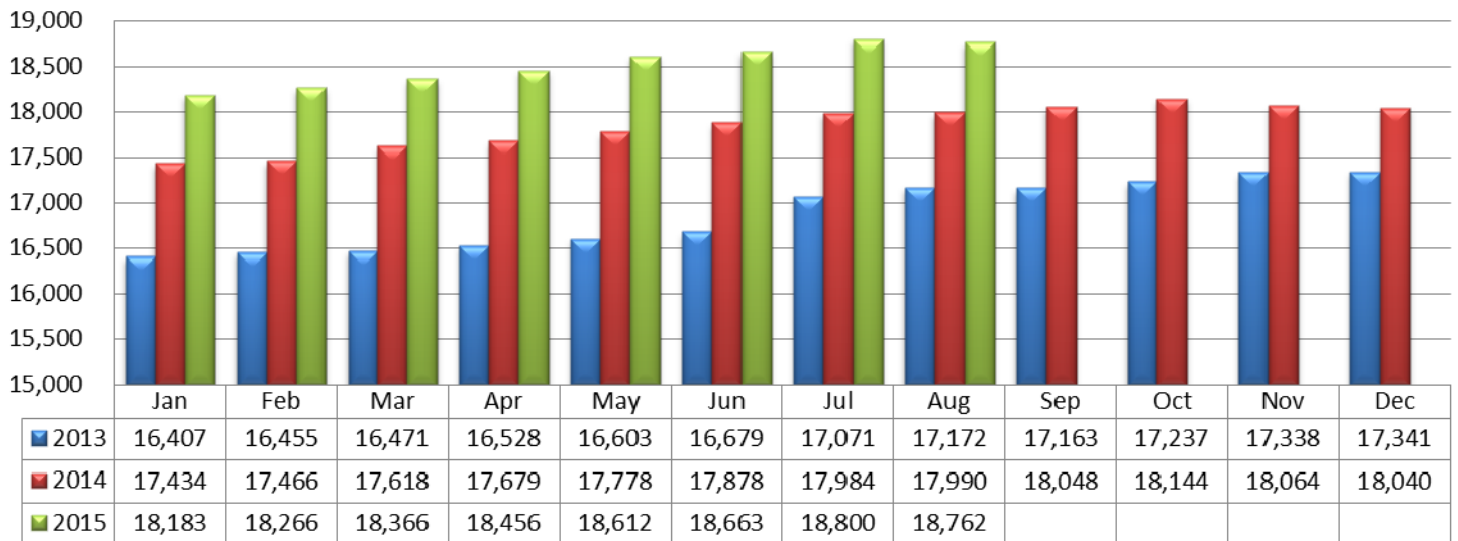
Walk-in customers in August 2015 were consistent with the prior month.

## Customer Phone Calls



Customer phone calls in August 2015 were consistent with the prior month.

## # of Accounts Billed



The number of accounts billed continues to steadily increase month-to-month mostly due to new residential growth.

## Plan Review Update

By Kurtis Cotton  
Plan Review Engineer

The applications reviewed consisted of:

- 43 1<sup>st</sup> Submittals
- 23 2<sup>nd</sup> Submittals
- 27 Special reviews

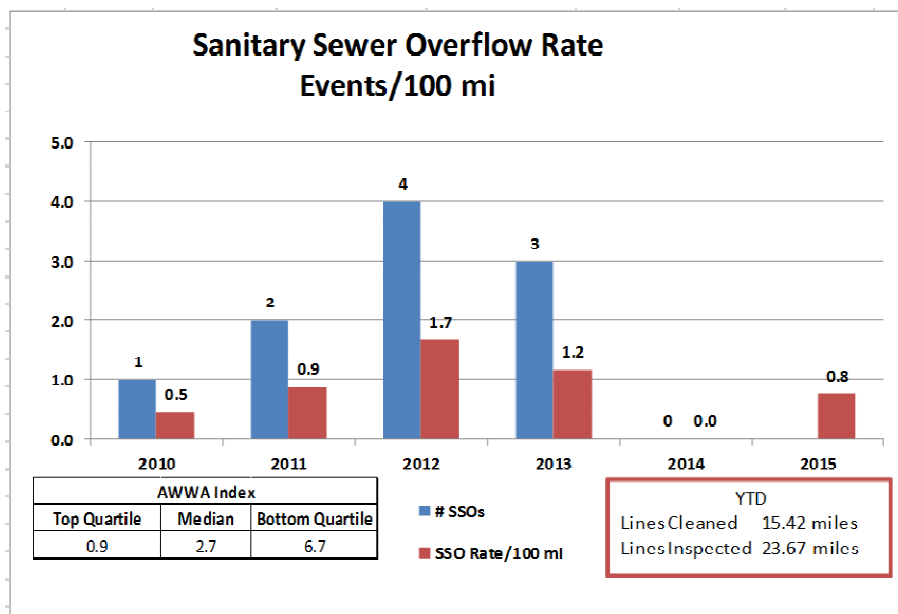
Utilities reviewed 93 applications this month which compares to 48 during the same time period in 2014. The average assigned due date by Development Services was 1.7 weeks, and Utilities completed the reviews in 1.6 weeks. Utilities completed 91 reviews on-time as scheduled, and 2 one week early. These applications included:

