Rate Setting for Infrastructure Funding

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Presented by:
Tage Aaker – Project Manager
Chase Bozett – Senior Analyst

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IACC
INFRASTRUCTURE ASSISTANCE COORDINATING COUNCIL

- What is a rate study? Why is it important?
- The infrastructure funding challenge
- Developing an infrastructure funding approach
- System Development Charges
- Setting the framework with financial policies
- Defining overall needs: revenue requirement
- Evaluate rate equity: cost of service analysis
- Collecting the target revenue: rate design
- Communication with elected officials
- Public outreach & involvement

Why Are Rate Studies Important?

Your Utility Is A Business

- Revenues need to cover utility costs
- Quantifies policies, priorities, and initiatives
- **Tells the "true" cost of providing service**

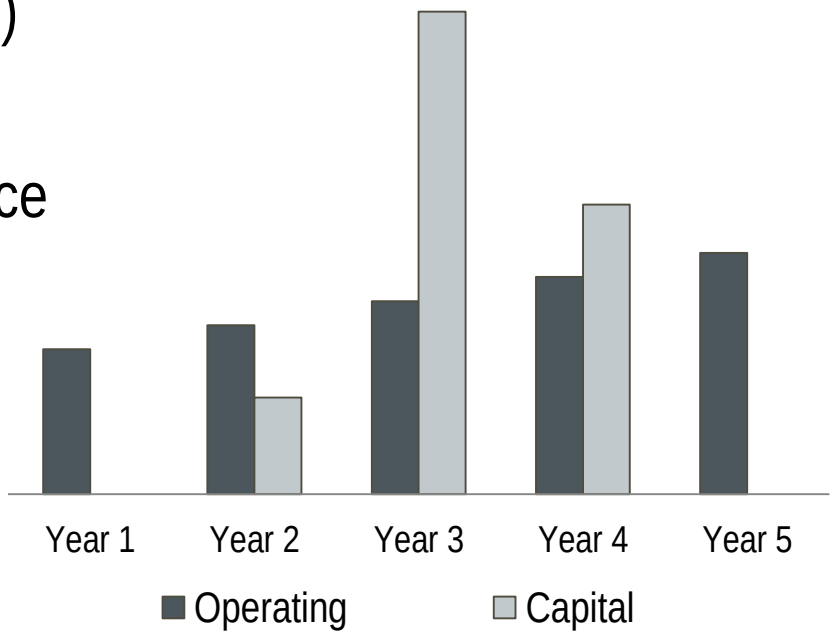
Public Accountability

- Communicates impact of financial decisions
- Public meetings

Introduction to Utility Rate Making

- Utility rates are set to recover the cost of providing service

- Operating costs (regular / ongoing)
  - Employee salaries and benefits
  - Routine inspections & maintenance
  - Professional services
  - Utilities / power



- Capital costs (periodic)
  - Infrastructure replacement
  - Facility expansions and upgrades

Common Components of a Rate Study

- Revenue Requirement

  What revenue adjustments are needed to cover each utility's costs?

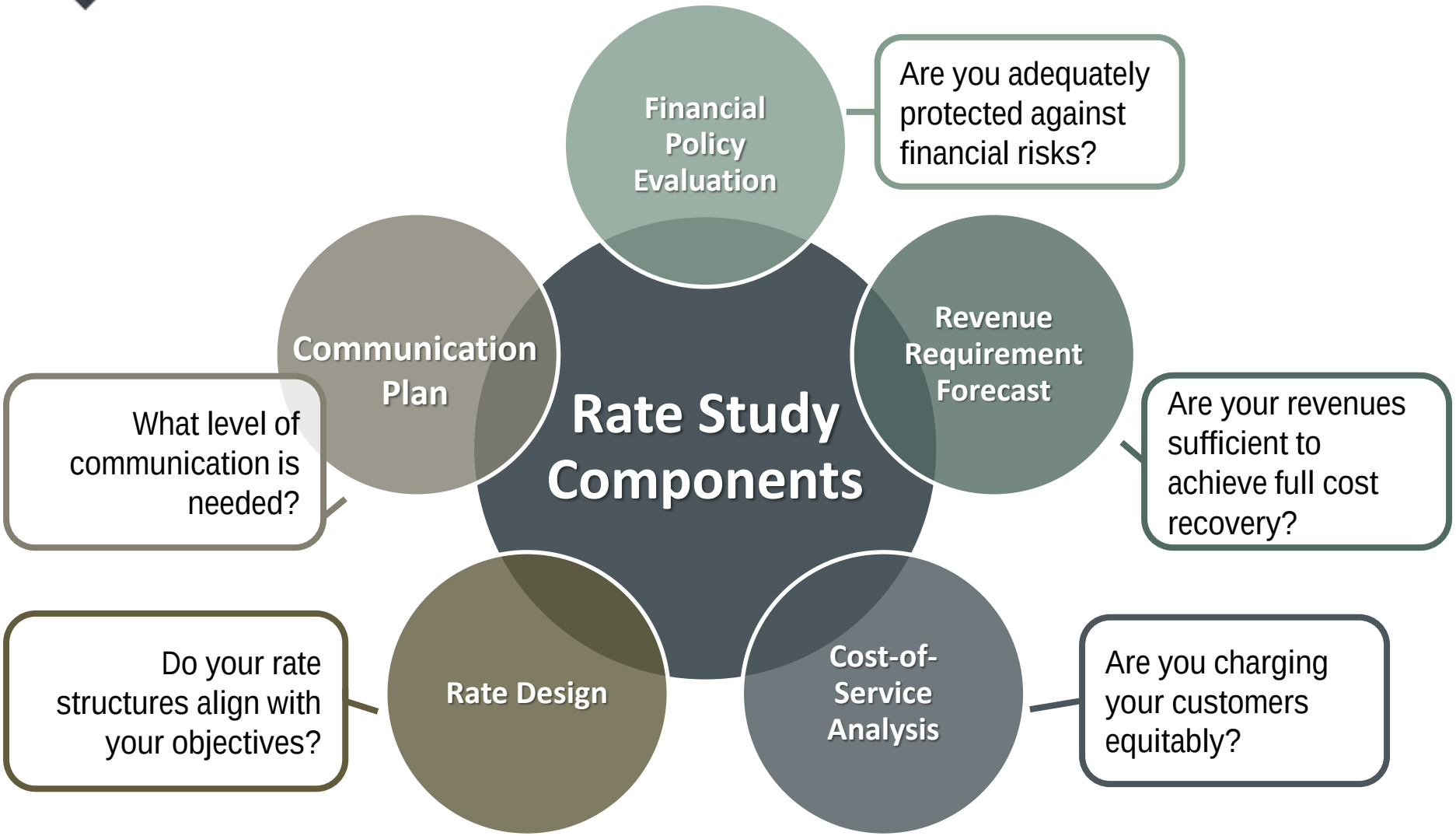
- Connection Charges / System Development Charges

  What is growth's equitable contribution to system costs?

- Cost of Service Analysis

  Do the utility's rates recover costs equitably from customers?

Comprehensive Rate Study: Start to Finish



What is a rate study? Why is it important?

→ **The infrastructure funding challenge**

Developing an infrastructure funding approach

System Development Charges

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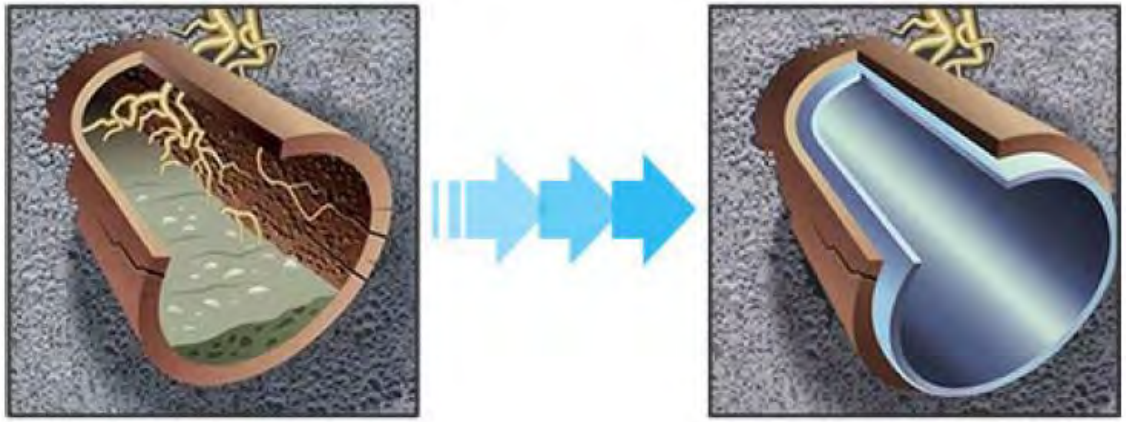
Utilities Are Capital Intensive

- Utilities must build, maintain, and replace infrastructure
- Long lived assets require long-term management
  - Operational management: Condition assessments & maintenance
  - Financial management: Saving money for repair and replacement



Source: T.Webber Plumbing

External and Internal Sources Insufficient

- CSI: Northwest Vision for 2040 Water Infrastructure
  - State and federal funding sources are shrinking
  - Budgets are under serious strain as systems age, costs escalate
  - Agencies not setting aside enough funds to replace aging assets
  - Proactive asset management encouraged

"Asset Management revamps the system-wide investment strategy looking years ahead. It is aimed at prioritizing the most cost-effective investments to maintain and operate infrastructure, and manage risk, to serve everyone in the community for the long-term. The practice offers a comprehensive perspective to strategically target operations, maintenance, and capital spending; it requires knowledge of the actual conditions of pipes, pumps, and other facilities…"

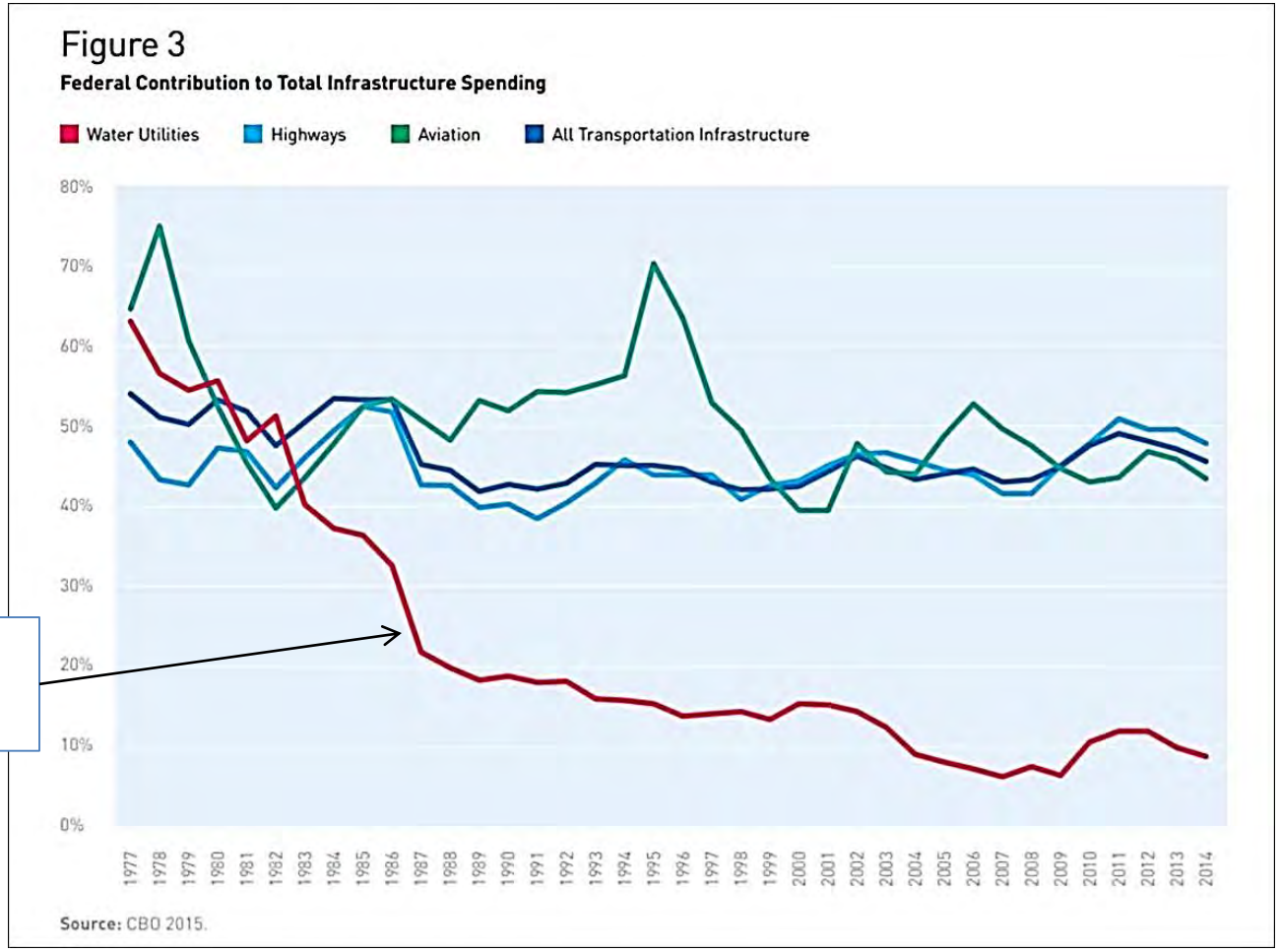
CSI Center for Sustainable Infrastructure

A Northwest Vision for 2040 Water Infrastructure: Innovative Pathways, Smarter Spending, Better Outcomes (2017)
Infrastructure Crisis, Sustainable Solutions: The Evergreen State College, Center for sustainable infrastructure (2014)

Decline in Federal Spending for Utilities

>60%

Water Utilities



<10%

Value of Water Campaign: The Economic Benefits of Investing in Water Infrastructure 2017 (http://thevalueofwater.org/)

What State-Level Options Exist?

- Funding available
  - Grants
  - Loans

- **'Summary' document**
  - Eligible projects / applicants
  - How to apply
  - Contact email and phone

Summary of Some Grant and Loan Programs for Drinking Water and Wastewater Projects

Updated 9-23-19

Type of Program	Pages
Planning	2 - 4
Pre-Construction Only	5 - 6
Construction and Design/Construction	7 - 11
Emergency	12 - 13

*Document provided by Cathi Read at the **Department of Commerce***

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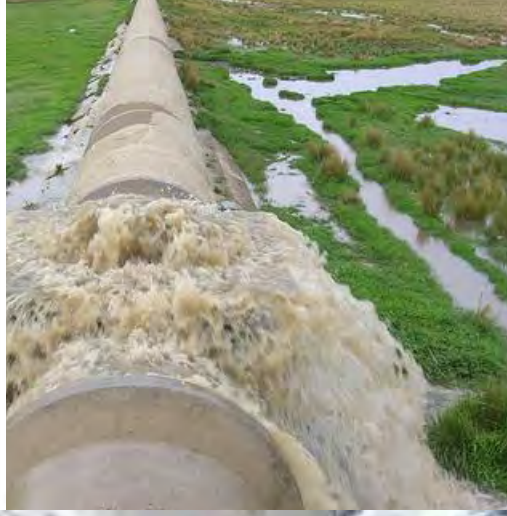


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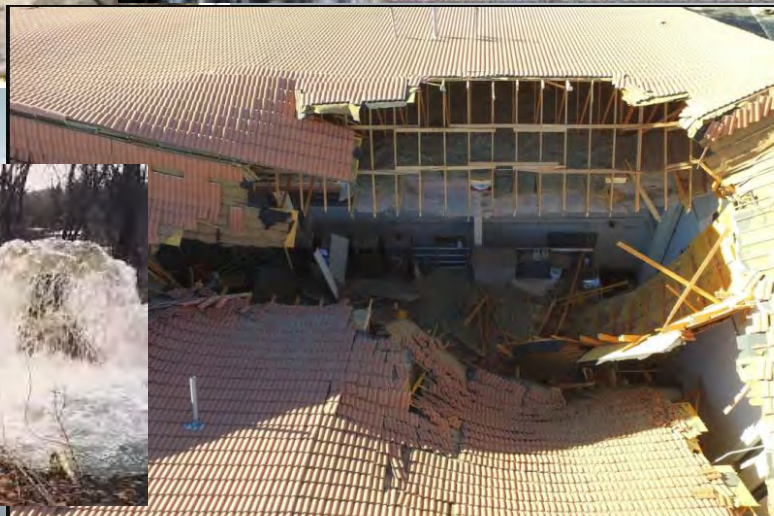


System R&R – Consistently #1 Issue

Table 2. Top 10 issues facing the water industry as ranked by all respondents, 2014–2018

Rank	2014	2015	2016	2017	2018
1	State of water and sewer infrastructure	Renewal & replacement of aging water and wastewater infrastructure	Renewal & replacement of aging water and wastewater infrastructure	Renewal & replacement of aging water and wastewater infrastructure	Renewal & replacement of aging water and wastewater infrastructure
2	Long-term water supply availability	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements
3	Financing for capital improvements	Long-term water supply availability	Public understanding of the value of water systems and services	Long-term water supply availability	Public understanding of the value of water systems and services
4	Public understanding of the value of water resources	Public understanding of the value of water systems and services	Long-term water supply availability	Public understanding of the value of water systems and services	Long-term water supply availability
5	Public understanding of the value of water systems and services	Public understanding of the value of water resources	Public understanding of the value of water resources	Public understanding of the value of water resources	Public understanding of the value of water

