

# Ventura Water Cost of Service & Rate Design Study

Citizen Advisory Committee Meeting

January 18, 2012

DRAFT



# Overview

- Water rate structure alternatives
  - COS analysis
  - Outside-City rates
  - Alternative rate schedules
  - Customer impacts
- Wastewater rate structure alternatives
  - COS analysis
  - Alternative rate schedules
  - Customer impacts
- Next Steps/Discussion/Q&A



# WATER RATE STRUCTURES

# Cost of Service Analysis

- Allocate costs to functional cost components
  - Base, Max Day, Max Hour, Fire, Meter, Billing, General
- Determine revenue required from rates
  - Total expenses less revenue offset and adjustments to cash balance and mid-year increases
- Determine unit costs of each functional cost components based on the revenue requirements
- Allocate costs to different customer classes based on their characteristics

# Water Rate Structure Alternatives

- Bi-monthly meter charges increase from 19% to 25% of rate revenue
  - Pass on fixed costs more equitably
  - Provide greater revenue stability
- Three scenarios for commodity rate structure
  - Scenario 1: Status Quo w/ revenue adjustment
  - Scenario 2: Revise Tiers
  - Scenario 3: Revise and Add 4<sup>th</sup> Tier

# Outside-City Rates

- Three components:
  - Property tax on water utility's assets - \$0.05/hcf
  - Police and fire protection costs on water utility's assets - \$0.10/hcf
  - Differential water supply costs - \$0.58/hcf
- Total Outside-City surcharge: \$0.73/hcf

Hcf – hundred cubic feet, 750 gallons

# Meter Charge Calculation – Fixed charge @ 25% of rate revenue

Meter Size	Meter Ratio	Meter Component	Billing Component	Bi-monthly Charge
3/4"	1.00	\$18.30	\$4.83	\$23.14
1"	1.67	\$30.50	\$4.83	\$35.34
1 1/2"	3.33	\$61.00	\$4.83	\$65.84
2"	5.33	\$97.60	\$4.83	\$102.44
3"	11.67	\$213.50	\$4.83	\$218.34
4"	21.00	\$384.31	\$4.83	\$389.14
6"	43.33	\$793.01	\$4.83	\$797.85
8"	80.00	\$1,464.03	\$4.83	\$1,468.86
10"	126.67	\$2,318.04	\$4.83	\$2,322.88
12"	166.67	\$3,050.06	\$4.83	\$3,054.89

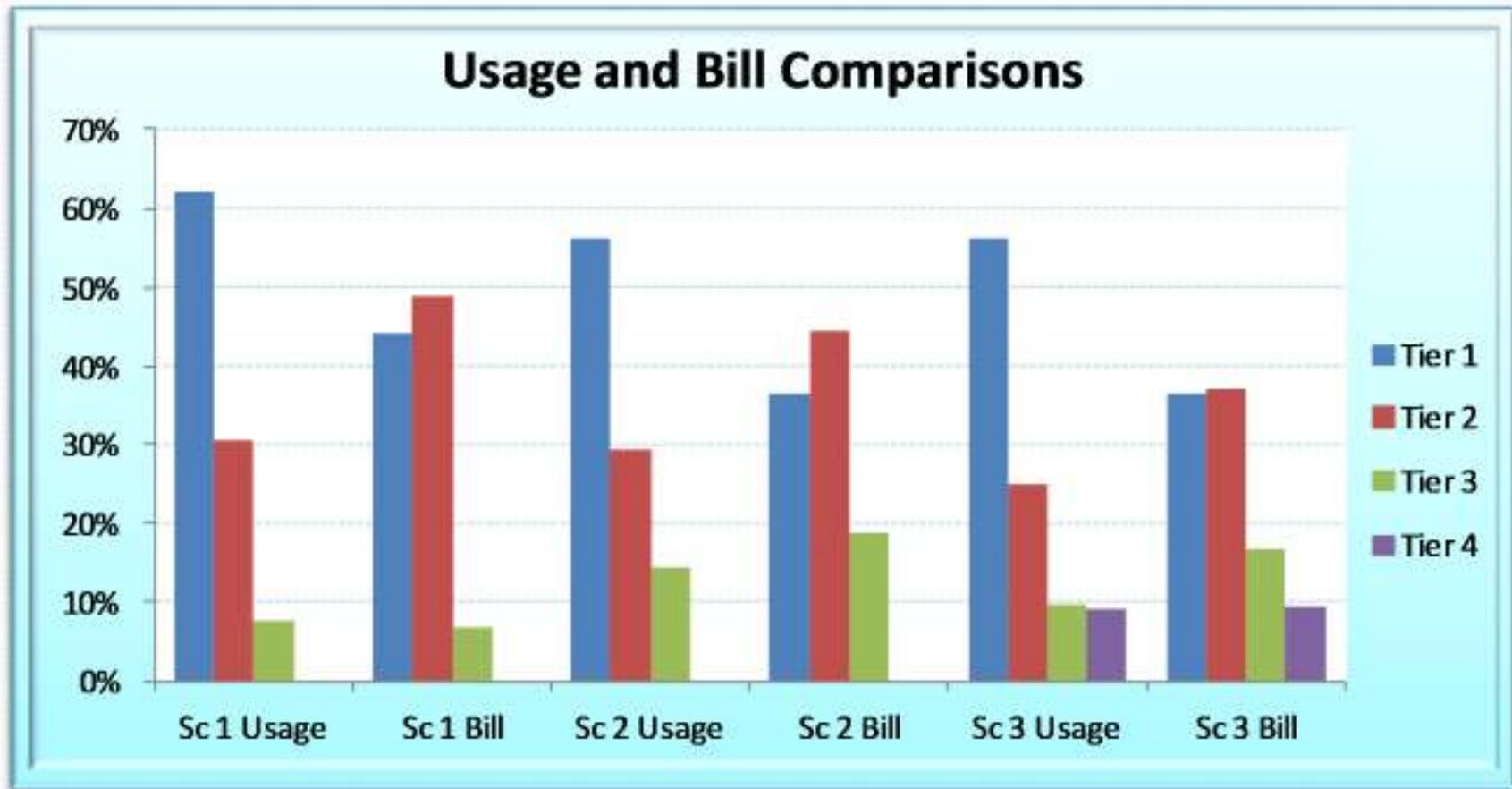
## Proposed Bi-monthly Meter Charges @ 25% of rate revenue

