

## Village of Somers – AWE Conservation Tracking Tool Inputs/Results

Note: Input data was provided to the Village by Baxter & Woodman, Inc. to assist in setting up the tool for analysis. The Village then provided results from the tool to B&W to respond to the Department of Natural Resources comments regarding the AWE Conservation Tool.

### Section 1 – Common Assumptions

#### Population, Housing, and Account Forecasts

Population & Housing	2019	2020	2025	2030	2035	2040	2045	2050
Population	3,942	4,200	5,877	8,491	12,670	19,489	30,801	49,816
Single Family Dwelling Units	1,005	1,044	1,262	1,526	1,845	2,231	2,697	3,266
Multi Family Dwelling Units	156	174	302	524	910	1,579	2,740	4,754

#### Number of Accounts

Single Family	1,005	1,044	1,262	1,526	1,845	2,231	2,697	3,266
Multi Family	156	174	302	524	910	1,579	2,740	4,754
Commercial	69	75	116	179	277	427	660	1,018
Industrial	2	2	7	18	49	134	365	992
Institutional	8	8	11	15	20	27	35	47
Not in use								
Not in use								
Not in use								
Not in use								

#### Financial Assumptions

Dollar Base Year	2021
Annual Inflation Rate	2.0%
Nominal Interest Rate	4.0%

#### Utility Rates in 2019

Customer Class	Average Class Rate (2021 Dollars)				Annual Rate of Increase			
	Water (\$/Thou Gal)	Sewer (\$/Thou Gal)	Electricity (\$/KWh)	Gas (\$/Therm)	Water Water Rates (%/Yr)	Sewer Sewer Rates (%/Yr)	Electricity Electric Rates (%/Yr)	Gas Gas Rates (%/Yr)
Single Family	\$8.67	\$0.00	\$0.00	\$0.00	2.0%	0.0%	0.0%	0.0%
Multi Family	\$5.73	\$0.00	\$0.00	\$0.00	2.0%	0.0%	0.0%	0.0%
Commercial	\$6.16	\$0.00	\$0.00	\$0.00	2.0%	0.0%	0.0%	0.0%
Industrial	\$6.21	\$0.00	\$0.00	\$0.00	2.0%	0.0%	0.0%	0.0%
Institutional	\$5.06	\$0.00	\$0.00	\$0.00	0.0%	0.0%	0.0%	0.0%

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### Information Needed to Calculate Water/Energy Savings from Plumbing/Appliance Standards

	Single Family	Multi Family
Persons per household	2.57	2.57
Full Baths/Dwelling Unit	1.46	1.10
Half Baths/Dwelling Unit	0.56	0.14
Dwelling Units in 1994	3,000	0
Population in 1990	1,500	

### Information Needed to Calculate Water Savings for Landscape Measures in Library

Reference ET	in/yr	83.59
Avg Annual Rainfall	in/yr	40.00
Effective Rainfall	%	25%

#### Landscape Water Requirement Coefficient (K<sub>L</sub>)

Turf	% of ET <sub>0</sub>	80%
Other than turf	% of ET <sub>0</sub>	0%

		Residential	Non Residential
Avg Landscape Area Per Site	ft <sup>2</sup>	14,500	29,000
Avg Turf Area (% of Total)	%	100%	100%
Avg Irrigation Efficiency (%)	%	50%	50%

		Residential	Non Residential
Irrigation Requirement			
Turf Area	in/ft <sup>2</sup> /yr	114	114
Other	in/ft <sup>2</sup> /yr	0	0

		Residential	Non Residential
Avg Landscape Water Use Per Site			
Turf Area	Gal/Yr	1,028,055	2,056,111
Other	Gal/Yr	0	0
Total	Gal/Yr	1,028,055	2,056,111

