



# Funding Methodologies and the Importance of Utility Reserve Funding



Martin Chaw, FCS GROUP  
February 10, 2021



# What Are We Talking About?



**The cash a utility or agency has on-hand**



**The cash used when annual revenues are not sufficient in meeting annual expenses**



**The cash being saved for unanticipated current needs**



**The cash being saved for future needs**



# CPE KEY WORD LETTER #1 OF 5

V



# Topics



**Purpose of, and  
need for cash  
reserves**



**Types of reserves and  
their benchmarks or  
targets:**



Operating  
Capital  
Special



**Concepts in  
reserve  
management**

# Setting Reserve Targets

**Identifying appropriate levels of accumulated cash and designating discrete purposes for those fund balances**





# Why Target Reserve Levels?



Provides a basis for financial performance and budgeting



Improves ability to weather financial disruptions



Recognizes special circumstances in terms of revenues and/or expenses that are unique



Improves upon “rule of thumb” levels that may lead to undue financial risk or unnecessary cash balances



## Why Target Reserve Levels? (cont.)



Recognizes that needs change over time as:

- Underlying cost structures change
- Rate structures change
- Other revenues change
- Policies change (e.g., water conservation)



Provides a clear relationship to the “cost of service” for rate-setting





# Types of Financial Reserves



## Operating Reserves

- » Working capital
- » Operating contingency
- » Rate stabilization

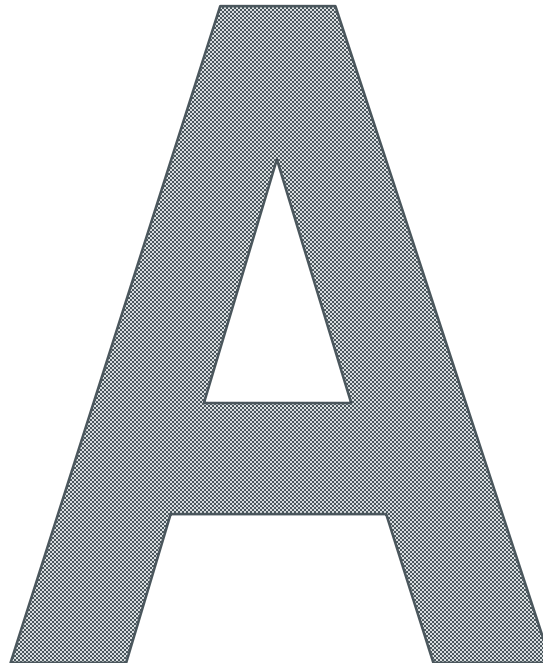
## Capital Reserves

- » Plant emergencies
- » Capital contingency
- » Sinking funds
- » Debt/Bond





# CPE KEY WORD LETTER #2 OF 5



# Operating Reserves

**Maintaining financial viability despite variability in revenues and expenses – both planned and unplanned**



# Working Capital



**Provides for  
fluctuations in  
revenues and  
expenses**



**Short-term  
fluctuations**



Monthly/bimonthly variation in  
revenue caused by billing cycles  
Monthly variation in expenses, such  
as payroll and debt service transfers  
Timing of corresponding revenues  
and expenses, such as wholesale  
services