Meter Size	Existing	Proposed	Difference
3/4"	\$15.03	\$23.14	\$8.11
1"	\$28.74	\$35.34	\$6.60
1 1/2"	\$47.76	\$65.84	\$18.08
2"	\$66.76	\$102.44	\$35.68
3"	\$150.42	\$218.34	\$67.92
4"	\$245.49	\$389.14	\$143.65
6"	\$483.06	\$797.85	\$314.79
8"	\$720.60	\$1,468.86	\$748.26
10"	\$958.15	\$2,322.88	\$1,364.73
12"	\$1,100.68	\$3,054.89	\$1,954.21

# Scenarios Comparison – SFR Tiers (bi-monthly)

Scenario 1: Status Quo	HCF	% of Usage	% of Total Bills
Tier 1	0 – 16	62%	44%
Tier 2	17 – 42	30%	49%
Tier 3	42+	8%	7%
Scenario 2: Revise Tiers	HCF	% of Usage	% of Total Bills
Tier 1	0 – 14	56%	37%
Tier 2	15 – 30	29%	45%
Tier 3	30+	14%	19%
Scenario 3: Add Tier	HCF	% of Usage	% of Total Bills
Tier 1	0 – 14	56%	37%
Tier 2	15 – 24	22%	33%
Tier 3	25 – 36	11%	20%
Tier 4	36+	10%	11%