- 11 Plats
- 21 Construction Drawings
- 2 Construction Permits
- 13 Site Development Plans
- 11 Technical Criteria Variances
- 9 Field Change Orders
- 16 Grading, Erosion and Sediment Control (GESC) Plans
- 2 Grading, Erosion and Sediment Control (GESC) Permit
- 1 Lot Line Vacation
- 1 Miscellaneous
- 6 Preliminary Project Applications

In addition to completing the above listed applications on-time, Utilities completed 65 single family utility reviews and associated system development fees.

# Sanitary Sewer Overflows

We ended 2014 with no sewer over-flows or backups which is the best performance over the last five years. Our total sewer overflows to-date in 2015 is three. Our 5-year average is 0.38 events per 100 miles, which is in the Top Quartile (the best) of American Water Works Association (AWWA) entities participating in the national benchmarking. *The lower the number the better the performance!*



## How do we avoid overflows?

Our team runs a camera through the sewer mains to look for problems. When problems are identified they are cleared with a high pressure water jet. In 2014, the camera was run through 21.4 miles of pipe, and we cleaned 18.7 miles. So far in 2015, we have inspected 23.7 miles of pipe, and cleaned 15 miles.

## On the Strategic Plan Front

By Mark Marlowe, Utilities Director

The team continues to be focused on implementation of our five year strategic plan.

In order to stay focused, strategic plan memory boards were prepared and placed at all of our main staff locations. These boards reinforce the six main strategies and the key tactics we are implementing this year.

Significant progress has been made on a number of tactics. We are continuing to maximize renewable water use. To date, we are at 11.7% renewable and we project we will end the year ahead of last year's renewable water consumption. The total renewable water supply secured by the Town as part of our long term renewable water plan on an annual basis relative to the long term needs of our future customer base is shown below.