**Fluctuations in  
annual revenue  
and expense  
cycles**

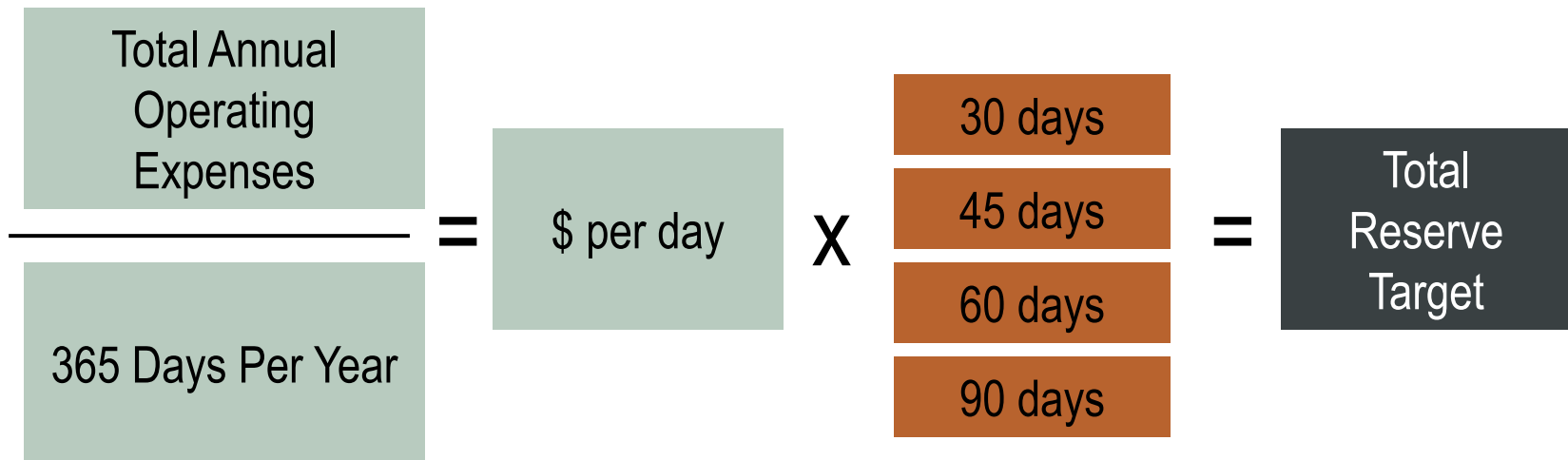


Seasonal revenues  
Construction cycles



## Working Capital (cont.)

Reserve target typically equals a “number of days,” such as 30, 45, 60, or 90 days



# Operating Contingency



**Provides a cushion in the event of poor performance against budget**



**Reduced revenues or uncertainty**



Weather  
Economic cycles



**Increased expenses**



Uncontrollable expenses, such as energy costs  
Changes in accounting practices



**Reserve target typically expressed as a percent of operating expenses, such as 5% or 10%**

# **Rate Stabilization**



**Provides a resource to manage the level of rates and rate increases despite fluctuation in needs from year to year**



**Intent is not to “buy-down” rate increases but to levelize them**



**Phase-in increases over time**



**Can also be used instead of, or to supplement, operating contingencies**



**Can be written into revenue bond covenants, such that use of reserves can help to meet coverage**



## Rate Stabilization (cont.)



**May have a reserve target or  
may simply be a holding  
account for surplus revenues**



Reserve target can be quantified:

- By historical usage patterns
- By analyzing risk in underlying characteristics of other cost structures
- By setting a percent of annual revenues