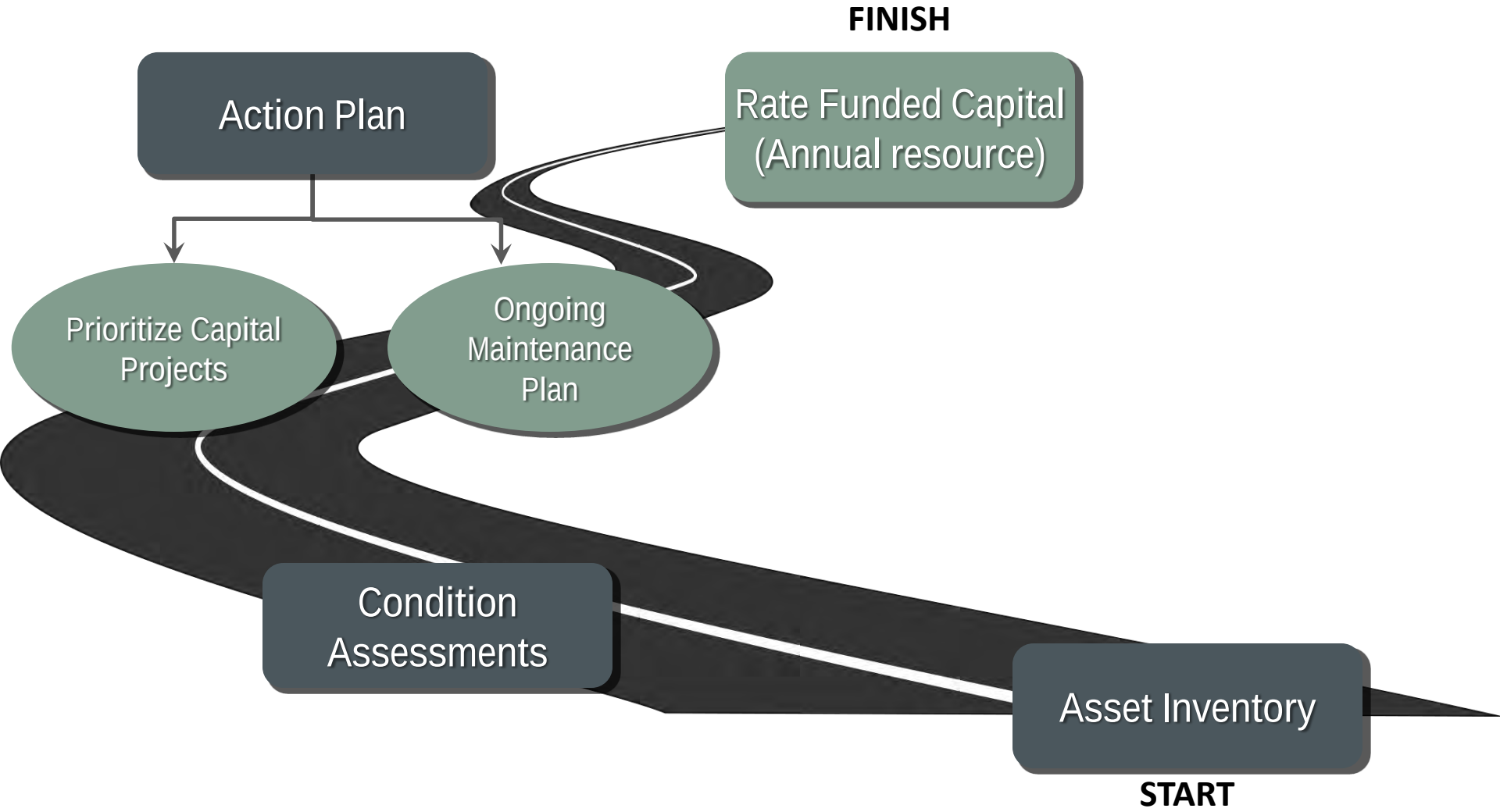
- American Water Works Association (AWWA) State of the Water Industry Report 2018

Need for Replacement Funding Planning

- Costs are increasing
  - Increasing maintenance cost as assets age
  - Replacement cost exceed original cost

- Strain on existing revenue sources
  - Operating costs increasing
  - Additional regulatory burdens
  - Little to no revenue “left over” after paying for O&M, debt service
  - Reserves being drawn down for operating deficit

Asset Management From a Financial Perspective



What Information Do You Have?

- Questions to get started:
  - What do we own?
  - Where is it?
  - What did it cost to acquire?
  - What will it cost to replace it?
  - What condition is it in?
  - How long will the asset last?

- Why do we need this information?
  - Understanding replacement funding needs
  - Setting system connection charges (SDCs, GFCs, etc.)
  - ‘Cost of Service Analysis’ / equity analysis

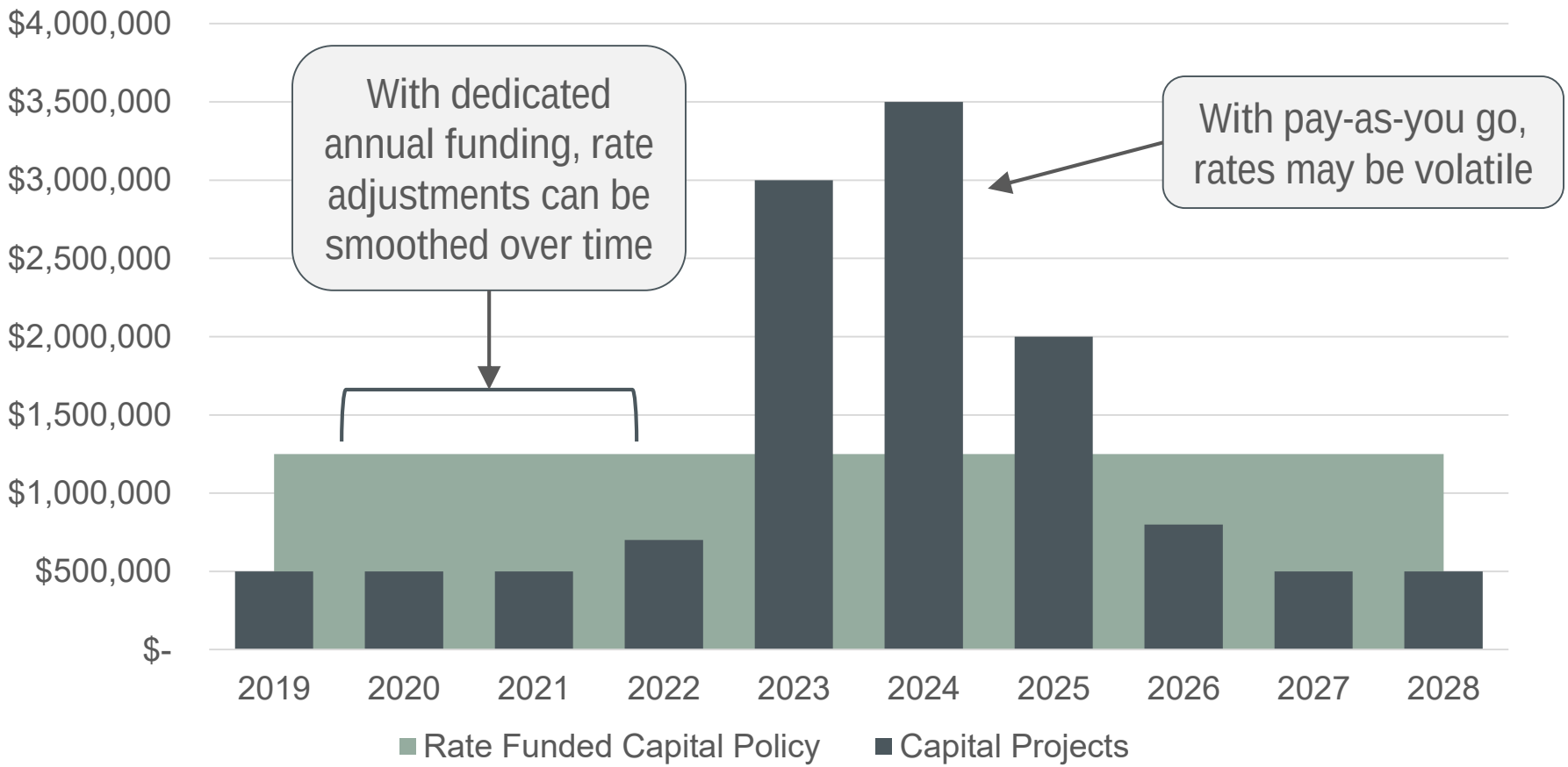
Proactive Capital Funding Plan Needed

- Rate Funded Capital Policy – what is it?
  - An annual cash contribution from current rate revenue
  - Pays for same-year repair & replacement projects… or
  - Saved for future capital projects
- Policy Targets – how much do we need?
  - Original or replacement cost annual depreciation
  - Average annual repair & replacement projects
  - Asset management plan

Build 'Rate Funded Capital' into annual revenue needs

Rate Funded Capital Example

- Annual capital spending may not be uniform



Rate Funded Capital Detailed Example

Summary of Operations	2019	2020	2021	2022
Existing Rate Revenues	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000
Rate Revenues from Increases	-	500,000	1,000,000	1,500,000
Operating Expenses	(2,800,000)	(2,880,000)	(2,970,000)	(3,060,000)
Existing Debt Service	(200,000)	(200,000)	(200,000)	(200,000)
Revenue Available For Capital	$ -	$ 420,000	$ 830,000	$ 1,240,000

Capital Funding Strategy	2019	2020	2021	2022
Beginning Fund Balance	$ 1,000,000	$ 750,000	$ 170,000	$ 1,000,000
Connection Charges	250,000	250,000	250,000	250,000
Rate Funded Capital	-	420,000	830,000	1,240,000
Capital Projects	(500,000)	(1,250,000)	(500,000)	(2,000,000)
Ending Fund Balance	$ 750,000	$ 170,000	$ 750,000	$ 490,000

Rate Funded Capital greater than Capital.
'Bank' for next year.

What is a rate study? Why is it important?

The infrastructure funding challenge

Developing an infrastructure funding approach

→ System Development Charges

Setting the framework with financial policies

Defining overall needs: revenue requirement

Evaluate rate equity: cost of service analysis

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System Development Charges (SDCs)

- One-time fee paid at the time of development / redevelopment
- Provides equity between existing and new customers
- Provide a source of capital funding as growth occurs

$$\text{SDC} = \frac{\text{Existing System Cost} + \text{Future Project Costs}}{\text{Existing + Future Customer Base (System Capacity)}}$$

Example SDC Calculation and Schedule

- Existing + future costs: $30 million
- System Capacity: 10,000 MCEs
  - MCE = meter capacity equivalent
- Charge per MCE = $3,000
- **Many jurisdictions set 5/8" and 3/4"** meters to same SDC
  - Minimum fire flow requirements

Meter Size	MCEs per Meter	SDC
5/8"	1.00	$ 3,000
3/4"	1.00	$ 3,000
1"	2.50	$ 7,500
1.5"	5.00	$ 15,000
2"	8.00	$ 24,000
3"	16.00	$ 48,000
4"	25.00	$ 75,000

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Financial Policies

- Help weather financial risk and disruptions
- Make consistent financial and rate decisions
- Can help stabilize rates over time
- Implement immediately or phase in?

Documentation of Policies is Ideal!

Example Financial Policies

Policy	Purpose	Policy Target
Operating Reserve	Accommodate variations in revenue & expenses	Water = 90 days O&M Sewer = 45-90 days O&M Storm = 30 days O&M
Capital Reserve	Emergency repairs, unanticipated capital, & project cost overruns	1-2% of capital assets; or Critical asset reserve
Rate Funded Capital	Annual rate funded capital mechanism	Annual depreciation; Average R&R capital spending
Equipment Reserve	Vehicle and equipment replacement	Estimated replacement value
Debt Service Coverage	Compliance with existing debt covenants; Maintain credit worthiness for future debt needs	Target 2.0 or higher; Minimum 1.25

Operating Reserve Example

- **Target typically equals a "number of days"**
- For example 30, 45, 60, or 90 days
- Higher target for utilities with more volatile revenues

$$\frac{\text{Total Annual Operating Expenses}}{\text{365 Days Per Year}} = \text{\$ per day} \times \begin{cases} \text{30 days} \\ \text{45 days} \\ \text{60 days} \\ \text{90 days} \end{cases} = \text{Total Reserve Target}$$

Policies in action…

- Sammamish Plateau Water
  Financial Viability ☆
  - Avoid deferral of fiscal responsibilities
  - Adopt rates and targets that include reserves for R&R
  - Ensure generational equity

SAMMAMISH PLATEAU WATER SUSTAINABILITY POLICY

Purpose: *As an element of sustainable service delivery, the District practices asset management. This policy is designed to define and guide the District's commitment to sustainability and asset management.*

Attribute	Attribute Components
Infrastructure Strategy and Performance	The District will be effective stewards of its capital investments by maintaining an asset inventory (asset registry) with location, age, physical condition and other key attributes necessary for making data-driven decisions to ensure sustainable infrastructure.
Water Resource Sustainability	The District will promote public health by ensuring the availability of clean water and effective sewer conveyance. This is accomplished through environmental stewardship focusing on long-term aquifer sustainability and comprehensive resource planning.
Customer Satisfaction	Level of service targets (policy and operational) will be adopted by the Board of Commissioners to assure outcomes are delivered that meet expectations.
Financial Viability ☆	Financial planning and rate-setting will promote enterprise resiliency and long-term sustainability. The Board will avoid deferral of fiscal responsibilities and adopt rates and targets that include reserves for repair and replacement and other expenses recognizing the full cost of service to ensure generational equity.
Product Quality	The District will perform benefit and risk analysis when making fiscal and capital decisions to ensure resources are focused on essential services and assets to meet regulatory and reliability requirements with a long-term view.
Employee and Leadership Development	The District will hire, train and manage to maintain staffing skills, resources and prioritize continuous improvement through teamwork and open communications. Competent and professional District staffing is an essential element of service delivery, product quality and maintenance of legacy systems.
Operational Optimization	The District will ensure performance improvements and leverage technology to enhance operations resulting in an efficient, effective and sustainable water and sewer system.
Enterprise Resiliency	The District will foster a collaborative and flexible culture to ensure continuous improvement and innovative approaches to manage potential risks.
Stakeholder Understanding and Support	The District will foster customer understanding and support for sustainability through open outreach and communication.
Community Sustainability	The District will promote regional awareness and partnerships to reflect the interdependent nature of resources and support sustainability throughout the region as a best practice.

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Overview of Revenue Requirement

- **What revenue adjustments are needed to cover each utility's costs?**
- Multi-year rate adjustment strategy!

Other Sensitivities And Priorities

- Priorities of management, staff, and elected officials set the stage

Revenue Requirement Inputs

Cash Needs

- O&M Costs
- Debt Service
- Cash CIP
- Cash Reserve
- Other Goals

Long-Range Financial Planning Model

Resources

- Monthly Rates
- Misc. Fees
- Connection Chg.
- Debt Proceeds
- Use of Reserve

Provides a long-term rate and financing plan to support the operations and capital needs of the utility

Forecasting Revenue

Types of Resources	Considerations
Rate Revenue	• Historical trends • Customer growth (but be conservative) • Annexation / service area expansion • New, large customer?
Other Revenue	• Miscellaneous fees • One time or recurring • Increase w/ customer growth or flat
Fund Balance	• Not an on-going resource • Can mask revenue shortfalls

Forecast Operating Costs

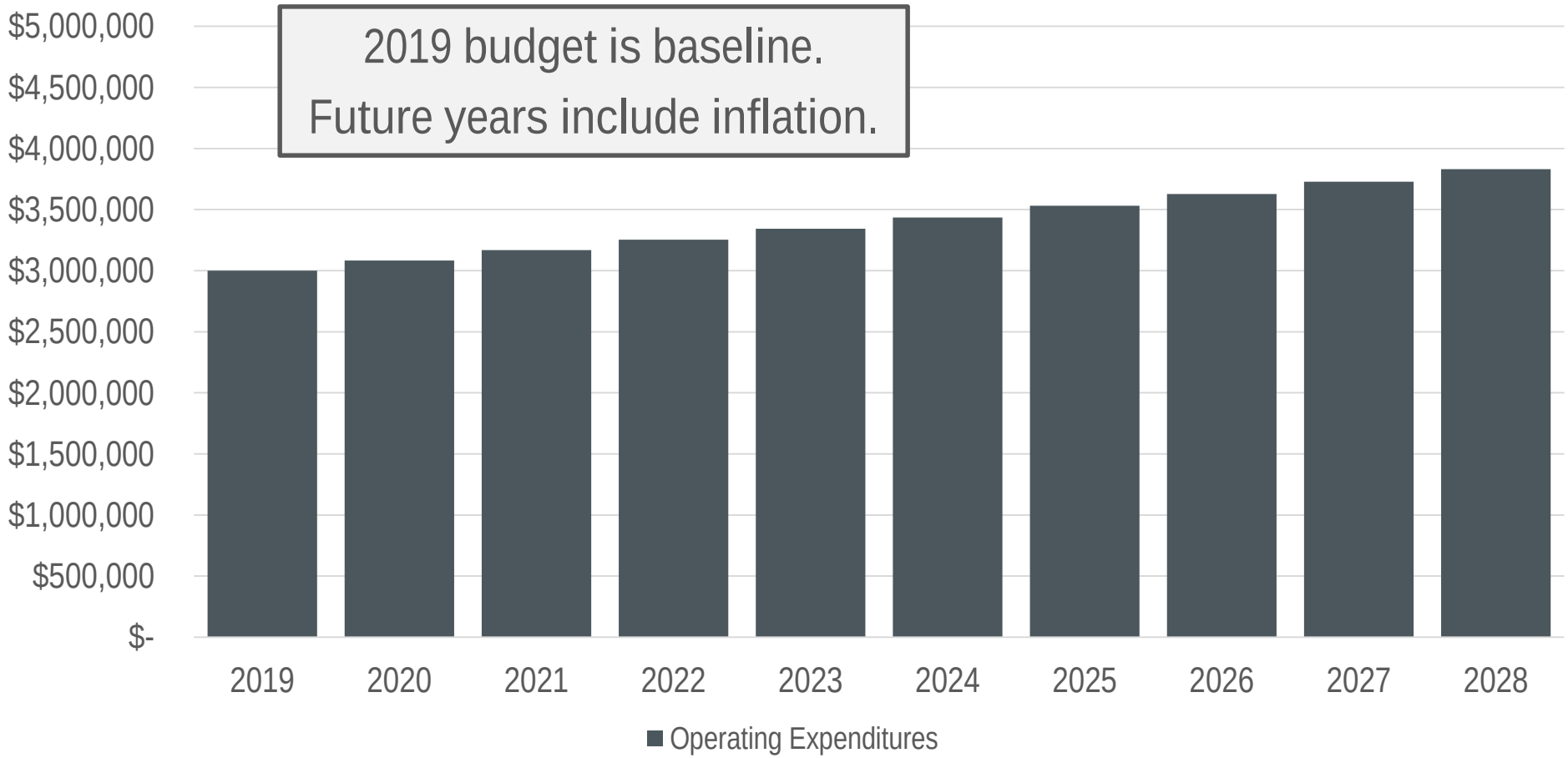
Common Considerations

- Historical performance vs. current budget
- What about cost escalation? CPI, labor contracts, etc.
- Additional staffing or enhanced service levels? People, vehicles, etc.

