RESOLUTION 2018-003

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE EAST CEDAR CREEK FRESH WATER SUPPLY DISTRICT ADOPTING A WATER CONSERVATON PLAN.

WHEREAS, Chapter 363.15 of the Texas Water Development Board Rules for Financial Assistance requires preparation and implementation of the Water Conservation Plan for financial assistance of greater than $500,000

WHEREAS, Section 13.146 of the Texas Water Code and applicable rules of the Texas Commission on Environment Quality require all public water supply systems in Texas to prepare Conservation plan: and

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of East Cedar Creek Fresh Water Supply District;

Section 1. That the Conservation Plan approved by resolution 2006-004, amended by resolution 2009-005 and by resolution 2014-001 and approved by resolution 2018-003 hereto as Exhibit "A" Brookshire Conservation Plan and Exhibit "B" McKay Conservation Plan made part hereto for all purposes be, and the same is hereby, adopted as the official policy of the East Cedar Creek FWSD.

Section 2. That the General Manager is hereby directed to be the District's Conservation Coordinator to implement the Conservation Plan.

Section 3. That this resolution shall take effect immediately upon passage.

PASSED AND APPROVED THIS 16th day of May, 2018.

President, Board of Directors
East Cedar Creek Fresh Water Supply District

Attest:

Secretary, Board of Directors
East Cedar Creek Fresh Water Supply District

East Cedar Creek Fresh Water Supply District (ECCFWSD)

Brookshire PWS: 1070167
ECCFWSD CCN: 11682

Brookshire Conservation Plan

Approved by Resolution 2018-003
Date: 05/16/2018

ECCFWSD: Brookshire Water System Conservation Plan

Table of Content

ECCFWSD BROOKSHIRE: CONSERVATION PLAN
PWS: 1070167 / CCN: 11682

Section I: Introduction & Utility Profile

Creation

East Cedar Creek Fresh Water Supply District (ECCFWSD) is a local governmental entity created by the 65th Texas Legislature on June 25, 1977. The District's CCN covers approximately 20 square miles in northwest Henderson County, adjacent to the north and east banks of Cedar Creek Reservoir.

Brookshire Water Source

Water supply source for the District's water treatment plant production of potable water comes from the Cedar Creek Lake managed by Tarrant Regional Water District (TRWD). The TRWD raw water allocation is based upon a 5-year annual running average not to exceed 8.91cubic feet per second (3,999-gpm). The District also has a contract with the City of Trinidad to purchase 750 acre feet annually. The combined above raw water source allocations are annual quantities available for the combined Brookshire and McKay Surface Water Treatment Plants for producing drinking water. The Brookshire raw water diversion report of 2016-17 was 303.1-MG and McKay raw water diversion report of 2016-17 was 111.2-MG for a total of 414.3. Brookshire Water Treatment Plant is capable of treating 4,000,000 gallons per day.

Brookshire Drinking Water System

The Distribution system consists of a 500,000 gallon elevated water tower, (2) 500,000 gallon ground storage tanks. The number of customer's accounts change monthly, in 2016 – 17 fiscal year the average customer base for water was 4,358 and 3,985 sewer customers. Much of the District's service area consists of municipal and rural residential subdivisions that were developed in the mid to late 1960s and early 1970s following construction of the reservoir. ECCFWSD's CCN is limited to growth on three boundary borders; City of Mabank Water Supply, City of Eustace Water Supply, Payne Springs WSC and West Cedar Creek MUD.

The Brookshire average customer base growth rate for the system in the past 5-years is an average of 0.5%. The expected growth rate for the next 2-years years is anticipated to be 0.6 of 1%. The district may experience an increase of growth beginning in 2019-20 due to possible migration of growth from the Dallas area to communities within a 1 hour drive for reasonable travel distance for employment in the Dallas area.

This Dallas area migration would increase growth rate to an estimated 3%. The inclining rate structure in place encourages water conservation and with the average water usage per capita reflecting a lower usage per meter unit than the TCEQ regulatory standard of 0.6-gpm/meter. The district continues to maintain a TCEQ 0.45-gpm/meter unit variance.

The district's engineering firm, KSA, conducted a 20-year master plan for the Brookshire Water System and the district issued $3,000,000 of bond debt to upgrade 10-miles of water main, the project including increasing water main pipe sizes in areas from 6-inch, 4-inch, and 2-inch water mains to 10, 8 and 6-inch water mains in preparation of future growth. In partnership with the City of Gun Barrel City, the city contributed enough funds to add an addition 23 fire hydrants in strategic areas recommended by the City's Fire Chief.

The District issued 2018 Bonds and will be adding variable frequency drive units at the Brookshire raw water pump station to improve energy efficiencies and a second elevated water tower with a 300,000 gallon capacity increasing the total distribution storage capacity to 1,800,000 for demand.