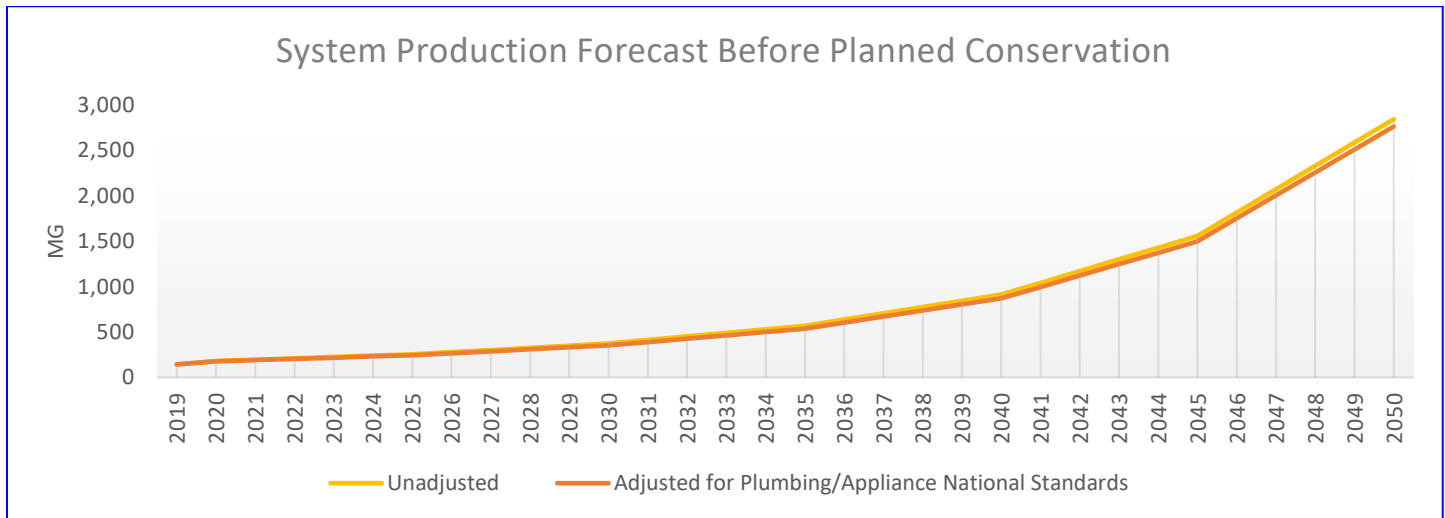
## Section 2 – Specify Demands

### Peak Demand Season

	Begin Date	End Date	Peak Days	% of Year
Peak Demand Season	1-Jul	1-Oct	92	25%

### Baseline Demand Forecast

Annual Sales	Units	2019	2020	2025	2030	2035	2040	2045	2050	Peak Season % of Annual
Single Family	MG	47	69	83	100	121	146	177	214	44%
Multi Family	MG	35	39	67	117	203	351	610	1,050	44%
Commercial	MG	17	18	28	43	67	103	159	246	44%
Industrial	MG	1	2	6	16	44	119	324	881	44%
Institutional	MG	31	35	47	62	83	110	146	195	44%
Not in use	MG									
Not in use	MG									
Not in use	MG									
Not in use	MG									
<b>Total Sales</b>	MG	<b>130</b>	<b>163</b>	<b>231</b>	<b>338</b>	<b>517</b>	<b>830</b>	<b>1,416</b>	<b>2,586</b>	44%
System Loss*	MG	12.90	16.30	23.10	33.80	51.70	83.00	141.60	258.60	44%
<b>System Production</b>	MG	<b>143</b>	<b>179</b>	<b>254</b>	<b>372</b>	<b>569</b>	<b>913</b>	<b>1,558</b>	<b>2,844</b>	44%



### Adjust Baseline Demand Forecast for Future Effects of Plumbing/Appliance Standards

Adjust demand forecast for future effects of plumbing/appliance standards?

Yes

### Section 3 – Enter Utility Avoided Costs

#### Tracking Tool Utility Avoided Cost Calculator

##### Water and Wastewater System Variable Costs (2021 Dollars)

	Water		Wastewater	
	\$/MG	Nominal Increase (%/yr)	\$/MG	Nominal Increase (%/yr)
Water purchase	\$2,312	2.0%	NA	NA
Energy	\$0	0.0%	\$0	0.0%
Chemicals	\$0	0.0%	\$0	0.0%
Other variable cost	\$0	0.0%	\$0	0.0%
<b>Total</b>	<b>\$2,312</b>	<b>2.0%</b>	<b>\$0</b>	<b>0.0%</b>

#### Water System Capacity Requirements

Maximum forecasted peak season daily use	MGD	13.2
Existing peak season system delivery capacity	MGD	13.2
Capacity shortfall	MGD	0.0
Year capacity shortfall occurs	Yr	2050

<-Enter your system's current peak season delivery capacity. The value you enter must be equal to or larger than 0 MGD.