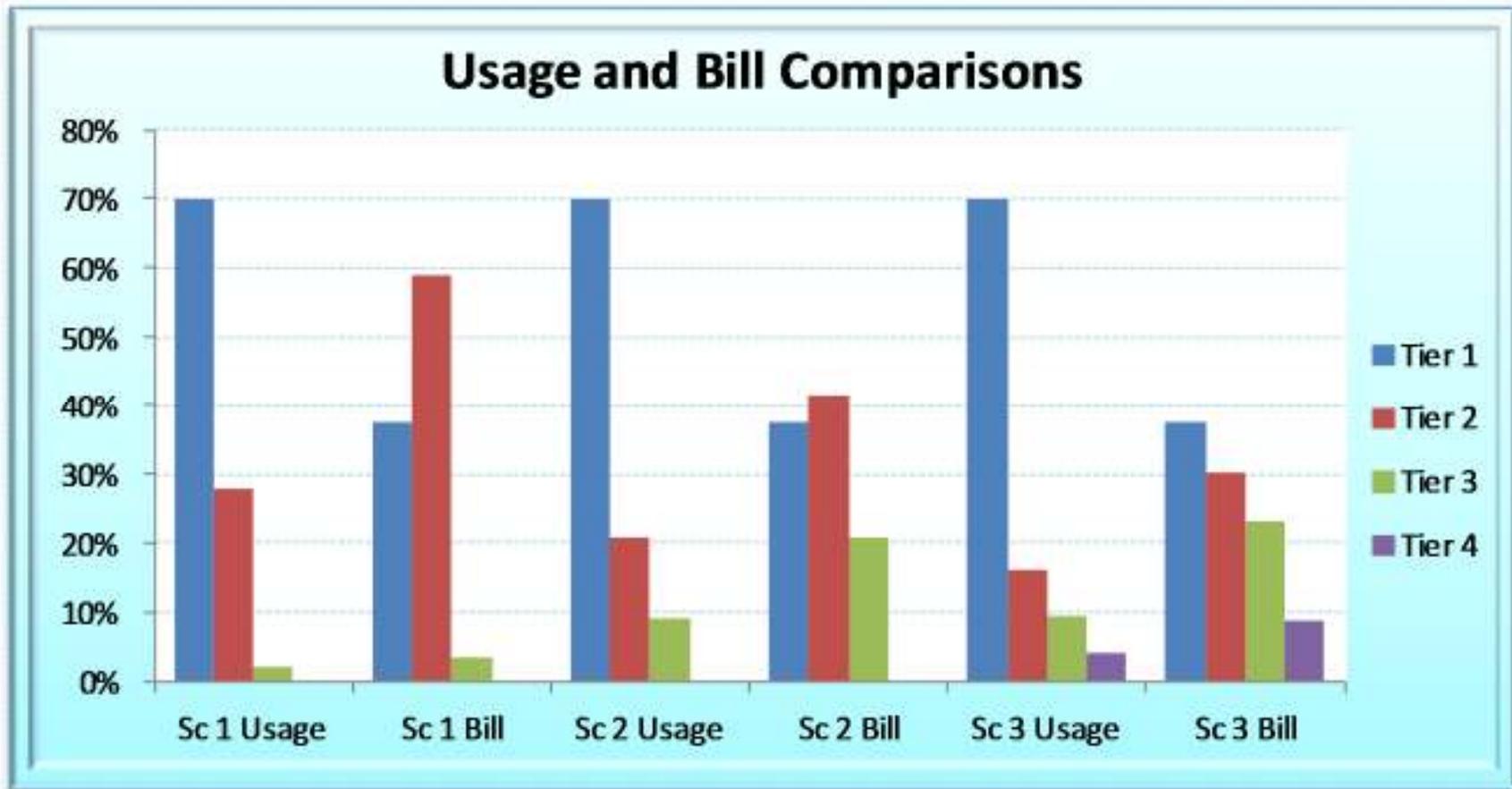
# SFR – Scenarios Comparison



# Scenarios Comparison – MFR Tiers per Dwelling Unit (bi-monthly)

Scenario 1: Status Quo	HCF	% of Usage	% of Total Bills
Tier 1	0 – 10	70%	38%
Tier 2	11 – 24	28%	59%
Tier 3	24+	2%	3%
Scenario 2: Revise Tiers	HCF	% of Usage	% of Total Bills
Tier 1	0 – 10	70%	38%
Tier 2	11 – 16	21%	42%
Tier 3	16+	9%	21%
Scenario 3: Add Tier	HCF	% of Usage	% of Total Bills
Tier 1	0 – 10	70%	38%
Tier 2	11 – 14	16%	30%
Tier 3	15 – 20	10%	23%
Tier 4	20+	4%	9%

# MFR – Scenarios Comparison



# Rate Scenarios Comparison

\$/hcf	Current Rates	Scenario 1: Status Quo	Scenario 2: Revise Tiers	Scenario 3: Add Tier
Residential				
Tier 1	\$2.02	\$2.00	\$1.98	\$1.98
Tier 2	\$2.66	\$2.86	\$2.69	\$2.69
Tier 3	\$4.27	\$5.86	\$4.41	\$3.36
Tier 4	-	-	-	\$4.74
Non-Residential	\$2.66	\$2.48	\$2.48	\$2.48
City Parks	\$1.40	\$2.00	\$1.98	\$1.98
Recycled Water	\$0.50	\$0.64	\$0.64	\$0.64
Outside City	170% of Inside	+\$0.73/hcf	+\$0.73/hcf	+\$0.73/hcf