Wastewater System

East Cedar Creek Fresh Water Supply District (ECCFWSD) owns, operates and provides sewer service to the Brookshire water customers. The North Wastewater Treatment Plant (NWWTP) was built in 1979. The facility has had several renovations including a new tertiary clarifier from bond funds to reduce phosphorous level to below 1.0 mg/l as required by the revised TCEQ NPDES Permit issued in 2012.Through additional bond funding the district purchased a Belt Press to dewater sludge for more economic sludge removal to be hauled to a local landfill. Funds are set aside annually to insure funds are available for other major equipment refurbishing. The permitted capacity for the facility is .750 MGD with a surge capacity of 1.3 MGD for a period not to exceed two hours and currently is at 50% capacity of the NWWTP TCEQ Permit. The District's NWWTP's effluent discharge enters into the Prairie Creek Cove of Cedar Creek Lake. The effluent water meets or below the NPDES Permit's water quality parameters.

Section II: Conservation Goals and Objectives

Public Education

ECCFWSD advocates a positive public education program. The District's Website www.eastcedarcreek.net provides the reader with tips on conserving water and solving common household leaks under the Public Info tab. During National Water Week in May the District promotes selected kid and adult pamphlets which support the water Cycle and Conservation. Customer billing concerns are addressed in a manner to encourage conservation.

Through best practice management, rate structures and education it is ECCFWSD goal to maintain a water usage ratio to insure that the TCEQ 0.6-gpm per connection variance of 0.45-gpm remains in effect. This TCEQ approved variance, in itself, demonstrates that ECCFWSD and customers are very concerned about conserving our precious and valuable resource, water. This 0.45 gpm per connection variance represent a 25% overall system reduction of water usage when compared to the TCEQ regulated rule of 0.6 gpm per connection for system minimum design.

During water week the district holds a customer education awareness week and presents to grade school students the importance of conservation and protecting our water resources. On ECCFWSD's web site educational and promotional material are available for the customer education such as district design and capacity information, water rates design for conservation and links to federal and state educational web sites for additional research and reading.

Water Usage Accountability

ECCFWSD has implemented a customer meter change out and meter accuracy program.
All customers are metered including ECCFWSD facilities. Meter change-out is determine by three criteria's; 1) Acceptable standards of the meter industry of 20-yrs of age or 1-million gallons, 2) Investigate meter reader records for no usage and or irregular registering of an active account, 3) Customer request for a meter accuracy test, if inaccurate more that 2% meter is changed. Employees maintain monthly records for water flushed, treatment process usage and other such usages which warrant validity.

Water Loss

ECCFWSD is striving to reduce the amount of water loss by conducting water leak surveys, and promoting to our customers the value of reporting suspicious water ponding and small leaks. Infrastructure repairs are targeted toward long-term infrastructure improvements instead of fast repairs. The master water meters at the water treatment plant is tested for accuracy annually.

The 5-year averaged Water Loss from 2013 to 2018 is recorded as 22%. ECCFWSD employees strive to expedite repairs in the distribution system to prevent the waste of treated water. The district takes in account all unbillable water for district use at plants, office, line-flushing and fire dept. usage. Water Main Repair Crews use water leak calculator for determining water loss from water main repairs.

The District's Brookshire and McKay combined real Loss is reported as 11% for a 5-yr average (addendum 5). This data is derived from the District's Fiscal Year Values of April through March. The TWDB annual report is from January to December. The TWDB online report reflects a combined real loss average of 13% for fiscal year 2016-17.

The district sums the billed metered, billed un-metered and authorized consumption usage plus the accounted for water loss of water leaks and subtracts that from the distribution master meter. This process quantifies all accounted for water and presents a total revenue loss. Each category is inserted as a line item and can be independently valued as retail or production monetary loss. The remainder of water is considered unaccounted for water loss. This may be due to unidentified seeping leaks, rubber gasket/joint leaks and aged district / customer meters.

The district included the first phase of automated water meter installations in the 2018 bond series to retro fit 1,200 meters to automation. The goal is to obligate annual operating reserve funds to phase in approximately 1,000 meters per year until all customer water meters are automated.

Evaluation process

All the above programs are monitored monthly and recorded electronically on the computer for evaluation and measuring the effectiveness of each program. Executive summary reports are generated for projections and as a measuring tool for staff and management.

Water Conservation Targets and Goals

ECCFWSD is dedicated toward water conservation and promoting the protection of water quality within the Cedar Creek Watershed area. The District has been a stakeholder to the Cedar Creek Water Protection Plan since the plan's inception. The District will continue the 5-year goal for promoting water conservation and to decrease the District's un-accountable water percentage through best management practices mentioned above, while maintaining an active role as stewards and promoters of the adopted watershed plan. The District provides water conservation hand-out material in the office lobby and promotes conservation tips on the District's website.

5-year Target and Goals

The district's 5-year usage history reflects the average Meter per Day is 157 gallons/day and the 3 per family GPCD is 52. ECCFWSD goal is to maintain the current 5-yr water usage of 157 gallons per day per meter. Using the District's meter to population calculation of 3 family members per household this equates to 52 gallons per capita per day. These calculated figures will vary from year to year due to changes caused by the el-Nino and El-Nina events however in the past 5-years Texas has experienced some of both affects and within that 5-year period customers have reduced usage to below the past conservation plan's goal of 170 gallons per day per meter.