Increment of peak season capacity to be added by 2054	MGD	0.0	Use model's estimate
Estimated cost of new capacity (2021 dollars)	\$/MGD		

#### Enter Forecast of Other Avoided Costs of Reduced Water Demands Not Counted Elsewhere (2021 Dollars)

Season	Units	2019	2020	2025	2030	2035	2040	2045	2050	2045-2050 Ann Grwth %
Peak Season	\$/MG									0.0%
Off Peak Season	\$/MG									0.0%
<b>Average</b>	<b>\$/MG</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>0.0%</b>

Village of Somers – AWE Conservation Tracking Tool Inputs/Results

**Section 4 – Define Activities**

Activity ID	Activity Name	Class	Savings, Per Unit (gpy)	Savings, Annual Rate of Decay (%)	Savings, Peak Period (% of Annual Savings)	Savings, Participant Free Riders (% of Participants)	Savings, Useful Life (yrs)	Utility Costs, Year Denominated	Utility Costs, Initial Fixed (\$)	Utility Costs, Initial Variable (\$/unit)	Utility Costs, Years of Follow-up (yrs)	Utility Costs, Follow-up Fixed (\$/yr)	Utility Costs, Follow-up Variable (\$/unit/yr)	Participant Costs, Year Denominated	Participant Costs, Initial (\$)	Participant Costs, Years of On-going (yrs)	Participant Costs, On-going (\$/Yr)	Participant Savings, Sewer (gpy)	Participant Savings, Gas (Therms/Gal)	Participant Savings, Electricity (KWh/Gal)	Plumbing Code, Year Effective	Plumbing Code, Unit Savings (gpy)	Plumbing Code, Natural Replacement Rate NRR (%)
1	Pressure Management	Utility	180,000	5%	50%	10	0%	2021	\$20,000.00					2016	\$0.00	0	\$0.00	0.00	0.0000	0.0000	0	0	0.00%
2	Residential Surveys, MF	Multi Family	4,015	20%	25%	5	0%	2021	\$3,000.00	\$1,000.00				2014	\$0.00	0	\$0.00	4,015.00	0.0024	0.0000	0	0	0.00%
3	Residential Surveys, SF	Single Family	12,373	20%	68%	5	0%	2021	\$3,000.00	\$500.00				2014	\$0.00	0	\$0.00	4,949.20	0.0010	0.0000	0	0	0.00%
4	Residential LF Showerhead, SF	Single Family	2,062	0%	25%	25	0%	2021	\$1,000.00	\$30.00				2021	\$30.00	0	\$0.00	2,062.00	0.0048	0.0000	1994	2062.25	12.00%
5	Residential LF Showerhead, MF	Multi Family	1,898	0%	25%	25	0%	2021	\$1,000.00	\$30.00				2021	\$30.00	0	\$0.00	1,898.00	0.0048	0.0000	1994	1898	12.00%
6	Residential HE Toilets, SF	Single Family	9,667	0%	25%	25	0%	2014	\$1,000.00	\$120.00				2014	\$111.00	0	\$0.00	9,667.25	0.0000	0.0000	1994	7859.551534	4.00%
7	Residential HE Toilets, MF	Multi Family	9,667	0%	25%	25	0%	2014	\$1,000.00	\$120.00				2014	\$111.00	0	\$0.00	20,267.33	0.0000	0.0000	1994	16477.50313	4.00%
8	CII Valve-Type ULFT Rebate	Commercial	10,585	0%	25%	25	23%	2021	\$1,000.00	\$120.00				2021	\$350.00	0	\$0.00	10,585.00	0.0000	0.0000	1994	10585	4.00%
9	Voluntary Sprinkling Restrictions, SF	Single Family	18,080	0%	70%	10	0%	2021	\$1,000.00	\$0.00				2014	\$0.00	10	\$277.50	0.00	0.0000	0.0000	0	0	0.00%
10	Residential 4.0 Washer, MF Common Area	Multi Family	30,000	0%	25%	8	0%	2021	\$2,000.00	\$500.00				2021	\$500.00	0	\$0.00	30,000.00	0.0035	0.0036	2011	21000	12.50%

