Water and Water Reclamation Utility Rate Study Public Information Meeting

City of Rapid City, SD

October 14th & 15th

Outline

- Study Background and Purpose
- Overview of Study Process
  - Cost of Service Analysis
  - Rate Design Recommendations
- Study Results – Revenue Adequacy
  - Water Rate Scenarios
  - Water Reclamation Rate Scenario
- The Bottom Line
- Discussion

Think Big. Go Beyond.

Water and Water Reclamation Current Revenue Sources

Stand-Alone Enterprise Funds

Water		Water Reclamation
Monthly meter charge per account	Provides access to service	
Unit charge per 100 cubic feet (CCF)	Incremental charge based on metered water use/winter average (Water Rec)	Unit charge per CCF with minimum
Meter and Unit Debt Surcharge	Pledged for debt repayment	Unit Debt Surcharge
Environmental Surcharge	Annual environmental charge levied by the state	Environmental Surcharge
Interest on investments, tapping fees, late fees, contracted fees from irrigation users associated with Pactola and Deerfield reservoirs, connection fees, miscellaneous	Other operating and non-operating revenues	Interest on investments, strength surcharges, Industrial Pretreatment Program (IPP) fees, sewer connect fees, other miscellaneous

Existing Rate Structure – Water

Meter Size (inches)	Meter Charge (per month)	
	Flat Charge	Irrigation Allowance
5/8	$8.26	40 CCF
3/4	$11.15	40 CCF
1	$13.76	40 CCF
1-1/2	$23.86	150 CCF
2	$34.80	150 CCF
3	$45.81	200 CCF
4	$67.83	200 CCF
6	$113.56	--
8	$183.22	--

Unit Rate Tier	Unit Rate (per CCF)
SF & MF Residential, Irrigation	
0-2 CCF	$0
3-Irrigation Allowance	$1.98
> Irrigation Allowance	$2.59
Commercial & Industrial	
0-2 CCF	$0
>2 CCF	$1.98

Environmental charges (by meter size) assessed annually in June

Existing Rate Structure – Water

- Wholesale = 85% of the Retail Rate
- Governmental Entities Outside City Limits = Established by Contract
- Ellsworth Air Force Base (EAFB) = Negotiated Rate

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Existing Rate Structure – Water Reclamation

$5.00 Monthly Minimum
$2.82 per CCF
Biochemical Oxygen Demand (BOD)= 260 mg/L >260 mg/L = $0.11/pound
Total Suspended Solids (TSS) = 300 mg/L >300 mg/L = $0.07/pound
Industrial Pretreatment Program Annual Fees: Significant Industrial User = $200 Minor User = $0

- Governmental entities outside city limits established by contract
- Environmental charges (by meter size) assessed annually in December
- Residential charges based on average of December to February water use
- Commercial/Industrial charges based on actual water use
  - May be adjusted to reflect water use not discharged to sanitary sewer

Study Driving Forces

- End of existing rate plan (2004-2008)
- Water Reclamation Facility upgrades required
- Historically, eight wells & three infiltration galleries have met base year-round water demand
  - Diminishing groundwater supplies
  - Susceptibility of groundwater supplies to contamination
- 28-32 million gallons per day (MGD) surface water plant has addressed increased demand in summer
- Use of Jackson Springs discontinued in 2006 – loss of 8 MGD capacity

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Study Driving Forces

Decision Was Made to Diversify Water Source

Water Advocacy Task force (2007):

Initiate the design and construction of water treatment plant facilities to provide water through 2020

2008 Conceptual Designs for Water Treatment Plant Upgrades (Burns & McDonnell):

Recommended treatment capacity of 44 MGD to meet demand through 2020

New 36 MGD water plant to replace existing plant

8 MGD plant to treat Jackson Springs

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Study Process

System / Data Review and Analysis → COSA → Rate Design → Capital Funding Evaluation → Revenue Adequacy Evaluation → Present Results

Goals

Standard industry practice

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Cost of Service Analysis (COSA)

Methodology

Allocation
Classification
Functionalization

WATER USERS – COMPARE COST VS. REVENUE
- Single Family and Multi-Family Residential
- Commercial
- Industrial
- Ellsworth Air Force Base
- Irrigation
- Wholesale
- Rapid Valley Sanitary District
- Box Elder
- Unbilled – Leased and City-Owned

WATER REC USERS – COMPARE COST VS. REVENUE
- Single Family and Multi-Family Residential
- Commercial
- Industrial – with and without surcharge
- Rapid Valley Sanitary District
- Blackhawk Sanitary District
- Rapid Canyon Sanitary District
- Northdale Sanitary District

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General Rate Design Goals

- Easy to Understand and Administer
- Continuity in Philosophy
- Equitable and Non-Discriminating
- Provide Revenue Stability
- Promote Efficient Allocation of Resources
- Promote Economic Development

AE2S
Think Big. Go Beyond.

Proposed Rate Design Basis – Water

Rate Structure Illustration

Meter Size (inches)	Meter Charge – All User Classes (per month)
5/8	Increasing Charge with Increasing Meter Size
3/4	
1	
1-1/2	
2	
3	
4	
6	
8	

Unit Rate Tier	Unit Rate (per CCF)
SF & MF Residential, Irrigation*	
Tier 1	Increasing Unit Rate with Increasing Usage Tier
Tier 2*	
Tier 3*	
Tier 4*	
Commercial & Industrial	
Tier 1	Constant Rate

Proposed Meter Rate Design Recommendations – Water

- One set of meter rates for SF Residential and MF Residential users
  - Separate thresholds for each unit rate tier for MF Residential
- One set of meter rates for Commercial and Industrial users
- Commercial and Industrial users required to install irrigation meters
- Treat Unbilled Leased accounts like Irrigation
- Environmental Surcharge included in monthly meter charge

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Proposed Unit Rate Design Basis – Water

- Previous unit rate tiers tied to "Irrigation Allowance"
- Recommended Approach:

Tier	Description of Usage
Tier 1	Up to Average Day
Tier 2	Between Average Day and Average Day plus 1" Irrigation per Wk
Tier 3	Between Average Day plus 1" and Average Day plus 2" Irrigation per Wk
Tier 4	Greater than Average Day plus 2" Irrigation per Wk

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Proposed Rate Design Basis

Irrigation Allowances/Unit Rate Tier Thresholds

Meter Size (inches)	Existing	Single Family Residential	Multi-Family Residential	Irrigation
5/8	40 CCF	10, 40, 75 CCF	10, 40, 75 CCF	30, 65 CCF
3/4	40 CCF	10, 40, 75 CCF	15, 45, 80 CCF	30, 65 CCF
1	40 CCF	10, 40, 75 CCF	20, 50, 85 CCF	30, 65 CCF
1-1/2	150 CCF	10, 40, 75 CCF	50,100,150 CCF	50,100 CCF
2	150 CCF	10, 40, 75 CCF	100,150,200 CCF	50,100 CCF
3	200 CCF	10, 40, 75 CCF	150,200,250 CCF	50,100 CCF
4	200 CCF	10, 40, 75 CCF	200,300,400 CCF	100,200 CCF
6	--	10, 40, 75 CCF	200,300,400 CCF	100,200 CCF
8	--	10, 40, 75 CCF	200,300,400 CCF	100,200 CCF

Proposed Rate Design Basis – Water Rec

Rate Structure Illustration

Meter Size (inches)	Meter Charge – All User Classes (per month)
5/8	Increasing Charge with Increasing Meter Size
3/4	
1	
1-1/2	
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Other Charges
Constant Unit Rate per CCF
Biochemical Oxygen Demand (BOD) - $/pound
Total Suspended Solids (TSS) - $/pound
Industrial Pretreatment Program Annual Fees: Significant Industrial User =$ Minor User = $

Proposed Rate Design Recommendations – Water Reclamation

- Set tiered monthly meter charges for each user class, based on water meter size
- One set of meter charges for SF Residential & MF Residential users
- One set of meter charges for Industrial with surcharge & Industrial without surcharge users
- Implement constant unit rate for all classes

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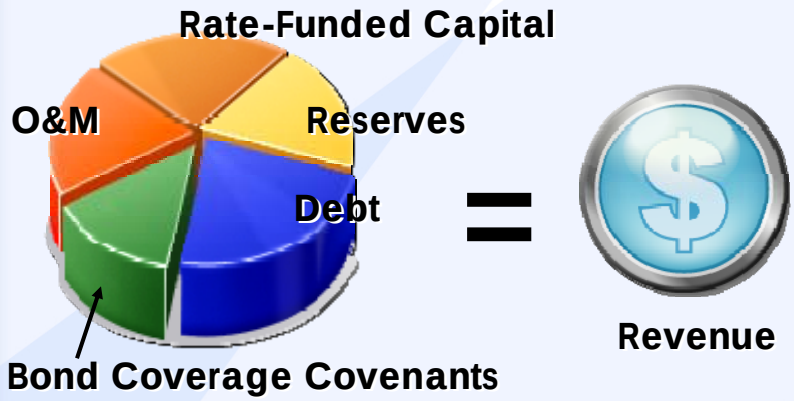
Proposed Rate Design Recommendations- Water Reclamation

- Lower domestic limit for TSS to 250 mg/L
- Increase BOD and TSS surcharge rates
- Implement IPP fees for Significant Industrial Users (SIUs) and minor users
- Include Environmental Surcharge in monthly meter charge

Think Big. Go Beyond.

Revenue Adequacy



Think Big. Go Beyond.