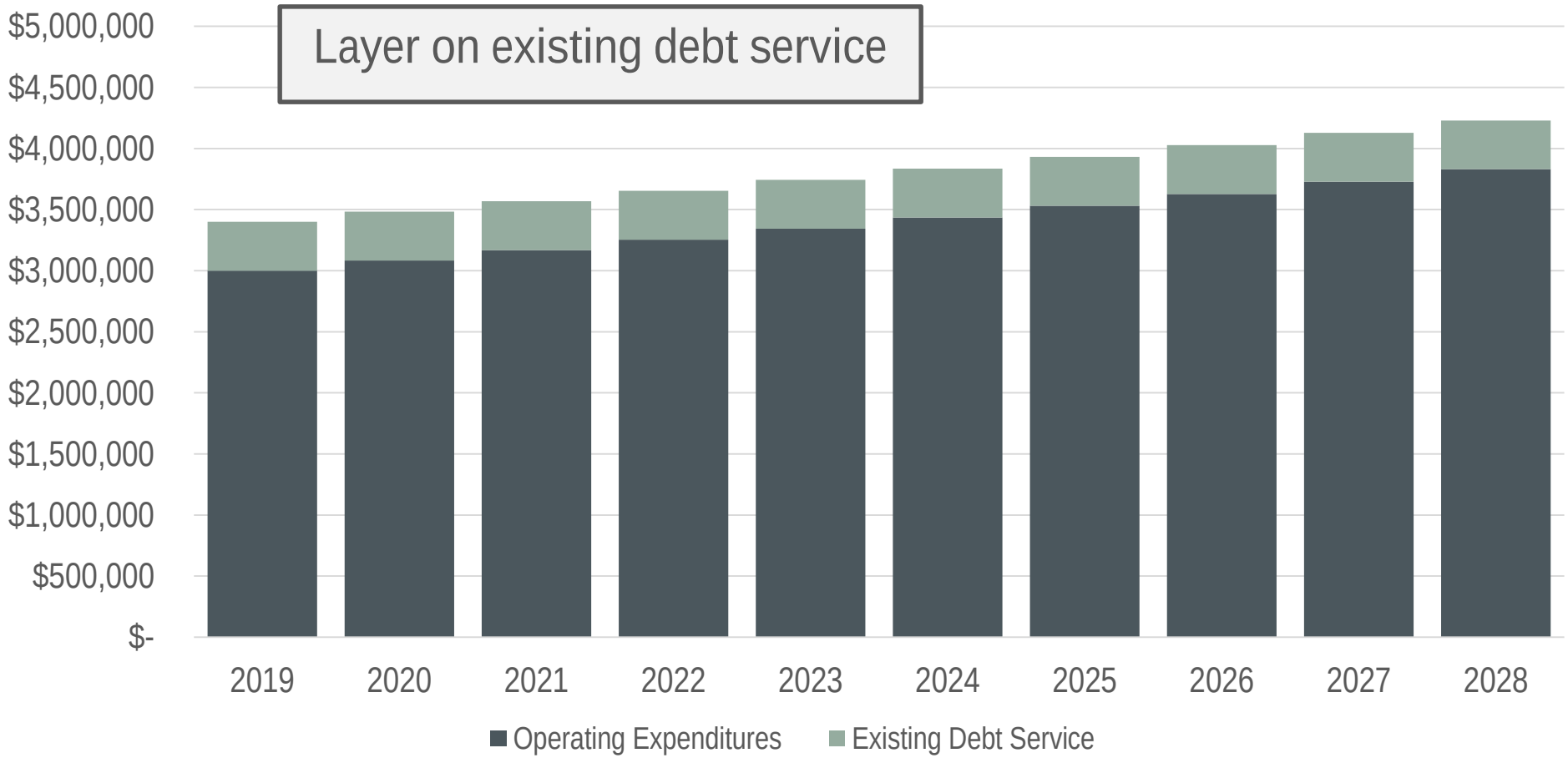
Less Common Considerations

- Indirect cost allocation updates?
- Periodically review state excise tax calculations

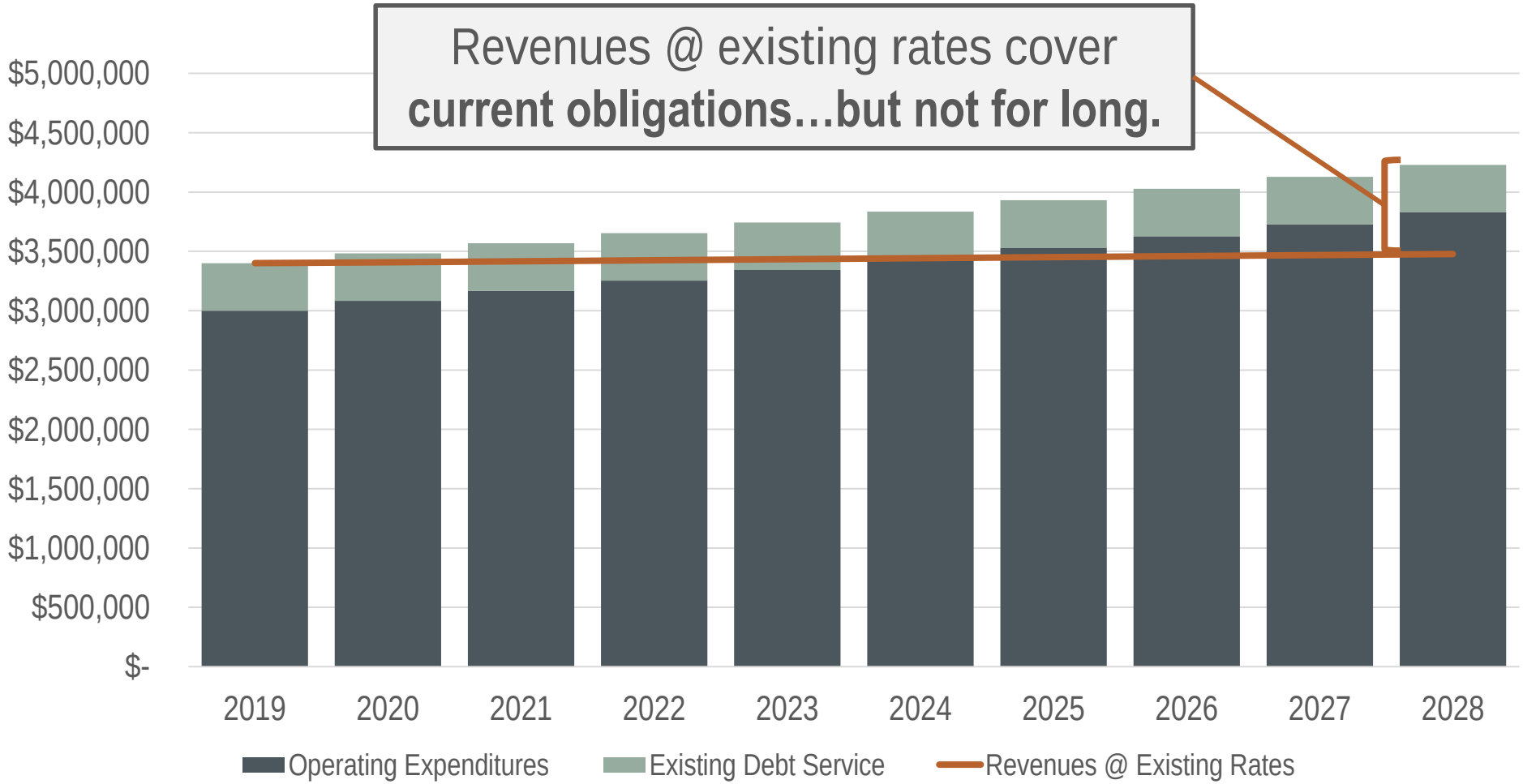
Step 1: Forecast Operating Costs



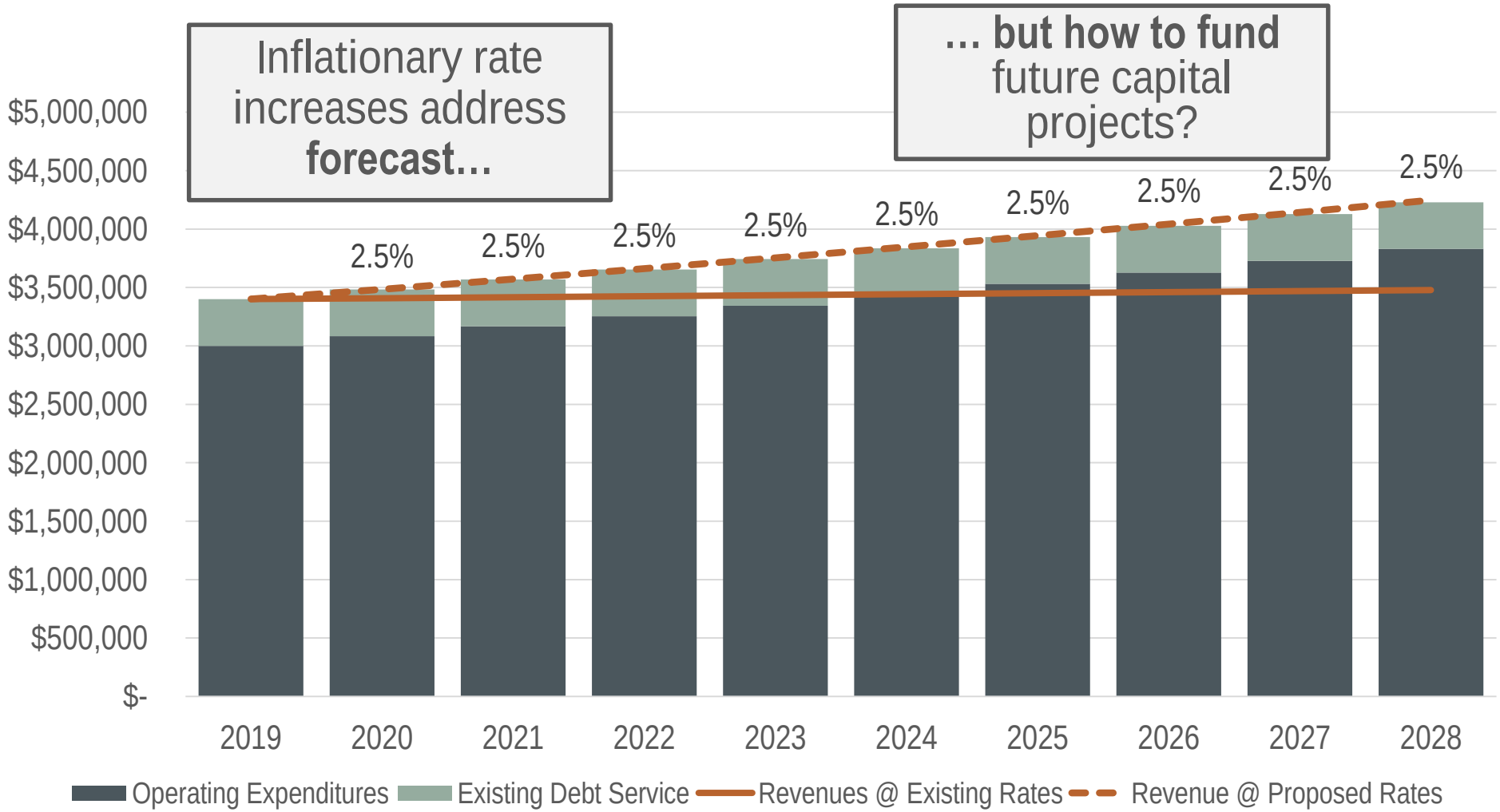
Step 2: Add Existing Debt Obligations



Step 3: Obligations vs. Existing Rates

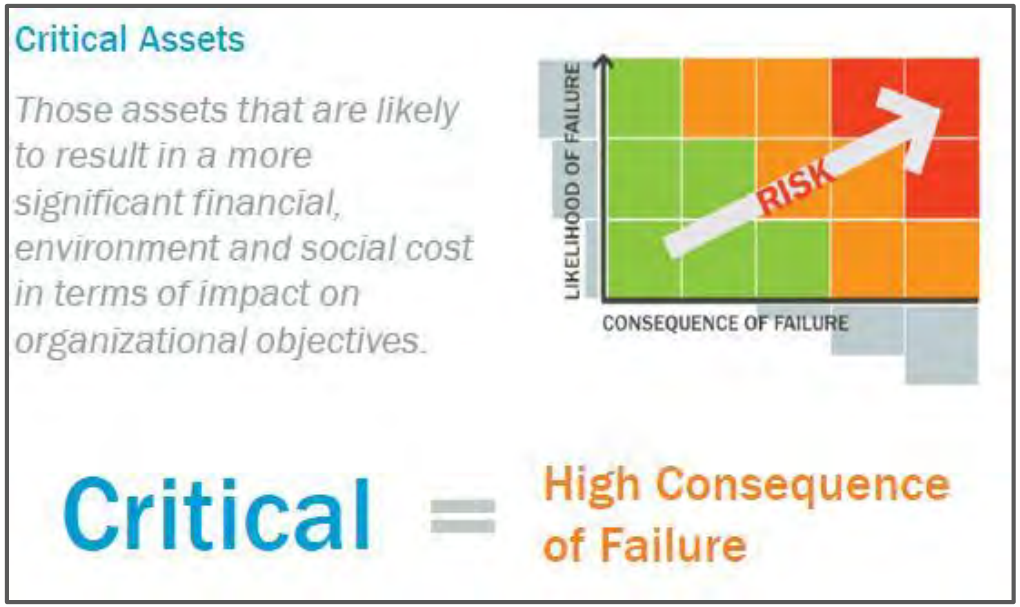


Step 4: Calculate Rate Increases Needed

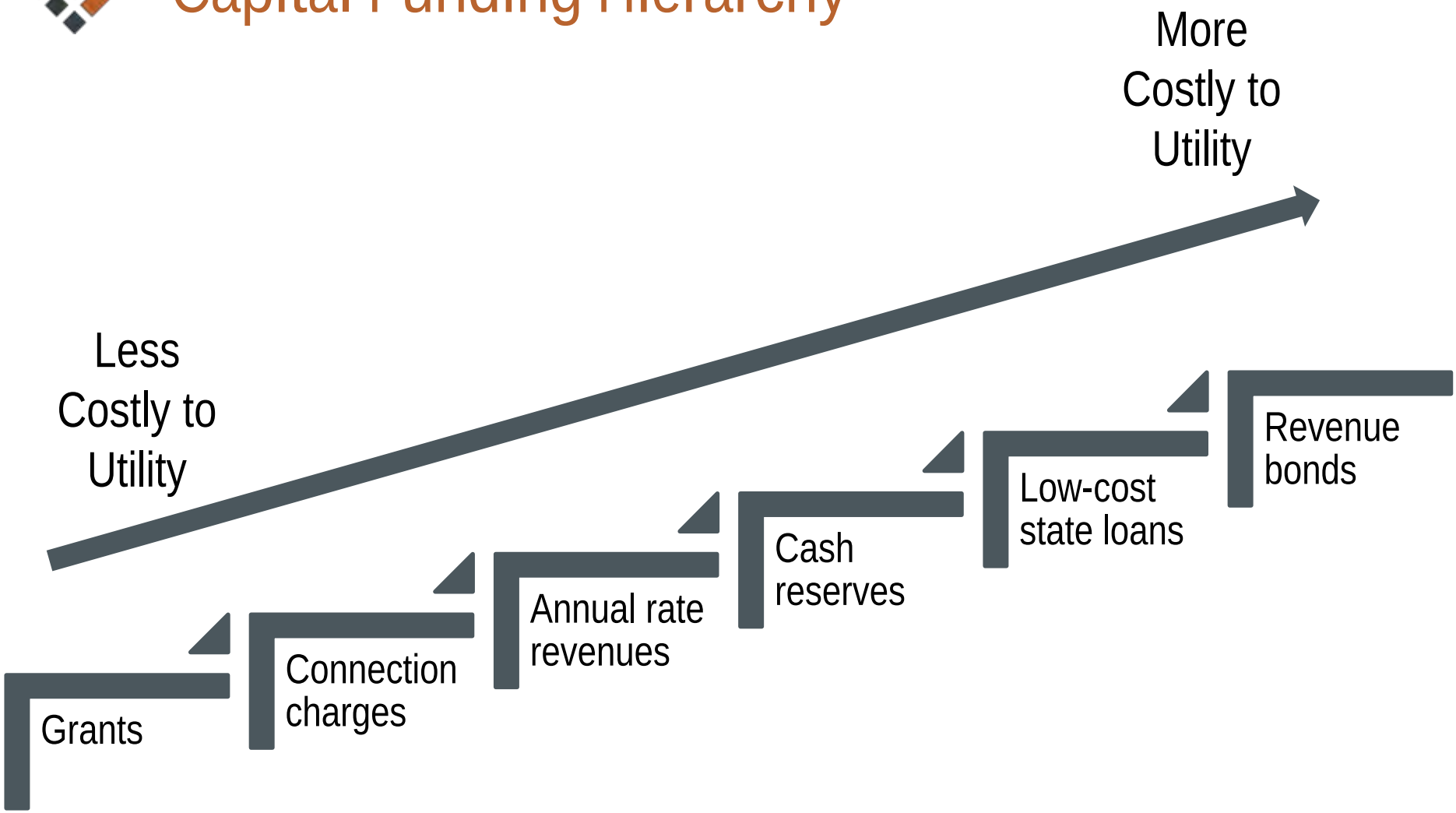


Forecasting Capital Costs

- Capital program should identify
  - Timing: Year(s) of construction?
  - Cost: Are estimates already escalated?
- Tackle high-priority capital projects first