Note: Fixed charge @ 25% of rate revenue

# SFR Impacts – Total Bimonthly Water Bill

SFR	Usage (hcf)	Current	Scenario 1	Scenario 2	Scenario 3
Very Low	5	\$25.13	\$33.14	\$33.04	\$33.04
Low	12	\$39.27	\$47.14	\$46.90	\$46.90
Average	21	\$60.65	\$69.44	\$69.69	\$69.69
High	35	\$97.89	\$109.48	\$115.95	\$113.38
Very High	50	\$150.67	\$176.38	\$182.10	\$180.34

Note: Assume 3/4" meter

SFR	Usage (hcf)	Difference 1	Difference 2	Difference 3
Very Low	5	\$8.01	\$7.91	\$7.91
Low	12	\$7.87	\$7.63	\$7.63
Average	21	\$8.79	\$9.04	\$9.04
High	35	\$11.59	\$18.06	\$15.49
Very High	50	\$25.71	\$31.43	\$29.67

Note: Fixed charge @ 25% of rate revenue

# MFR Impacts – Total Bimonthly Water Bill

MFR	Usage (hcf)	Current	Scenario 1	Scenario 2	Scenario 3
Very Low	3	\$21.09	\$29.14	\$29.08	\$29.08
Low	8	\$31.19	\$39.14	\$38.98	\$38.98
Average	13	\$43.21	\$51.72	\$51.01	\$51.01
High	22	\$67.15	\$77.46	\$85.54	\$83.34
Very High	35	\$119.44	\$147.64	\$142.87	\$144.96

Note: Assume 3/4" meter

MFR	Usage (hcf)	Difference 1	Difference 2	Difference 3
Very Low	3	\$8.05	\$7.99	\$7.99
Low	8	\$7.95	\$7.79	\$7.79
Average	13	\$8.51	\$7.80	\$7.80
High	22	\$10.31	\$18.39	\$16.19
Very High	35	\$28.20	\$23.43	\$25.52

Note: Fixed charge @ 25% of rate revenue

# Discussion

- Water rate structure
  - Scenario 1: Status Quo
  - Scenario 2: Revise Tiers
  - Scenario 3: Add 4<sup>th</sup> Tier



# WASTEWATER RATE STRUCTURES

# Cost of Service Analysis

- Conduct mass balance to determine residential flow and strength
- Allocate costs to functional cost components
  - Flow, COD, SS, Billing, General
- Determine revenue required from rates
  - Total expenses less revenue offset and adjustments to cash balance and mid-year increases
- Determine unit costs of each functional cost components based on the revenue requirements
- Allocate costs to different customer classes based on their characteristics

# Mass Balance

- Total flow and strength into plant
- Subtract infiltration and inflow (estimate at 7%)
- Subtract non-residential flow and strength
- Equal estimated residential flow and strength
  - Based on City's average density of 2.6 people per household\*, we assume 3 people per household for SFR and 2.25 people per household for MFR
  - Analysis shows each person generates approximately 53 gallons per day of wastewater

\*Source: State Department of Finance Report E-5 City/County Population and Housing Estimates, 1/1/2010

# Wastewater Rate Structure Alternatives

- Scenario 1: Status Quo
- Scenario 2: Residential Fixed Only
- Scenario 3: Residential Fixed plus Flow

# Scenario 1: Status Quo

- Residential usage (HCF) is determined based on lowest billing between November through April.

	HCF	Current	Proposed	Difference
Tier 1	0 - 8	\$34.27	\$36.24	\$1.97
Tier 2	9 - 10	\$42.24	\$44.41	\$2.17
Tier 3	11 - 12	\$50.00	\$52.59	\$2.59
Tier 4	13 - 14	\$57.76	\$60.76	\$3.00
Tier 5	15 - 16	\$65.51	\$68.94	\$3.43
Tier 6	17+	\$73.27	\$77.12	\$3.85

# Scenario 1: Status Quo

- Commercial flow is based on actual water usage

	HCF	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Current	0 - 8	\$16.07	\$24.26	\$36.38	\$56.79	\$47.74	\$73.27
	9+	\$2.63	\$3.15	\$5.39	\$7.03	\$6.57	
Proposed	0 - 8	\$30.75	\$33.07	\$41.20	\$50.09	\$46.25	\$77.12
	9+	\$3.60	\$4.01	\$5.12	\$6.31	\$5.75	
Difference	0 - 8	\$14.68	\$8.81	\$4.82	(\$6.70)	(\$1.49)	\$3.85
	9+	\$0.97	\$0.86	(\$0.27)	(\$0.72)	(\$0.82)	