10-year Targets and Goals

ECCFWSD's goal is to reduce our maximum water usage from 157 to 150 gallons per day per meter. Using the District's meter to population calculation of 3 family members per household this equates to 50 gallons per capita per day. ECCFWSD also plans to maintain an un-accountable water loss goal of 10%. Addendum: ECCFWSD Annual Customer Unit Report.

Brookshire Record Keeping Process The district maintains detailed spreadsheets that record each fiscal year's distribution water pumped and customer meter usage. The addendums accompanying the Conservation Plan date from 2002 – 2003 to the current fiscal year end of 2017-2018. The district feels that the past 5 years of history are the most relevant for projecting current and future projections.

Section III: Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, assisting fire protection, protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, East Cedar Creek Fresh Water Supply District Board of Directors hereby adopts by resolution this 2018-19 Conservation Plan for the ECCFWSD Brookshire Water System.

Addendum Section

Addendum - 1

Total Usage - Brookshire (North Side) Water System TCEQ PWS: 1070167

Budget Year	Gallons Pumped-MG	Gallons Sold-MG	Water Loss	Customer Units	Gal Pmp Cap/Day	Gal Sold Cap/Day	Unit + or -	Unit % + or -	Population Meter # x 3	Gal-Pmp. GPCD Pop. 3	Gal-Sold GPCD Pop. 3
02-03	270	198	27%	3,233	229	168			9,698	76	56
03-04	274	206	25%	3,294	228	172	62	1.9%	9,883	76	57
04-05	271	207	23%	3,352	222	170	57	1.7%	10,055	74	57
05-06	288	228	21%	3,384	233	184	32	1.0%	10,152	78	61
06-07	299	234	22%	3,432	239	187	48	1.4%	10,295	80	62
07-08	245	193	21%	3,474	193	152	43	1.2%	10,423	64	51
08-09	241	208	14%	3,506	188	162	31	0.9%	10,517	63	54
09-10	245	207	15%	3,522	190	161	16	0.5%	10,565	63	54
10-11	261	212	19%	3,512	204	166	-10	-0.3%	10,536	68	55
11-12	289	254	12%	3,751	211	186	239	6.8%	11,254	70	62
12-13	308	260	16%	4,255	198	167	504	13.4%	12,765	66	56
13-14	316	260	18%	4,275	202	166	20	0.5%	12,824	67	55
14-15	308	231	25%	4,320	195	147	45	1.1%	12,960	65	49
15-16	319	246	23%	4,339	201	155	19	0.4%	13,018	67	52
16-17	**303**	**234**	**23%**	**4,334**	**192**	**148**	**-5**	**-0.1%**	**13,002**	**68**	**49**
5-yr. Avg	**311**	**246**	**21%**	**4305**	**198**	**157**	**117**	**3.1%**	**12914**	**67**	**52**