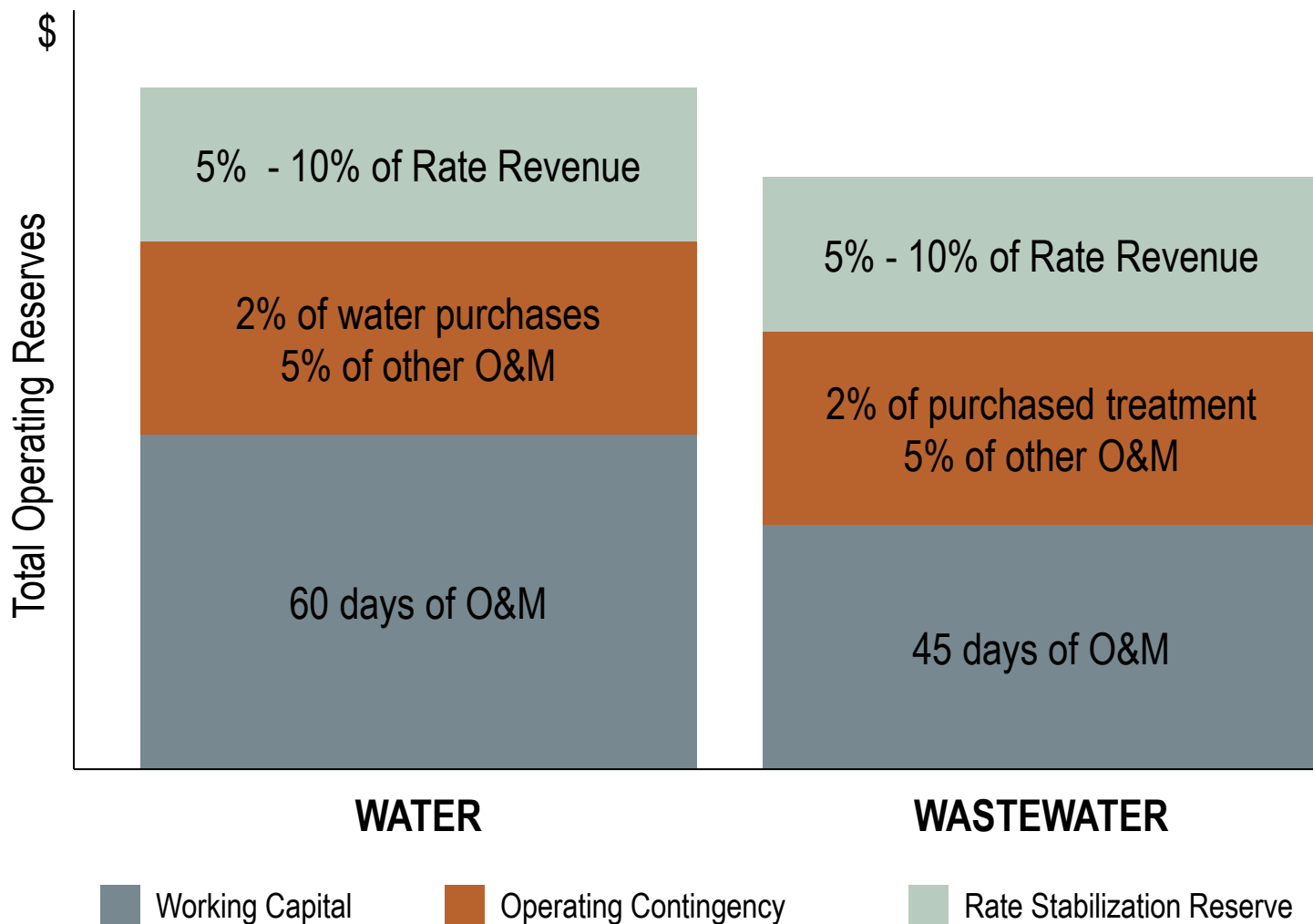


**Establishing and the ongoing  
management of this reserve  
should be accompanied by  
financial policies, a financial  
forecast and a rate strategy to  
replenish when used**





# Consolidated Operating Reserves



# Consolidated Operating Reserves

## STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS

### OPERATING REVENUES

RATE REVENUE	
OTHER CHARGES FOR SERVICES	
<b>TOTAL OPERATING REVENUE</b>	

### OPERATING EXPENSES

OPERATIONS & MAINTENANCE	
DEPRECIATION/AMORTIZATION	
OTHER OPERATING EXPENSES	
<b>TOTAL OPERATING EXPENSES</b>	

OPERATING INCOME (LOSS)

### WATER

7,500,000
<u>200,000</u>
7,700,000

5,500,000
2,100,000
<u>900,000</u>
8,500,000

(800,000)

## WORKING CAPITAL

Total Annual Operating Expenses	\$5,500,000	
Divided by 365 days per year		15,068
Multiplied by 60 days	904,100	
Multiplied by 90 days	1,356,200	

## OPERATING CONTINGENCY

Total Annual Operating Expenses	\$5,500,000	
Multiplied by 5%		275,000
Multiplied by 10%		550,000

## RATE STABILIZATION RESERVES

Rate Revenue	\$7,500,000	
Multiplied by 5%		375,000
Multiplied by 10%		750,000

\$904,100 to \$1,356,200

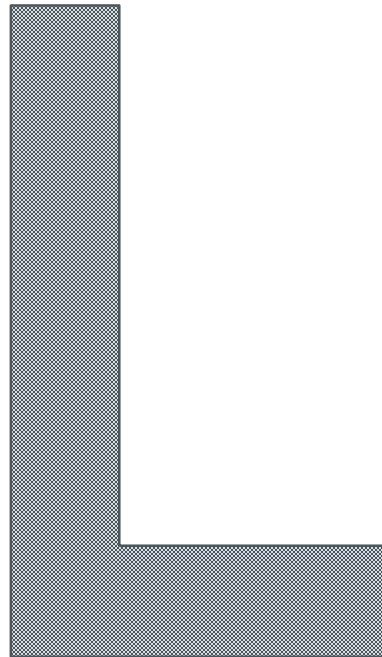
\$275,000 to \$550,000

\$375,000 to \$750,000

\$1,554,100 to \$2,656,200



## CPE KEY WORD LETTER #3 OF 5





# 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 conditions are met:

1. The intent of the City is that all costs of providing service should be financed 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 accurate management of utility operations be provided to allow management to make prudent financial decisions.

