

# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)



# Texas Municipal Water Conservation Planning Tool

## 2019 WaterSmart Innovations

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Texas Water Development Board

*Unless specifically noted, this presentation does not  
necessarily reflect official Board positions or decisions.*

# Conservation Submittals

- Water Conservation Plan
  - Once every 5-years
  - Utility Profile
    - 5-years historic data
- Annual Conservation Report
- Water Loss Audit
  - All retail public utilities once every 5 years
  - Utilities with financial assistance or over 3,300 connections submit annually

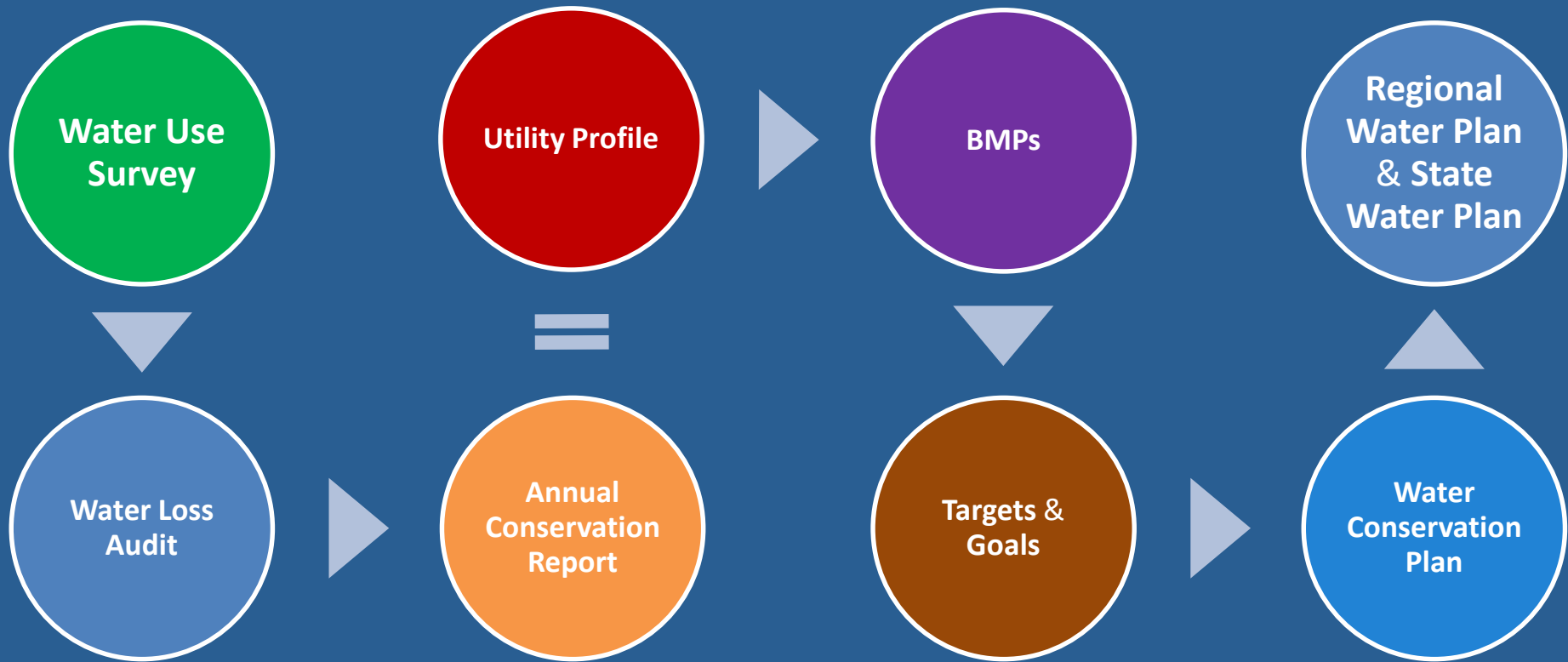
# Who Needs to Submit?