Capital Funding Hierarchy



Capital Funding Philosophy

Cash (pay-as-you-go)

- Higher near term rates
- Existing customers pay 100% of costs

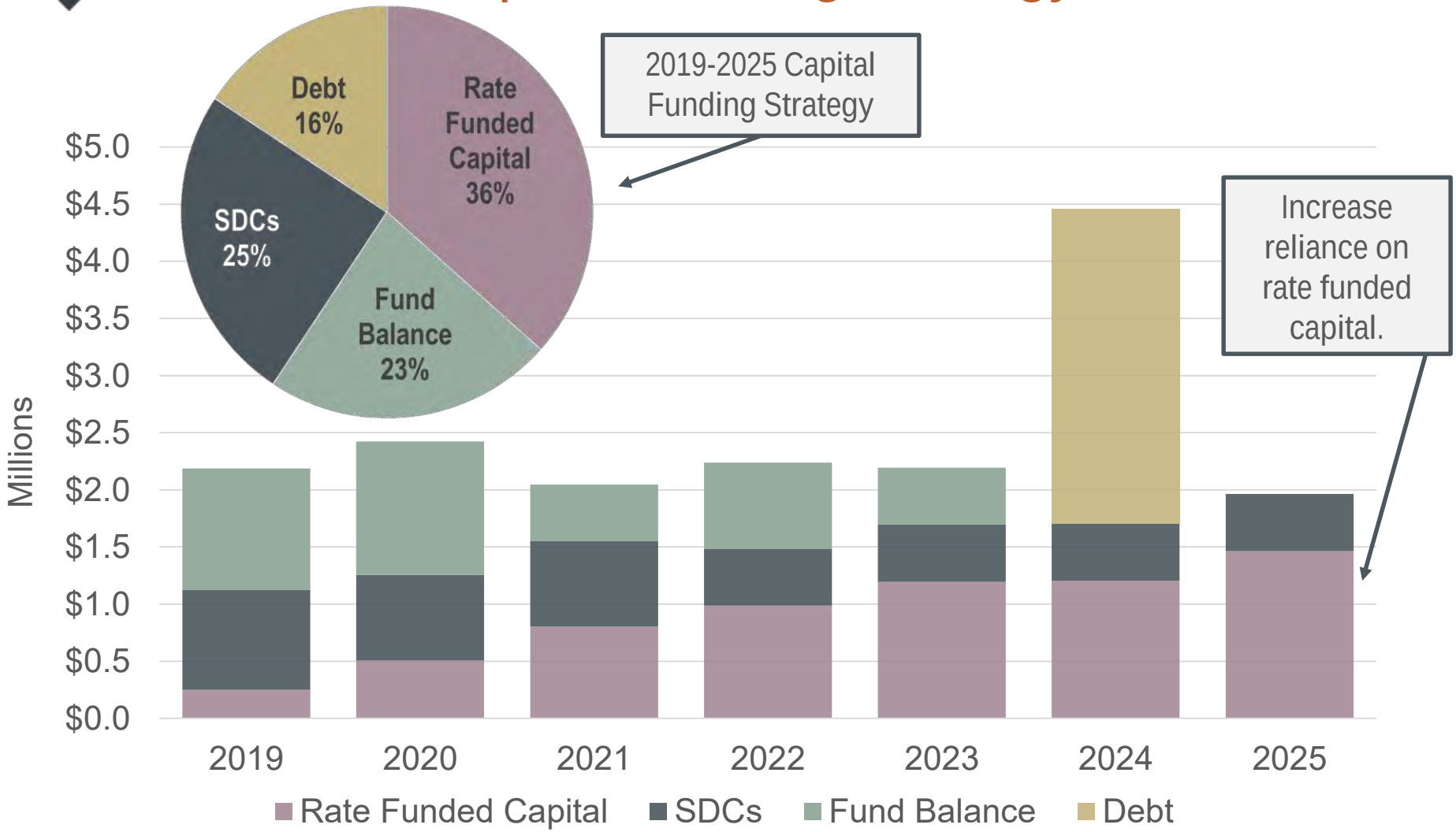
Debt Financing

- Lowest near-term rates…but interest cost
- Spreads cost between existing / future customers

Hybrid

- Cash fund repair and replacement projects
- Debt fund large expansion projects

Balanced Capital Funding Strategy



How Much Revenue is Needed?

Financial Policy Impacts

+

Forecasted O&M Costs

+

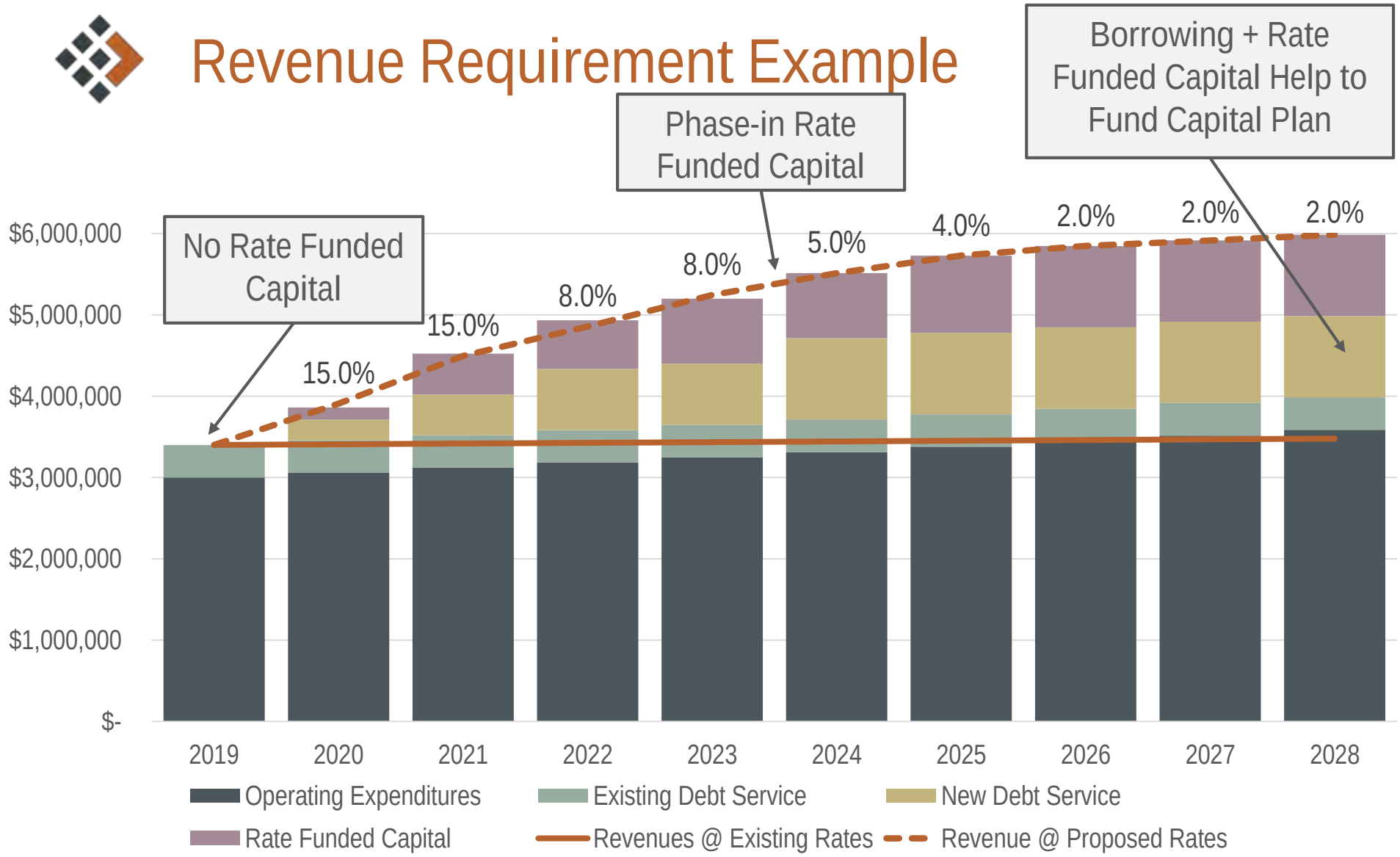
Rate Funded Capital

+

Existing & New Debt Service

} Annual Revenue Needs

Revenue Requirement Example



Decision Point for Utility – Can We Stop Here?

- Limited diversity in customer base?
- Satisfied with current class equity?
- Current rate structure adequately meets goals?
- **If no rate structure change is needed…**
  - Simply apply indicated rate increases 'across-the-board' (ATB)
  - E.g., both fixed and variable rates increase by 5% per year

Across-the-Board Rate Schedule	Existing 2019	ATB 2020	ATB 2021
Annual System-Wide Rate Increase		**5.00%**	**5.00%**
Fixed Charge per Customer	$47.14	$49.50	$51.97
Volume Charge: per ccf of water usage	$3.92	$4.12	$4.32

Indexed Rates

- **If last rate study's forecast is 'expired' consider increasing** rates with general cost inflation
- Benefit: rates do not get too far behind cost curve

Effective January 1st of each year, beginning on January 1, 20xx, the water rates listed in xxMC xx.xx.xxx shall be adjusted by the annual change in the most recent Seattle-Bellevue-Tacoma Consumer Price Index (Urban Consumers) published by the U.S. Department of Labor

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How Will Costs Be Equitably Distributed?

Revenue requirement: How big is the pie?

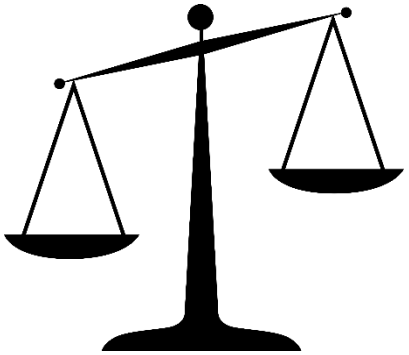
↓

Cost of service: How should the pie be sliced?

Cost of Service = Equity Evaluation

- **An equitable distribution of cost shares that considers…**
  - Industry standard methodologies
  - Usage characteristics
  - Facility requirements (planning and design criteria)

- Determines cost difference to serve different customer classes



What Makes a Customer Class Distinct?

- Usage levels
- Usage patterns
- Seasonality of use
- Raw water vs treated water
- Individual versus master metered
- Special service requirements
- Sewer strength contribution
- Social policies (low-income, economic development)

Cost of Service Analysis (Water)

Step 1

Functionalize Costs

- Supply & Treatment
- Pumping
- Storage
- Trans. & Dist.
- Meters & Services
- Customer Service

Step 2

Allocate Functions to Revenue Groups

- Accounts
- Total Annual Demand
- Peak Demand
- Meters & Services
- Capacity

Step 3

Allocate Costs to Customer Classes

- Single Family
- Multi-family
- Commercial
- Irrigation
- All Other

Cost of Service - Cost Allocation Example

- Commercial customers
  - 9% of accounts but 42% of annual consumption

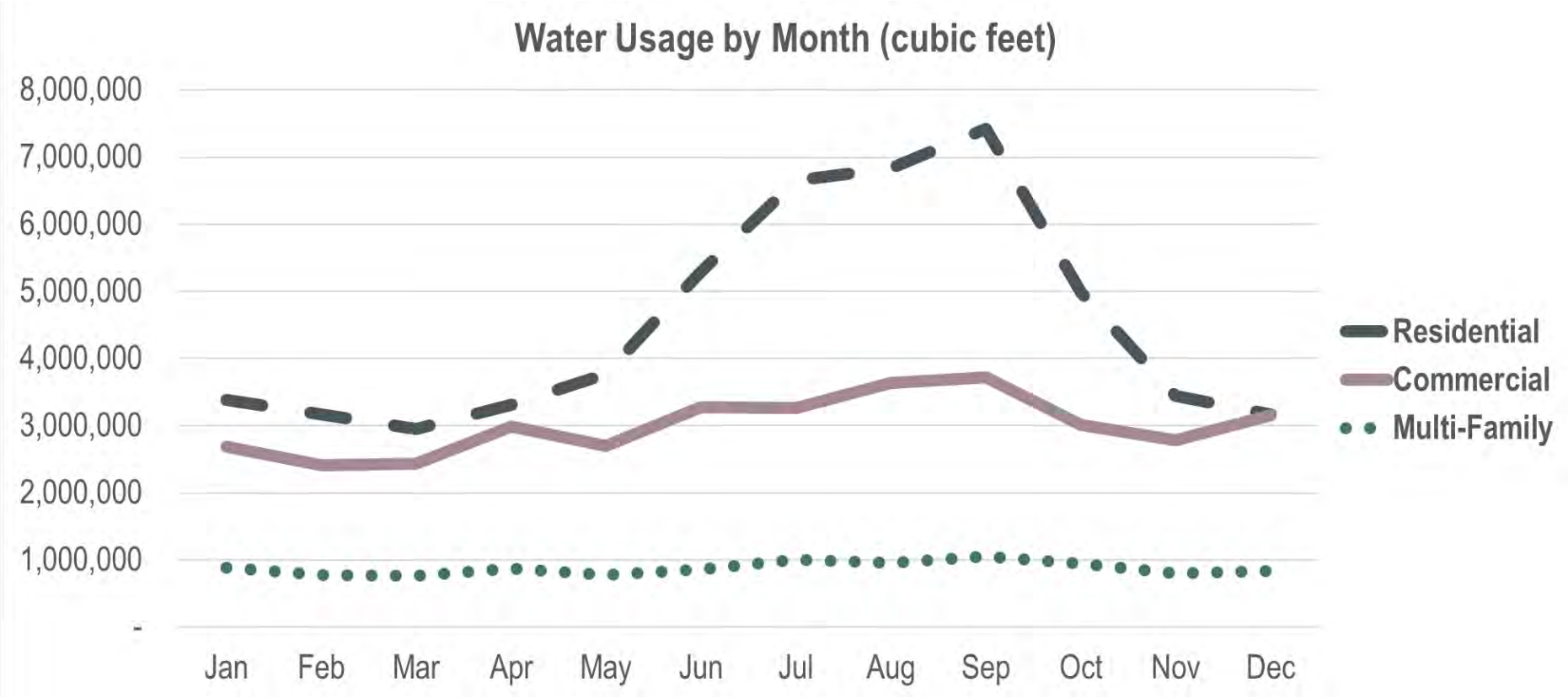
Customer Costs				$ 146,421
	Allocation Basis			
Customer Classes	Accounts	% Share	Allocated Cost	Cost per Account per Month
Residential	6,951	87.8%	$ 128,506	$1.54
Multi-Family	221	2.8%	$ 4,092	$1.54
Commercial	748	9.4%	$ 13,824	$1.54
TOTAL	**7,920**	**100.0%**	**$ 146,421**	**$1.54**

Base Demand				$ 2,651,532
	Allocation Basis			
Customer Classes	Total Annual Usage	% Share	Allocated Cost	Cost per Account per Month
Residential	54,388,376	53.4%	$ 1,415,132	$16.97
Multi-Family	4,750,251	4.7%	$ 123,597	$46.54
Commercial	42,768,841	42.0%	$ 1,112,803	$124.01
TOTAL	**101,907,469**	**100.0%**	**$ 2,651,532**	**$27.90**

Sample Customer Classes

Single Family Residential (SFR)	• Typically largest customer group • Relatively low usage per unit • High peak demand • Lowest fire flow requirement; domestic sewer strength
Multi-family Residential (MFR)	• Lower usage per dwelling unit • Usually master metered • Relatively constant use • Fire flow requirement between SFR & commercial • Domestic sewer strength
Commercial/ Industrial	• Diversity in use per account • Can have relatively constant use • Highest fire flow requirement • Varying sewer strength
Parks, Irrigation, & Agriculture	• Often smallest customer classes in terms of accounts • Majority of use in peak season • No fire flow requirement • Economic sensitivity