**Self-sufficient Funding** – Each utility shall remain a self-supporting enterprise fund. 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 different needs, it is essential for rate payer equity that they are kept financially separate and accounted for.

**Comprehensive Planning Policies** – Comprehensive Plans for Water and Sewer Utilities shall be 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, and Water Plans will be completed and updated as required using similar criteria for planning infrastructure needs.

**Capital Investment Program Policies** – The Utilities CIP will provide sufficient funding for a variety of sources for implementation of both short-term and long-term capital projects as outlined in 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 sufficient to meet projected 20 year capital improvement needs as outlined in the Comprehensive Plan(s). An on-going source for future capital improvement needs shall be from Capital Connection Fund.

### GENERAL UTILITY RESERVE POLICIES

It shall be the policy of the City of Ferndale to have two (2) separate utility reserve funds – an Operating Reserve Fund that will be included in beginning/ending fund balance within the utility 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 Fund must come from rate revenues as well as other sources, the management of the utilities and the setting of customer rates and other charges will need to be sufficient to cover: A) current year operating expenses, B) current year contributions to Operating Reserves, and C) current year contributions to Capital Reserves.

### UTILITY OPERATING RESERVE POLICIES

**Operating Reserve Fund** These reserves shall be carried as beginning and ending capital 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 fund balance will help ensure continued rate stability and will protect utility customers from disruptions that might otherwise result in unforeseen economic or emergency events.

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

- **Working Capital Reserve** – Used to accommodate normal cyclical fluctuations within the bimonthly billing cycle and during the budgeting process, having a Working Capital Reserve within beginning/ending fund balance to assure the utilities ability to fully pay all vouchers submitted for payment on a timely basis.
- **Operating Contingency Reserve** – Protects against adverse financial conditions due to variations in revenues or expenses. Since utility revenues are related to variations in water demand, an Operating Contingency Reserve is necessary to protect the financial health of the utility brought about by unforeseen changes in 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.

# Capital Reserves



**Identifying both current and future system needs and using cash-funding as one part of a financial strategy to best accomplish or address those needs**



## Key Policy Objective: Isolate & Protect Capital Resources



Provide a designated resource for emergency and ongoing system replacement



Provide funding for upgrades and expansion of the system



Ensure timely and appropriate use of debt



Establish a purpose for surplus fund balances



Reserve targets are based on policy direction and/or specific needs



Establish clear conditions for when/how to access funds and process for replenish

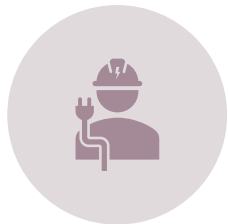
# Plant Emergency



Provides for significant failures of plant and equipment



Ability to fund an immediate response without financial disruption to other activities



Not intended to fund catastrophic losses, such as those from earthquake or major flooding



Consider relationship to insurance coverage or other general reserves



# Plant Emergency (cont.)

## Reserve target

- » Cost of a major repair or replacement:
  - Water main break
  - Fire at a sewer pump station