Revenue Adequacy

Water

Baseline

- Operations & Maintenance (O&M)
- Capital Improvements Funded through Rates

Alternate Funding Scenarios for Water Treatment Plants

- Scenario 1
- Scenario 2

Water Reclamation

- O&M
- Capital Improvements Funded through Rates
- Funding for Water Reclamation Facility Improvements

Revenue Adequacy-Water Scenario 1

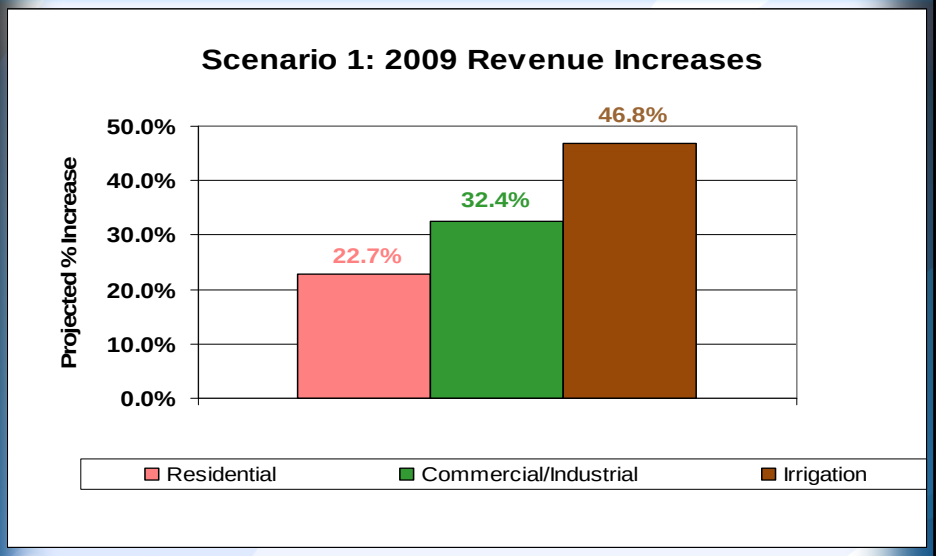
Think Big. Go Beyond.

Scenario 1: New Debt-State Revolving Fund (SRF) & Revenue Bonds

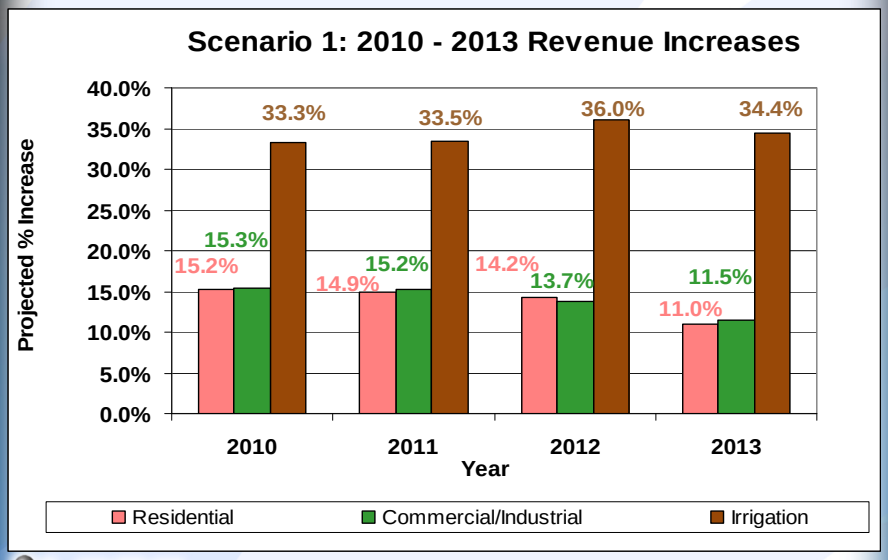
	Funding Source	Amount (in Future $)*
Jackson Springs (JS) and Mountain View Membranes	2009 SRF	$4M
JS WTP & Related, Initial Mountain View Design and Construction, Pactola and St. Martins Reimbursement	2009 Revenue Bond	$38.08M
Half of Mountain View WTP and Related Infrastructure	2010 SRF	$43.5M
Half of Mountain View WTP and Related Infrastructure	2011 SRF	$40.9M
Remaining Related Infrastructure	2012 SRF	$4.8M

*Indexed to the year of construction

Think Big. Go Beyond.



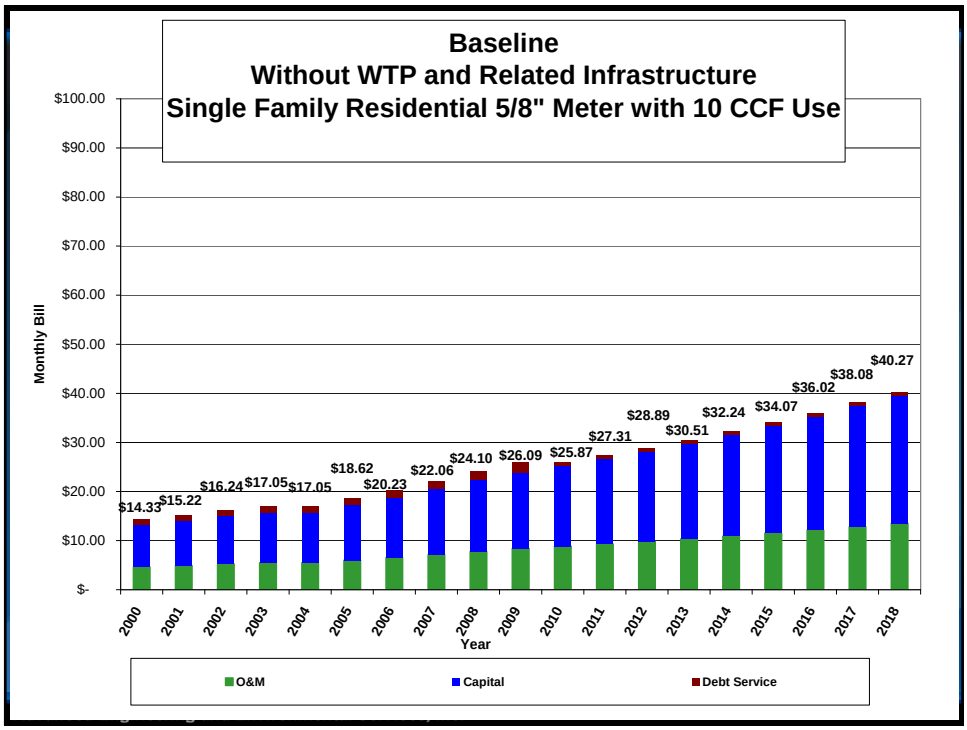
Think Big. Go Beyond.

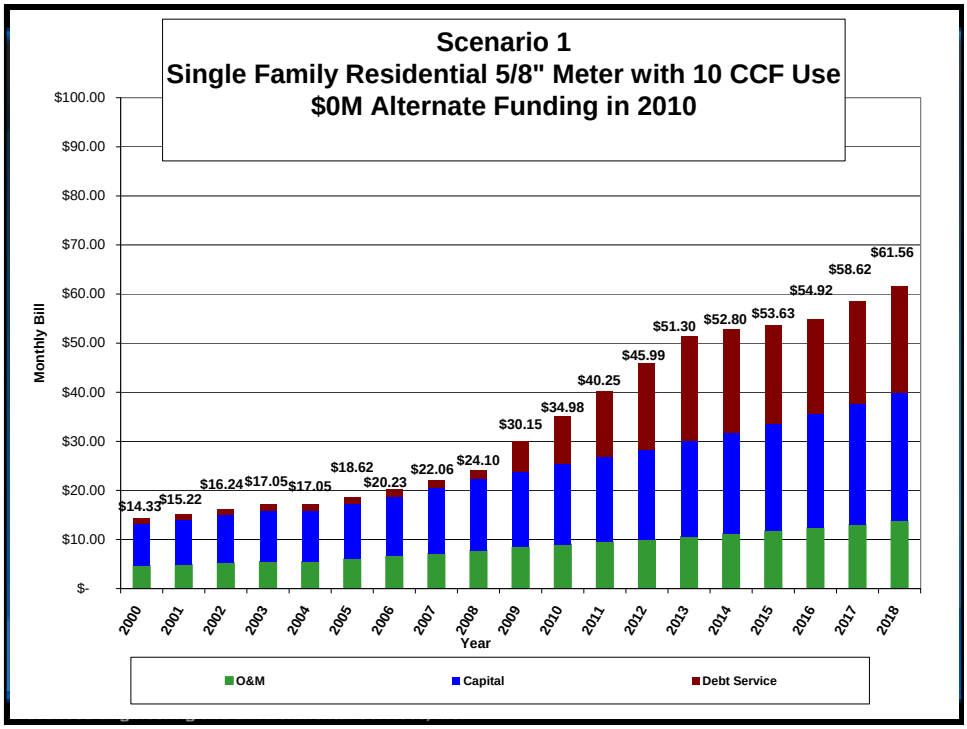


Think Big. Go Beyond.

Scenario 1 with Alternative Funding - Residential Rate Example

Think Big. Go Beyond.