Brookshire (North Side) Water System TCEQ PWS: 1070167

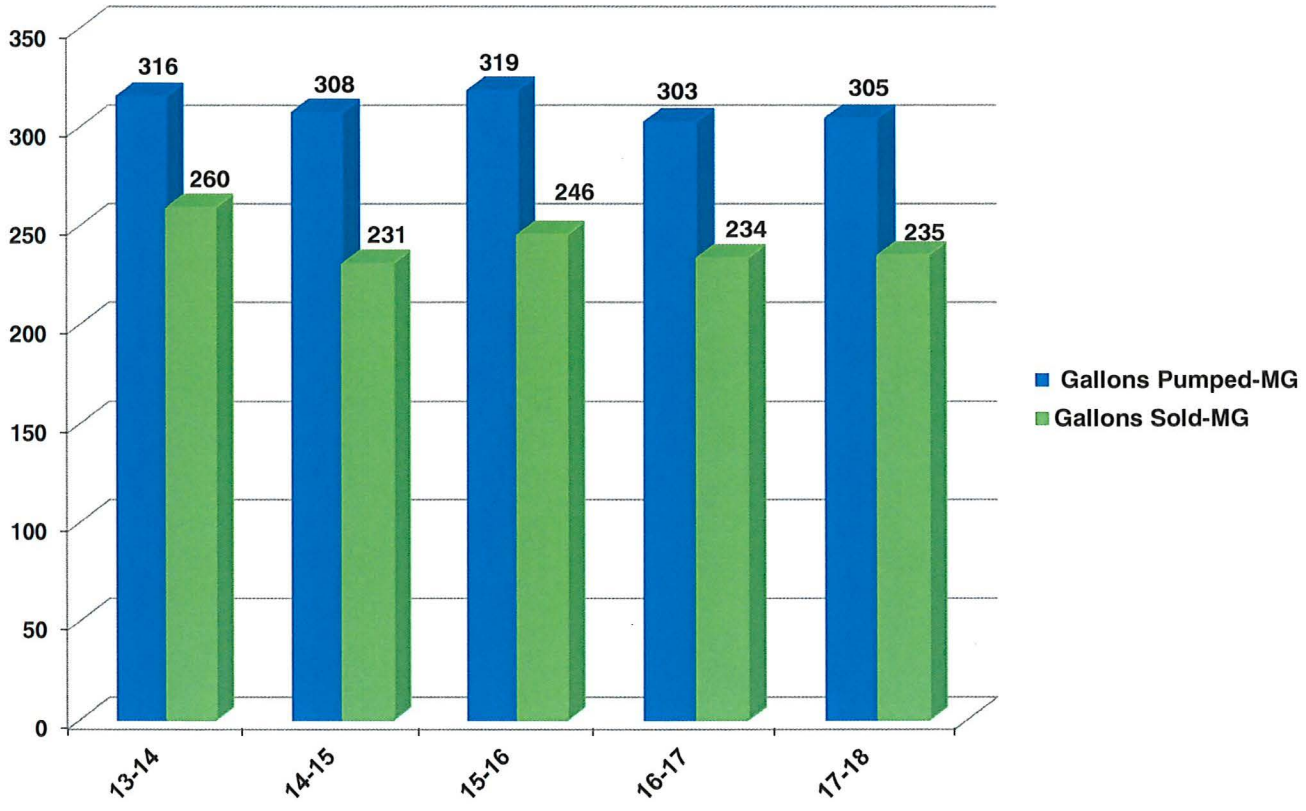
Budget Year	Gallons Pumped-MG	Gallons Sold-MG	Water Loss	Customer Units	Gal Pmp Cap/Day	Gal Sold Cap/Day	Unit + or -	Unit % + or -	Population Meter # x 3	Gal-Pmp. GPCD Pop. 3	Gal-Sold GPCD Pop. 3
% Factor	**1.006**										
17-18	305	235	23%	4,360	192	148	26	0.6%	13,080	69	49
18-19	307	237	23%	4,386	192	148	26	0.6%	13,158	69	49
1.03% Factor	**1.030**										
19-20	316	244	23%	**4,518**	192	148	132	3.0%	13,553	70	49
20-21	325	251	23%	4,653	192	148	136	3.0%	13,960	70	49
21-22	335	259	23%	4,793	192	148	140	3.0%	14,379	70	49
22-23	345	267	23%	4,937	192	148	144	3.0%	14,810	70	49
23-24	355	275	23%	5,085	192	148	148	3.0%	15,254	70	49
24-25	366	283	23%	5,237	192	148	153	3.0%	15,712	70	49
25-26	377	291	23%	5,394	192	148	157	3.0%	16,183	70	49
26-27	388	300	23%	5,556	192	148	162	3.0%	16,669	70	49
27-28	400	309	23%	5,723	192	148	167	3.0%	17,169	70	49
% Factor	**1.030**										
28-29	412	318	23%	**5,895**	192	148	172	3.0%	17,684	81	49
29-30	424	328	23%	6,071	192	148	177	3.0%	18,214	81	49
30-31	437	338	23%	6,254	192	148	182	3.0%	18,761	81	49
31-32	450	348	23%	6,441	192	148	188	3.0%	19,324	81	49
32-33	464	358	23%	6,634	192	148	193	3.0%	19,903	81	49
33-34	478	369	23%	6,834	192	148	199	3.0%	20,501	81	49
34-35	492	380	23%	7,039	192	148	205	3.0%	21,116	81	49
35-36	507	391	23%	7,250	192	148	211	3.0%	21,749	81	49
36-37	522	403	23%	7,467	192	148	217	3.0%	22,401	81	49
37-38	538	415	23%	7,691	192	148	224	3.0%	23,073	81	49
38-39	554	428	23%	7,922	192	148	231	3.0%	23,766	81	49
39-40	570	441	23%	8,160	192	148	238	3.0%	24,479	81	49
% Factor	1.10										
2050	627	485	23%	8,976	192	148	1,054	13.3%	26,927	81	49
2060	690	533	23%	9,245	205	158	269	3.0%	27,734	87	53