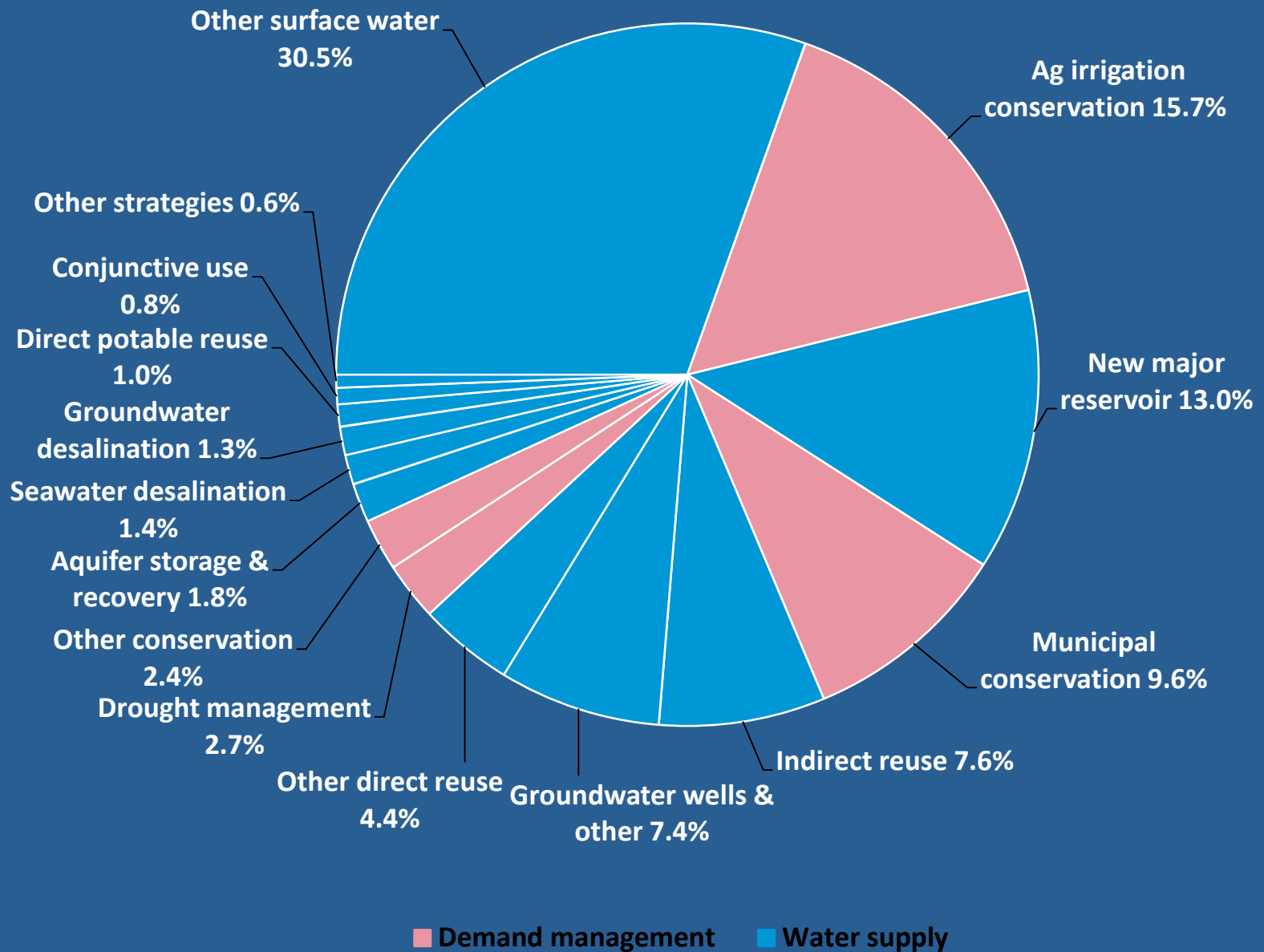
≥3300  
connections

Financial  
obligation  
w/TWDB >\$500k

Surface water  
right w/TCEQ

# Process





## State Water Planning

- Update every 5 years
- Water needs & strategies
- Strategy development 2018-2019

## Conservation Planning

- Update every 5 years
- 5- and 10-year goals
- Annual implementation reports
- Plans due May 2019

# Developing a Tool for Texas

- Develop a municipal water conservation planning tool
  - 2019 Water Conservation Plan Updates
  - 2021 Regional Water Plans
  - 2022 State Water Plan
- Pre-Loaded Texas Utilities
- Texas-specific measures



# Texas Water Development Board



# New Planning Tool

- Alliance for Water Efficiency (AWE) has an existing Water Conservation Tracking Tool for members

[www.allianceforwaterefficiency.org/Tracking-Tool.aspx](http://www.allianceforwaterefficiency.org/Tracking-Tool.aspx)

- Microsoft Excel Based tool
- Macros are enabled
- Worksheets are protected but not password protected

# Conservation Tool

- Pre-loaded data for 462 water utilities
- Alternative base and projected data can be used
- Menu of possible conservation activities
- Develop and save different scenarios
- Estimate water savings and costs
- Estimate water savings for annual report

# Terms & Definitions

- Baseline Demand Projection (includes plumbing code savings)
- Conservation Demand Projection (includes plumbing code and active program savings)
- Passive Water Savings (plumbing code savings)
- Active Water Savings (from utility conservation measures)
- Pre-Defined Conservation Measure (from tool library)
- User-Defined Conservation Measure (measure defined by the user)
- Scenario (saved combination of measures)
- ICI (Industrial, Commercial and Institutional water users)

# Planning Tool Basics

## Inputs

- Population
- Connections (single family, multi family, ICI)
- Baseline Demand
- Water Loss
- Pre-Defined Conservation Measures (level of activity)
- User Defined Conservation Measures (level of activity, cost, savings)

## Outputs

- Savings Unit Cost by measure
- Savings volume by measure
- 5-year and 10-year and decadal savings volume estimates
- 5-year and 10-year and decadal GPCD estimates
- Graphs (Total Production Volume, Total GPCD, Residential GPCD)

## Water Conservation Plans

### Water Conservation Plan (New Users)

### Water Conservation Plan (Registered Users)

The purpose of a Water Conservation Plan is to ensure water use efficiency within your operation. The Water Conservation Plan is a strategy or combination of strategies for reducing the consumption of water, reducing the loss or waste of water, improving or maintaining the efficiency in the use of water, or increasing recycling and reuse of water. It contains best management practice measures to try to meet the targets and goals identified within the plan. The effectiveness of your water conservation plan is in the implementation of your water conservation program. Reviewing your program annually will help to evaluate program successes and needs. The water conservation plan, [including targets and goals](#), must be revised every 5 years.

- [Municipal Water Conservation Planning Tool](#) - The MWCPT contains pre-loaded data to assist in the development of conservation plans. A guide to using the tool can be found [here](#). In addition, a training workshop for the tool can be found [here](#).
- [Water Conservation Plan Checklist \(TWDB Form -1968\)](#) - The WCP Checklist outlines the components that your plan should contain.
- [Water Conservation Plan FAQs](#) - The WCP FAQs are a list of common questions and answers received regarding WCPs.
- [Water Conservation Plan Tutorial](#) - The WCP Tutorial provides additional step by step guidance on how to develop a water conservation plan.