*Continued on next page*

**Castle Rock Water**  
Securing our future drop by drop

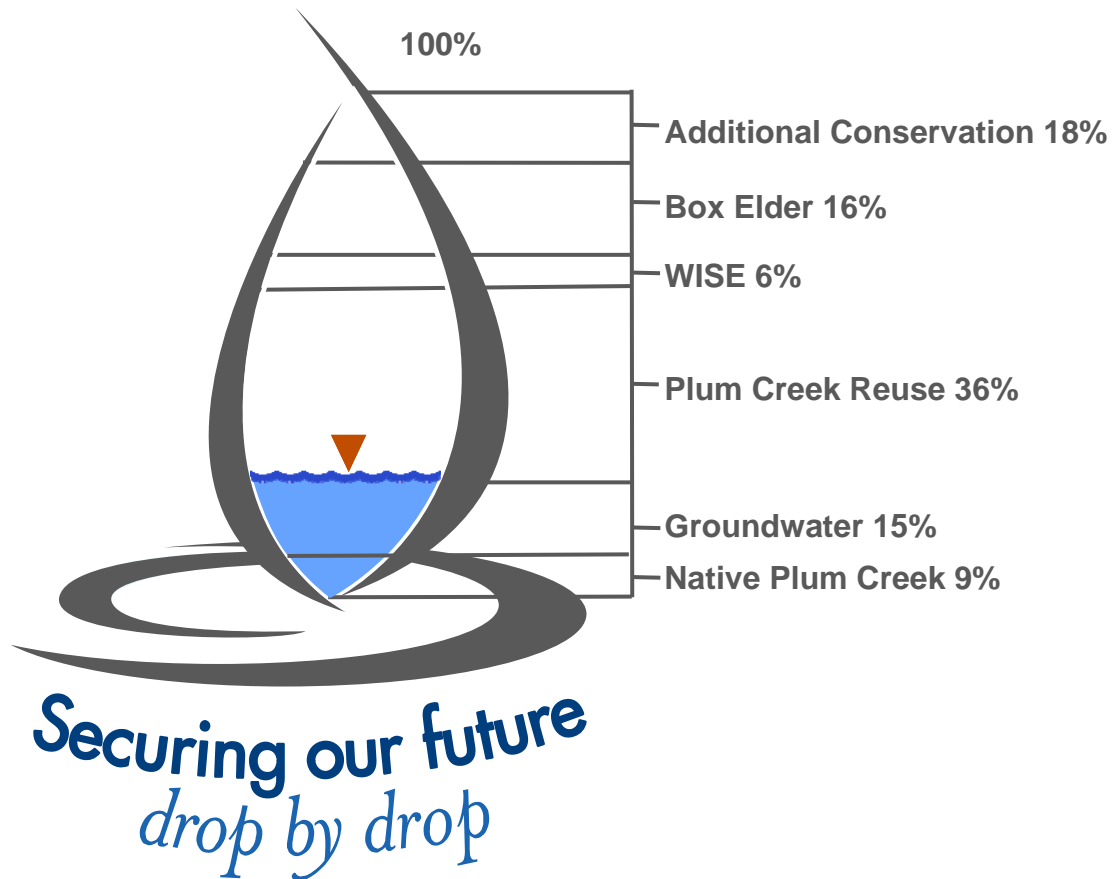
### Strategic Plan Memory Board

#### Strategies and Key 2015 Tactics

- Strategy 1 Ensure long-term water**
  - 1-1-11 Track and reduce non-revenue water.
  - 1-1-12 Maximize/track use of renewable water.
  - 1-1-13 Evaluate additional raw water supply options for Rueter-Hess Reservoir.
  - 1-2-2 Creation of well replacement master plan and associated update to capital plan.
  - 1-4-1 Development of Drought Mitigation Plan.
  - 1-5-5 Review stormwater rates and fees with respect to long term capital project needs and operation, maintenance and compliance programs.
- Strategy 2 Utilize Town values to fulfill Utilities' Vision and Mission**
- Strategy 3 Enhance customer satisfaction**
  - 3-2-7 Make decisions on implementation of advanced metering infrastructure.
- Strategy 4 Maintain financial sustainability**
  - 4-1-1 Review / update special charges.
  - 4-1-8 Development of an updated Utilities-specific financial management plan that supplements the annual rates and fees study.
- Strategy 5 Optimize infrastructure performance**
  - 5-2-3 Asset identification and overall condition ratings.
  - 5-3-4 Preparation of an update to our Emergency Response Plan.
- Strategy 6 Demonstrate industry leadership**
  - 6-1-9 Leverage AWWA benchmarking results to improve Utilities.
  - 6-1-10 Track key performance indicators and utilize for continuous improvement.
  - 6-3-8 Update Master Plans for water, wastewater, stormwater and water resources.

## Strategic Plan, continued

This graph also shows the impact that each of the long term renewable water or legacy water projects will have on the available renewable water supply.



Other key tactics which have been completed already in 2015 include:

1. Creation of a well replacement master plan. Since as shown in the graph above, groundwater will continue to be a significant part of our overall water supply, it was critical to prepare this master plan to ensure that the long term viability of this resource is protected. The plan contemplates using groundwater to help meet peak demands and to ensure water supplies during drought and dry years.
2. Review and update special charges. Staff has completed this project and will be taking recommendations to council as part of the 2016 budget and rates and fees. It is critical that special charges reflect the cost of service for these special items so that the costs are paid by the limited number of customers that utilize these special items. If approved in the budget by council, these updated special charges should increase revenues for the enterprises by \$388,129.
3. Track key performance indicators (KPIs) and utilize for continuous improvement. Utilities has created a dashboard to track these KPIs to ensure we work towards improvement every day (see next page).