Scenario 1
Single Family Residential 5/8" Meter with 10 CCF Use
$0M Alternate Funding in 2010
Monthly Bill
$100.00
$90.00
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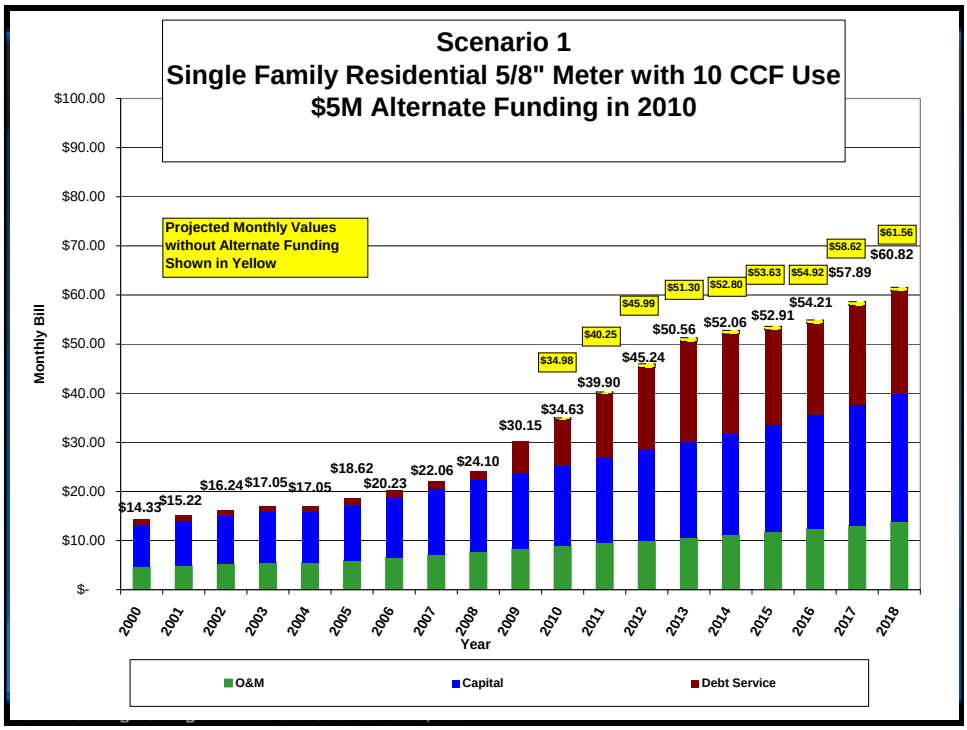
Scenario 1
Single Family Residential 5/8" Meter with 10 CCF Use
$5M Alternate Funding in 2010
Projected Monthly Values
without Alternate Funding
Shown in Yellow
Monthly Bill
$100.00
$90.00
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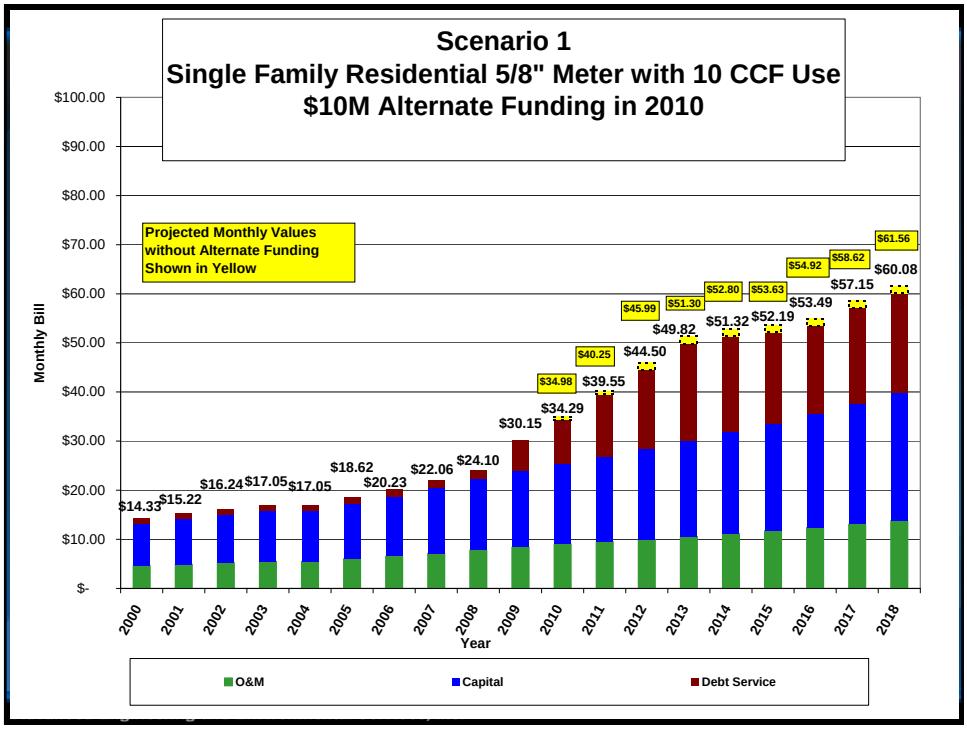
Scenario 1
Single Family Residential 5/8" Meter with 10 CCF Use
$10M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
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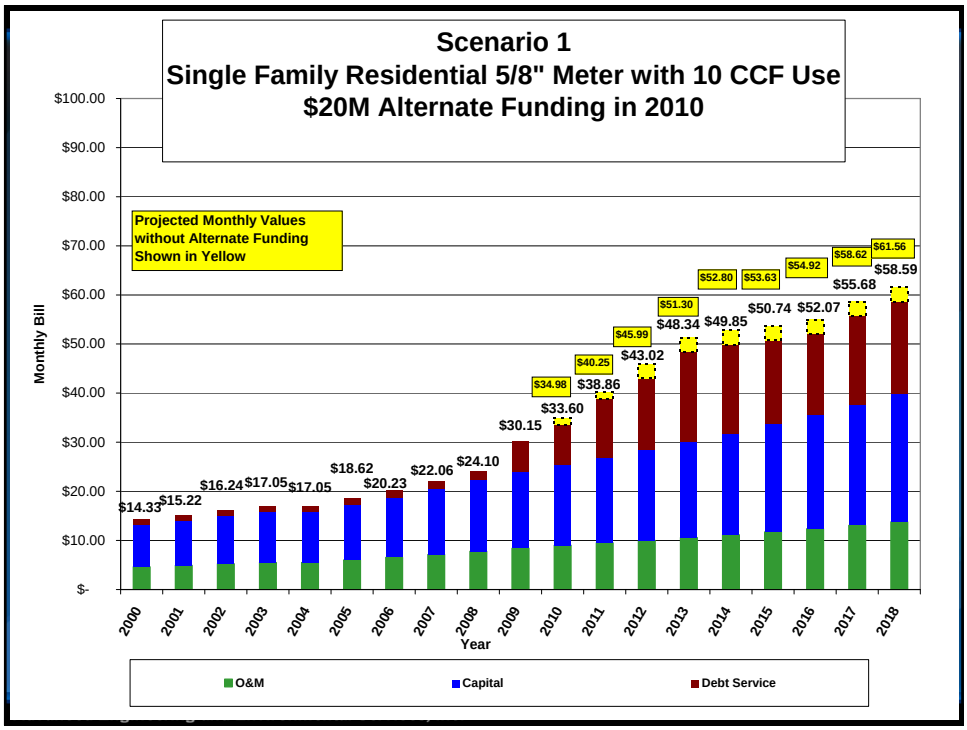
Capital
Debt Service


Scenario 1
Single Family Residential 5/8" Meter with 10 CCF Use
$20M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
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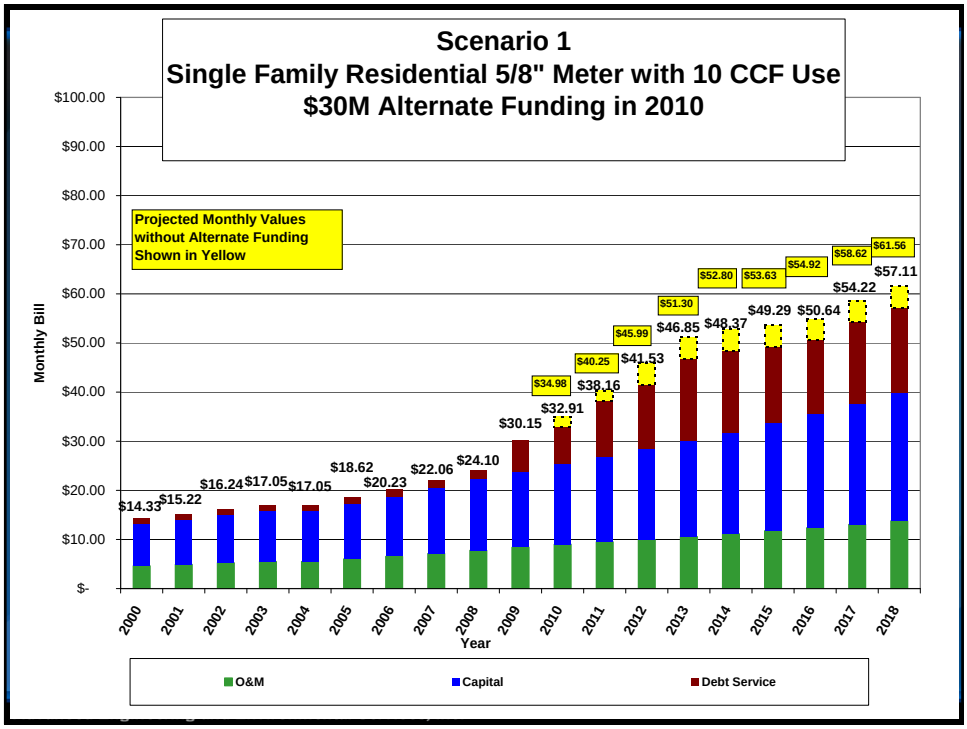
Debt Service