#### Water for Texas Conference 2019

##### Best Management Practices

##### Agriculture

##### Literature

##### Resources

##### Education

##### Outreach

##### Municipal

- Water Conservation Plans
- Water Conservation Plan ~ Utility Profile
- Water Conservation Plan ~ Annual Reports
- Water Loss Audit
- Water Loss Auditor Training
- Historical Water Loss Audit and Conservation Annual Report Data
- Industrial, Commercial & Institutional (ICI)

# Municipal Water Conservation Planning Tool

This tool was developed to assist water utilities with their water conservation planning and reporting. It provides an accounting framework for projecting future conservation program costs and water savings as well as estimating the water savings from previous implementation of conservation measures.

It is recommended that users review the User Guide to familiarize themselves with the tool's functionality. Quick Start Guides also are provided below. Users may add additional worksheets to the workbook, which may be useful for keeping notes or performing additional data calculations.

## Conservation Plan Quick Start

**Step 1.** Go to the **Baseline Demand Projection** worksheet and click the **Find My Utility** button to locate your utility. If your utility is not listed, select UNLISTED and enter your utility's Planning Region and name when prompted. Choose whether you will use the TWDB baseline demand projection for your utility or enter your own baseline projection. If your utility is UNLISTED, you will have to enter your own baseline projection.

**Step 2.** Go to the **Conservation Measures** worksheet and select the conservation measures you want to include in your analysis. There are two types of measures: Pre-Defined Measures and User-Defined Measures. Pre-Defined Measures already are fully specified. You only need to enter the average annual level of activity for these measures by planning decade and indicate whether any of the measures will be debt financed. With User-Defined Measures, you must also specify their cost and water savings parameters. You can also copy any Pre-Defined Measure and paste it into the corresponding User-Defined Measure table so that you can customize it to your utility.

**Step 3.** Once you've selected/defined your conservation measures and entered their activity levels, click the **Manage Scenarios** button on the worksheet to save your selections and measure specifications. You can create as many scenarios as you like.

**Step 4.** Review your Conservation Plan. Your Conservation Plan's annual implementation activity, water savings, and costs are summarized on the **Conservation Plan** worksheet. Projected water use under your Conservation Plan is summarized on the **Plan Demand Projection** worksheet.

## Single-Year Savings Calculator Quick Start

**Step 1.** Go to the **Single-Year Savings Calculator** worksheet. Click the **Manage Scenarios** button and load your Conservation Plan.

**Step 2.** Enter the activity completed in the year you are interested in for each measure in your Conservation Plan.

**Step 3.** If you implemented measures that are not in your Conservation Plan, go to the **Conservation Measures** worksheet and select Y in the **Include in Plan?** column for the additional measures you want to include. If any of these additional measures are user-defined measures, make sure they are fully specified before returning to the **Single-Year Savings Calculator** worksheet.

The Municipal Water Conservation Planning Tool was Developed by:

Alliance for Water Efficiency  
M.Cubed  
Freese & Nichols, Inc.  
Texas State University  
Watearth, Inc.

Start

1. Baseline Demand Projection

2. Conservation Measures

3. Conservation Plan

4. Plan Demand Projection

Single-Year Savings Calculator

Plumbing Fixture Inventory

## Baseline Demand Projection

[View Settings Help](#)

[Find My Utility](#)

Utility

PFLUGERVILLE

Planning Region

K

**TWDB Pre-Populated Projection**

Tables below will be blank if TWDB does not have data for your utility.

Select Projection to Use

Use TWDB Projection

**User Entered Projection**

If you are using your own Baseline Demand Projection, enter values for the yellow-shaded cells in the tables below in the units specified.

Projections	Reported	Projected						Avg Annual
	2016	2020	2030	2040	2050	2060	2070	Growth % 2020-70

### Population

Retail Service Area	33,575	63,118	78,714	96,187	113,524	131,029	131,180	1.5%
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### Connections

Single Family	12,158	18,840	23,495	28,710	33,885	39,110	39,155	1.5%
Multi Family	29	45	56	70	87	108	135	2.2%
ICI	548	849	1,059	1,321	1,647	2,054	2,562	2.2%
Total	12,735	19,734	24,610	30,101	35,619	41,272	41,852	1.5%

ICI = Industrial, Commercial, and Institutional

### Baseline Demand

(in kGal)

Single Family	1,104,929	1,651,787	1,990,348	2,392,275	2,794,292	3,204,001	3,204,443	1.3%
Multi Family	72,575	108,494	130,731	157,131	183,537	210,447	210,477	1.3%
ICI	326,715	494,715	598,916	720,842	844,337	970,820	970,081	1.4%
Sales Subtotal	1,504,218	2,254,996	2,719,996	3,270,248	3,822,166	4,385,268	4,385,001	1.3%
Other Uses	67,557	104,689	130,556	159,537	188,293	217,327	217,577	1.5%
Water Loss	191,493	287,486	347,289	417,858	488,603	560,745	560,743	1.3%
Production Total	1,763,268	2,647,170	3,197,841	3,847,643	4,499,062	5,163,339	5,163,321	1.3%

### Baseline GPCD

Total	144	115	111	110	109	108	108	-0.1%
Residential	96	76	74	73	72	71	71	-0.1%
Water Loss	16	12	12	12	12	12	12	-0.1%

GPCD = gallons per capita-day

### Water Loss %

	10.86	10.86	10.86	10.86	10.86	10.86	10.86	0.0%
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Base Period	Projected						Avg Annual
	2020	2030	2040	2050	2060	2070	Growth % 2020-70

								0.0%
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								0.0%
								0.0%
								0.0%
0	0	0	0	0	0	0	0	0.0%

(in kGal)

								0.0%
								0.0%
								0.0%
0	0	0	0	0	0	0	0	0.0%
								0.0%
								0.0%
0	0	0	0	0	0	0	0	0.0%

0	0	0	0	0	0	0	0	0.0%
0	0	0	0	0	0	0	0	0.0%
0	0	0	0	0	0	0	0	0.0%

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
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start

**1. Baseline Demand Projection**

2. Conservation Measures

3. Conservation Plan

4. Plan Demand Projection

Single-Year Savings Calculator

Plumbing Fixture Inventory

Pre-Defined Measures

Passive Savings

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## Specify the Plan's Conservation Measures

Why aren't Education and Water Rates pre-defined measures?