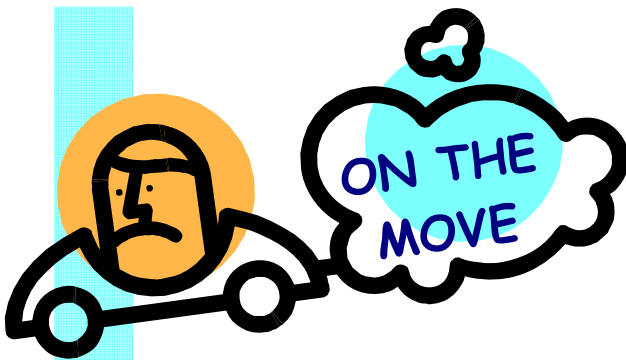
# Strategic Plan, continued

Castle Rock Water AWWA KPI Dashboard										
		Units	2013	2014	Frequency	Prior KPI*	Current KPI**	Quartile	Progress	Comments
<div style="display: flex; justify-content: space-between;"> <div> <p>↑ Performance Improving</p> <p>↓ Performance Declining</p> <p>↔ Performance Staying about the same</p> </div> <div> <p>● Top Quartile AWWA</p> <p>● Median Quartile AWWA</p> <p>● Bottom Quartile AWWA</p> </div> </div>										
<b>Organizational Development</b>										
1.	Customer Accounts per Employee	Accounts	533	533	A	533	533	●	↔	
2.	Employee Turnover Rate	Employees / Year	9%	12%	A	9%	12%	●	↓	
3.	Training Hours per Employee	Hours	11	31	A	11	31	●	↑	
<b>OSHA Safety Indicators</b>										
4.	OSHA Incident Rate	-	21	21	M	12	17	●	↔	No AWWA Comparison
5.	Days without a Lost time Injury/Illness	Days	-	187	M	203	23	●	↓	No AWWA Comparison
6.	Total # of Incidents	Incidents	-	17	M	2	3	●	↓	No AWWA Comparison
<b>Business Operations</b>										
7.	Debt Ratio	%	20%	19%	A	20%	19%	●	↑	
8.	Operating Ratio	%	29%	33%	Q	33%	28%	●	↑	
9.	Energy Consumption Efficiency (Water)	kBTU/Year/BTU	41,105	38,938	A	41,105	38,938	●	↑	
10.	Triple-Bottom-Line Index	%	55%	70%	A	55%	70%	●	↑	
<b>Customer Service</b>										
11.	Customer Service Complaints - Don't Track	# Complaints/1000 Accts	-	-	M	-	-	●	↔	Do Not Track Yet
12.	Technical Service Complaints (WO)	# Complaints/1000 Accts	1.30	1.01	M	-	-	●	↔	2014 - 18 Total and 2015 - 0 Total
13.	Cost of Residential Service (Average Monthly Bill)	\$/mo	\$ 102.29	\$ 114.27	A	\$ 102.29	\$ 114.27	●	↓	
<b>Water Operations</b>										
14.	Compliance Rate	% Day in Compliance	100%	100%	A	100%	100%	●	↔	
15.	Operation Cost (\$/MGD)	\$/MGD	\$ 3,818.00	\$ 2,674.00	Q	\$ 2,674.00	\$ 2,519.52	●	↓	
16.	MGD/Employee	MGD/Employee	0.17	0.08	A	0.17	0.08	●	↓	
17.	Water Distribution System Integrity	Breaks/Leaks/100 Mile of Pipe	4	3	M	-	-	●	↔	3 Leaks or Break in 2015, None in last few months
<b>Nonrevenue Water</b>										
18.	Apparent Water Loss	MG	33	32	A	33	32	●	↑	No AWWA Comparison
19.	Real Water Loss	MG	157	148	A	157	148	●	↑	No AWWA Comparison
<b>Consumption (gpcd)</b>										
20.	Total Volume Water Produced / Total Population Served	gpcd	118	109	A	118	109	●	↑	No AWWA Comparison
21.	Total Volume Water Metered (Residential Customers)	KG	1,361,862	1,337,702	A	1,361,862	1,337,702	●	↑	No AWWA Comparison
22.	Renewable Water Usage Rate (%)	%	0.0%	13.2%	M	15.3%	8.9%	●	↑	No AWWA Comparison
<b>Wastewater Operations</b>										
23.	Sewer Overflow Rate	SSO/100 Mile of Pipe	1.2	-	M	-	-	●	↔	
24.	Operational Cost (\$/MGD)	\$/MGD	\$ 3,787.93	\$ 2,878.87	Q	\$ 2,878.87	\$ 1,867.00	●	↓	
25.	MGD Processed / Employee	MGD/Employee	0.11	0.05	A	0.11	0.05	●	↓	

\* Prior KPI:  
 Annual Frequency Prior KPI is YE 2013  
 Quarterly Frequency Prior KPI is YE 2014  
 Monthly Frequency Prior KPI is Month Prior to last Month

\*\* Current KPI:  
 Annual Frequency Current KPI is YE 2014  
 Quarterly Frequency Current KPI is 1st Qtr 2014  
 Monthly Frequency Prior KPI is last Month

\*\*\* KPIs 4-6 and 18-22 are not part of the AWWA Survey and do not have Benchmark standards to measure against.



*Congratulations on your recent promotion!*



**Denise Lannan**  
 Cross Connection  
 Control Technician