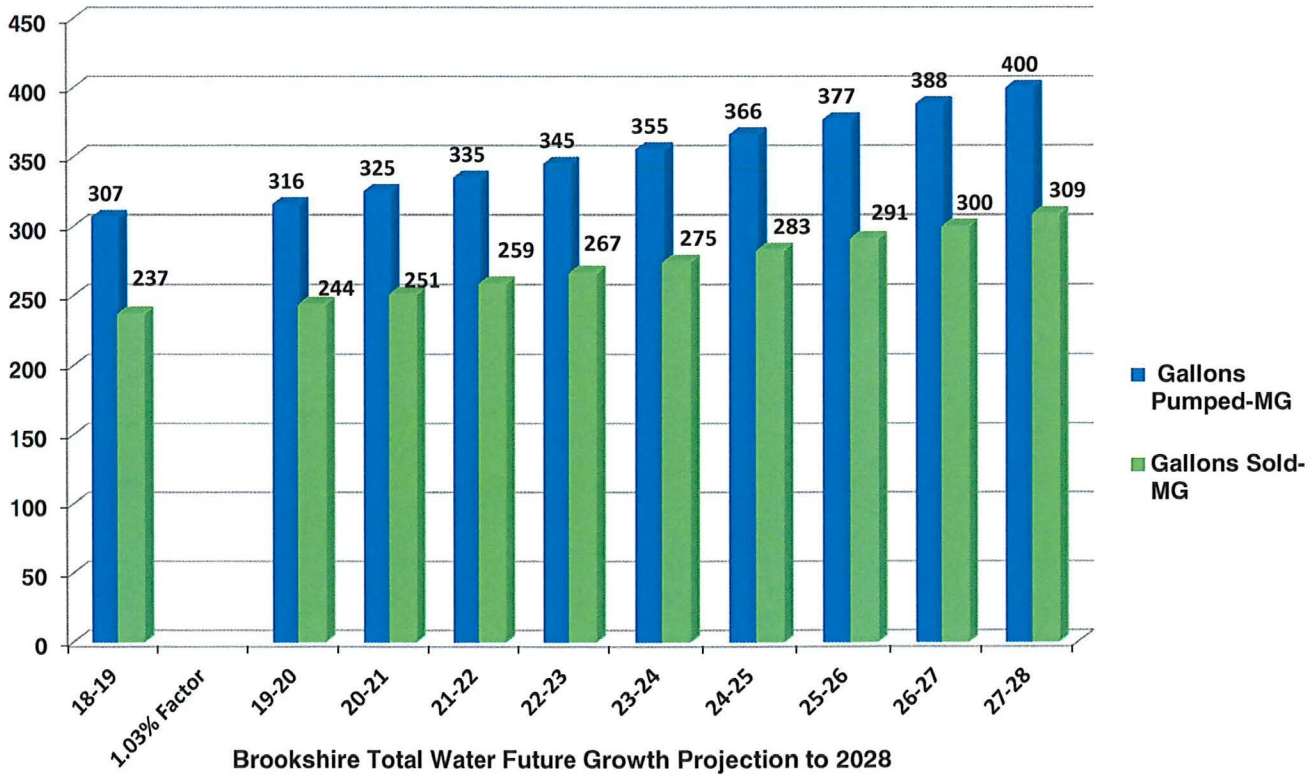
TCEQ Rule	GPM	GPD - MG	MGD Capacity	Yr.> Cap.
.6 Capacity	**2,711**	3,903,335	4.0	**3.90**
.45 Capacity	**2,653**	3,819,725	4.0	**3.82**

ECCFWSD has been approved by TCEQ to reduce the .6 gal / meter capacity rule to .45 gal / meter

Addendum - 2

5- Yr. Brookshire- Total Water Gal's Pumped vs Total Water Gal's Sold





Brookshire Total Water Future Growth Projection to 2028

Addendum - 3

Residential - Brookshire (North Side) Water System TCEQ PWS: 1070167

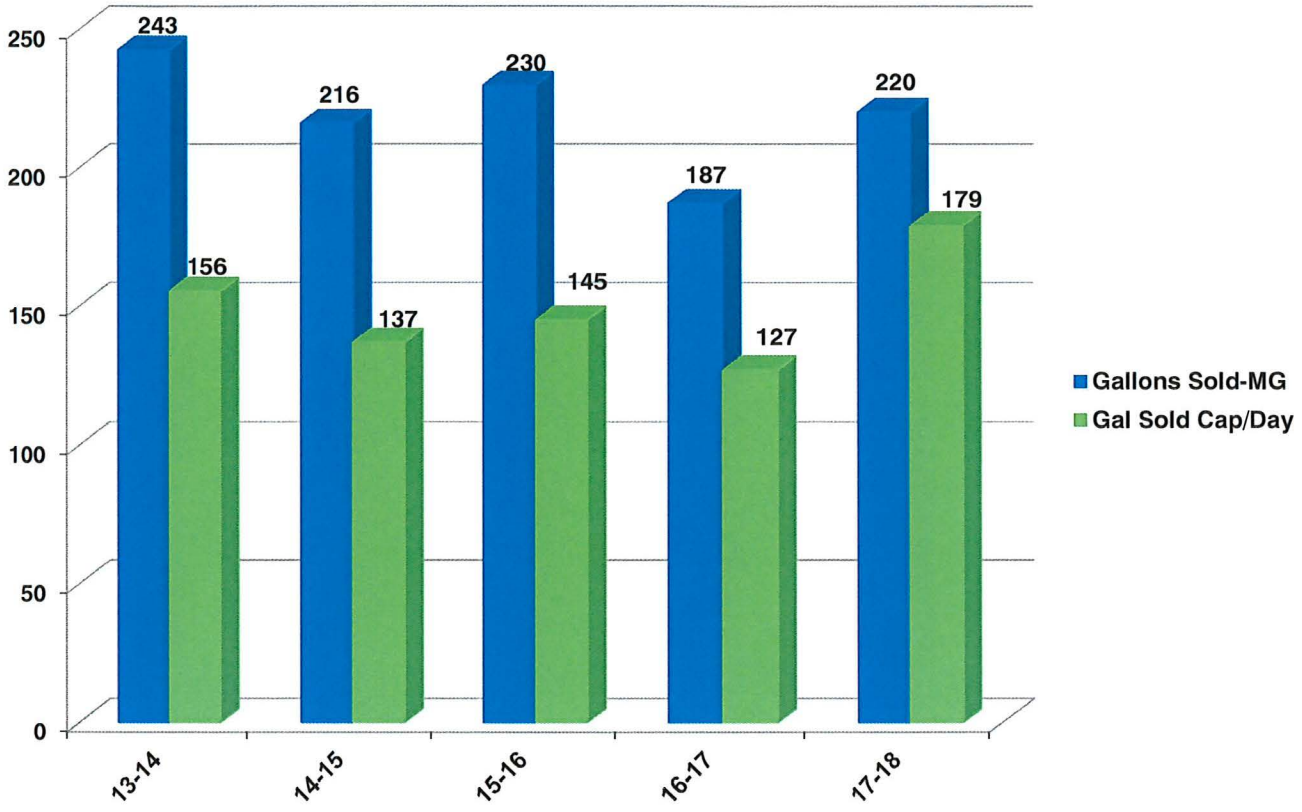
Budget Year	Gallons Sold-MG	Customer Units	Gal Sold Cap/Day	Population Meter # x 3	GPCD Pop. 3
02-03	185	3,023	157	9,068	52
03-04	193	3,080	160	9,241	53
04-05	194	3,134	159	9,402	53
05-06	213	3,164	172	9,492	57
06-07	219	3,209	175	9,626	58
07-08	181	3,249	143	9,746	48
08-09	194	3,278	152	9,833	51
09-10	194	3,293	151	9,878	50
10-11	198	3,284	155	9,851	52
11-12	238	3,507	174	10,522	58
12-13	243	3,978	157	11,935	52
13-14	243	3,961	156	11,882	52
14-15	216	4,002	137	12,007	46
15-16	230	4,020	145	12,061	48
16-17	**187**	**4,048**	**127**	**12,144**	**42**
5-yr. Avg	**224**	**4002**	**144**	**12,006**	**48**