Scenario 1
Single Family Residential 5/8" Meter with 10 CCF Use
$30M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
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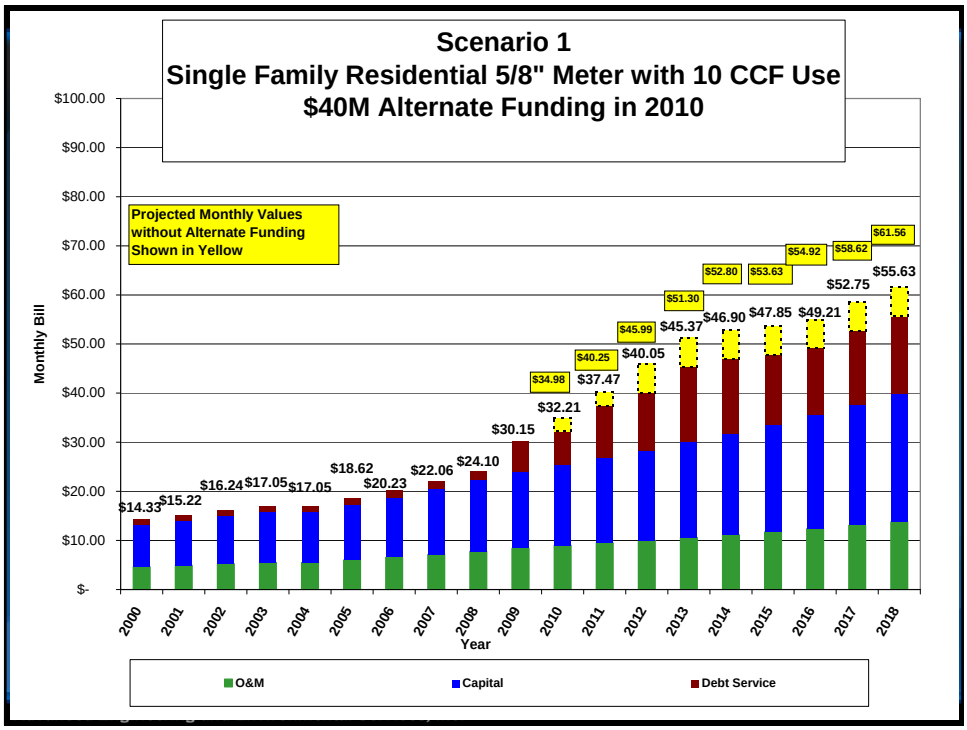
Scenario 1
Single Family Residential 5/8" Meter with 10 CCF Use
$40M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
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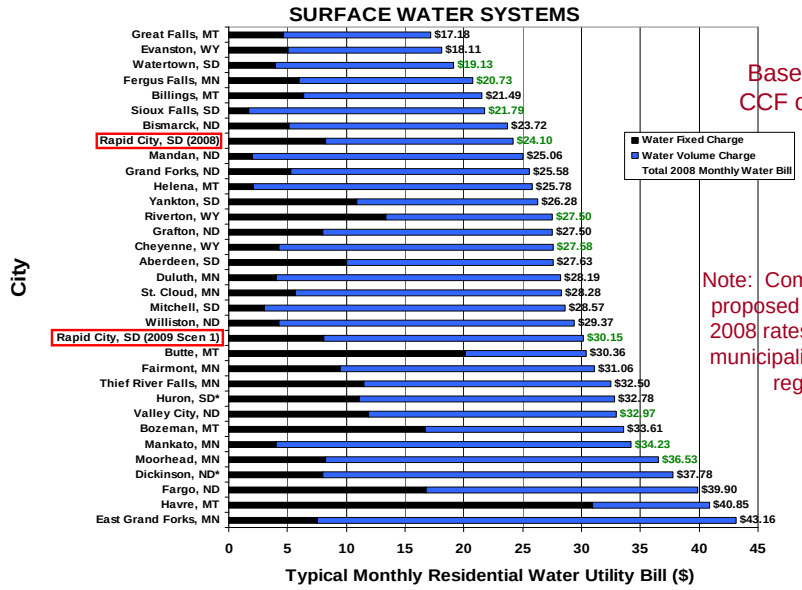
Scenario 1 – Regional Comparison



Based on 10 CCF of Usage

Note: Comparison of proposed 2009 and 2008 rates for other municipalities in the region

Scenario 1 with Alternative Funding - Commercial Rate Example

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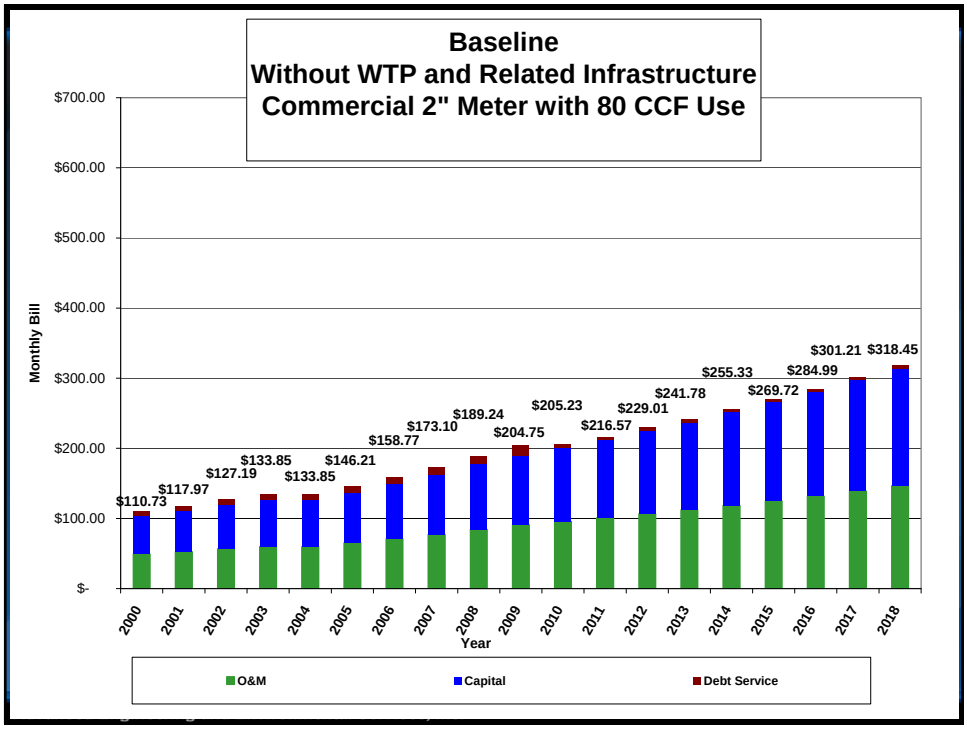
Baseline
Without WTP and Related Infrastructure
Commercial 2" Meter with 80 CCF Use
Monthly Bill
$700.00
$600.00
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$200.00
$100.00
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$110.73
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$133.85
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$158.77
$173.10
$189.24
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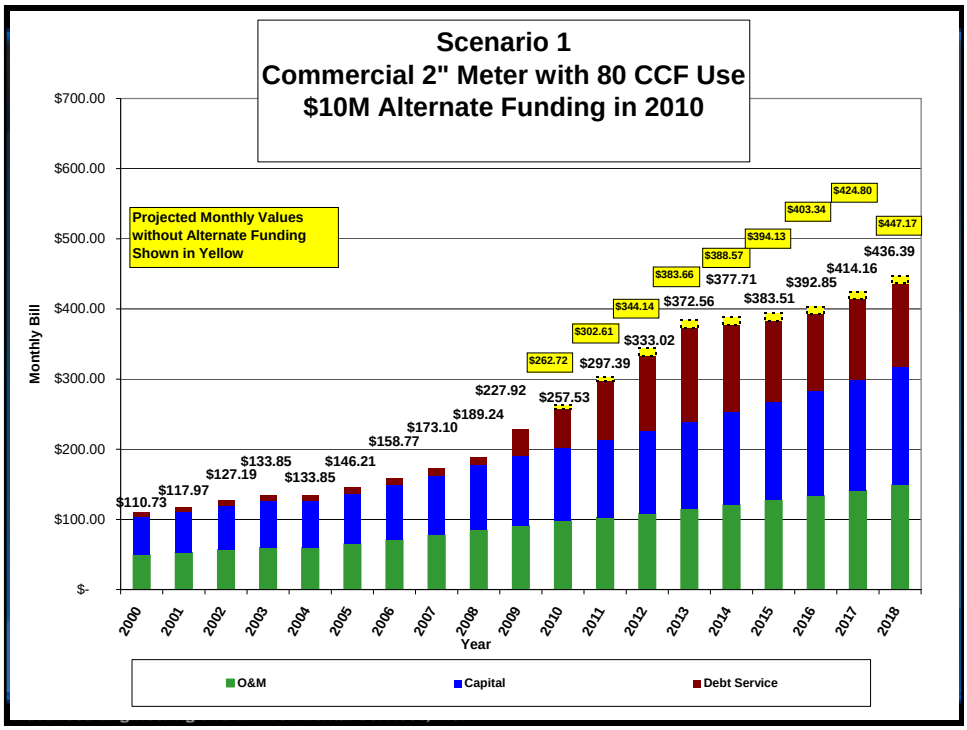
Scenario 1
Commercial 2" Meter with 80 CCF Use
$10M Alternate Funding in 2010
Projected Monthly Values
without Alternate Funding
Shown in Yellow
Monthly Bill
$700.00
$600.00
$500.00
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$200.00
$100.00
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$110.73
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$133.85
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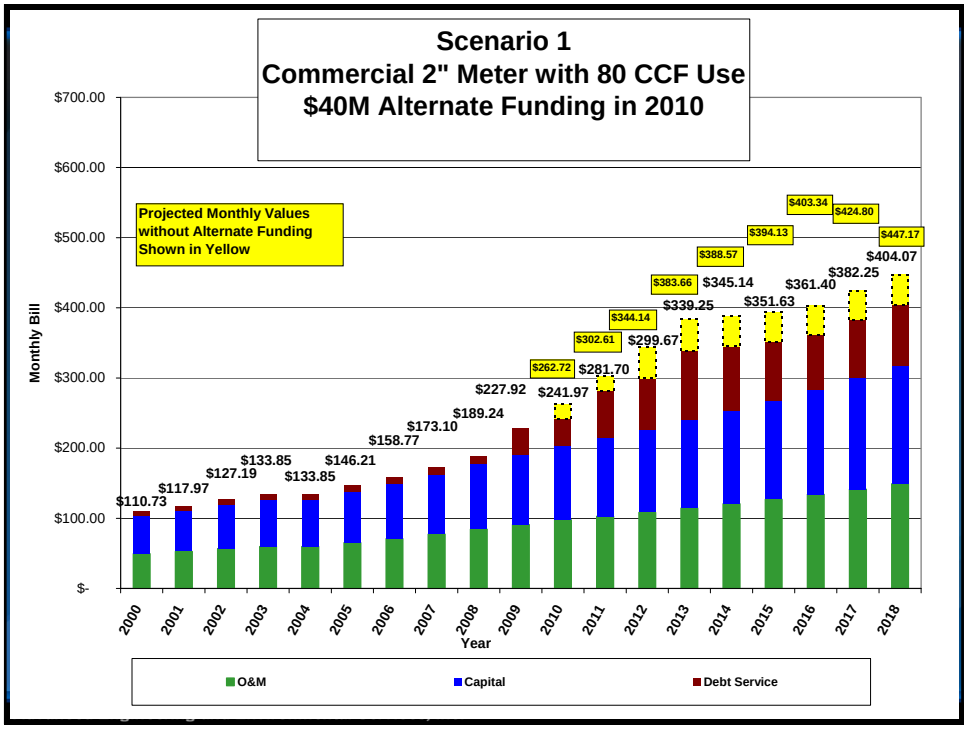

Revenue Adequacy-Water Scenario 2

Think Big. Go Beyond.