# **System R&R**



**Provides a resource for ongoing repair and replacement of the system**



**Duty to serve outlives the life of existing infrastructure**



**As utility system age, replacement can become a large component of capital needs**

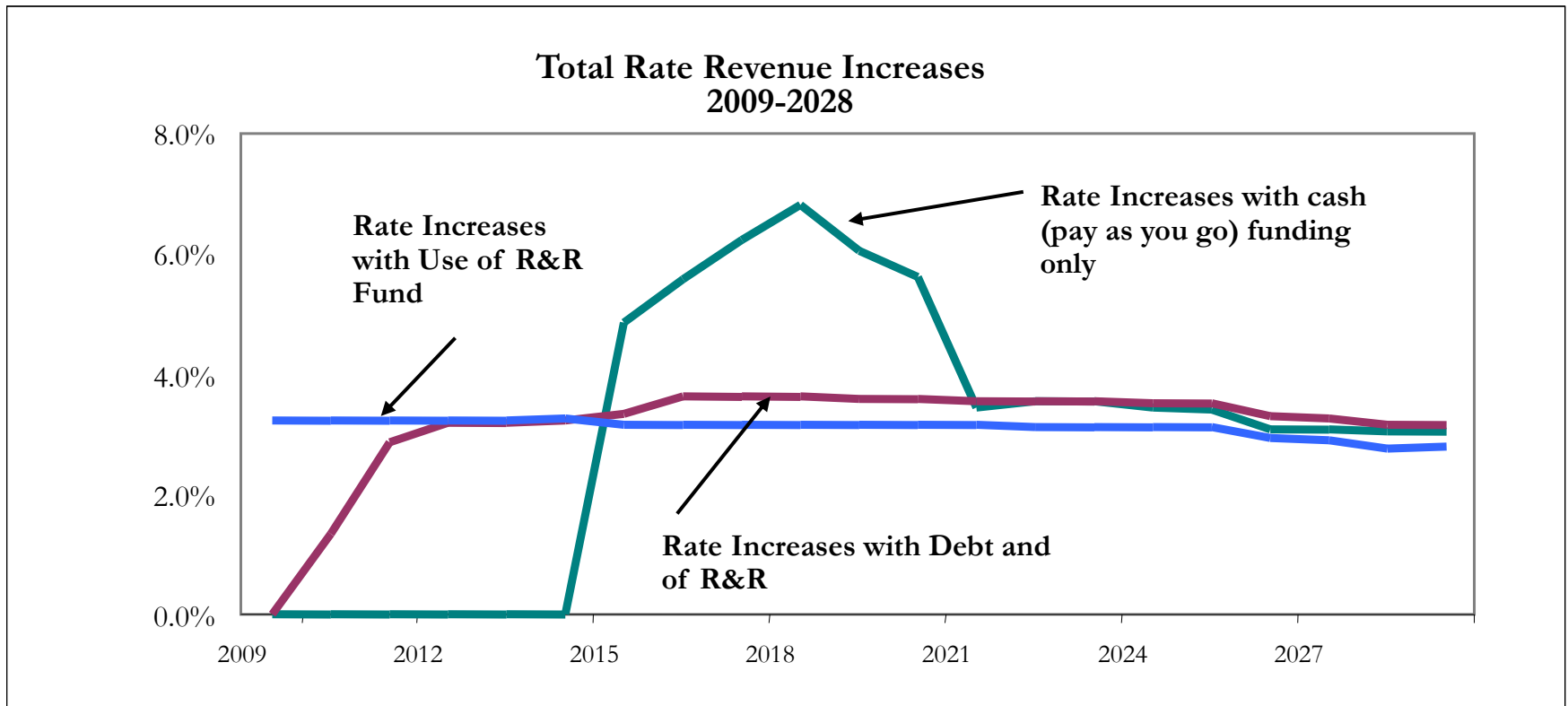
# System R&R – Consistently #1 Issue

**Table 3.** Top 10 issues facing the water industry as ranked by all participants, 2015–2019

Rank	2015	2016	2017	2018	2019
<b>1</b>	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure
<b>2</b>	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements
<b>3</b>	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	Long-term water supply availability
<b>4</b>	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	Public understanding of the value of water systems and services
<b>5</b>	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 resources	Watershed/source water protection
<b>6</b>	Watershed/source water protection	Watershed/source water protection	Watershed/source water protection	Watershed/source water protection	Public understanding of the value of water resources
<b>7</b>	Cost recovery (pricing water to accurately reflect its true cost)	Public acceptance of future water and wastewater rate increases	Emergency preparedness	Aging workforce / anticipated retirements	Groundwater management and overuse
<b>8</b>	Emergency preparedness	Water conservation/ efficiency	Cost recovery (pricing water to accurately reflect its true cost)	Public acceptance of future water and wastewater rate increases	Aging workforce/ anticipated retirements
<b>9</b>	Water conservation/ efficiency	Cost recovery (pricing water to accurately reflect its true cost)	Public acceptance of future water and wastewater rate increases	Emergency preparedness	Emergency preparedness
<b>10</b>	Compliance with future regulations	Groundwater management and overuse	Water conservation/ efficiency	Governing board acceptance of future water and wastewater rate increases	Cost recovery (pricing water to accurately reflect the cost of service)

# System R&R (cont.)

- Replacement needs are rarely uniform
- An R&R reserve can smooth the rate transition to a higher funding level