Utility Scenario: <b>PRUGERVILLE</b> <b>Blank</b>		Include In Plan?	Average Annual Level of Activity for each Measure by Decade					Measure Accounting Unit	Measure Delivery Method	Cost Parameters		Water Savings Parameters						Measure Unit Costs		
ID	Name		2020-30	2031-40	2041-50	2051-60	2061-70			Implementation Cost		Debt Finance Capital Cost?	Unit Savings (u) gpd	Freerider Rate (f) %/yr	Decay Rate (d) %/yr	Plumb. Code Interaction Y/N	Nat. Repl. Rate (n) %/yr	Useful Life (T) years	Per Activity Unit	Per Acre-Foot
										\$ per Unit of Activity	Capital									
		Y/N								Y/N										

## Pre-Defined Conservation Measures

### Single-Family Measures

PRE-SF-01	HE Toilet Rebate	N							Toilet	Rebate	\$ 113	\$ -	25.2	20%	0%	Y	4%	99	\$ 113	\$ 363
PRE-SF-02	Bathroom Retrofit	N							Toilet	Direct Installation	\$ 329	\$ -	28.5	0%	0%	Y	4%	99	\$ 329	\$ 748
PRE-SF-03	Showerhead and Aerator Kit	N							Showerhead	Distribution	\$ 10	\$ -	6.4	50%	0%	Y	7%	99	\$ 10	\$ 274
PRE-SF-04	Clothes Washer Rebate	N							Clothes Washer	Rebate	\$ 156	\$ -	13.0	20%	0%	Y	7%	99	\$ 156	\$ 1,374
PRE-SF-05	Home Water Reports	N							SF Acct.	Distribution	\$ 7	\$ -	12.1	0%	0%	N	0%	1	\$ 7	\$ 516
PRE-SF-06	Irrigation Audits - High Users	N							SF Acct.	Site Visit	\$ 99	\$ -	33.0	0%	0%	N	0%	3	\$ 99	\$ 924
PRE-SF-07	High-Efficiency Sprinkler Nozzle Rebate	N							SF Acct.	Rebate	\$ 110	\$ -	12.4	0%	0%	N	0%	10	\$ 110	\$ 917
PRE-SF-08	Smart Irrigation Controller Rebate	N							SF Acct.	Rebate	\$ 210	\$ -	31.4	0%	0%	N	0%	10	\$ 210	\$ 694
PRE-SF-09	WaterWise Landscape Rebate	N							SF Acct.	Rebate	\$ 550	\$ -	79.4	20%	0%	N	0%	15	\$ 550	\$ 649
PRE-SF-10	Rainwater Harvesting Rebate	N							SF Acct.	Rebate	\$ 355	\$ -	39.9	0%	0%	N	0%	15	\$ 355	\$ 666
PRE-SF-11	Rain Barrel	N							SF Acct.	Rebate	\$ 64	\$ -	4.3	0%	0%	N	0%	15	\$ 64	\$ 1,113

### Multi-Family Measures

PRE-MF-01	HE Toilet Rebate	N							Toilet	Rebate	\$ 113	\$ -	34.7	20%	0%	Y	4%	99	\$ 113	\$ 263
PRE-MF-02	Bathroom Retrofit	N							Toilet	Direct Installation	\$ 329	\$ -	45.7	0%	0%	Y	4%	99	\$ 329	\$ 466
PRE-MF-03	Showerhead and Aerator Kit	N							Showerhead	Distribution	\$ 10	\$ -	6.1	50%	0%	Y	7%	99	\$ 10	\$ 289
PRE-MF-04	Clothes Washer Rebate	N							Clothes Washer	Rebate	\$ 156	\$ -	31.7	20%	0%	Y	13%	99	\$ 156	\$ 849
PRE-MF-05	Irrigation Audits - High Users	N							MF Acct.	Site Visit	\$ 213	\$ -	123.0	0%	0%	N	0%	3	\$ 213	\$ 533
PRE-MF-06	High-Efficiency Sprinkler Nozzle Rebate	N							MF Acct.	Rebate	\$ 410	\$ -	49.8	0%	0%	N	0%	10	\$ 410	\$ 854
PRE-MF-07	Smart Irrigation Controller Rebate	N							MF Acct.	Rebate	\$ 510	\$ -	117.7	0%	0%	N	0%	10	\$ 510	\$ 449
PRE-MF-08	WaterWise Landscape Rebate	N							MF Acct.	Rebate	\$ 5,250	\$ -	793.8	20%	0%	N	0%	15	\$ 5,250	\$ 619
PRE-MF-09	Rainwater Harvesting Rebate	N							MF Acct.	Rebate	\$ 2,911	\$ -	462.6	0%	0%	N	0%	15	\$ 2,911	\$ 471