Sample Customer Class Usage



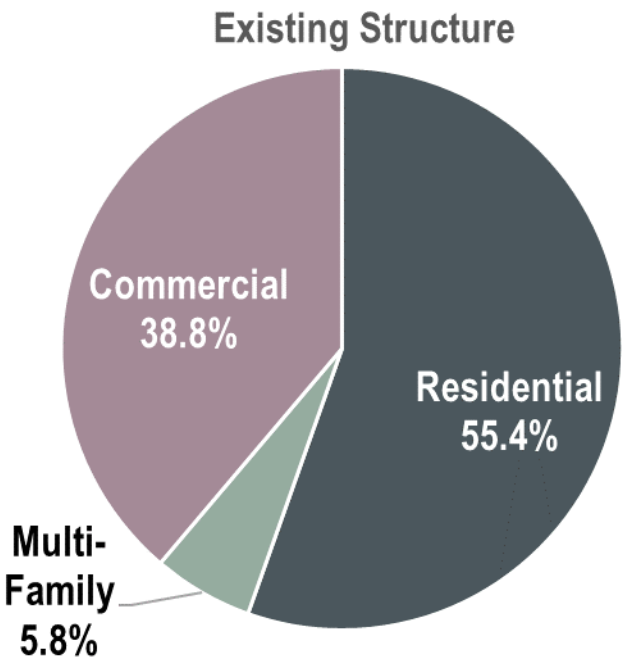
Redistribution of Cost Recovery

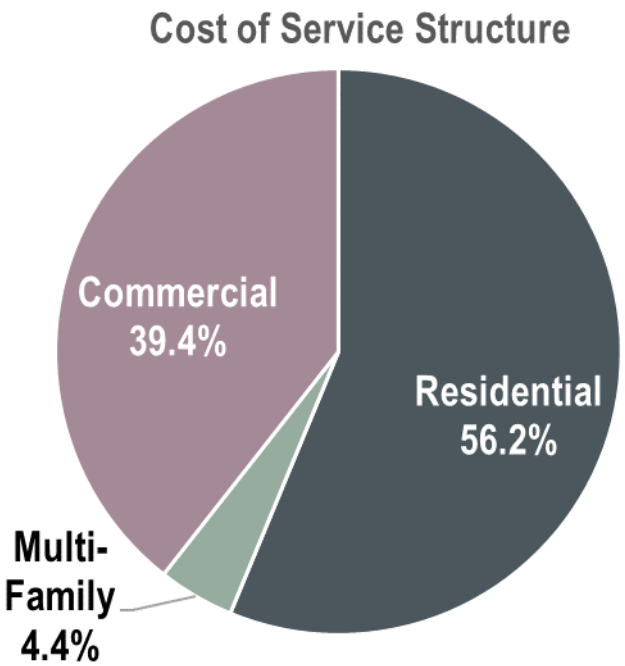
- Cost-of-service analysis identifies how costs should be equitably distributed among customer classes
- In this case, multi-family was subsidizing other classes

Class	Existing 2017 Structure	Cost of Service 2017 Structure	$ Difference	% Difference
Residential	$ 2,385,537	$ 2,420,192	$ 34,655	1.5%
Multi-Family	247,999	187,428	(60,571)	-24.4%
Commercial	1,669,490	1,695,406	25,916	1.6%
Total	**$ 4,303,027**	**$ 4,303,027**	**$ -**	**0.0%**

Cost of Service Equity Shift

- Multi-family would generate 4.4% of revenues after equity shift





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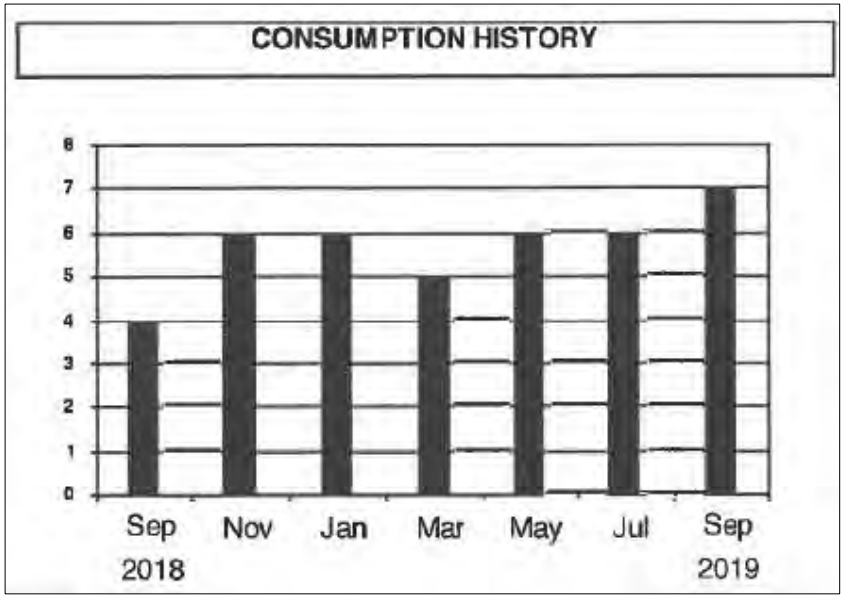
- Public outreach & involvement

Rate Design = Revenue Collection

- Main goal is to recover target level of revenue
- Primary communication tool with customers
- Typically fixed and/or variable charges



DESCRIPTION	AMOUNT
PREVIOUS BALANCE	59.95
PAYMENTS	-59.95
PAST DUE BALANCE	0.00
BASE CHARGE	55.85
CONSUMPTION	6.60
SUMMERSURCHARGE	1.60
TOTAL NEW CHARGE	64.05

Do Rate Structures Align with Your Objectives?

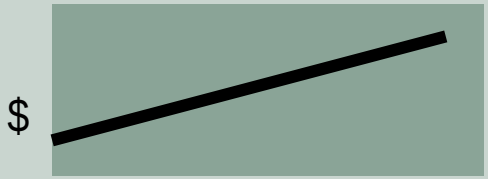
Example Rate Structure Goals		Sample Rank
Financial Sustainability	• Sufficient & predictable revenues • Stable and predictable impacts to customers	1
Conservation and Efficiency	• Promote conservation and efficiency of use • Protect natural resources	2
Transparency and Simplicity	• Easy to understand, explain and administer • Compatible with billing system	3
Fairness and Equity	• Correlate rates with costs • Reflect customer usage patterns • Reflect other customer service requirements	4
Affordability	• Provide affordable water to “lifeline” users	5

Types of Rate Structures

Flat Rate

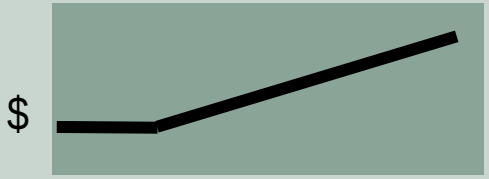
Fixed Charge	$40/mo.

Uniform Rate



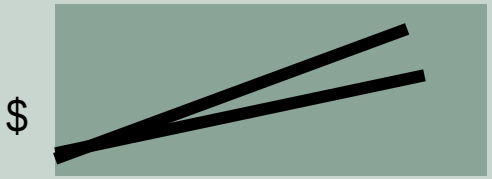
Fixed Charge	$10/mo.
Volume Charge	$0.60/ccf

Allowance Rate



Fixed Charge	$12/mo.
0 - 10 ccf	$0.00/ccf
Use >10 ccf	$1.00/ccf

Seasonal Rate



Fixed Charge	$10/mo.
Winter Charge	$1.00/ccf
Summer Charge	$1.50/ccf

Inclining/Tiered Rate

Fixed Charge	$10/mo.
0-10 ccf	$0.50 / ccf
10-20 ccf	$0.75 / ccf
> 20 ccf	$1.00 / ccf

- Fixed charges for water utilities are typically charged by meter size
- Flat rates are common for Sewer and Stormwater rates
- Sewer moving to volume based rates

What is a rate study? Why is it important?

The infrastructure funding challenge

Developing an infrastructure funding approach

System Development Charges

Setting the framework with financial policies

Defining overall needs: revenue requirement

Evaluate rate equity: cost of service analysis

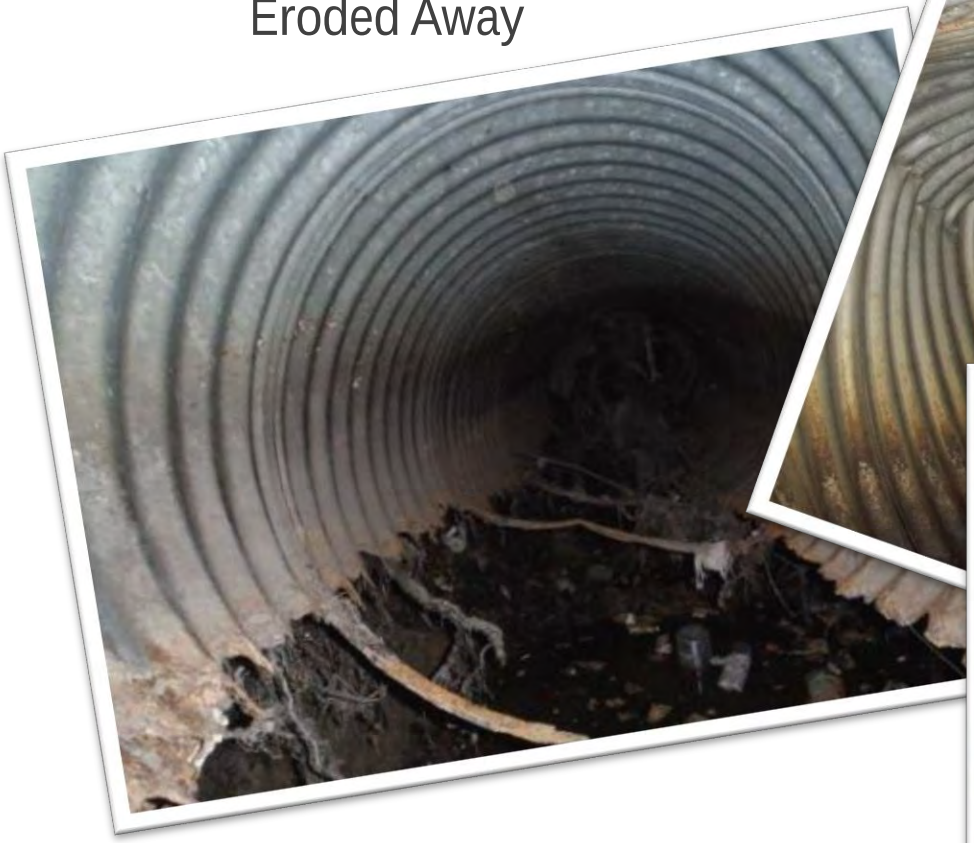
Collecting the target revenue: rate design

→ Communication with elected officials

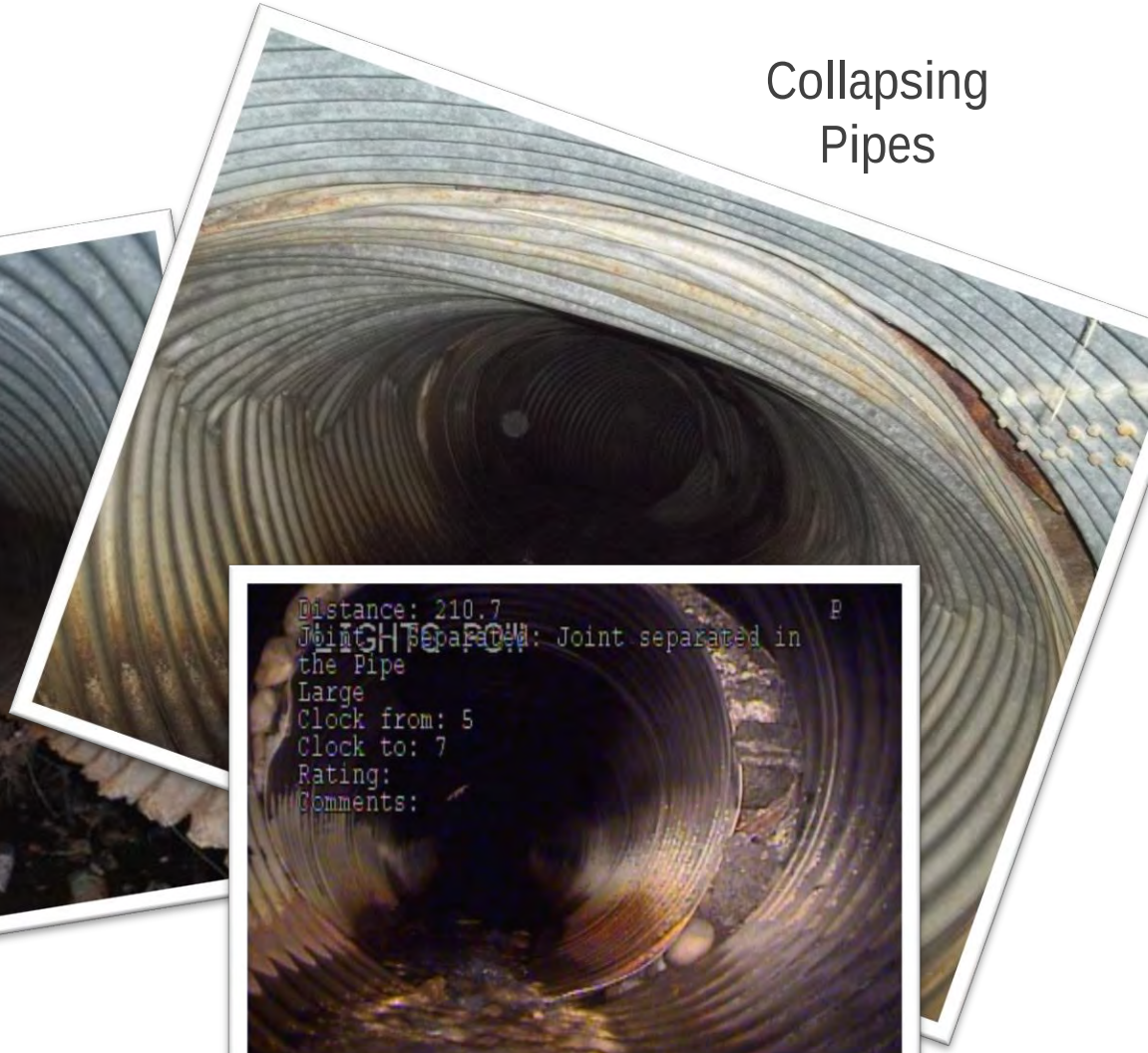
Public outreach & involvement

Illustrate Existing Issues

Bottom of Pipe
Eroded Away



Collapsing
Pipes



Joint Separation

Illustrate Existing Issues

Illustrate Existing Issues

Illustrate Existing Issues

- **City's sewer system needs routine maintenance**

Highlight Recent Success

- Corrected issues help protect water quality

Highlight Recent Success

Before

After

Highlight To Do List

Corrosion Control

Level of Service Options (Storm)

Associate Rate Increases with Level of Service Impacts

High Priority

Single Family Annual Rate	Existing 2018 Rate	Options for 2019 Rate
LOS 1: Correct Operating Deficit	$125	+$42
LOS 2: Staff / Supplies to Meet NPDES Req.	n/a	+$33
LOS 3: High Priority Capital	n/a	+$20
LOS 4: Medium Priority Capital	n/a	+$32
Grand Total	$125	$252

Medium Priority

Provide Scenarios for Decision Makers

Variable	6% Scenario	7% Scenario	8% Scenario
Annual Increases	6% per year	7% per year	8% per year
Debt Needed	$2.75 million	$1.25 million	n/a
Rate Funded Capital	$1.1 million (45% of avg. CIP)	$1.6 million (65% of avg. CIP)	$2.1 million (85% of avg. CIP)
Single Family Bill (end of study period)	$70	$75	$80

– 8% scenario: higher increases but no debt

- What is a rate study? Why is it important?
- The infrastructure funding challenge
- Developing an infrastructure funding approach
- System Development Charges
- Setting the framework with financial policies
- Defining overall needs: revenue requirement
- Evaluate rate equity: cost of service analysis
- Collecting the target revenue: rate design
- Communication with elected officials
- → **Public outreach & involvement**

Traditional Public Communication

- Greater public scrutiny
  - Requires public engagement, education, and transparency
- Traditional options
  - Open house
  - Rate advisory committee
  - Bill calculators
  - Frequently asked questions (FAQs)
  - Newsletters
  - Bill stuffers / notices
- Technology Creates New Opportunities