## **Section 5 – Enter Annual Activity**

### **Enter Annual Conservation Activity**

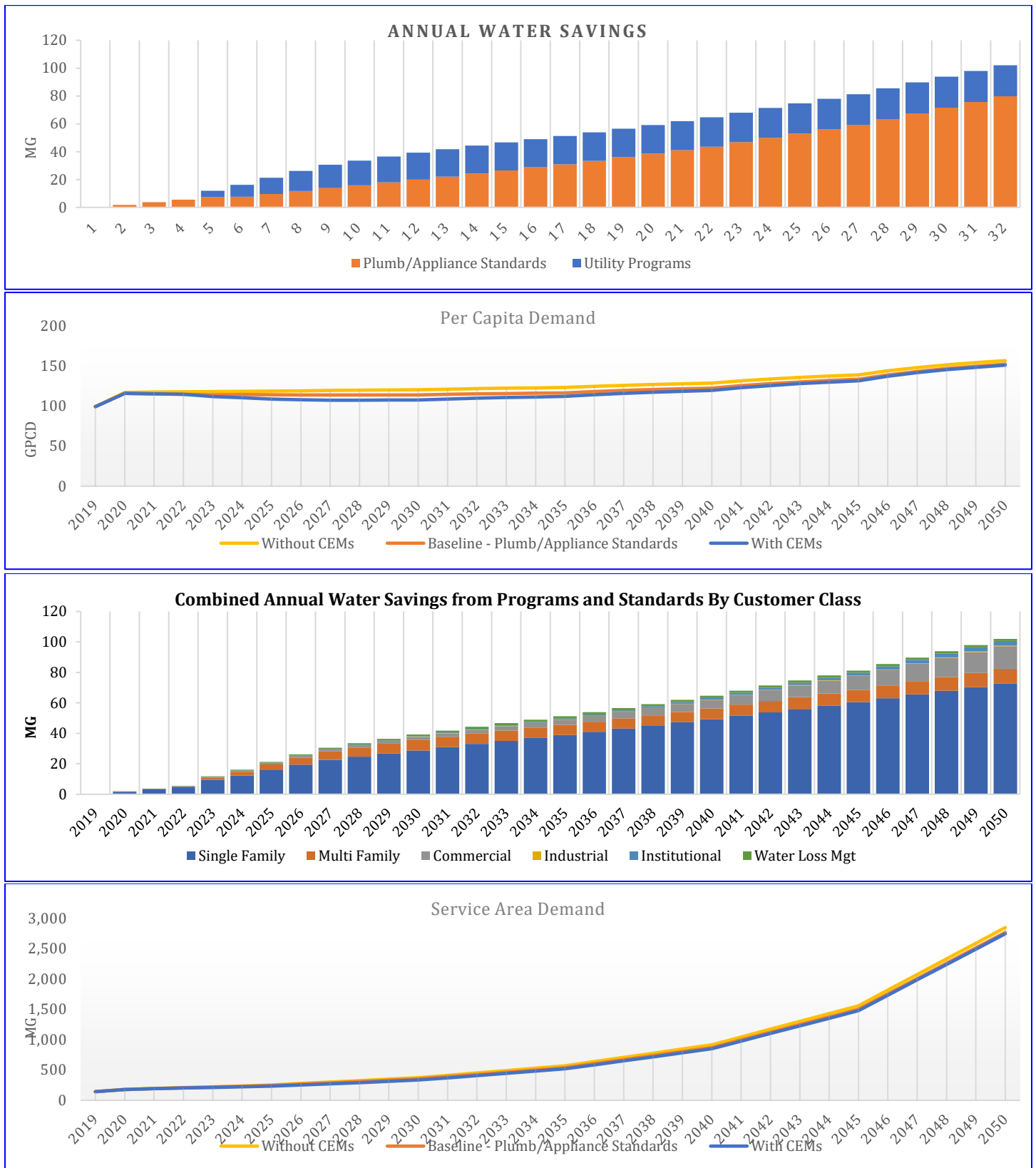
Activity ID	Class	Activity Name	2019	2020	2021	2022	2023
1	Utility	Pressure Management					1
2	Multi Family	Residential Surveys, MF					200
3	Single Family	Residential Surveys, SF					200
4	Single Family	Residential LF Showerhead, SF					50
5	Multi Family	Residential LF Showerhead, MF					50
6	Single Family	Residential HE Toilets, SF					25
7	Multi Family	Residential HE Toilets, MF					25
8	Commercial	CII Valve-Type ULFT Rebate					5
9	Single Family	Voluntary Sprinkling Restrictions, SF					5
10	Multi Family	Residential 4.0 Washer, MF Common Area					10