Scenario 2: New Debt-Revenue Bonds

	Funding Source	Amount (in Future $)*
JS and Mountain View Membranes	2009 SRF	$4M
JS WTP & Related, Mountain View and Related, and Pactola and St. Martins Reimbursement	2009 Revenue Bond	$57.3M
Remaining Mountain View and Related	2010 Revenue Bond	$60.7M
Remaining Related Infrastructure	2012 SRF	$4.8M

*Indexed to the year of construction

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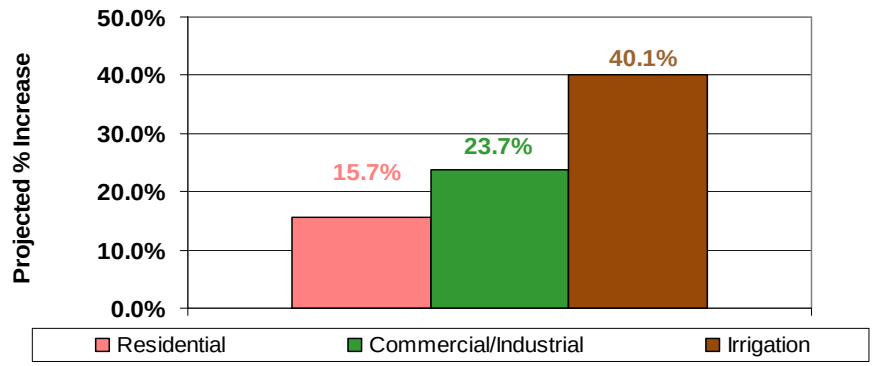
Scenario 2: 2009 Revenue Increases



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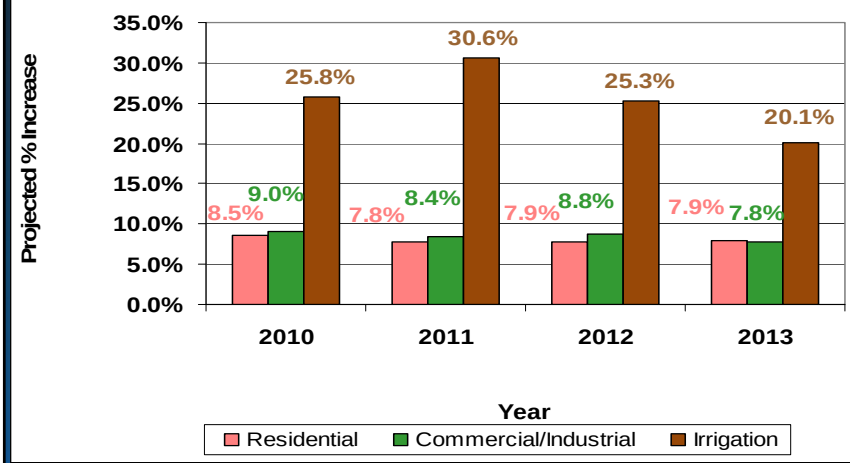
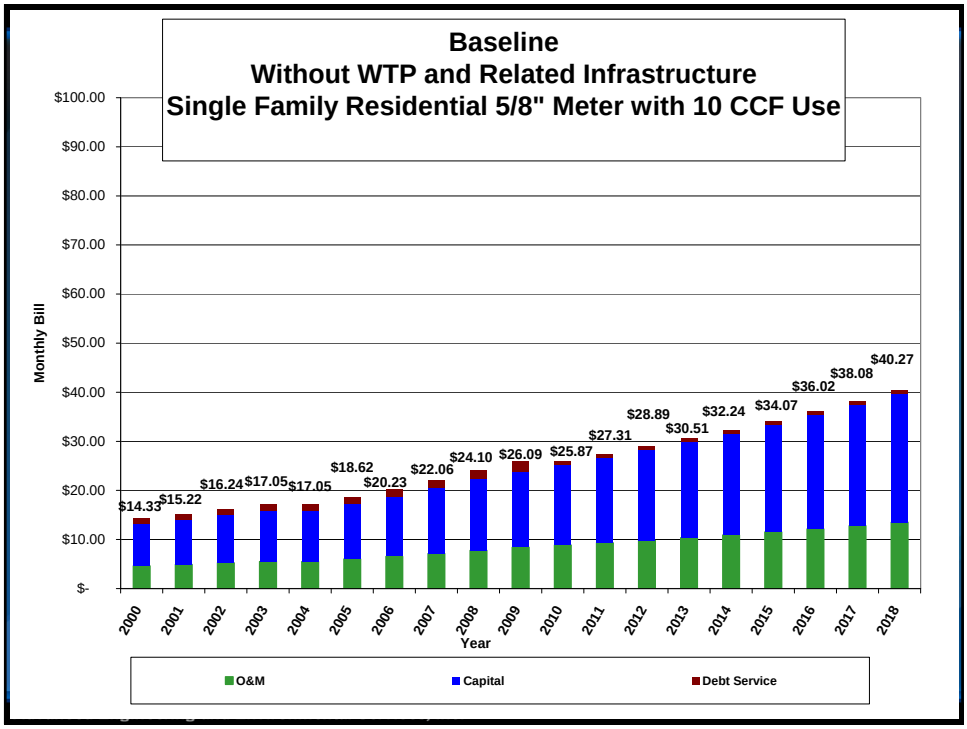
Scenario 2: 2010 - 2013 Revenue Increases



Think Big. Go Beyond.

Scenario 2 with Alternative Funding - Residential Rate Example

Think Big. Go Beyond.


Baseline
Without WTP and Related Infrastructure
Single Family Residential 5/8" Meter with 10 CCF Use
Monthly Bill
$100.00
$90.00
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$60.00
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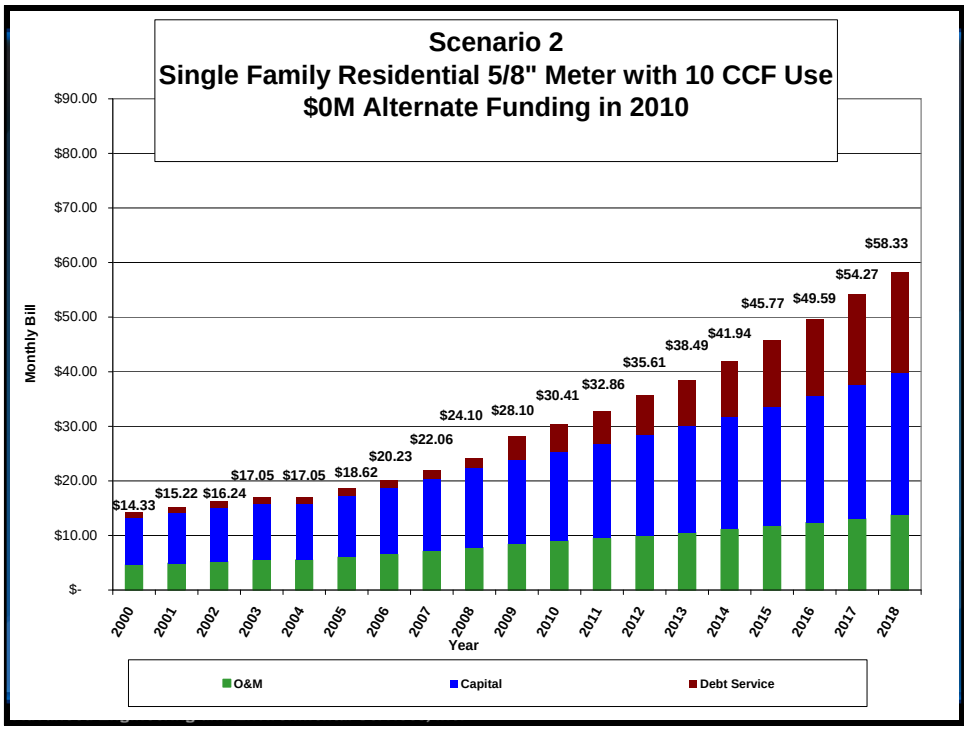
Scenario 2
Single Family Residential 5/8" Meter with 10 CCF Use
$0M Alternate Funding in 2010
Monthly Bill
$90.00
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$16.24
$17.05
$17.05
$18.62
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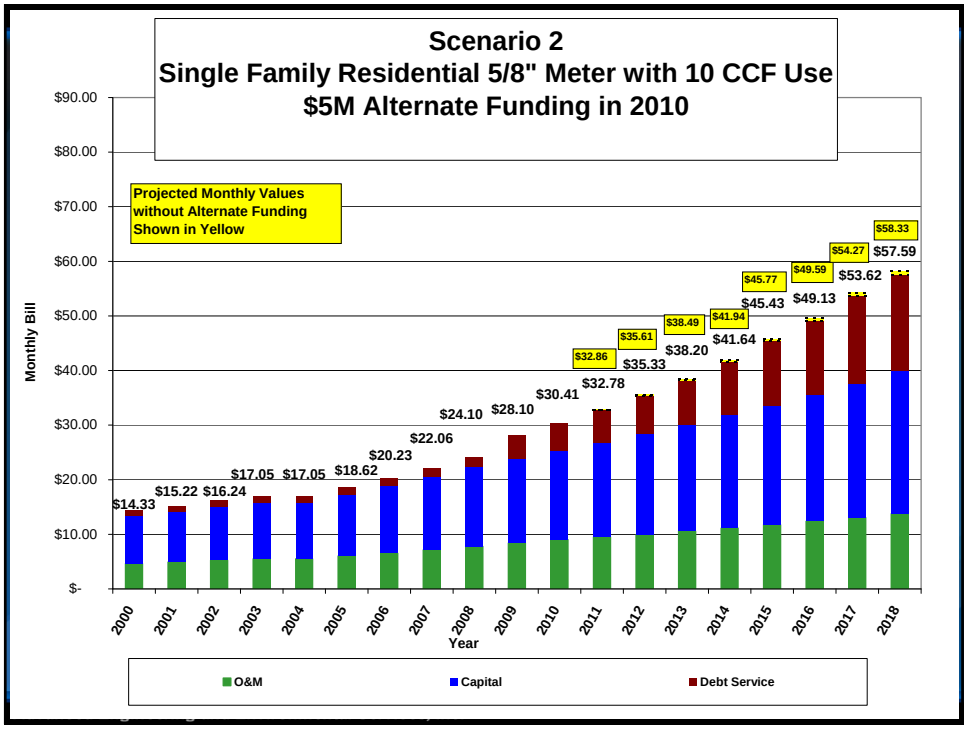
Scenario 2
Single Family Residential 5/8" Meter with 10 CCF Use
$5M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
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$20.00
$10.00
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$14.33
$15.22
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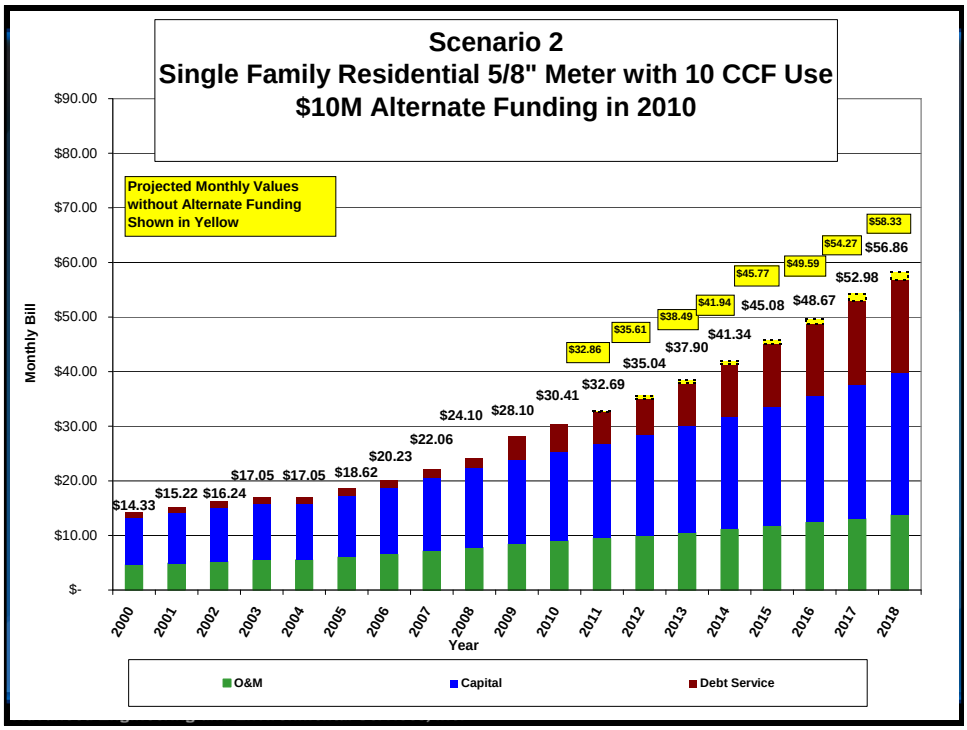
O&M
Capital
Debt Service