News Releases / Website Interaction

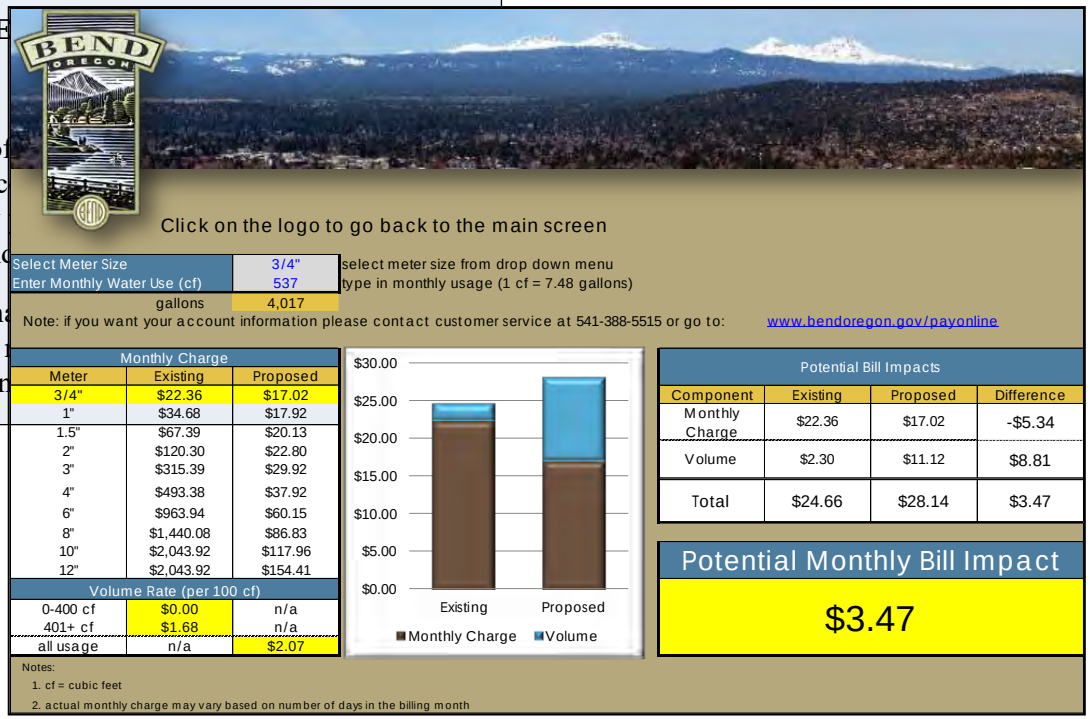
NEWS RELEASE

LAKEWOOD WATER DISTRICT ANNOUNCES 50-YEAR

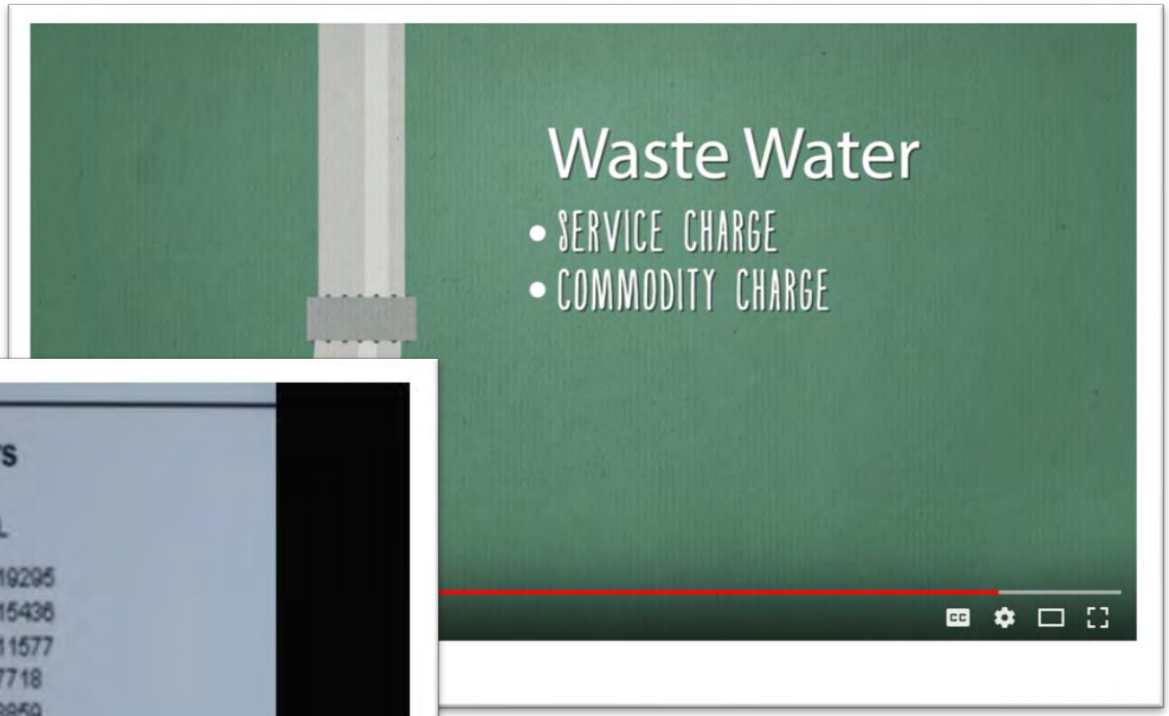
PIPE REPLACEMENT AND RE

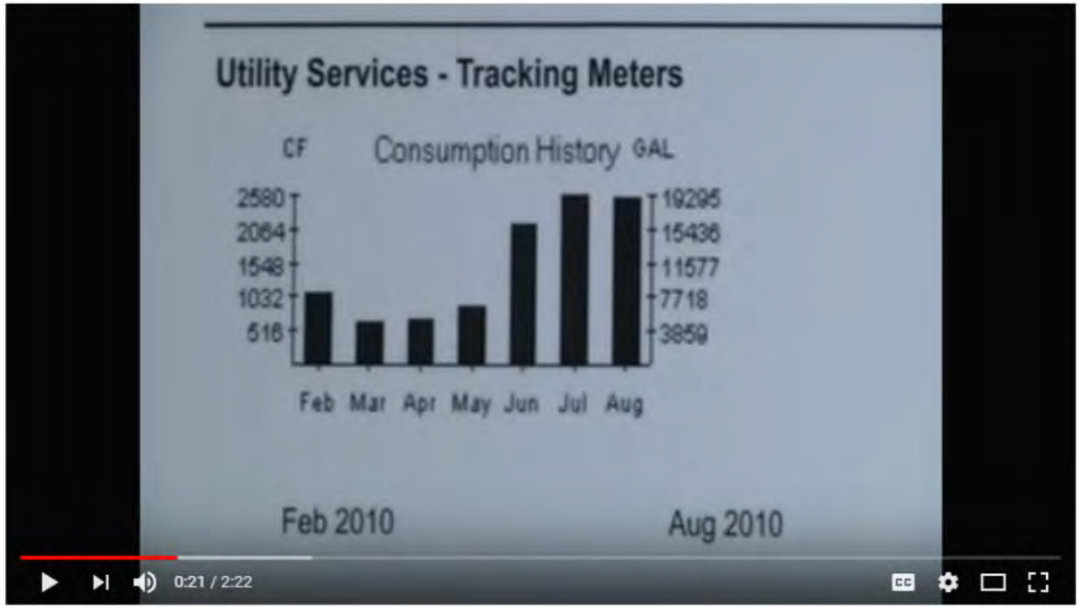
Supporting their customer-focused approach of
Future" Lakewood Water District has announc
asbestos cement water pipes over the next fifty
years old and nearing the end

The District's R & R (Replacement and Reha
Lakewood Water District customers continue to
of the lowest rates in



YouTube Educational Videos





How to Read Your Water Bill

Social Media

- Reach more customers
- Get message out quickly

Lake Whatcom Stormwater Utility Public Meeting April 18

Program Specialist from Whatcom County · 6 Apr

Whatcom County Public Works is hosting a public meeting to discuss the Lake Whatcom Stormwater Utility Service Area on Wednesday, April 18, 6:30 p.m. at the Bloedel Donovan Park Multipurpose Room, 2114 Electric Ave., Bellingham, WA 98229. Property owners in the unincorporated portion of the Lake Whatcom watershed are encouraged to attend to learn about this new service area and upcoming funding plan process. City of Bellingham residents already pay a stormwater utility fee and will not be affected by this new stormwater utility for Whatcom County.

For additional information visit http://whatcomcounty.us/2830/Lake-Whatco....

Whatcom County is reaching out to Lake Whatcom watershed residents that use Nextdoor through our new public agency Nextdoor account. As a public agency, we can send you notices about programs, meetings, and services applicable to your neighborhood but cannot access your neighborhood feed.

Lake Whatcom Stormwater Utility | Whatcom Coun...
Information on the Lake Whatcc
WHATCOMCOUNTY.US

6 Apr · Subscribers of Whatcor

THANK 6 REPLY

Nextdoor

Whatcom County PWA @WhatcomCoPWA · Apr 18

Whatcom County Public Works is hosting a public me
Whatcom Stormwater Utility Service Area on TODAY a
Bloedel Donovan Park Multipurpose Room, at 2114 El
release: bit.ly/2JnWI5G

1 1

Whatcom County Public Works

April 13 ·

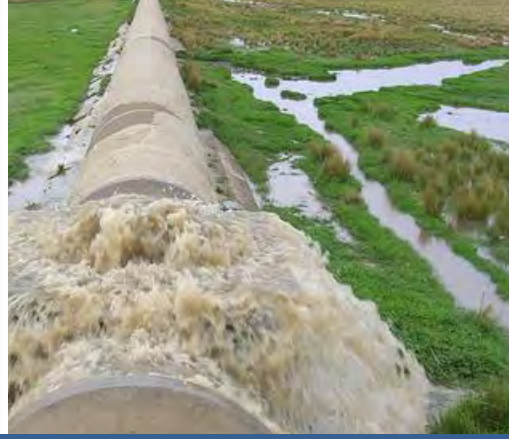
Whatcom County Public Works is hosting a public me e
Lake Whatcom Stormwater Utility Service Area on W ,
6:30 p.m. at the Bloedel Donovan Park Multipurpose ic
Ave., Bellingham, WA 98229.

Property owners in the unincorporated portion of the Lake Whatcom watershed are encouraged to attend to learn about this new service area and upcoming funding plan process.

Link to press release: http://whatcomcounty.us/DocumentCenter/View/33627

WHATCOMCOUNTY.US
whatcomcounty.us

Like Comment Share



Pictures can work for the public as well…

Easy to Understand Newsletters

City of Ferndale Utility Newsletter

This newsletter provides an update on current events for the City's water, sewer, and stormwater services.

Did you know:

4,800: The number of homes and businesses served by City of Ferndale water, sewer, and stormwater utilities.

365 / 24 hours a day: Delivery of utility services does not stop and requires a large network of pipes, water reservoirs, pressure reducing valves, and pump stations. This network must operate year-round to ensure water is available on demand and to safely convey wastewater away from your homes for treatment.

1907: Year the first documented city utility infrastructure was installed. The majority of the City's utility infrastructure was constructed in the 1950's and 70's to accommodate the population boom triggered by the arrival of the nearby refineries. Much of this infrastructure is still in use today.

As the City's utility system ages, failures such as water line breaks, intrusion from tree roots, and general operating failures are expected to occur with greater frequency.

131 miles: This is the combined length of water and sewer pipe in the City. Ferndale employs a team of 22 maintenance workers that monitor

Below are some facts about each of Ferndale's utilities.

WATER UTILITY:

Miles of water main: 73
Pump stations: 4
Water reservoirs: 2
Pressure Zones: 6

STORMWATER UTILITY:

Miles of storm pipe: 70
Pump station: 1
Number of culverts: 453
Number of city storm retention ponds: 23
Miles of open ditches to maintain: 60

What is the City doing to ensure utility costs are as low as it can be?

City utilities are a basic public service, much like police and fire. It is fundamental to human health, welfare and community development.

To that end, we ensure that utilities are operated responsibly and that the infrastructure to deliver these services is well maintained and operating properly.

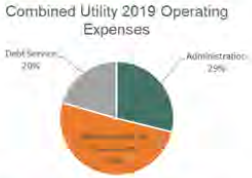
Photo: Well Pump House

What are our major utility projects and how will they be paid for?

Major projects on the horizon include expanding the City's wastewater treatment plant and the City's water treatment facilities. Both facilities have reached their operational limits.

Recent engineering evaluations have determined that the City's aquifers are being reduced at a rate faster than anticipated. The City has already taken steps to construct a new well tapping a separate aquifer to ensure there is no shortage of water on the horizon. We will continue to look at ways to protect the City's aquifer and ensure it is sustainable in the long-term.

Where does our utility money go?



How do we ensure growth pays for growth in the utilities?

The City assesses a connection charge on new customers who connect to the utility system. As a portion of the upcoming rate study, the City will review the charges imposed on new customers who connect to the system.

How do our monthly utility bills compare to neighboring jurisdictions?

Note: *Bills are monthly, assuming 11 ccf of bimonthly water usage, 11 ccf of bimonthly sewer usage*

How is our water treated to ensure it is safe for cooking and drinking?

The City's wells produce groundwater that meets and exceeds the standards of all State and Federal regulations. Because the groundwater is hard (an annoyance and aesthetic issue for the public) it is delivered directly to the City's water treatment plant where it is treated via greensand filtration and reverse osmosis before being delivered to the public. The City is constantly monitoring the water to make sure your water is always safe for drinking and cooking.

Why did we move to well water rather than draw water from the river?

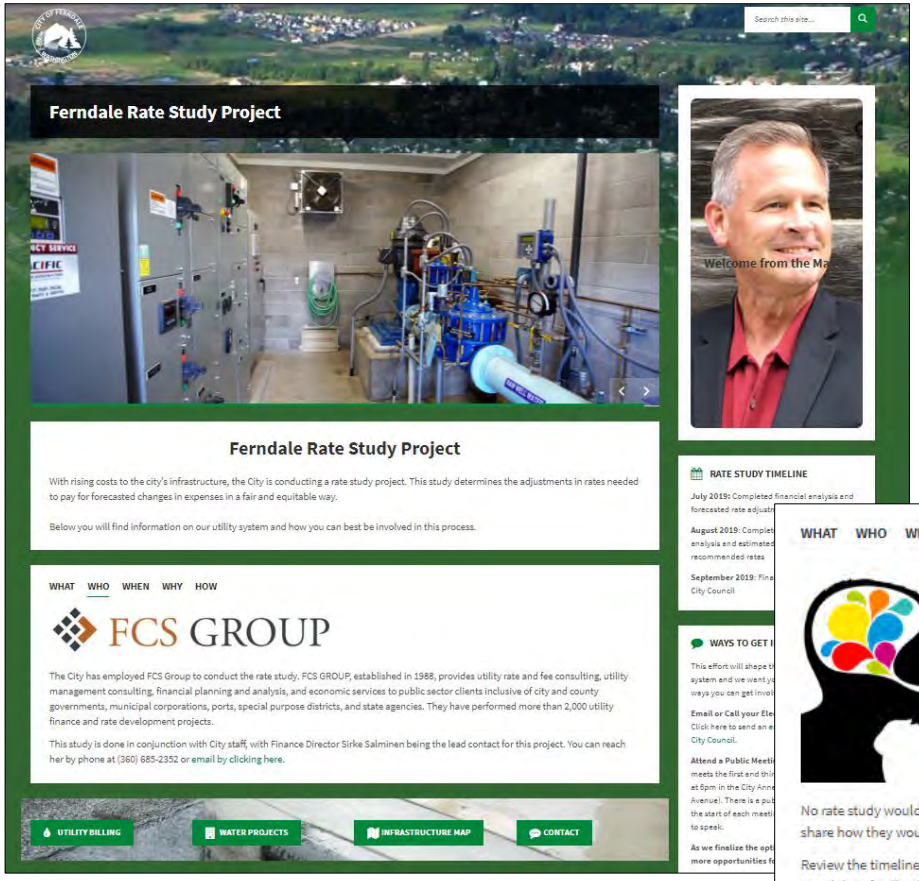
Prior to December of 2011, the City purchased its water supply from the Public Utility District No. 1 of Whatcom County (PUD). The PUD pumped water directly out of the Nooksack River and provided primary treatment to remove river sediment. For several reasons, the City concluded that shifting its source of water supply to groundwater was the best financial decision. The City then proceeded to develop its own groundwater sources, the Shop Well and Douglas Well.

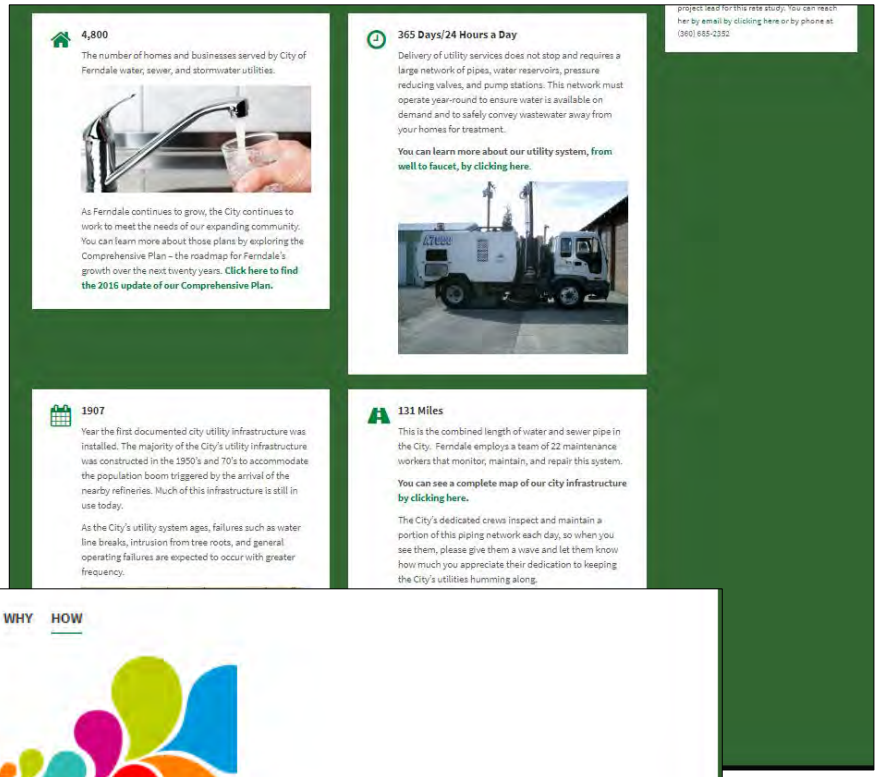
For more information about your utility bill, please call 360-384-4269.

Photo: Reservoir 1

Photo: Reverse Osmosis Unit

Proactive Online Communications





Informative Articles

Why Is It Costing More To Provide Water?

There are several elements that affect the cost of the city's water system; one of the primary fact
majority of the water system w
1960s and is now approaching
The need to replace these pip
replacement program. The w
up the largest portion of the
In addition, construction
the demand from th

water District, and the purchase of our water makes up 30 percent of the utility's costs. These water costs are also rising faster than the rate of inflation.