### Industrial, Commercial, Institutional Measures

PRE-ICI-01	HE Toilet Rebate	N							Toilet	Rebate	\$ 138	\$ -	32.0	20%	0%	Y	4%	99	\$ 138	\$ 349
PRE-ICI-02	Urinal Rebate	N							Urinal	Rebate	\$ 138	\$ -	17.0	20%	0%	Y	4%	99	\$ 138	\$ 657
PRE-ICI-03	Clothes Washer Rebate	N							Clothes Washer	Rebate	\$ 227	\$ -	86.0	20%	0%	Y	13%	99	\$ 227	\$ 455
PRE-ICI-04	Commercial General Rebate	N							Other	Rebate	\$ 2	\$ -	1.0	50%	0%	N	0%	15	\$ 2	\$ 252
PRE-ICI-05	Kitchen Pre-Rinse Spray Valve Installation	N							ICI Acct.	Direct Installation	\$ 213	\$ -	77.0	0%	0%	Y	10%	99	\$ 213	\$ 322
PRE-ICI-06	Irrigation Audits - High Users	N							ICI Acct.	Site Visit	\$ 213	\$ -	123.0	0%	0%	N	0%	3	\$ 213	\$ 533
PRE-ICI-07	High-Efficiency Sprinkler Nozzle Rebate	N							ICI Acct.	Rebate	\$ 410	\$ -	49.8	0%	0%	N	0%	10	\$ 410	\$ 854
PRE-ICI-08	Smart Irrigation Controller Rebate	N							ICI Acct.	Rebate	\$ 510	\$ -	117.7	0%	0%	N	0%	10	\$ 510	\$ 449
PRE-ICI-09	WaterWise Landscape Rebate	N							ICI Acct.	Rebate	\$ 5,250	\$ -	793.8	20%	0%	N	0%	15	\$ 5,250	\$ 619
PRE-ICI-10	Rainwater Harvesting Rebate	N							ICI Acct.	Rebate	\$ 2,911	\$ -	462.6	0%	0%	N	0%	15	\$ 2,911	\$ 471
PRE-ICI-11	Commercial Dishwasher Rebate	N							ICI Acct.	Rebate	\$ 1,028	\$ -	158.2	0%	0%	N	0%	20	\$ 1,028	\$ 394
PRE-ICI-12	Commercial Food Steamer Rebate	N							ICI Acct.	Rebate	\$ 513	\$ -	223.3	0%	0%	N	0%	10	\$ 513	\$ 238

## User-Defined Conservation Measures

### Single-Family Measures

USR-SF-01		N																	\$ -	\$ -
USR-SF-02																			\$ -	\$ -

Utility Scenario	PFLUGERVILLE Going Slow	Include in Plan?	Average Annual Level of Activity for each Measure by Decade				
ID	Name	Y/N	2020-30	2031-40	2041-50	2051-60	2061-70

#### Single-Family Measures

PRE-SF-01	HE Toilet Rebate	Y	100	100	100	100	
PRE-SF-02	Bathroom Retrofit	N					
PRE-SF-03	Showerhead and Aerator Kit	N					
PRE-SF-04	Clothes Washer Rebate	N					
PRE-SF-05	Home Water Reports	Y	20	20	20	20	20
PRE-SF-06	Irrigation Audits - High Users	Y	5	5	5	5	5
PRE-SF-07	High-Efficiency Sprinkler Nozzle Rebate	N					
PRE-SF-08	Smart Irrigation Controller Rebate	N					
PRE-SF-09	WaterWise Landscape Rebate	N					
PRE-SF-10	Rainwater Harvesting Rebate	N					
PRE-SF-11	Rain Barrel	Y	100	100	100	100	100

#### Multi-Family Measures

PRE-MF-01	HE Toilet Rebate	Y	20	20			
PRE-MF-02	Bathroom Retrofit	N					
PRE-MF-03	Showerhead and Aerator Kit	N					
PRE-MF-04	Clothes Washer Rebate	N					
PRE-MF-05	Irrigation Audits - High Users	Y	2	2	2	2	2
PRE-MF-06	High-Efficiency Sprinkler Nozzle Rebate	N					
PRE-MF-07	Smart Irrigation Controller Rebate	N					
PRE-MF-08	WaterWise Landscape Rebate	N					
PRE-MF-09	Rainwater Harvesting Rebate	N					

#### Industrial, Commercial, Institutional Measures

PRE-ICI-01	HE Toilet Rebate	N					
PRE-ICI-02	Urinal Rebate	N					
PRE-ICI-03	Clothes Washer Rebate	N					
PRE-ICI-04	Commercial General Rebate	N					
PRE-ICI-05	Kitchen Pre-Rinse Spray Valve Installation	N					
PRE-ICI-06	Irrigation Audits - High Users	Y	2	2	2	2	2
PRE-ICI-07	High-Efficiency Sprinkler Nozzle Rebate	N					
PRE-ICI-08	Smart Irrigation Controller Rebate	N					
PRE-ICI-09	WaterWise Landscape Rebate	N					
PRE-ICI-10	Rainwater Harvesting Rebate	N					
PRE-ICI-11	Commercial Dishwasher Rebate	N					
PRE-ICI-12	Commercial Food Steamer Rebate	N					

Utility Scenario	PFLUGERVILLE Sky's The Limit	Include in Plan?	Average Annual Level of Activity for each Measure by Decade				
ID	Name	Y/N	2020-30	2031-40	2041-50	2051-60	2061-70

#### Single-Family Measures

PRE-SF-01	HE Toilet Rebate	Y	100				
PRE-SF-02	Bathroom Retrofit	Y	100	100	100	100	
PRE-SF-03	Showerhead and Aerator Kit	N					
PRE-SF-04	Clothes Washer Rebate	Y	75	75			
PRE-SF-05	Home Water Reports	Y	50	50	50	50	50
PRE-SF-06	Irrigation Audits - High Users	Y	200	225	250	275	300
PRE-SF-07	High-Efficiency Sprinkler Nozzle Rebate	Y					
PRE-SF-08	Smart Irrigation Controller Rebate	Y	350	375	400	450	500
PRE-SF-09	WaterWise Landscape Rebate	Y	400	450	500	550	600
PRE-SF-10	Rainwater Harvesting Rebate	Y	100	150	200	250	300
PRE-SF-11	Rain Barrel	N					