<b>Annual Program Overhead Cost (2021 dollars)</b>	2019	2020	2021	2022	2023
Enter additional program cost not included in activity definitions					25000

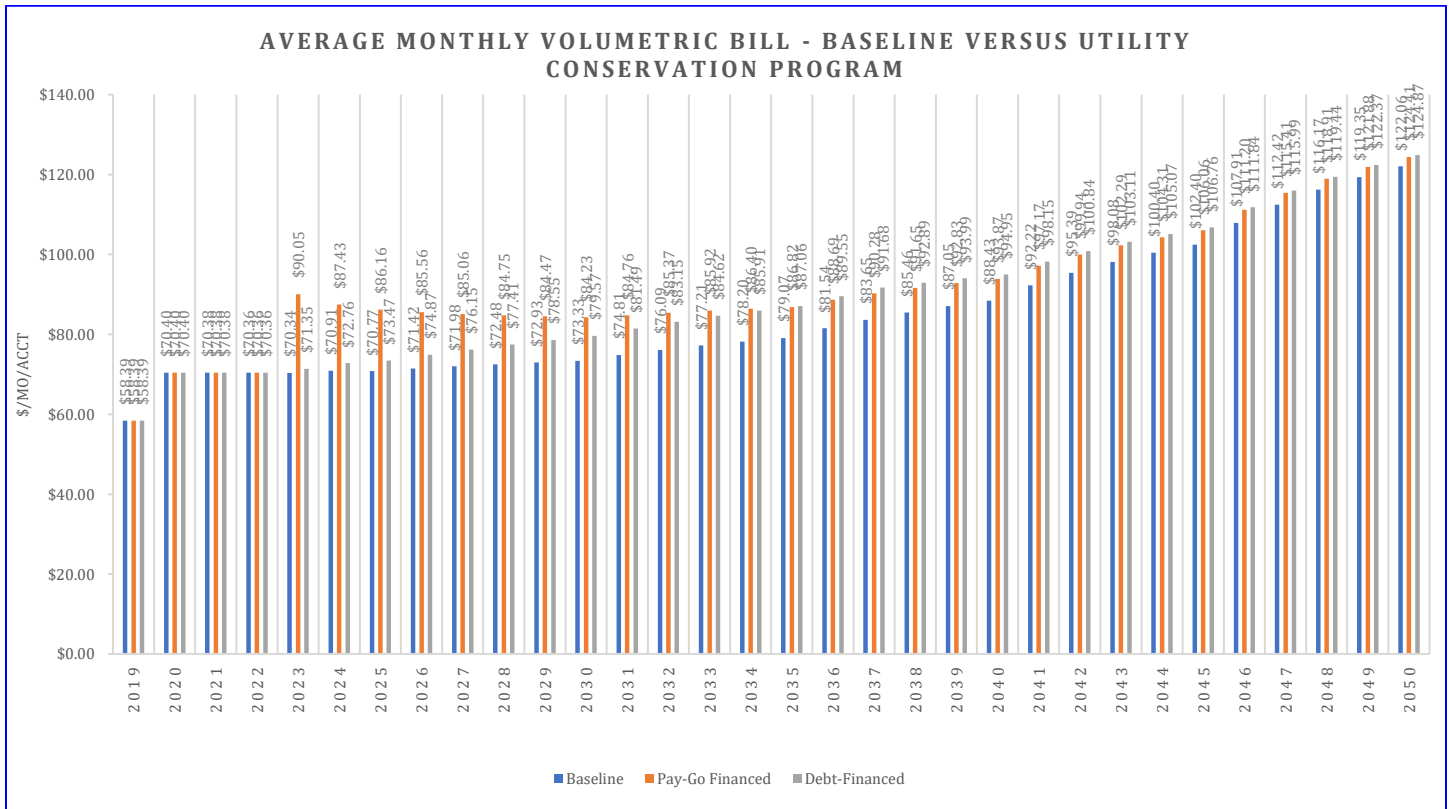
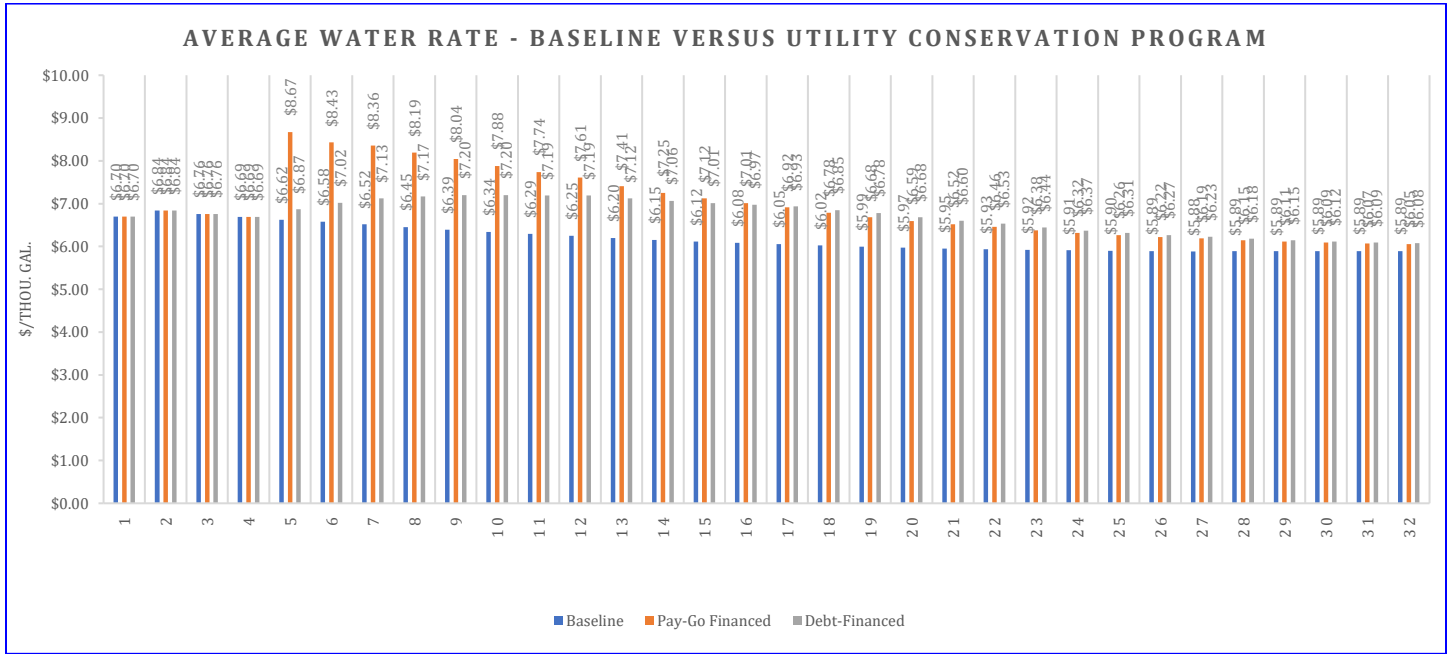
## **Section 6 – Enter GHG Emission Factor**