Fee revenues (fees paid by new developments)
years due to the slow

Rates Support Clean, Safe and Reliable Wat

The city takes the business of providing clean, safe and reliabl
to you as one of our highest priorities. New water rates were

Clean, Safe,
Reliable Water...

Click Here to Learn
More About Your
Water Rates

Water rates pay for the replacement of aging pipes that caused a water main break and two sink holes in January.

Utility FAQs

How are wastewater rates determined in Lacey?

Rates are determined by balancing the Lacey Wastewater Utility's anticipated costs for capital and ope needs with the expected number of customers and their wastewater production. Anticipated costs inclu power, supplies, salaries and benefits, as well as major projects like the construction of new wastewate and upgrades to wastewater infrastructure like pipes, valves and pump stations, all of which enable La safely collect and deliver wastewater to a nearby LOTT Clean Water Alliance Wastewater Treatment Pl maintain a safe community.

Rate adjustments are then leveled out over several years to avoid large annual fluctuations and to prov customers with consistent adjustments that they can more readily incorporate into their own budgets. any rate increase is adopted, the Council solicits public comment and holds public hearings as part of th budget process.

Who will be affected by the changes in wastewater rates?

All City of Lacey wastewater customers will experience the same proportionate rate changes.

How and when will my wastewater bill change?

The average monthly residential wastewater bill in Lacey is currently $17.30. The current proposal is to increase rates over the next 5 years, starting January 1, 2015. The increase to the monthly bill would be 2015.

Example

Changes expected to the average monthly in-city residential wastewater potion of the utility bill over th years:

	2014	2015	2016	2017	2018	2019
Total bill for wastewater:	$17.30	$18.04	$18.81	$19.61	$20.44	$21.31
Total increase from previous year:		***$0.74***	***$0.77***	***$0.80***	***$0.83***	***$0.87***

For more information about your bill or how the City of Lacey wastewater rates are structured, visit www.ci.lacey.wa.us/water-rates or call Lacey Utility Billing at 360-491-5616.

What will this rate change help fund?

The money collected by the City through customers' monthly bills is used to maintain, repair, and replace existing infrastructure. In Lacey, there are 210 miles of sewer line, 48 sewer pump stations, 8 odor control facilities and 16,400 service connections. The utility will be rebuilding its system reinvestment fund, which provides funding to replace and rebuild aging infrastructure that has reached the end of its useful life. This will help ensure the long-term reliability of the City's existing infrastructure and reduce the potential for emergency repairs. These changes are also needed to offset general inflation of day-to-day operating expenses.

Can the City finance some of its capital projects to reduce the impact to rates?

Yes, the City plans to utilize Municipal Bonds to cover a portion of the City's wastewater financing. Current bond rates are about 5%.

There are Pro's and Con's to financing large capital projects. Financing allows the costs to be spread out over

THURSTON COUNTY
WASHINGTON
SINCE 1852

Proposed 2017 -2018 Utility Rate Changes

Frequently Asked Questions

PUBLIC WORKS
An Accredited Agency of the
American Public Works Association

How are utility rates determined?

Utility rates are calculated by distributing the expected annual cost to maintain and operate the utility over the number of customers within the service area. These costs include a wide range of services, including:

- facility equipment,
- maintenance of existing facilities and pipes,
- power to run the facilities,
- lab and testing fees,
- training for operators, and
- build utility reserves to help fund future water and sewer infrastructure needs.

Utility rate adjustments are generally spread over several years to avoid large increases. If rates are not periodically adjusted, they may not provide enough funding to meet system needs and could potentially impact water quality.

When will changes take effect?

The Board of County Commissioners will hold a public hearing to solicit public comments on the proposed rate increases. The hearing is being held

Tuesday, November 1st
5:30 p.m.
County Courthouse, 2000 Lakeridge Drive SW, Olympia
Building 1, room 280.

After the public hearing the Commissioners will make a final decision. If approved, the rate increases will take effect on January 1st of each year (2017 and 2018).

What will the new revenue be used for?

Revenue from utility rates are used to pay for a wide range of utility needs. It provides funds for

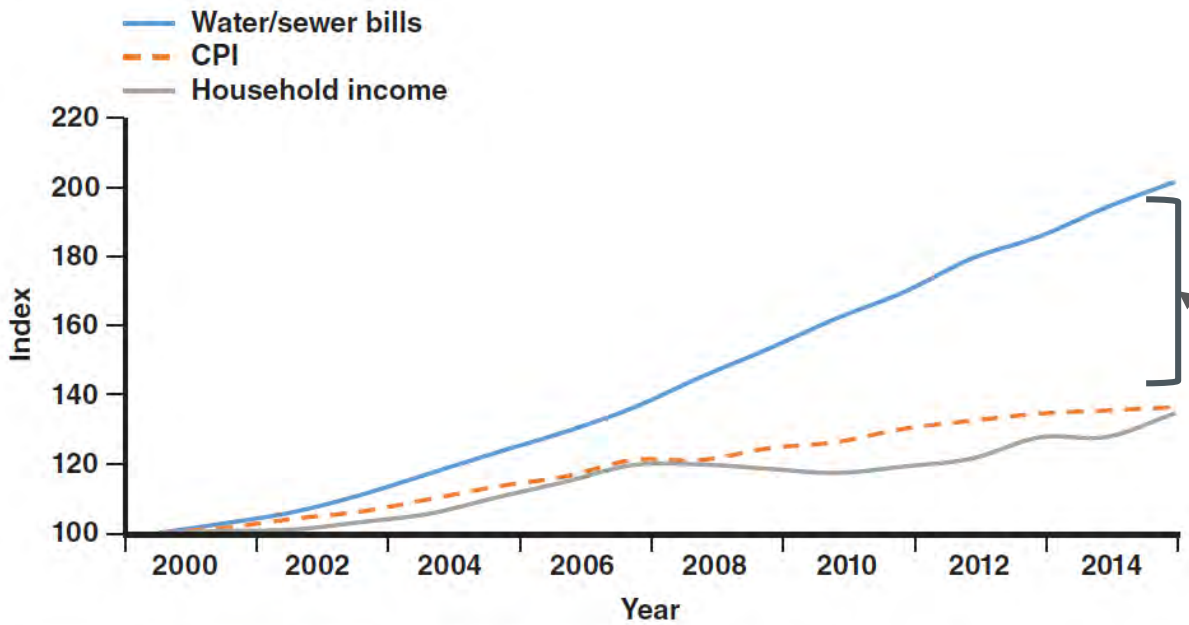
- trained operators,
- repair and replacement of critical components
- preventative maintenance, and
- help fund construction of water and sewer facilities.

Addressing the Affordability Question

- Part of educating and involving the public is helping to address the issue of affordability
  - Can customers pay for utility bills without jeopardizing other necessities such as food, shelter, etc.
- Washington State: Public Works Board benchmark
  - Rates 2% or greater of the median household income (MHI)
  - Not on whether consumers will pay for utility service, but on whether consumers can pay for utility service
- **Alternate 'lens': How many hours at minimum wage required** to pay for utility bill?

Root Cause of Water/Sewer Affordability Concerns

FIGURE 1 Growth in key inflation and income measures, 2000–2015



Sources: US Bureau of Labor Statistics 2016a, 2016b; US Census Bureau 2016

CPI—consumer price index

Potential reasons why rates increasing faster than CPI:

- Aging Infrastructure
- Regulatory Compliance

How to Address Affordability?

Reduce revenue requirement

- Create efficiencies to reduce operating cost
- Low-interest or no-interest loans instead of revenue bonds

Revenue neutral programs

- Level-payment programs

Non-revenue neutral programs

- Partial or full forgiveness
- Hardship and or leak adjustments
- On-going bill assistance (50% low-income disc.)

Details for On-going Assistance Programs

Utility discounts for low-income residents

- Discounts on total bill
- Discounts on fixed basic charge only
- Billed only after certain use (>500 cubic feet)

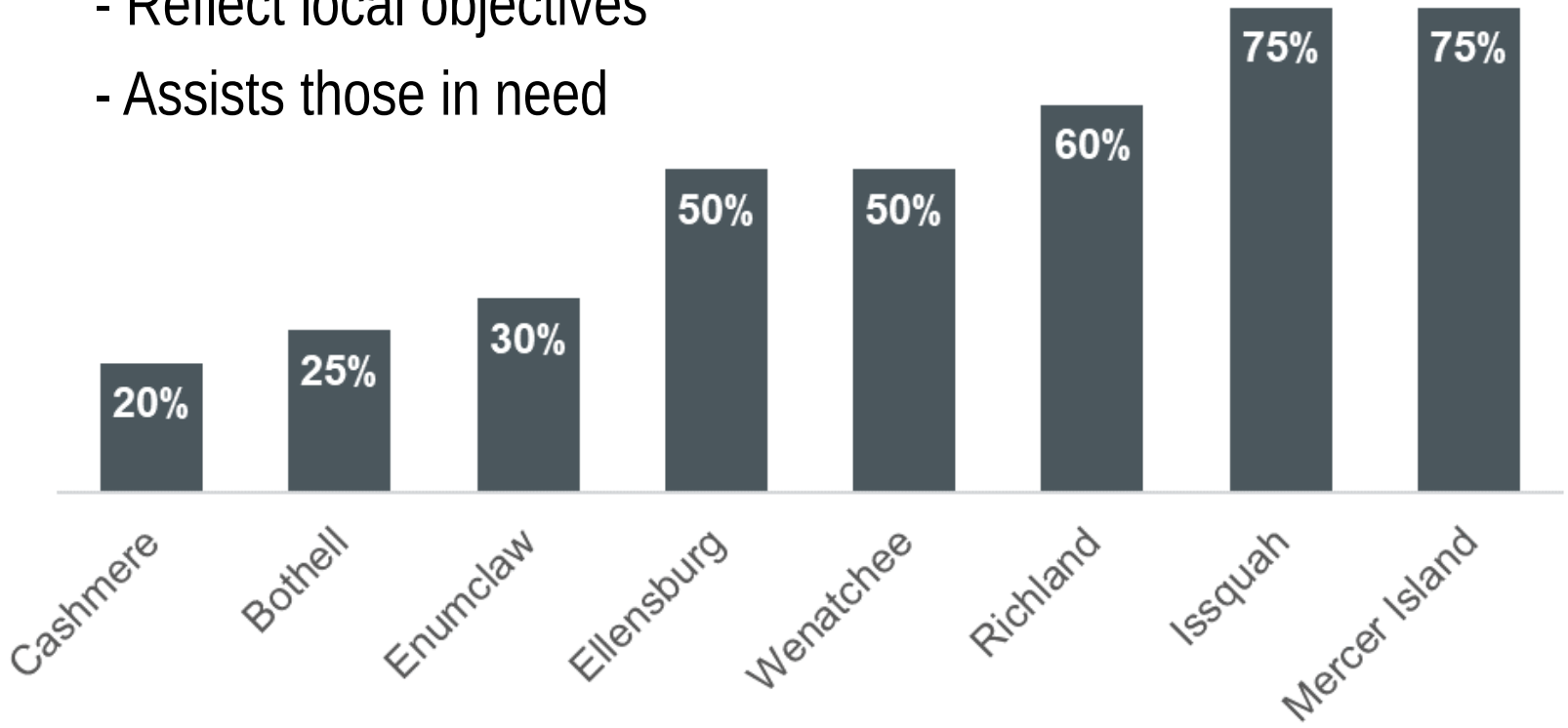
How will program costs be recovered?

- General fund
- Voluntary customer contributions
- Outside agency administered / non-profits

Consider administration costs & participation rates ★

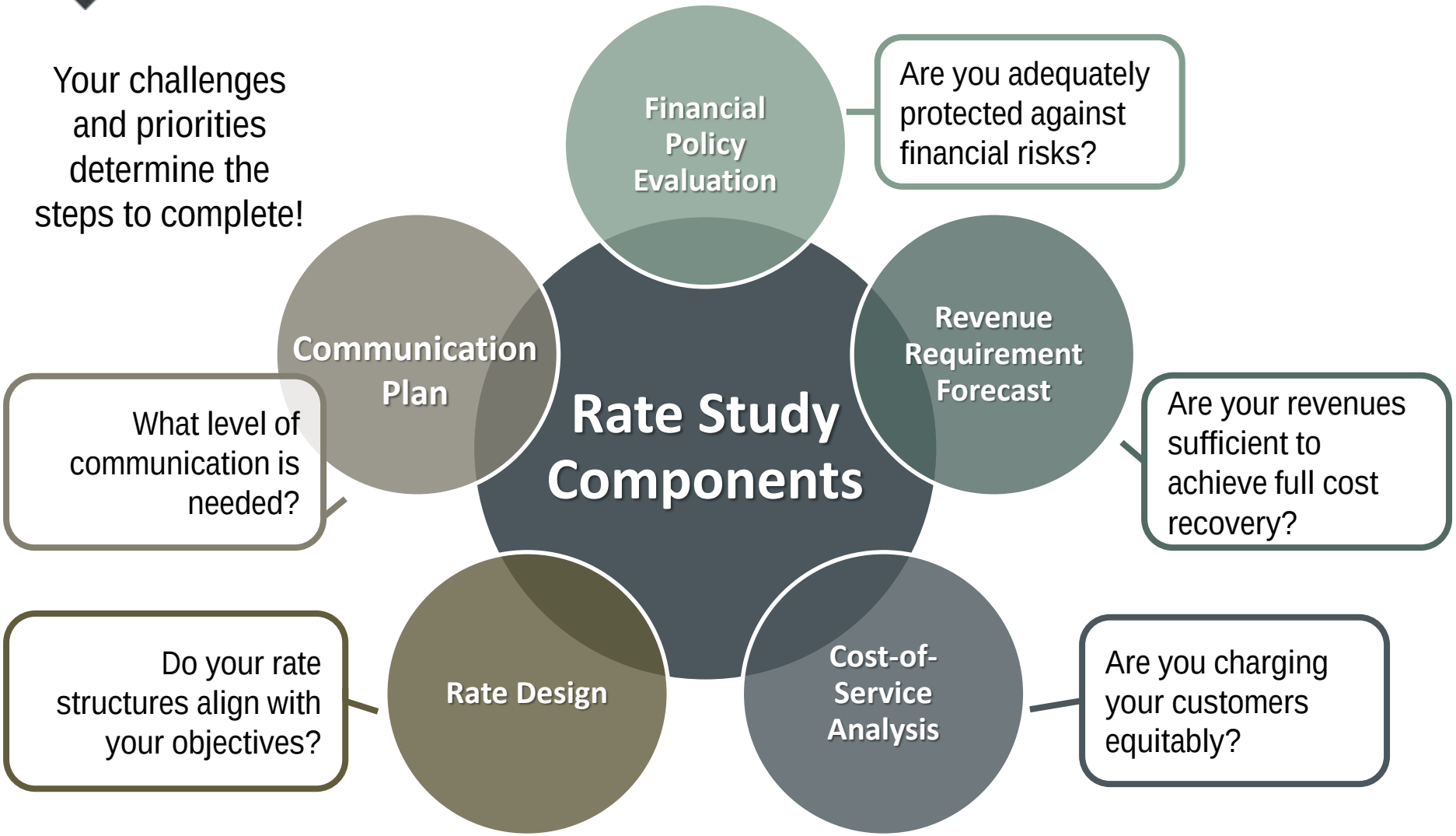
Utility Rate Discount Survey

- Policy is matter of local preference
  - Wide variability
  - Reflect local objectives
  - Assists those in need

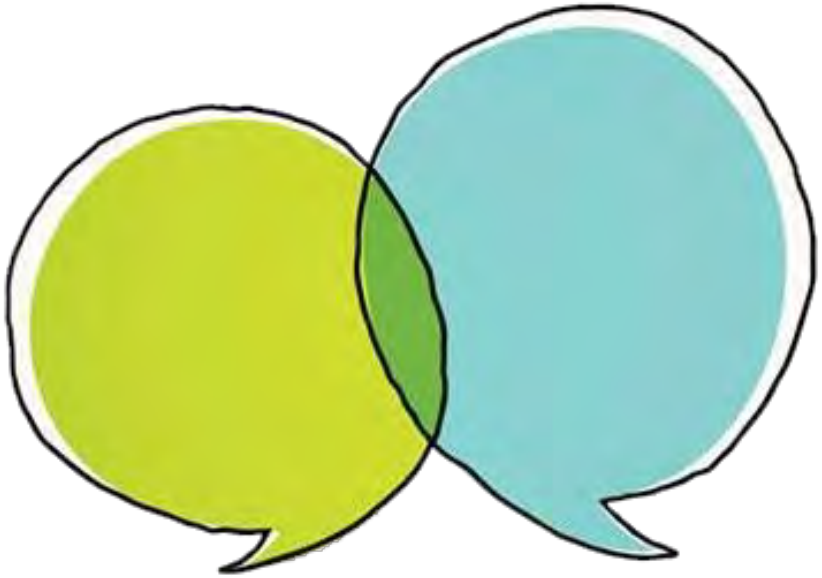


Summary

Your challenges and priorities determine the steps to complete!



Questions and Discussion



Tage Aaker
Project Manager
tagea@fcsgroup.com
425.615.6487 direct

Chase Bozett
Senior Analyst
chaseb@fcsgroup.com
425.615.6235 direct

Contact FCS GROUP:
(425) 867-1802
www.fcsgroup.com

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Capital Funding Impacts

KEY RATE COMPONENTS	
	Operating & Maintenance
+	Debt Service
+	Replacement Reserve Funding
=	Revenue Requirement
-	Miscellaneous Revenue
=	Revenue from Rates

FUND BALANCE	
	Beginning Balance
-	Target Balance (days O&M)
=	Available for Capital

CAPITAL FUNDING	
	Total Capital Projects
-	Contributions (grant/developer)
-	Development Charges (SDCs, GFC)
-	Replacement Reserve Funding
-	Cash Reserves
=	Debt Funding (loans/bonds)

No Asset Inventory?