# Scenario 1: Status Quo

Customer Class	Unit	Current	Proposed	Difference
Industrial (monthly)				
Flow	(\$/MG)	\$2,470.10	\$3,766.91	\$1,297
COD	(\$/klbs)	\$280.51	\$155.97	(\$125)
SS	(\$/klbs)	\$597.62	\$289.17	(\$308)
School with showers	(\$/100 ADA)	\$131.89	\$195.63	\$63.74
School without showers	(\$/100 ADA)	\$102.58	\$66.39	(\$36.19)
Church	(\$/unit)	\$73.27	\$304.12	\$230.85

# Scenario 2: Residential Fixed Only

- Rate calculation basis
  - SFR revenue divided by total SFR units and MFR revenue divided by total MFR units

Per Unit	Bi-Monthly Fixed Charge
Single Family	\$58.24
Multi Family	\$42.95

# Scenario 3: Fixed Plus Flow

- Residential usage (HCF) is determined based on **average** billing between November through April, subject to a cap

Per Unit	Bi-monthly Fixed	Flow (\$/hcf)	Max Bill
Single Family*	\$18.00	\$3.01	\$78.20
Multi-Family**	\$13.32	\$3.01	\$61.48

\*SFR bi-monthly cap at 20 hcf

\*\*MFR bi-monthly cap at 16 hcf

# User Classification

Group 1	Laundromats	Group 2	Hotels and motels without dining facilities
	Car wash		Commercial laundries
	Professional offices	Group 3	Hotels with dining facilities
	Convalescent homes	Group 4	Mortuaries
	Wholesale establishments		Grocery stores with garbage grinders
	Offices	Group 5	Bakeries
	Retail establishments		Restaurants
	Public buildings		Multi-use shopping centers
	Barber and beauty shops	Group 6	Plant nurseries
	Gas stations and garages		
	Bars without dining facilities		
	Theaters		
	Gyms		
	Hospitals		
	Grocery stores without garbage grinders		

# Scenarios 2 and 3: Non-Residential Rates

- Commercial flow is based on actual water usage

Bi-Monthly	Fixed Charge	Flow Charge (\$/hcf)
Group 1	\$18.00	\$3.20
Group 2	\$18.00	\$3.65
Group 3	\$18.00	\$4.70
Group 4	\$18.00	\$5.72
Group 5	\$18.00	\$5.23
Group 6	\$18.00	\$1.11
Church	\$18.00	\$2.42

# Scenarios 2 and 3: Non-Residential Rates

Customer Class	Unit	Current	Proposed	Difference
Industrial (monthly)				
Flow	(\$/MG)	\$2,470.10	\$3,766.91	\$1,297
COD	(\$/klbs)	\$280.51	\$155.97	(\$125)
SS	(\$/klbs)	\$597.62	\$289.17	(\$308)
School with showers	(\$/100 ADA)	\$131.89	\$195.63	\$63.74
School without showers	(\$/100 ADA)	\$102.58	\$66.39	(\$36.19)

# SFR Impacts – Total Bimonthly WW Bill

Bi-Monthly Usage	Current Bill (1)	Scenario 1 Bill (2)	Scenario 2 Bill (3)	Scenario 3 Bill (4)	(2) - (1)	(3) - (1)	(4) - (1)
2	\$34.27	\$36.24	\$58.24	\$24.02	\$1.97	\$23.97	(\$10.25)
4	\$34.27	\$36.24	\$58.24	\$30.04	\$1.97	\$23.97	(\$4.23)
6	\$34.27	\$36.24	\$58.24	\$36.06	\$1.97	\$23.97	\$1.79
8	\$34.27	\$36.24	\$58.24	\$42.08	\$1.97	\$23.97	\$7.81
10	\$42.24	\$44.41	\$58.24	\$48.10	\$2.17	\$16.00	\$5.86
12	\$50.00	\$52.59	\$58.24	\$54.12	\$2.59	\$8.24	\$4.12
14	\$57.76	\$60.76	\$58.24	\$60.14	\$3.00	\$0.48	\$2.38
16	\$65.51	\$68.94	\$58.24	\$66.16	\$3.43	(\$7.27)	\$0.65
18	\$73.27	\$77.12	\$58.24	\$72.18	\$3.85	(\$15.03)	(\$1.09)
20	\$73.27	\$77.12	\$58.24	\$78.20	\$3.85	(\$15.03)	\$4.93