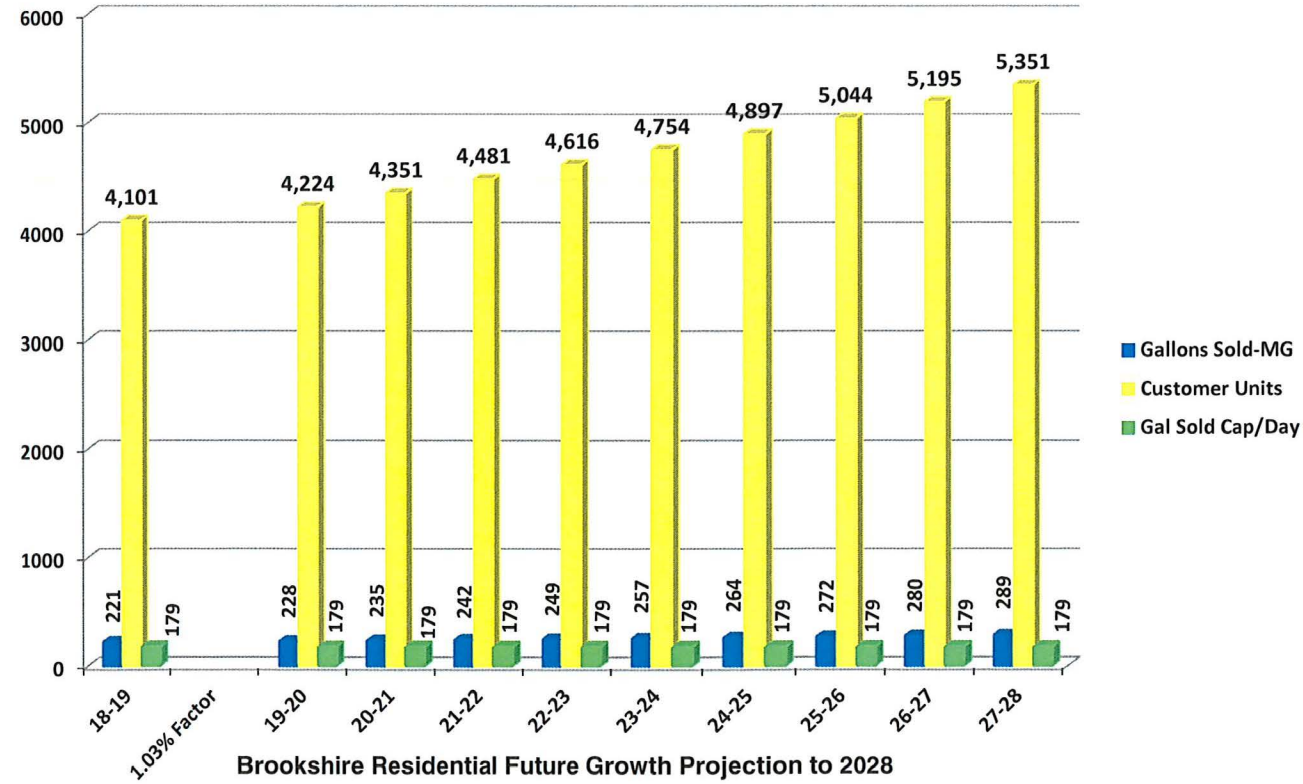
Residential - Brookshire (North Side) Water System TCEQ PWS: 1070167