# System R&R (cont.)



## **Set rates to collect additional revenues designated to fund the R&R reserve**



“Capital reinvestment” contribution  
A level annual contribution to the R&R reserve



## **Approaches to funding the reserve**



Equal to annual depreciation expense of original system costs

- Minimum level that all systems should target  
Established to recover estimated replacement cost
- Typically set as a multiplier of annual depreciation expense



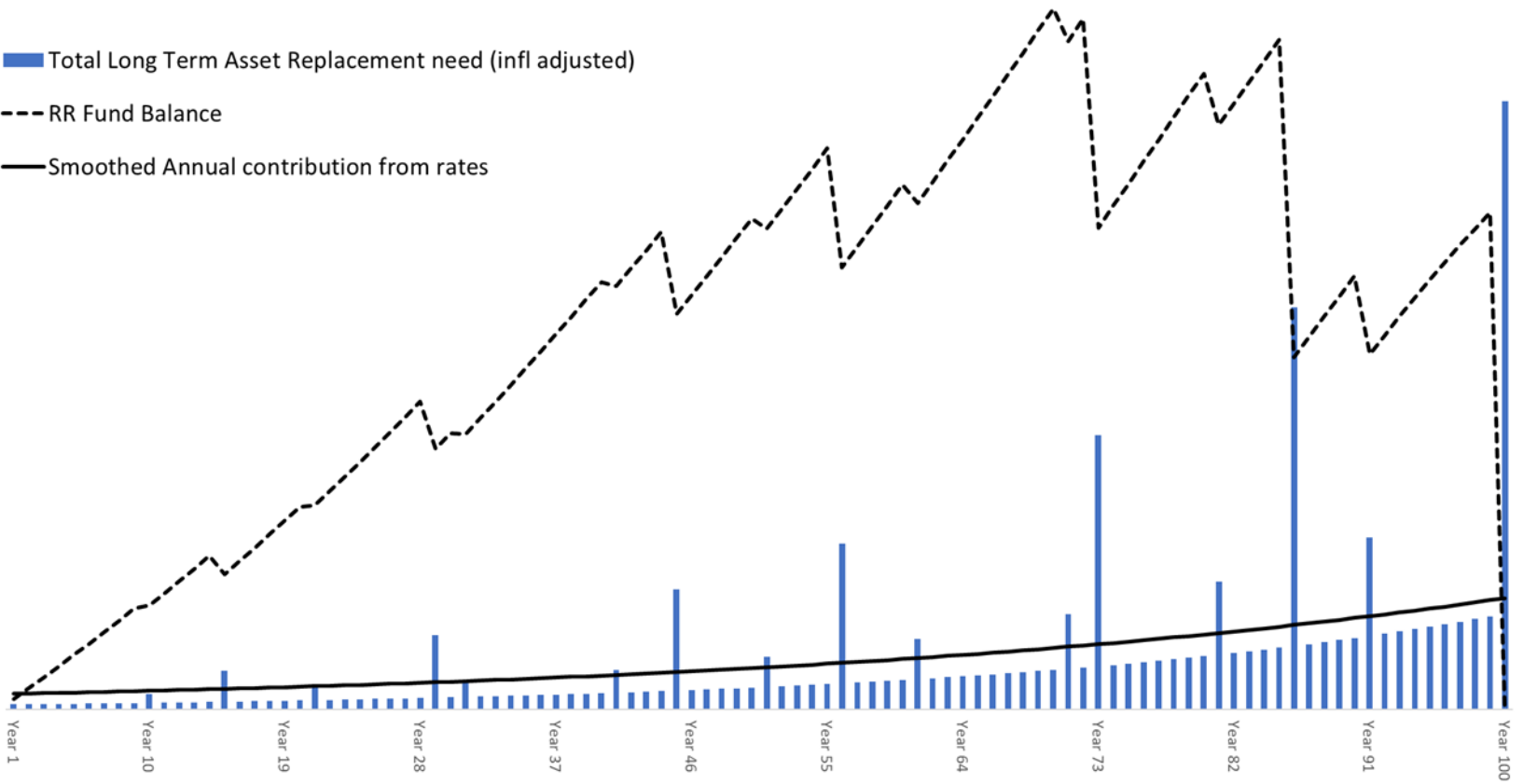
# Long-term R&R Funding Strategy

PROPOSED LONG TERM ASSET FUNDING STRATEGY

■ Total Long Term Asset Replacement need (infl adjusted)

--- RR Fund Balance

— Smoothed Annual contribution from rates





## CPE KEY WORD LETTER #4 OF 5

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# Policy in Action – City of Bellevue

WP0459C-ORD  
06/27/95

ORIGINAL

CITY OF BELLEVUE, WASHINGTON

ORDINANCE NO. 4783

AN ORDINANCE creating utility capital replacement accounts for the Water, Sewer and Storm and Surface Water Utilities within the Utility Capital Investment Fund for the purpose of accumulating funding for long term replacement of utility facilities.