Minimal data entered in this section. Not used.

**Results - Water Savings Summary**

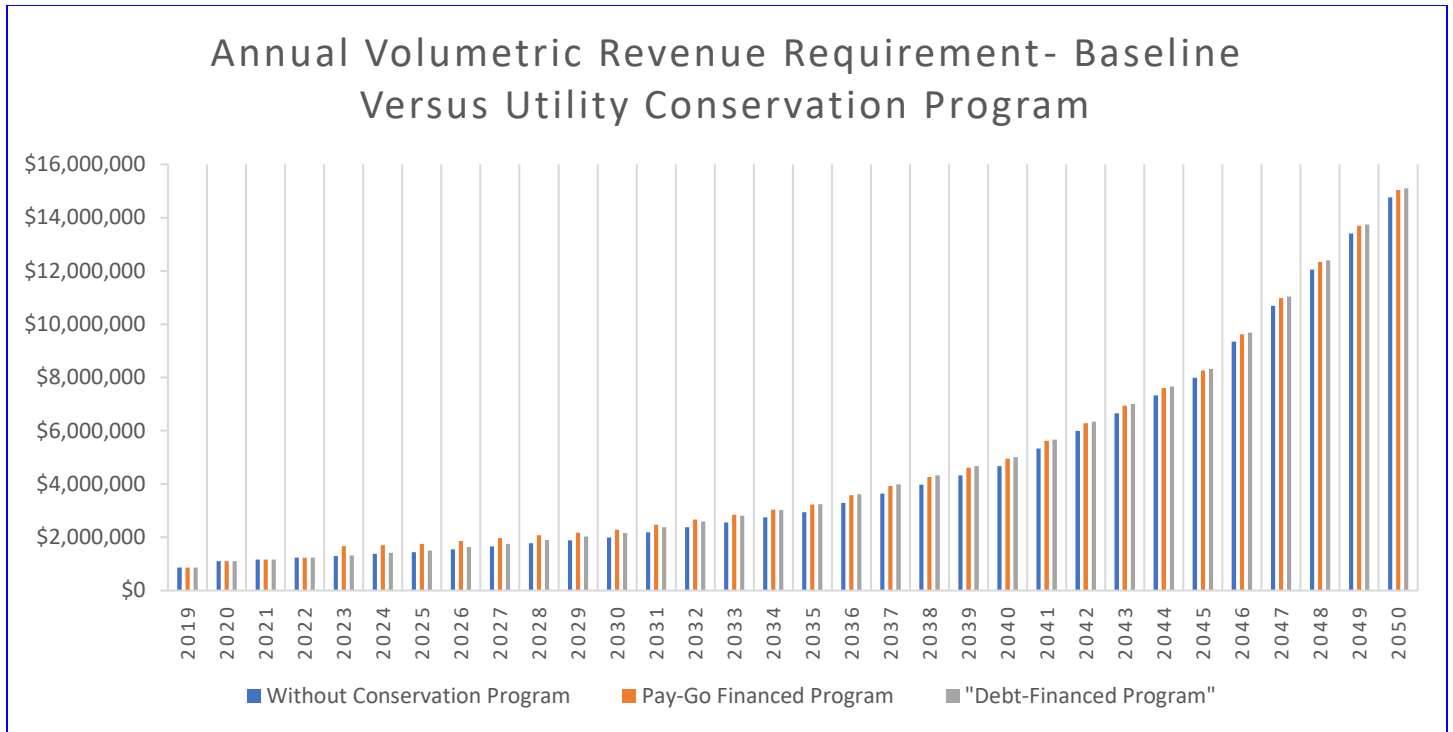


**Results – Utility Revenues and Rates**





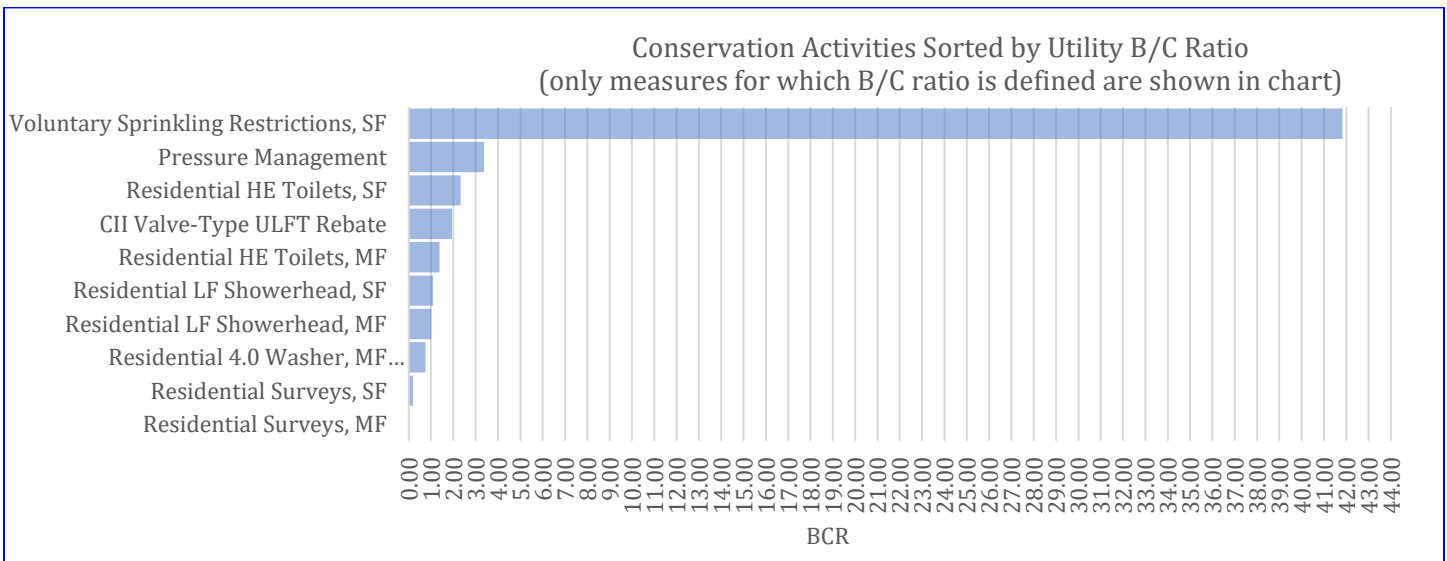
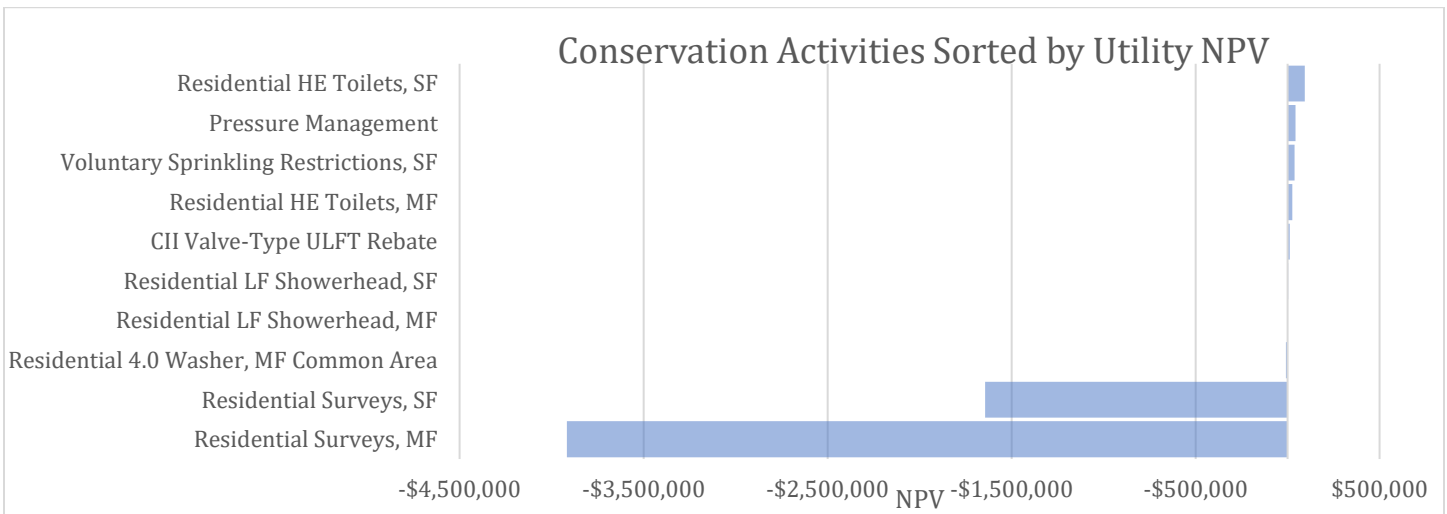
Village of Somers – AWE Conservation Tracking Tool Inputs/Results



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**Results – Utility Revenues and Rates**

Class	Activity Name	NPV (\$)	B/C Ratio
Utility	Pressure Management	\$ 43,853	3.4
Multi Family	Residential Surveys, MF	(\$ (3,916,428)	0.0
Single Family	Residential Surveys, SF	(\$ (1,644,078)	0.2
Single Family	Residential LF Showerhead, SF	\$ 3,055	1.1
Multi Family	Residential LF Showerhead, MF	\$ 327	1.0
Single Family	Residential HE Toilets, SF	\$ 93,590	2.3
Multi Family	Residential HE Toilets, MF	\$ 26,376	1.4
Commercial	CII Valve-Type ULFT Rebate	\$ 12,276	1.9
Single Family	Voluntary Sprinkling Restrictions, SF	\$ 37,781	41.8
Multi Family	Residential 4.0 Washer, MF Common Area	(\$ (8,959)	0.8
<b>Subtotal Conservation Activities</b>		<b>(\$ (5,352,208)</b>	<b>0.2</b>
<b>Total With Program Overhead</b>		<b>(\$ (5,856,691)</b>	<b>0.1</b>



**Results – Water Loss Comparison**