Scenario 2
Single Family Residential 5/8" Meter with 10 CCF Use
$10M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-
$14.33
$15.22
$16.24
$17.05
$17.05
$18.62
$20.23
$22.06
$24.10
$28.10
$30.41
$32.69
$35.04
$37.90
$41.34
$45.08
$48.67
$52.98
$56.86
$32.86
$35.61
$38.49
$41.94
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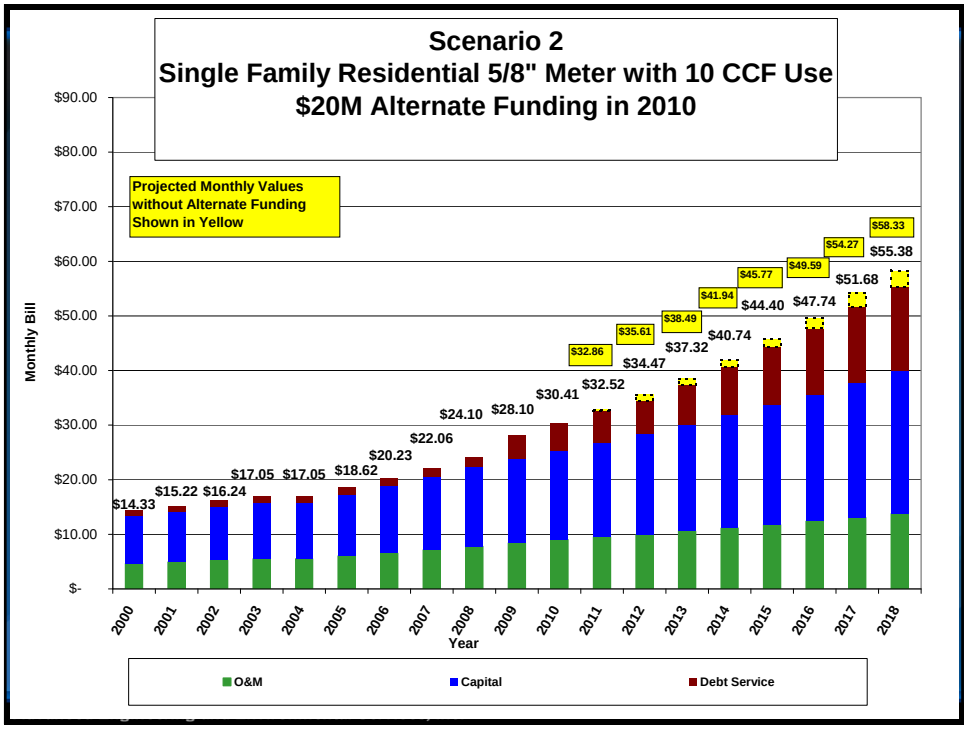
Capital
Debt Service


Scenario 2
Single Family Residential 5/8" Meter with 10 CCF Use
$20M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
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$20.00
$10.00
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$14.33
$15.22
$16.24
$17.05
$17.05
$18.62
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$22.06
$24.10
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$30.41
$32.52
$34.47
$37.32
$40.74
$44.40
$47.74
$51.68
$55.38
$32.86
$35.61
$38.49
$41.94
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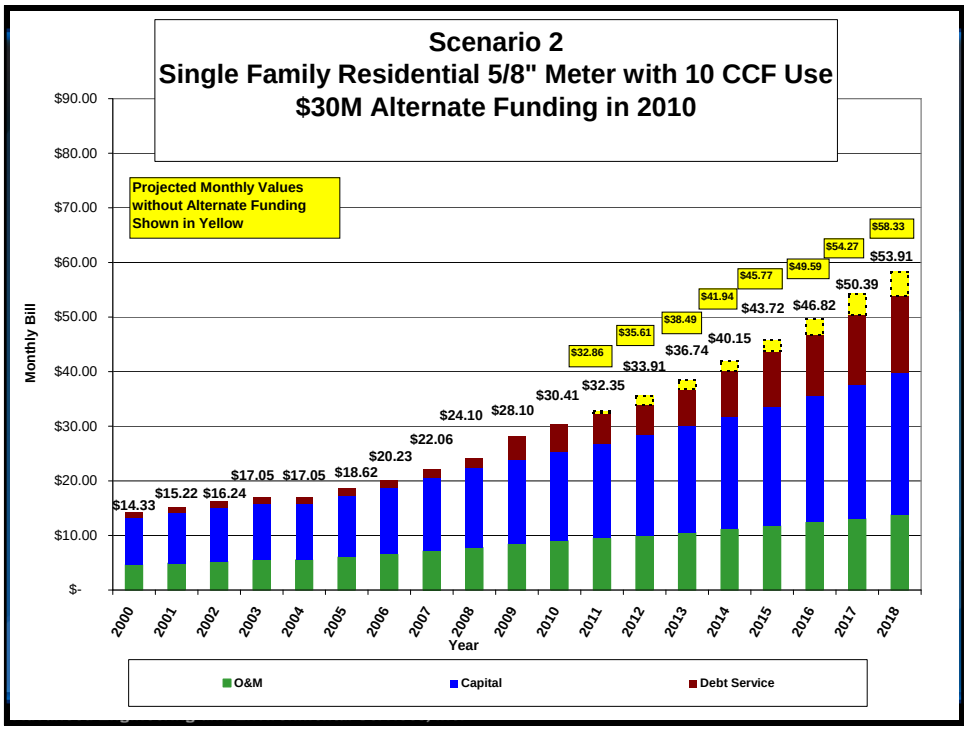
Debt Service