- Questions to get started
  - What do we own?
  - Where is it?
  - What did it cost to acquire?
  - What will it cost to replace it?
  - What condition is it in?
  - How long will the asset last?

- Have single, authoritative source of asset information
  - Most small to medium sized cities have various database sources
  - E.g. hydrants, water, and collection mains in GIS
  - E.g. treatment plants, pump stations, vehicles in accounting database or Excel

- Identify the authoritative group or person in charge of updating inventory

Example from AWWA

Example Calculation of Rehabilitation and Replacement Needs	Service Life	Original Cost	Annual RRF (Original Cost ÷ Service Life)	Replacement Cost	Annual RRF (Repl. Cost ÷ Service Life)
Source of Supply Plant					
1 Wells and Springs	30 yrs.	$ 710,000	$ 20,000	$ 2,560,000	$ 90,000
2 Supply Mains	60 yrs.	$ 1,340,000	$ 20,000	$ 3,760,000	$ 60,000
Pumping Plant					
3 Structures and Improvements	30 yrs.	$ 1,430,000	$ 50,000	$ 6,490,000	$ 220,000
4 Pumping and Power Production Equipment	25 yrs.	$ 2,080,000	$ 80,000	$ 3,050,000	$ 120,000
Water Treatment Plant					
5 Structures and Improvements	30 yrs.	$ 550,000	$ 20,000	$ 2,100,000	$ 70,000
6 Sand or Other Media Filtration Equipment	30 yrs.	$ 250,000	$ 10,000	$ 260,000	$ 10,000
Transmission and Distribution Plant					
7 Distribution Reservoirs and Standpipes	50 yrs.	$ 950,000	$ 20,000	$ 1,770,000	$ 40,000
8 Transmission and Distribution Mains	80 yrs.	$ 12,070,000	$ 150,000	$ 40,940,000	$ 510,000
9 Services	30 yrs.	$ 6,990,000	$ 230,000	$ 12,290,000	$ 410,000
10 Meters	20 yrs.	$ 2,850,000	$ 140,000	$ 5,400,000	$ 270,000
11 Hydrants	45 yrs.	$ 1,990,000	$ 40,000	$ 3,530,000	$ 80,000
General Plant					
12 Computer Equipment	4 yrs.	$ 50,000	$ 10,000	$ 30,000	$ 10,000
13 Transportation Equipment	10 yrs.	$ 590,000	$ 60,000	$ 710,000	$ 70,000
14 Tools, Shop and Garage Equipment	20 yrs.	$ 240,000	$ 10,000	$ 300,000	$ 20,000
15 Power Operated Equipment	15 yrs.	$ 470,000	$ 30,000	$ 710,000	$ 50,000
16 Communication Equipment	10 yrs.	$ 120,000	$ 10,000	$ 170,000	$ 20,000
17 SCADA Equipment	10 yrs.	$ 1,470,000	$ 150,000	$ 450,000	$ 50,000
Total		$ 34,150,000	**$ 1,050,000**	$ 84,520,000	**$ 2,100,000**

Source: Cash Reserve Policy Guidelines ||| Copyright 2018 American Water Works Association (AWWA)

Critical Asset Assessment

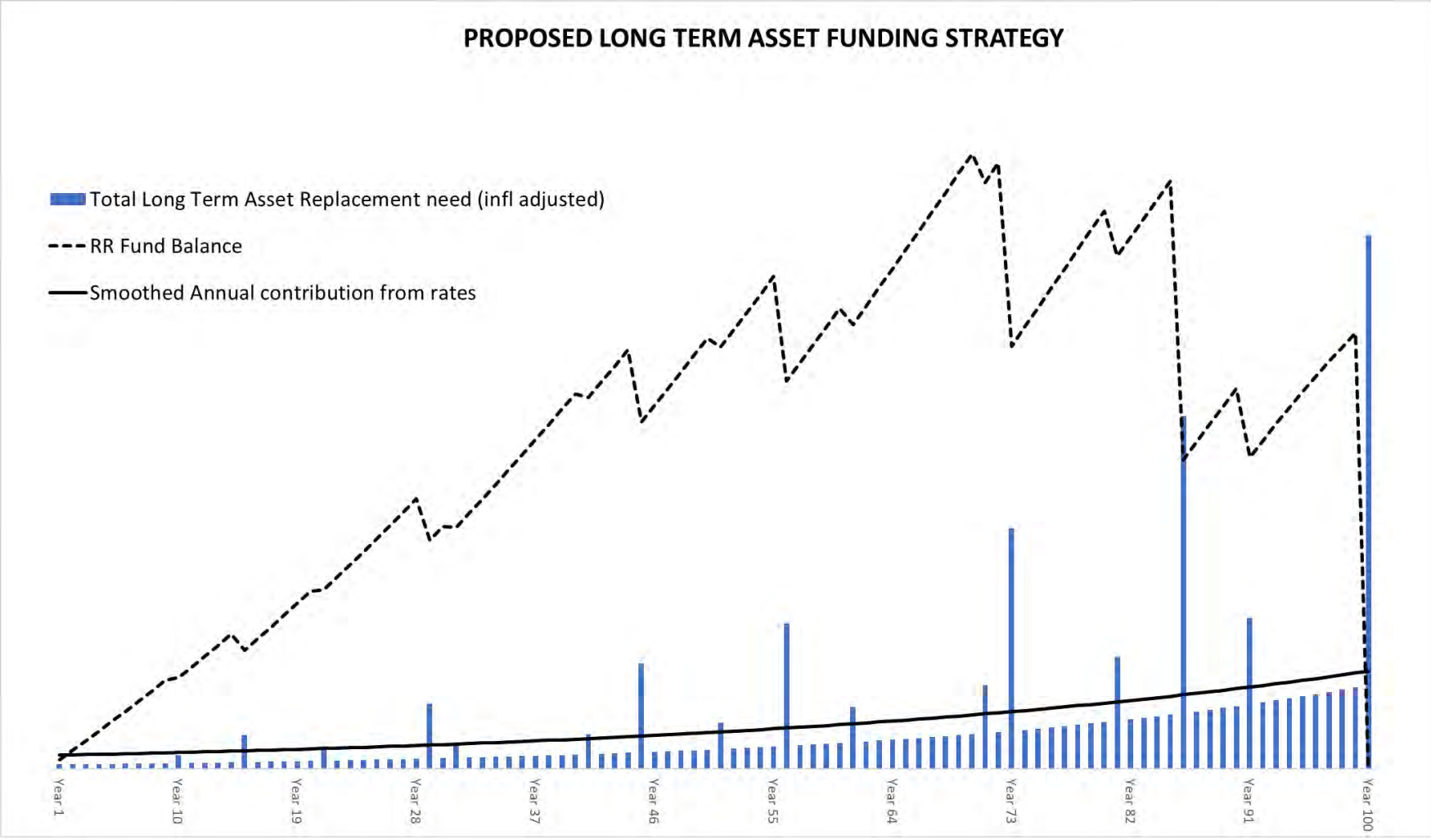
Critical Assets

Those assets that are likely to result in a more significant financial, environment and social cost in terms of impact on organizational objectives.

Critical = High Consequence of Failure


Population Growth
Regulatory Requirements
Stakeholder Initiatives
Catastrophic Failures
Competing Demands
Lack of Processes and Systems
Increasing Expectations
Aging Infrastructure
Organization

Long Term Asset Replacement Model



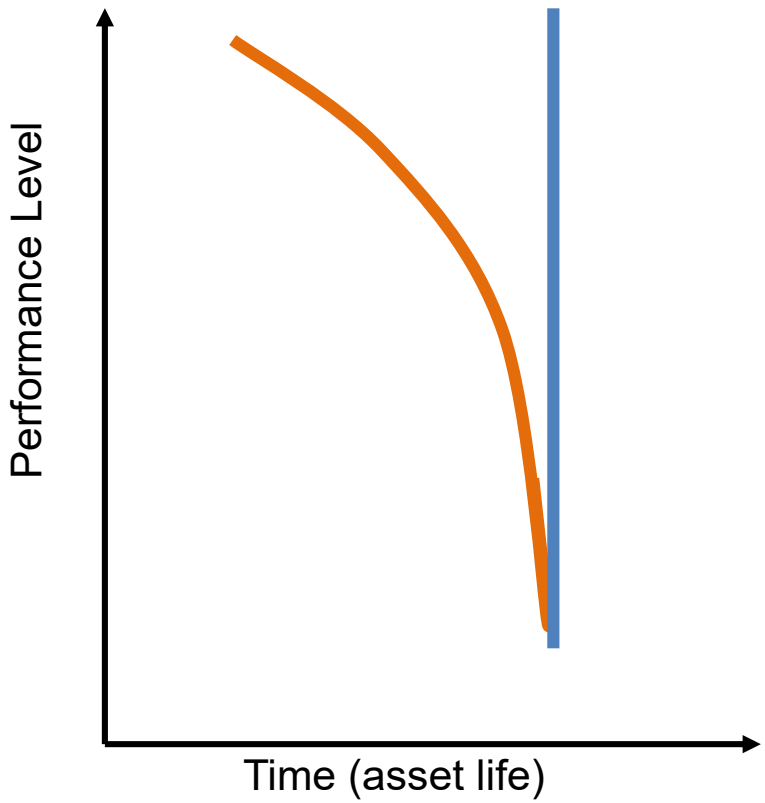
Critical Asset Assessment contd.

Plant Consequence of Failure Example

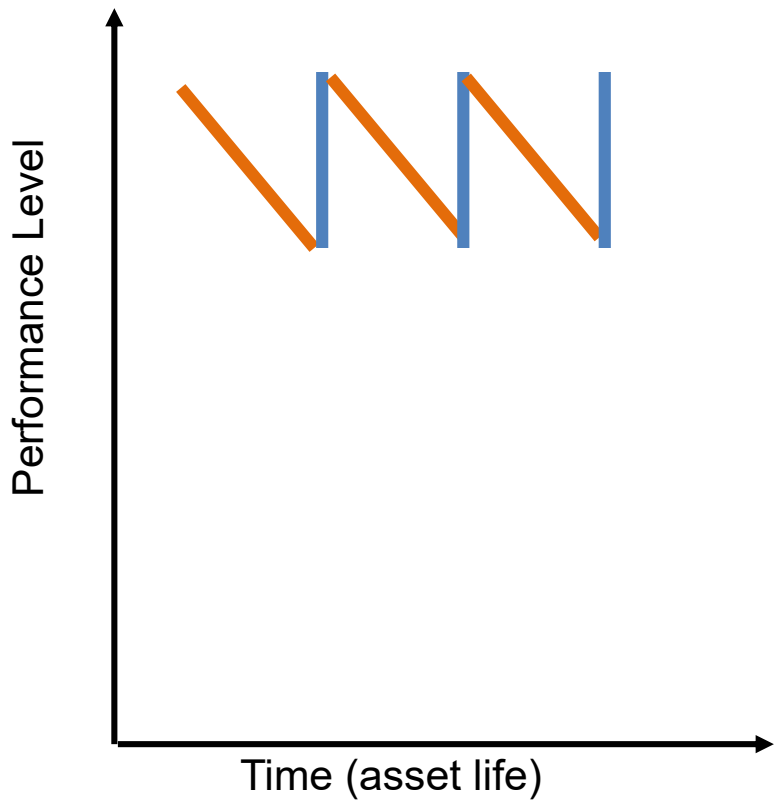
Criteria	Definition	1 - Low	3 - Moderate	5 - High
Public & Employee Safety	Failures that may result in injury to citizens or employees.	No injury	Minor injury	Serious injury or death
Regulatory Compliance	Failures that may result in violation of environmental regulatory requirements.	No violation	Potential violation	Violation(s)
Cost of Failure	Total cost to repair or replace assets and return to pre-failure conditions.	Cost handled through cost center budget	Cost handled through Operations budget	Cost requires Board approval
System Disruption	Failures that may impact upstream or downstream system(s).	Single system disruption	Adjacent systems disruption	Facility-wide disruption
Public Impact	Failures may impact multiple customers and/or involve media coverage.	Few customers and no media coverage	Many customers and no media coverage	Many customers and media coverage
Time to Repair	Time to repair or replace assets and return to pre-failure conditions.	Less than 1 week	Less than 3 months	Greater than 3 months

Adjust O&M Plans to Mitigate Risk and Optimize Capital and O&M Budgets

Traditional Approach



Asset Management Approach (Lifecycle Rehab & Replacement)



Example Water Fixed and Volume Rate Recovery

Fixed Charges

$ per meter equivalent

Addresses revenue stability

Typically recovers costs for:

- Customer/account servicing
- Meters & services repair / maintenance
- Fire protection services
- Portion of peak demand

Volume Charges

$ per unit of water use

Addresses equity & conservation

Typically recovers costs for:

- Base use (average annual usage)
- Portion of peak demand

Guideline for cost recovery = 40% fixed charges / 60% volume charges

Typically higher fixed charge portion for small systems or systems experiencing seasonal influx of tourists

Policy in Action – City of Ferndale WA

City of Ferndale, Washington

City of Ferndale
Financial Management Policies
Element #7

GENERAL UTILITY POLICIES

The City will establish enterprise funds (i.e. – utility funds) when the following condit

1. The intent of the City is that all costs of providing service should be fin primarily through user charges, and
2. The fund purpose will be to account for City-operated utility services.

Fiscal Stewardship – It is incumbent on utility fund management that complete and a management of utility operations be provided to allow management to make prudent f

Self-sufficient Funding – Each utility shall remain a self-supporting enterprise fund. of each utility fund comes from customer charges based upon established rates. State that utility funds be only used for utility purposes. Since each utility has somewhat di areas, it is essential for rate payer equity that they are kept financially separate and acc

Comprehensive Planning Policies – Comprehensive Plans for Water and Sewer Utilit completed or updated every six (6) years, using a 20-year planning horizon or greater considering life-cycle costs to identify funding needs. Comprehensive Storm, Flood, Water Plans will be completed and updated as required using similar criteria for plann infrastructure needs.

Capital Investment Program Policies – The Utilities CIP will provide sufficient funds variety of sources for implementation of both short-term and long-term capital project each Comprehensive Plan and the City-wide CIP as approved by the City Council.

Funding Levels – Funding for capital investments shall be sustained at a level sufficie projected 20 year capital improvement needs as outlined in the Comprehensive Plan(s on-going source for future capital improvement needs shall be from Capital Connectio

GENERAL UTILITY RESERVE POLICIES

It shall be the policy of the City of Ferndale to have two (2) separate utility reserve funds Operating Reserve Fund that will be included in beginning/ending fund balance within t fund and a Capital Reserve Fund that will be a separate fund from the utility fund.

Realizing that funding for both the Operating Reserve Fund and the Capital Reserve Fun from rate revenues as well as other sources, the management of the utilities and the resul customer rates and other charges will need to be sufficient to cover: A) current year oper B) current year contributions to Operating Reserves, and C) current year contributions to Reserves.

UTILITY OPERATING RESERVE POLICIES

Operating Reserve Fund These reserves shall be carried as beginning and ending cash investments and as such, will become part of the annual determination of total resources for appropriation. Setting aside these budgeted resources in the fund's beginning/ending balance will help ensure continued rate stability and will protect utility customers from s disruptions that might otherwise result in unforeseen economic or emergency events.

The operating reserves are defined in terms of the following three (3) separate componen

- Working Capital Reserve – Used to accommodate normal cyclical fin fluctuations within the bimonthly billing cycle and during the budget having a Working Capital Reserve within beginning/ending fund bala assure the utilities ability to fully pay all vouchers submitted for payn timely basis.
- Operating Contingency Reserve – Protects against adverse financial p due to variations in revenues or expenses. Since utility revenues are related to variations in water demand, an Operating Contingency Rese the financial health of the utility brought about by unforeseen change demand.

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City of Ferndale, Washington

- Plant Emergency Reserve – Provides financial resources for protection against system failure at some reasonable level. This reserve component of beginning/ending fund balance is not meant to provide funds to recover from a major disaster (flood, earthquake, etc.) but is rather embedded in fund balance to provide funds in the event of a major break or component failure.

Operating Reserve Levels – The following Operating Reserve minimums and targets are established for the three (3) components listed above:

- Working Capital Reserve – A minimum of one (1) month's average utility expenses and a target of three (3) month's average utility expenses is set for this component.
- Operating Contingency Reserve – A minimum of (1) month's average utility expenses and a target of two (2) month's average utility expenses is set for this component.
- Plant Emergency Reserve – A minimum of (1) month's average utility expenses and a target of two (2) month's average utility expenses is set for this component.

Management of Operating Reserves – A working range of operating reserves is established with a minimum and maximum target level. Management of reserves will be based on the level of reserves with respect to the following thresholds. The primary source of operating reserves shall be rate revenue.

- Above Target – Operating reserve levels will be reduced back to the target level by transferring excess to the Capital Reserve Fund or modifying the utility rates.
- Between Minimum and Target – Rate increases would be imposed sufficient to ensure that: 1) operating reserves would not fall below the minimum; and 2) operating reserves would recover 50% of the shortfall from target levels in a normal year.
- Below Minimum – Rate increases would be imposed sufficient to ensure that even with adverse financial performance, operating reserves would return to at least the minimum at the end of the following year. To meet this "worst case" standard, a year of normal performance would be likely to recover operating reserve levels rapidly to target levels.