Budget Year	Gallons Sold-MG	Customer Units	Gal Sold Cap/Day	Population Meter # x 3	GPCD Pop. 3
17-18	220	4,077	179	12,230	60
18-19	221	4,101	179	12,303	60
1.03% Factor					
19-20	228	4,224	179	12,672	60
20-21	235	4,351	179	13,052	60
21-22	242	4,481	179	13,444	60
22-23	249	4,616	179	13,847	60
23-24	257	4,754	179	14,263	60
24-25	264	4,897	179	14,691	60
25-26	272	5,044	179	15,131	60
26-27	280	5,195	179	15,585	60
27-28	289	5,351	179	16,053	60
% Factor					
28-29	258	4,775	155	14,324	52
29-30	266	4,918	155	14,754	52
30-31	273	5,065	155	15,196	52
31-32	282	5,217	155	15,652	52
32-33	290	5,374	155	16,122	52
33-34	299	5,535	155	16,605	52
34-35	308	5,701	155	17,104	52
35-36	317	5,872	155	17,617	52
36-37	327	6,048	155	18,145	52
37-38	336	6,230	155	18,690	52
38-39	346	6,417	155	19,250	52
39-40	357	6,609	155	19,828	52
2050	393	7,270	155	21,810	52
2060	432	7,488	166	22,465	55

Addendum - 4

5-Yr. Brookshire Residential Gal's Sold vs Gal's Sold Cap/Day





Brookshire Residential Future Growth Projection to 2028

Addendum 6

Activity
BOOK
East Cedar Creek
Fresh Water Supply District
ECC
FWSD
Water for Life
H2O for Life

Water Facts Quiz

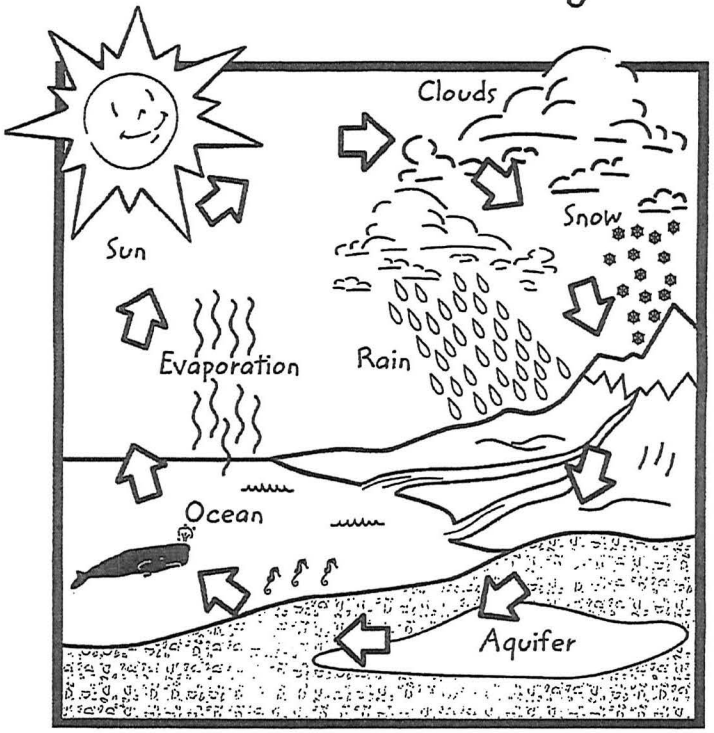
Test your knowledge of water by circling the correct answer to the questions below. Once you have finished, use the key at the bottom of the page to check your answers.

It takes 1 gallon of water to process a quarter pound of hamburger. How much water does it take to produce one serving of french fries?	A. 9 gallons B. 4 gallons C. 6 gallons D. 3 gallons
It takes 4-7 gallons of water to flush a toilet. How much water is used to take a shower?	A. 15-25 gallons B. 9-12 gallons C. 28-72 gallons D. 2-4 gallons
How much water is used to brush your teeth?	A. 5 gallons B. Less than 1 gallon C. 3 gallons D. 1 gallon
We use water in many ways. How much water does one person use daily?	A. 200 gallons B. 100 gallons C. 45 gallons D. 123 gallons
Water covers 80% of the earth's surface. How much of that water is suitable to drink?	A. 10% B. 25% C. 1% D. 5%
Water makes up roughly two-thirds (66%) of the human body. How much of a chicken is water?	A. 90% B. 64% C. 75% D. 87%

Now that you are a water expert, share your knowledge with your family and friends!