Scenario 2
Single Family Residential 5/8" Meter with 10 CCF Use
$30M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
$90.00
$80.00
$70.00
$60.00
$50.00
$40.00
$30.00
$20.00
$10.00
$-
$14.33
$15.22
$16.24
$17.05
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$18.62
$20.23
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$46.82
$50.39
$53.91
$32.86
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$41.94
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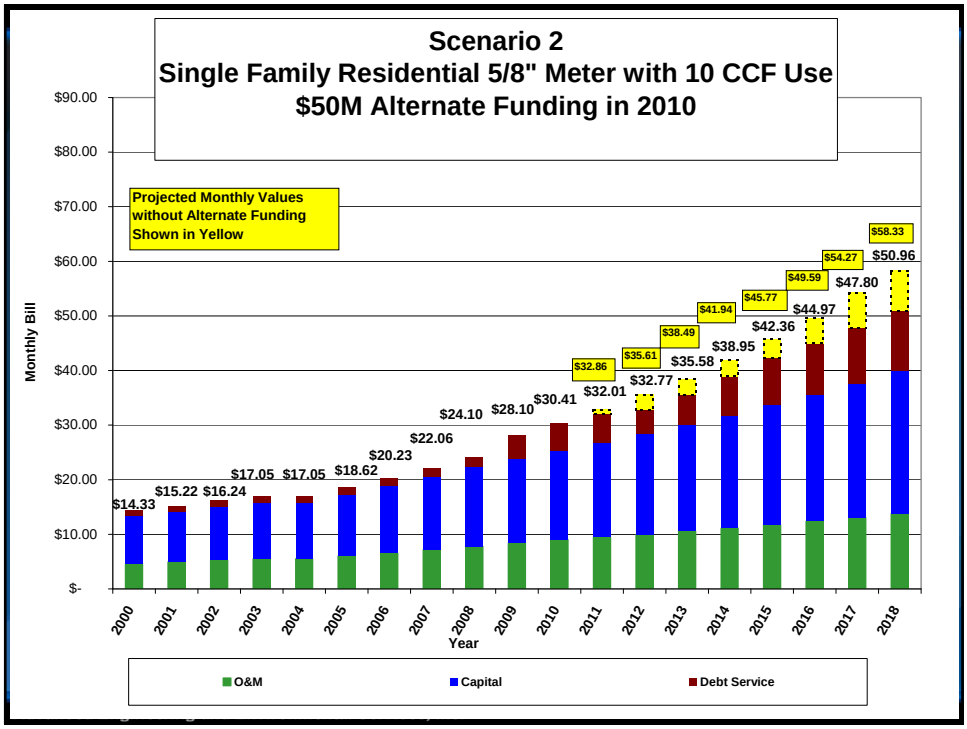
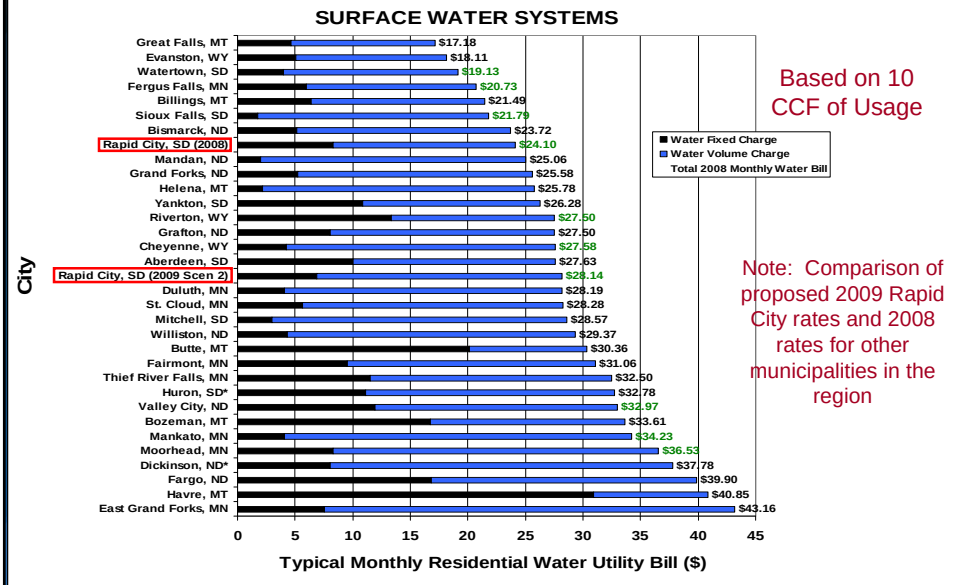
Debt Service



DRAFT

Study Results – Water Scenario 2

Scenario 2 – Regional Comparison

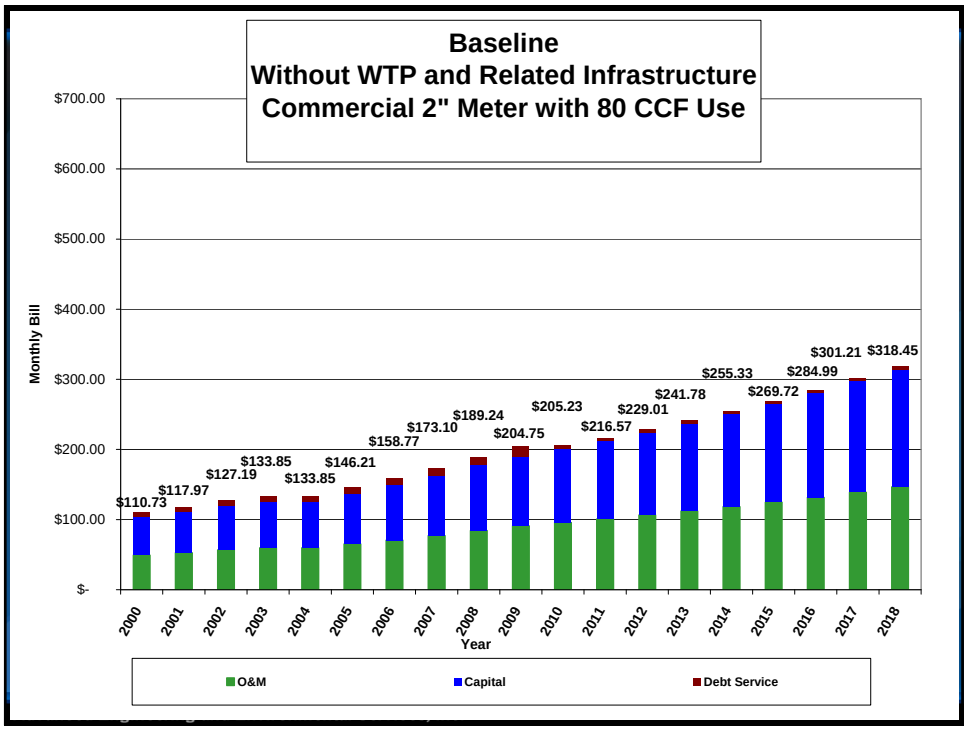


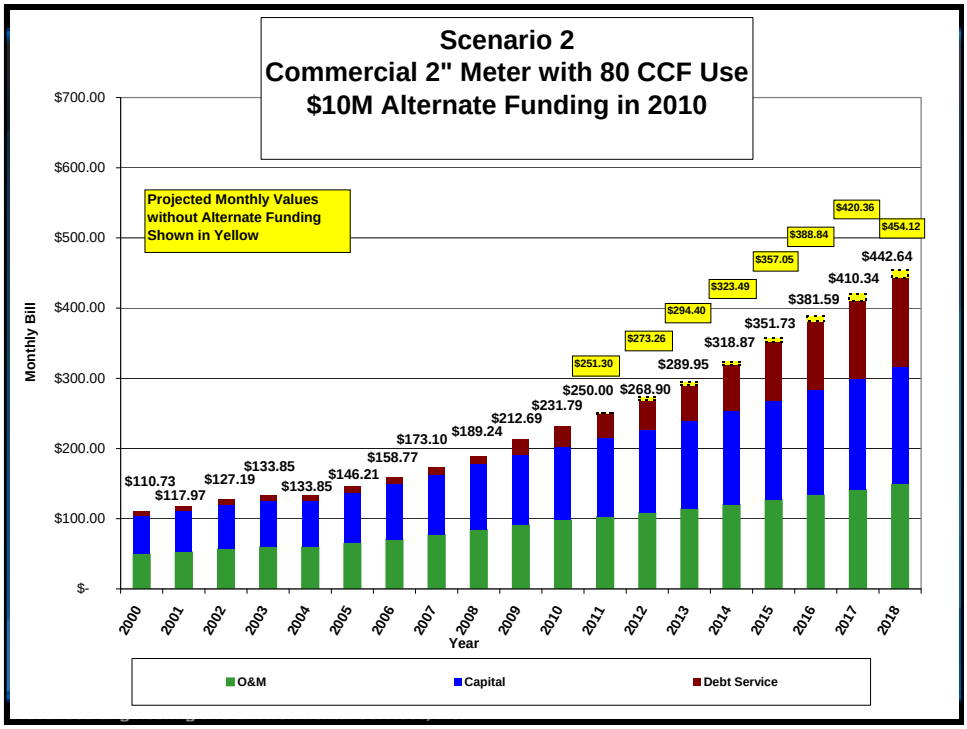
Based on 10 CCF of Usage

Note: Comparison of proposed 2009 Rapid City rates and 2008 rates for other municipalities in the region

Scenario 2 with Alternative Funding - Commercial Rate Example

Think Big. Go Beyond.




Scenario 2
Commercial 2" Meter with 80 CCF Use
$10M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
$700.00
$600.00
$500.00
$400.00
$300.00
$200.00
$100.00
$-
$110.73
$117.97
$127.19
$133.85
$133.85
$146.21
$158.77
$173.10
$189.24
$212.69
$231.79
$250.00
$268.90
$289.95
$318.87
$351.73
$381.59
$410.34
$442.64
$251.30
$273.26
$294.40
$323.49
$357.05
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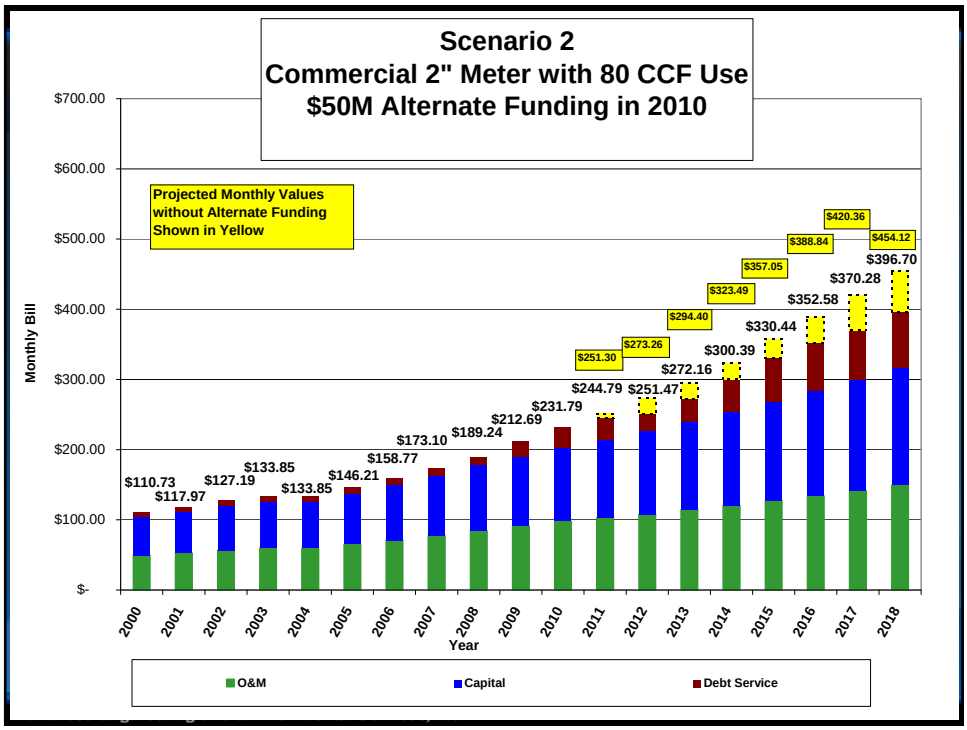
Scenario 2
Commercial 2" Meter with 80 CCF Use
$50M Alternate Funding in 2010
Projected Monthly Values without Alternate Funding Shown in Yellow
Monthly Bill
$700.00
$600.00
$500.00
$400.00
$300.00
$200.00
$100.00
$-
$110.73
$117.97
$127.19
$133.85
$133.85
$146.21
$158.77
$173.10
$189.24
$212.69
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$300.39
$330.44
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$370.28
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Debt Service

Revenue Adequacy-Water Reclamation

Think Big. Go Beyond.