#### Multi-Family Measures

PRE-MF-01	HE Toilet Rebate	Y	15				
PRE-MF-02	Bathroom Retrofit	Y	10	10	10		
PRE-MF-03	Showerhead and Aerator Kit	N					
PRE-MF-04	Clothes Washer Rebate	N					
PRE-MF-05	Irrigation Audits - High Users	Y	10	20	30	40	50
PRE-MF-06	High-Efficiency Sprinkler Nozzle Rebate	N					
PRE-MF-07	Smart Irrigation Controller Rebate	N					
PRE-MF-08	WaterWise Landscape Rebate	Y	20	20	20	20	20
PRE-MF-09	Rainwater Harvesting Rebate	Y	15	15	15	15	15

#### Industrial, Commercial, Institutional Measures

PRE-ICI-01	HE Toilet Rebate	Y	100	20			
PRE-ICI-02	Urinal Rebate	Y	30				
PRE-ICI-03	Clothes Washer Rebate	N					
PRE-ICI-04	Commercial General Rebate	N					
PRE-ICI-05	Kitchen Pre-Rinse Spray Valve Installation	N					
PRE-ICI-06	Irrigation Audits - High Users	Y	40	40	40	40	40
PRE-ICI-07	High-Efficiency Sprinkler Nozzle Rebate	N					
PRE-ICI-08	Smart Irrigation Controller Rebate	N					
PRE-ICI-09	WaterWise Landscape Rebate	Y	100	100	100	100	100
PRE-ICI-10	Rainwater Harvesting Rebate	Y	10	20	30	40	50
PRE-ICI-11	Commercial Dishwasher Rebate	Y	20	20	20	20	20
PRE-ICI-12	Commercial Food Steamer Rebate	Y	10	10	10	10	10



Conservation Plan

View Settings Help Manage Scenarios

Utility: PFLUGERVILLE  
Scenario: Sky's The Limit

ID	Name	Savings Unit Cost \$/AF	Annual Measure Implementation				Active Water Savings by Planning Year (kGal)				Total Cost by Planning Year (2018 \$)			
			2020	2024	2029	2030	2020	2024	2029	2030	2020	2024	2029	2030

Single-Family Measures

PRE-SF-01	HE Toilet Rebate	\$ 363	100	100	100	100	736	3,398	6,168	6,658	\$ 11,300	\$ 11,300	\$ 11,300	\$ 11,300
PRE-SF-02	Bathroom Retrofit	\$ 748	100	100	100	100	1,039	4,797	8,708	9,399	\$ 32,900	\$ 32,900	\$ 32,900	\$ 32,900
PRE-SF-04	Clothes Washer Rebate	\$ 1,374	75	75	75	75	284	1,233	2,086	2,222	\$ 11,700	\$ 11,700	\$ 11,700	\$ 11,700
PRE-SF-05	Home Water Reports	\$ 516	50	50	50	50	221	221	221	221	\$ 350	\$ 350	\$ 350	\$ 350
PRE-SF-06	Irrigation Audits - High Users	\$ 924	200	200	200	200	2,409	7,227	7,227	7,227	\$ 19,800	\$ 19,800	\$ 19,800	\$ 19,800
PRE-SF-07	High-Efficiency Sprinkler Nozzle Rebate	\$ 917	0	0	0	0	0	0	0	0	\$ -	\$ -	\$ -	\$ -
PRE-SF-08	Smart Irrigation Controller Rebate	\$ 694	350	350	350	350	4,010	20,052	40,103	40,103	\$ 73,500	\$ 73,500	\$ 73,500	\$ 73,500
PRE-SF-09	WaterWise Landscape Rebate	\$ 649	400	400	400	400	9,272	46,359	92,719	101,991	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000
PRE-SF-10	Rainwater Harvesting Rebate	\$ 666	100	100	100	100	1,457	7,283	14,566	16,023	\$ 35,500	\$ 35,500	\$ 35,500	\$ 35,500
Subtotal		\$ 676					19,428	90,570	171,799	183,844	\$ 405,050	\$ 405,050	\$ 405,050	\$ 405,050

Multi-Family Measures

PRE-MF-01	HE Toilet Rebate	\$ 263	15	15	15	15	152	702	1,274	1,375	\$ 1,695	\$ 1,695	\$ 1,695	\$ 1,695
PRE-MF-02	Bathroom Retrofit	\$ 466	10	10	10	10	167	770	1,398	1,509	\$ 3,290	\$ 3,290	\$ 3,290	\$ 3,290
PRE-MF-05	Irrigation Audits - High Users	\$ 533	10	10	10	10	449	1,347	1,347	1,347	\$ 2,130	\$ 2,130	\$ 2,130	\$ 2,130
PRE-MF-08	WaterWise Landscape Rebate	\$ 619	20	20	20	20	4,636	23,180	46,359	50,995	\$ 105,000	\$ 105,000	\$ 105,000	\$ 105,000
PRE-MF-09	Rainwater Harvesting Rebate	\$ 471	15	15	15	15	2,533	12,663	25,326	27,858	\$ 43,665	\$ 43,665	\$ 43,665	\$ 43,665
Subtotal		\$ 561					7,936	38,662	75,705	83,085	\$ 155,780	\$ 155,780	\$ 155,780	\$ 155,780