# MFR Impacts – Total Bimonthly WW Bill

Bi-Monthly Usage	Current Bill (1)	Scenario 1 Bill (2)	Scenario 2 Bill (3)	Scenario 3 Bill (4)	Difference		
					(2) - (1)	(3) - (1)	(4) - (1)
2	\$34.27	\$36.24	\$42.95	\$19.34	\$1.97	\$8.68	(\$14.93)
4	\$34.27	\$36.24	\$42.95	\$25.36	\$1.97	\$8.68	(\$8.91)
6	\$34.27	\$36.24	\$42.95	\$31.38	\$1.97	\$8.68	(\$2.89)
8	\$34.27	\$36.24	\$42.95	\$37.40	\$1.97	\$8.68	\$3.13
10	\$42.24	\$44.41	\$42.95	\$43.42	\$2.17	\$0.71	\$1.18
12	\$50.00	\$52.59	\$42.95	\$49.44	\$2.59	(\$7.05)	(\$0.56)
14	\$57.76	\$60.76	\$42.95	\$55.46	\$3.00	(\$14.81)	(\$2.30)
16	\$65.51	\$68.94	\$42.95	\$61.48	\$3.43	(\$22.56)	(\$4.03)
18	\$73.27	\$77.12	\$42.95	\$61.48	\$3.85	(\$30.32)	(\$11.79)
20	\$73.27	\$77.12	\$42.95	\$61.48	\$3.85	(\$30.32)	(\$11.79)

# Commercial Impacts – Total Bimonthly WW Bill

Customer Group	Bi-Monthly Usage	Current Bill (1)	Scenario 1 Bill (2)	Scenarios 2/3 Bill (3)	Difference (2) - (1)	Difference (3) - (1)
Group 1	5	\$16.07	\$30.75	\$34.00	\$14.68	\$17.93
Group 1	20	\$47.63	\$73.95	\$82.00	\$26.32	\$34.37
Group 1	45	\$113.38	\$163.95	\$162.00	\$50.57	\$48.62
Group 2	5	\$24.26	\$33.07	\$36.25	\$8.81	\$11.99
Group 2	20	\$62.06	\$81.19	\$91.00	\$19.13	\$28.94
Group 2	45	\$140.81	\$181.44	\$182.25	\$40.63	\$41.44
Group 3	5	\$36.38	\$41.20	\$41.50	\$4.82	\$5.12
Group 3	20	\$101.06	\$102.64	\$112.00	\$1.58	\$10.94
Group 3	45	\$235.81	\$230.64	\$229.50	(\$5.17)	(\$6.31)
Group 4	5	\$56.79	\$50.09	\$46.60	(\$6.70)	(\$10.19)
Group 4	20	\$141.15	\$125.81	\$132.40	(\$15.34)	(\$8.75)
Group 4	45	\$316.90	\$283.56	\$275.40	(\$33.34)	(\$41.50)
Group 5	5	\$47.74	\$46.25	\$44.15	(\$1.49)	(\$3.59)
Group 5	20	\$126.58	\$115.25	\$122.60	(\$11.33)	(\$3.98)
Group 5	45	\$290.83	\$259.00	\$253.35	(\$31.83)	(\$37.48)
Group 6	20	\$73.27	\$77.12	\$40.14	\$3.85	(\$33.13)
Group 6	30	\$73.27	\$77.12	\$51.21	\$3.85	(\$22.06)
Group 6	60	\$73.27	\$77.12	\$84.42	\$3.85	\$11.15

# Discussion

- Wastewater rate structure
  - Scenario 1: Status Quo
  - Scenario 2: Residential Fixed Only
  - Scenario 3: Residential Fixed plus Flow

# Combined Impacts on Recommended Scenarios – Total Bimonthly Bill

- Recommended Scenarios
  - Water – Scenario 2: Revised tiers
  - Wastewater – Scenario 3: Residential Fixed plus Flow

SFR	Usage (hcf)	Winter Usage	Current Total	Proposed Total	Difference
Low	12	8	\$73.54	\$88.98	\$15.44
Average	21	12	\$110.65	\$123.81	\$13.16
High	35	17	\$171.16	\$185.12	\$13.96

Note: Assume 3/4" meter, fixed charge @ 25% of rate revenue

# Next Steps

- Agenda for Next Meeting
  - Finalize Water and Wastewater Rates