2009 Revenue Changes

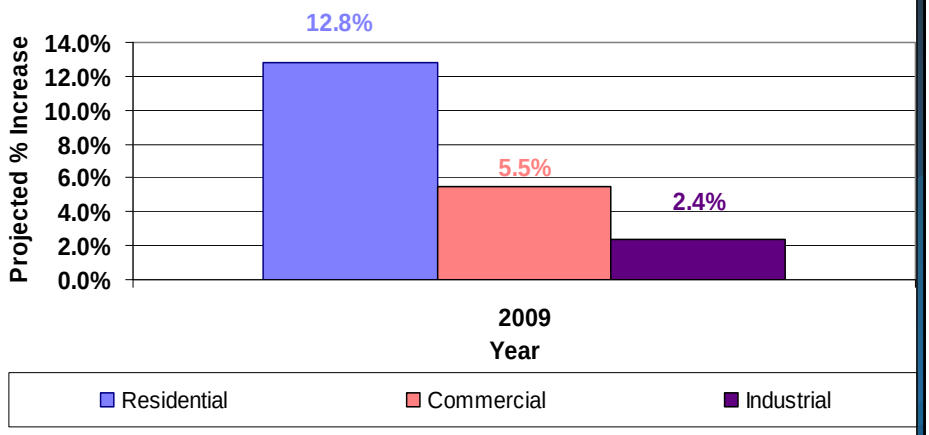
- Revenue of $1.0M resulting from new monthly meter charges
- Change of -$430,000 in unit revenue due to implementation of fixed meter charge

2009 New Debt

- $5.6M Revenue Bond in 2009 for Water Reclamation Facility Improvements

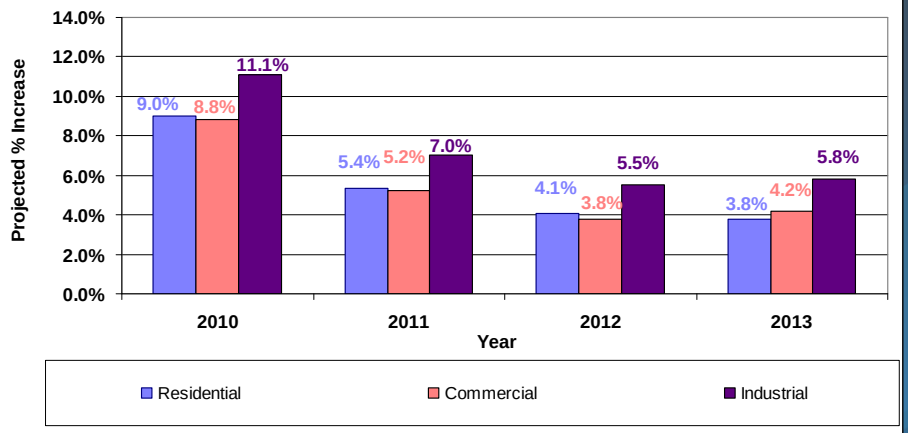
Think Big. Go Beyond.

2009 Water Reclamation Revenue Increases



Think Big. Go Beyond.

2010-2013 Water Reclamation Revenue Increases



Think Big. Go Beyond.

Strength/Industrial Pretreatment Surcharge Fees

- Waste Strength Surcharge Recommendations:
  - Decrease TSS Strength Limit from 300 mg/L to 250 mg/L
  - Increase surcharge fees yearly

Users	Domestic Strength Limit	2009	2010	2011	2012	2013
BOD, per pound above the limit	260 mg/L	$0.13	$0.16	$0.19	$0.23	$0.27
TSS, per pound above the limit	250 mg/L	$0.09	$0.11	$0.14	$0.17	$0.21

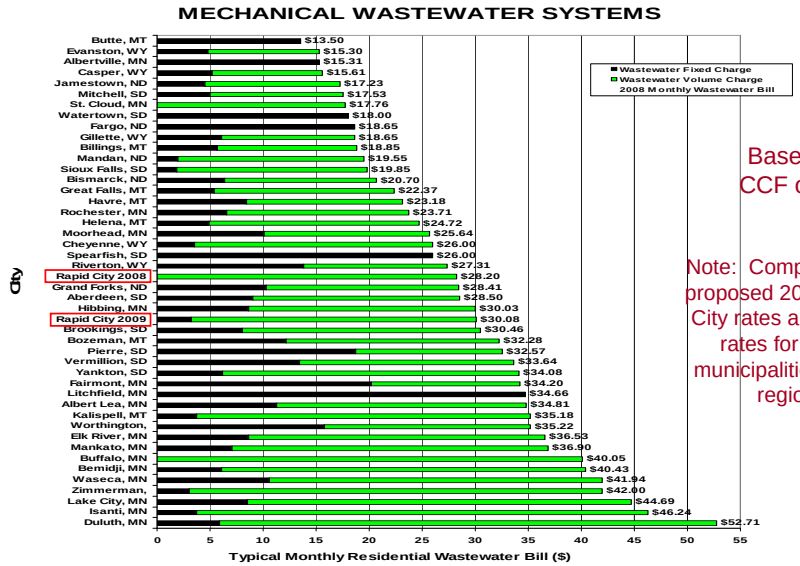
Think Big. Go Beyond.

Strength/Industrial Pretreatment Surcharge Fees

- Industrial Pretreatment Program:
  - Required by Federal Law (Clean Water Act)
  - Permitted Users
    - Significant Industrial Users (SIUs) – 4 (Servall, RC Meats, Coke, Gillette Dairy)
    - Categorical Users (metal finishing, particle board manufacturing, nonferrous metal and forming powder)-13
  - Minor Industrial Users
    - Gas Stations, car washes, restaurants, etc. – 572
  - Recommendation:
    - Implement cost of service-based fee structure to strive for full cost recovery

Users	2009	2010	2011	2012	2013
Minor Users	$150/yr	$175/yr	$200/yr	$225/yr	$250/yr
SIUs and Categorical Users	$1,000/yr	$1,500/yr	$2,000/yr	$2,500/yr	$3,000/yr

Regional Comparison



Based on 10 CCF of Usage

Note: Comparison of proposed 2009 Rapid City rates and 2008 rates for other municipalities in the region

Rapid City Utility Bill
Customer Service: 394-4125

Remember to recycle. The landfill is open Mon-Sat from 7:30 a.m. – 4:30 p.m. and there are drop-off sites at Fitzgerald Stadium and at 4456 Fairmont Blvd.

KEEP RAPID CITY BEAUTIFUL

JOHN Q PUBLIC
110 ANYWHERE ST
RAPID CITY, SD 57701

Service Address: 110 ANYWHERE ST
Account Number: 09004620-0083862
Service Period: 10/08/2008 to 11/07/2008

METER# 28097712
Meter Reading Present: 10 Act
Meter Reading Previous: 0
Total units used: 10

Rapid City Utility Billing Office
300 6th Street
Rapid City, SD 57701
394-4125

Pay total amount due before 12/2/2008 to avoid late payment charges. Thank You!

RETURN THIS PORTION OF BILL WITH PAYMENT
Account Number: 09004620-0083862
Service Address: 110 ANYWHERE ST
Bill Date: 11/10/2008
Due Date: 12/02/2008

AMOUNT DUE: $67.73

AMOUNT ENCLOSED: _____

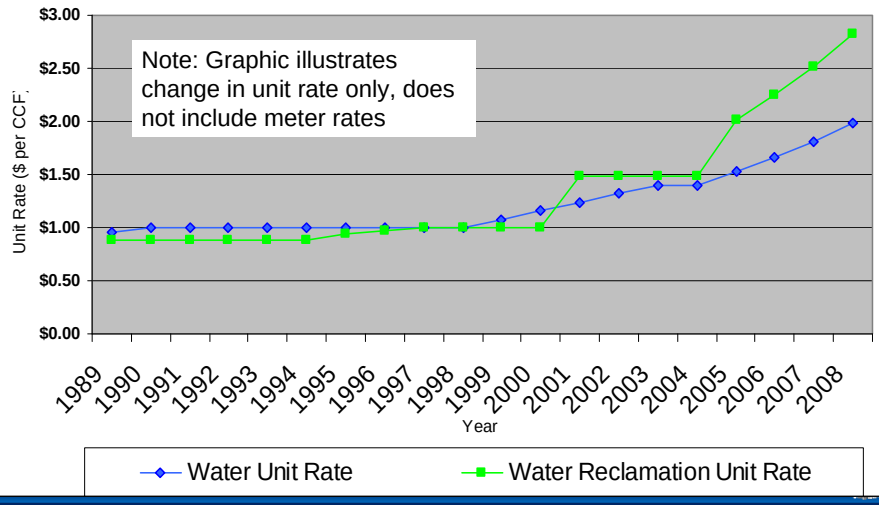
Remit Payment To:
City Finance Office
300 6th Street
Rapid City, SD 57701

Current Charges Detail

Water - Charges	28.14
Sewer – Charges	22.10
Garbage - Charges	17.41
Environmental Charges	.08
Amount Billed	67.73
Total Amount Due	**$67.73**

Historical Unit Rates

Water and Water Reclamation Utilities



Discussion

Think Big. Go Beyond.