Industrial, Commercial, Institutional Measures

PRE-ICI-01	HE Toilet Rebate	\$ 349	100	100	100	100	934	4,310	7,825	8,445	\$ 13,800	\$ 13,800	\$ 13,800	\$ 13,800
PRE-ICI-02	Urinal Rebate	\$ 657	30	30	30	30	149	687	1,248	1,347	\$ 4,140	\$ 4,140	\$ 4,140	\$ 4,140
PRE-ICI-06	Irrigation Audits - High Users	\$ 533	40	40	40	40	1,796	5,387	5,387	5,387	\$ 8,520	\$ 8,520	\$ 8,520	\$ 8,520
PRE-ICI-09	WaterWise Landscape Rebate	\$ 619	100	100	100	100	23,180	115,898	231,797	254,977	\$ 525,000	\$ 525,000	\$ 525,000	\$ 525,000
PRE-ICI-10	Rainwater Harvesting Rebate	\$ 471	10	10	10	10	1,688	8,442	16,884	18,572	\$ 29,110	\$ 29,110	\$ 29,110	\$ 29,110
PRE-ICI-11	Commercial Dishwasher Rebate	\$ 394	20	20	20	20	1,155	5,776	11,551	12,707	\$ 20,560	\$ 20,560	\$ 20,560	\$ 20,560
PRE-ICI-12	Commercial Food Steamer Rebate	\$ 238	10	10	10	10	815	4,075	8,150	8,150	\$ 5,130	\$ 5,130	\$ 5,130	\$ 5,130
Subtotal		\$ 577					29,717	144,576	282,842	309,585	\$ 606,260	\$ 606,260	\$ 606,260	\$ 606,260

Utility & General Measures

Subtotal		NA					0	0	0	0	\$ -	\$ -	\$ -	\$ -
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Grand Total for Plan		\$ 608					57,081	273,807	530,346	576,514	\$ 1,167,090	\$ 1,167,090	\$ 1,167,090	\$ 1,167,090
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Start	1. Baseline Demand Projection	2. Conservation Measures	3. Conservation Plan	4. Plan Demand Projection	Single-Year Savings Calculator	Plumbing Fixture Inventory	Pre-Defined Measures	Passive Savings	..
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# Conservation Plan Demand Projection

View Settings Help Adjust Column Width Manage Scenarios






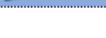
Utility:	PFLUGERVILLE								
Scenario:	Sky's The Limit								
Volume Units:	AF								
Projections	2020	2024	2029	2030	2040	2050	2060	2070	2020-70 Avg Annual Growth %

<b>Population</b>									
Retail Service Area	63,118	69,356	77,154	78,714	96,187	113,524	131,029	131,180	1.5%

<b>Connections</b>									
Single Family	18,840	20,702	23,030	23,495	28,710	33,885	39,110	39,155	1.5%
Multi Family	45	49	55	56	70	87	108	135	2.2%
ICI	849	933	1,038	1,059	1,321	1,647	2,054	2,562	2.2%
Total	19,734	21,684	24,122	24,610	30,101	35,619	41,272	41,852	1.5%

<b>Baseline Demand</b>	(in AF)								
Single Family	5,069	5,485	6,004	6,108	7,342	8,575	9,833	9,834	1.3%
Multi Family	333	360	394	401	482	563	646	646	1.3%
ICI	1,518	1,646	1,806	1,838	2,212	2,591	2,979	2,977	1.4%
Sales Subtotal	6,920	7,491	8,205	8,347	10,036	11,730	13,458	13,457	1.3%
Other Uses	321	353	393	401	490	578	667	668	1.5%
Water Loss	882	956	1,047	1,066	1,282	1,499	1,721	1,721	1.3%
Production Total	8,124	8,800	9,645	9,814	11,808	13,807	15,846	15,846	1.3%
Water Loss %	11%	11%	11%	11%	11%	11%	11%	11%	0.0%

<b>Baseline GPCD</b>									
Total	115	113	112	111	110	109	108	108	-0.1%
Residential	76	75	74	74	73	72	71	71	-0.1%
Water Loss	12	12	12	12	12	12	12	12	-0.1%

<b>Plan Active Savings</b>	(in AF)								
Single Family	60	278	527	564	778	879	988	1,070	
Multi Family	24	119	232	255	348	353	354	356	
ICI	91	444	868	950	1,334	1,403	1,475	1,549	
Other	0	0	0	0	0	0	0	0	
Water Loss	0	0	0	0	0	0	0	0	
Total Plan Savings	175	840	1,628	1,769	2,461	2,635	2,817	2,975	