1-C, 2-B, 3-D, 4-D, 5-C, 6-C

The Water Cycle

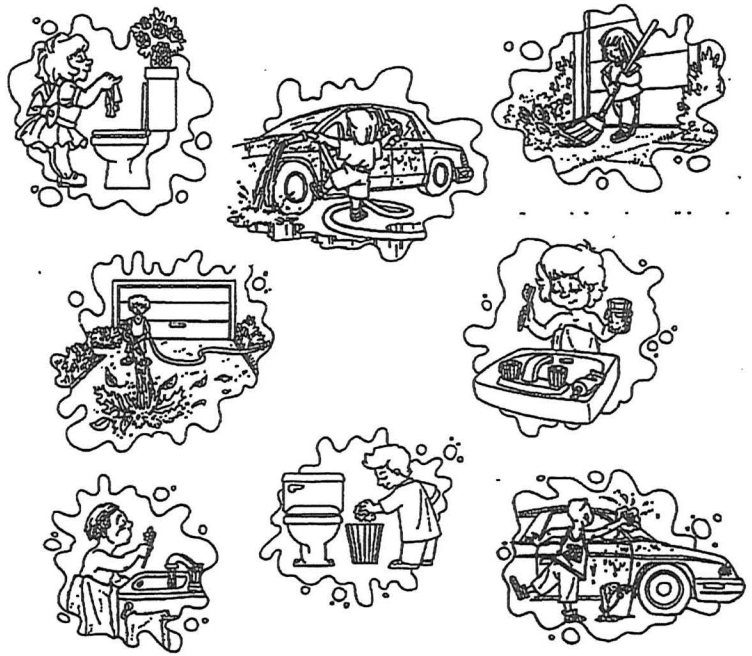


Water moves in a cycle. Color the different parts of the water cycle.

Water and our Environment

Professor Monte says, "Water Quality Starts at the Source. Help Protect Our Rivers and Streams."

Who's Conserving Water?



Look carefully at each of these pictures. Cross-out the pictures that show someone wasting water. Circle the pictures that show someone conserving water.

Conservation

2 Color in the girl brushing her teeth.

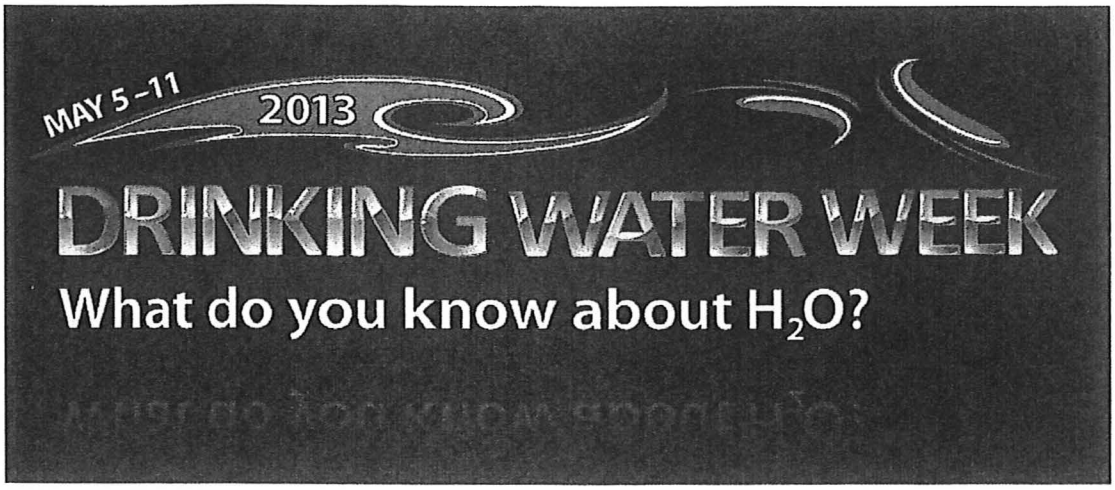
H_2O for Life

Water is used in many different ways!

Think about what you did yesterday. Where you went. Then write a list of all the different ways that you used water.

8 Now count the many different ways you used water yesterday and put the total in the drop.

Addendum 10



ECCFWSD Celebrates National Drinking Water Week 2013

Local Water, Global Impacts

In an age of globalization, we must stop and think about the incredible significance our local waterways has not only on our lives, but on the lives of many others that depend on it. In the reverse, we also must recognize how our local decisions may impact the quality and supply of other water sources abroad. The way we treat our water today has immense impacts not only for future generations living here, but even for those in the present living in far reaches from our own homes.

What is National Drinking Water Week?

For more than 30 years, communities across the United States have joined the American Water Works Association (AWWA) in recognizing the essential role that water plays in our daily lives by celebrating National Drinking Water Week. Throughout the week, AWWA and its partners provide information and host activities to highlight how important water is for us all

Protecting Water Quality at Home!!!

After water enters a home, conditions in the home plumbing system can affect the water's quality. "Our water providers work very hard to be sure that the water leaving the treatment plant meets all federal and state standards," said AWWA Executive Director David LaFrance. "As consumers, it's up to us to help protect that water quality by maintaining our homes' pipes and faucets."

Addendum 11

To assist homeowners, AWWA has provided these top tips for maintaining water quality at home:

1. Clean faucets and aerators regularly
2. Clean and disinfect sinks and drains regularly
3. Keep drains clear and unclogged
4. Use cold water for drinking and preparing food
5. Replace old plumbing and install certified "lead free" fixtures
6. Flush cold water taps after household plumbing work or when the water hasn't been used for several days
7. Drain and flush your hot water heater annually
8. Follow the manufacturer's instructions for the water heater, filters, treatment devices, softeners and any other products attached to the water system
9. Do not connect hoses or other devices intended for non-drinking purposes to household drinking water faucets
10. Keep hazardous chemicals and unsanitary materials away from drinking water faucets

Additional information about maintaining water quality at home is available at **DrinkTap.org**.