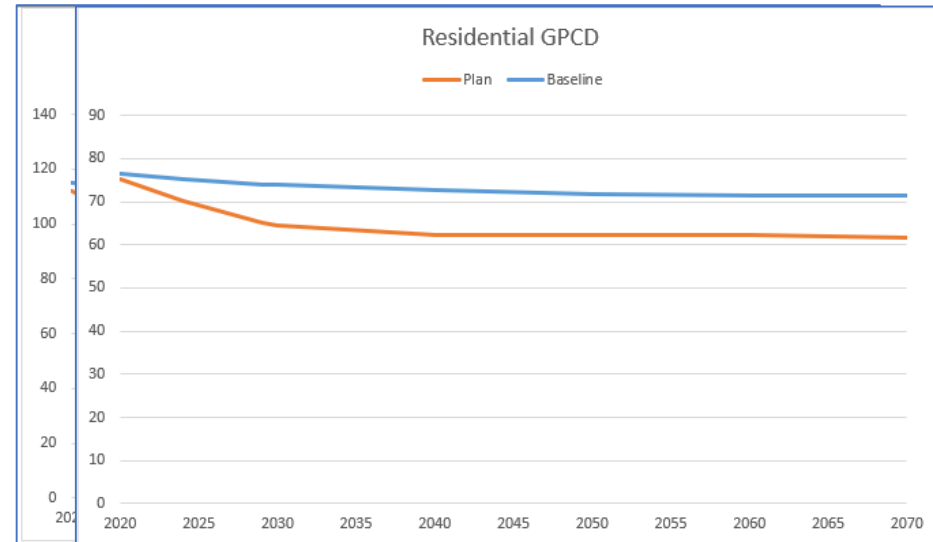
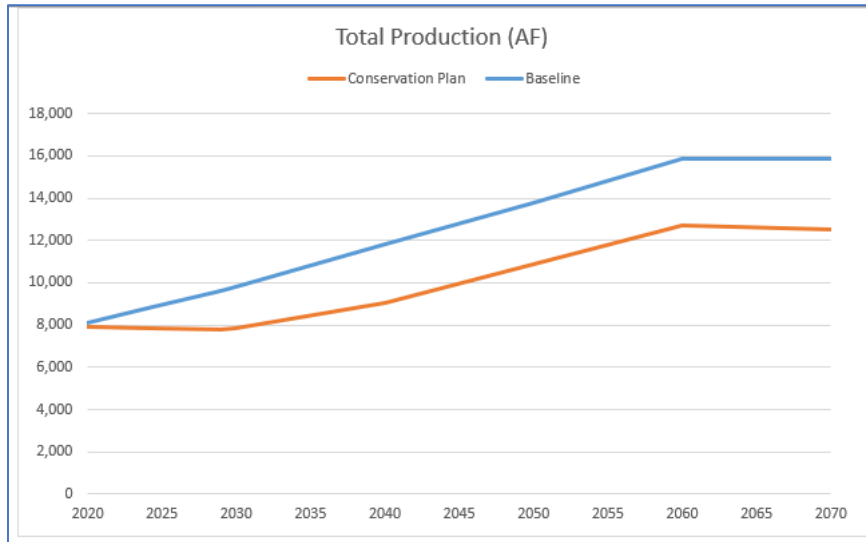
Utility:	PFLUGERVILLE								
Scenario:	Sky's The Limit								
Volume Units:	AF								
Projections	2020	2024	2029	2030	2040	2050	2060	2070	Avg Annual Growth %

#### Plan Demand Projection (in AF)

Single Family	5,010	5,207	5,477	5,544	6,563	7,697	8,845	8,764	1.1%
Multi Family	309	242	162	146	134	210	292	290	-0.1%
ICI	1,427	1,202	938	888	878	1,188	1,504	1,428	0.0%
Sales Subtotal	6,745	6,651	6,577	6,578	7,575	9,095	10,641	10,482	0.9%
Other Uses	321	353	393	401	490	578	667	668	1.5%
Water Loss	861	853	849	850	983	1,178	1,378	1,358	0.9%
Production Total	7,927	7,857	7,819	7,829	9,048	10,851	12,685	12,508	0.9%
Water Loss %	11%	11%	11%	11%	11%	11%	11%	11%	0.0%

#### Plan GPCD

Total	112	101	90	89	84	85	86	85	-0.5%
% Reduction from Baseline	2%	11%	19%	20%	23%	21%	20%	21%	
Residential	75	70	65	65	62	62	62	62	-0.4%
% Reduction from Baseline	2%	7%	12%	13%	14%	13%	13%	14%	
Water Loss	12	11	10	10	9	9	9	9	-0.5%
% Reduction from Baseline	2%	11%	19%	20%	23%	21%	20%	21%	



## Single-Year Savings Calculator

View Settings Help Clear Activity Manage Scenarios

Utility: **PFLUGERVILLE**  
 Scenario: **Sky's The Limit**  
 Volume Units: **kGal**

ID	Name	Enter Reporting Year Activity	Activity Water Savings (kGal)	Savings Unit Cost \$/AF
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### Single-Family Measures

PRE-SF-01	HE Toilet Rebate	75	552	\$ 363
PRE-SF-02	Bathroom Retrofit		0	\$ -
PRE-SF-04	Clothes Washer Rebate		0	\$ -
PRE-SF-05	Home Water Reports	20	88	\$ 516
PRE-SF-06	Irrigation Audits - High Users	10	120	\$ 924
PRE-SF-07	High-Efficiency Sprinkler Nozzle Rebate		0	\$ -
PRE-SF-08	Smart Irrigation Controller Rebate		0	\$ -
PRE-SF-09	WaterWise Landscape Rebate		0	\$ -
PRE-SF-10	Rainwater Harvesting Rebate		0	\$ -
Subtotal			761	\$ 389

### Multi-Family Measures

PRE-MF-01	HE Toilet Rebate	8	81	\$ 263
PRE-MF-02	Bathroom Retrofit		0	\$ -
PRE-MF-05	Irrigation Audits - High Users	4	180	\$ 533
PRE-MF-08	WaterWise Landscape Rebate		0	\$ -
PRE-MF-09	Rainwater Harvesting Rebate		0	\$ -
Subtotal			261	\$ 350

### Industrial, Commercial, Institutional Measures

PRE-ICI-01	HE Toilet Rebate		0	\$ -
PRE-ICI-02	Urinal Rebate		0	\$ -
PRE-ICI-06	Irrigation Audits - High Users	3	135	\$ 533
PRE-ICI-09	WaterWise Landscape Rebate		0	\$ -
PRE-ICI-10	Rainwater Harvesting Rebate		0	\$ -
PRE-ICI-11	Commercial Dishwasher Rebate		0	\$ -
PRE-ICI-12	Commercial Food Steamer Rebate		0	\$ -
Subtotal			135	\$ 533

### Utility & General Measures

Subtotal		0	NA
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### Grand Total for Reporting Year

		1,156	\$ 389
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Start 1. Baseline Demand Projection 2. Conservation Measures 3. Conservation Plan 4. Plan Demand Projection **Single-Year Savings Calculator** Plumbing Fixture Inventory

# Going Forward

- Water Conservation Plan Updates
  - Identifying the potential of certain conservation activities
- Annual Water Conservation Reports
  - Water Savings
- Program Analysis
  - Cost Benefits
- Regional Water Planning
  - Water Management Strategies

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