WHEREAS, the Utilities 1995 Cost Containment Study prepared by Financial Consulting Solutions Group, Inc. (FCSG) recommends that current utility rates recover from the ratepayers amounts which at a minimum are equal to the depreciated value of the original cost of utility facilities and at a maximum are amounts equal to the replacement value of utility infrastructure; and

WHEREAS, FCSG recommends that utility funds not needed for current expenditure be placed in a replacement account to be used in the future in combination with current revenues and/or debt financing to replace capital facilities nearing the end of their useful life; and

WHEREAS, implementation of FCSG's recommendations would promote intergenerational rate equity and provide more stable rates to customers over the long term; and

WHEREAS, the Council desires to make an initial, 1995 deposit of \$600,000 in savings from the Water Fund into the new capital replacement account for the Water Utility; now, therefore,

THE CITY COUNCIL OF THE CITY OF BELLEVUE, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. The purpose of this ordinance is to establish capital facilities replacement accounts within the Utility Capital Investment Fund in order to assure a future funding source for replacement of utility facilities nearing the end of their useful life. The City Council will determine each year, as part of the adoption of the utilities operating budgets, how much, if any, utility revenue during the upcoming year shall be designated for transfer to a replacement account. The City Council may also authorize the receipt of other funds directly into these capital facility replacement accounts. Once deposited the funds will accumulate with interest. The decision regarding when and how to utilize such accumulated funds for the replacement of utility facilities will be made as part of the Utility Comprehensive Plans and Utility Capital Investment Program approval process.

WP0459C-ORD  
06/27/95

ORIGINAL

Section 2. The following new accounts are established in the Utility Capital Investment Fund:

Capital Facilities Replacement Account - Sewer  
Capital Facilities Replacement Account - Water  
Capital Facilities Replacement Account - Storm and Surface Water

Section 3. There is hereby authorized the 1995 transfer from the Water Utility Operating Fund to the Capital Facilities Replacement Account - Water the amount of \$600,000.

Section 4. This ordinance shall take effect and be in force five days after its passage and legal publication.


PASSED by the City Council this 27th day of July, 1995, and signed in authentication of its passage this 27th day of July, 1995.

(SEAL)

  
Donald S. Davidson, DDS, Mayor

Approved as to form:

Richard L. Andrews, City Attorney

  
Richard L. Kirkby, Assistant City Attorney

Attest:

  
Myrna L. Basich, City Clerk

Published July 28, 1995

# Capital Contingency



**Provides a cushion for unexpected cost increases in the capital program**



**Useful for systems undergoing intensive capital improvement programs (CIP)**



**Reserve target typically based on:**



**% of average annual capital program (5 to 10 yrs)**

**1% to 2% of system fixed assets**



**Consider underlying cost estimates in the CIP to avoid doubling-up on contingencies**

# Sinking Fund Reserves



**Sets funds aside on an ongoing basis to build reserves for known or anticipated major future capital projects**



**Mandated regulatory requirements (e.g., treatment processes)**



**Major future expansion for growth**



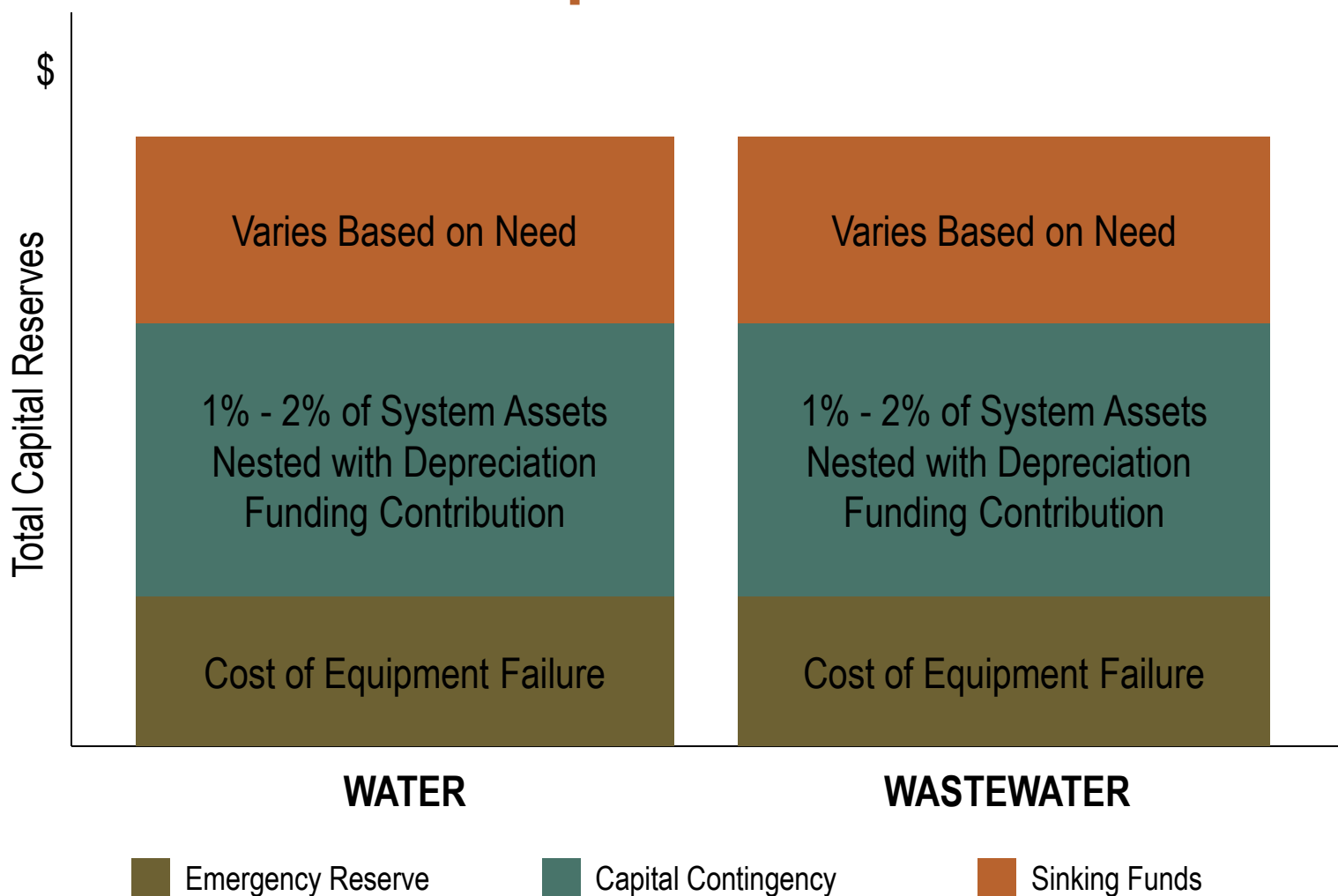
Accumulates growth-related connection charge revenues in combination with debt and/or rate revenues



**Other special needs**



# Consolidated Capital Reserves



# STATEMENT OF NET ASSETS

## ASSETS

### CURRENT ASSETS

CASH & CASH EQUIVALENTS	6,700,000
INVESTMENTS	3,100,000
RESTRICTED CASH	1,500,000
CUSTOMER ACCOUNTS/RECEIVABLES	750,000
INVENTORIES	250,000
TOTAL CURRENT ASSETS	12,300,000

### NON-CURRENT ASSETS

LONG TERM CONTRACTS/NOTES	-
CAPITAL ASSETS:	
LAND	900,000
BUILDING & EQUIPMENT	3,100,000
OTHER IMPROVEMENTS	81,500,000
CONSTRUCTION IN PROGRESS	900,000
TOTAL CAPITAL ASSETS	86,400,000
LESS: ACCUMULATED DEPRECIATION	(32,100,000)
TOTAL NET CAPITAL ASSETS	54,300,000

TOTAL NON-CURRENT ASSETS 54,300,000

TOTAL ASSETS 66,600,000

## STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS

### OPERATING EXPENSES

OPERATIONS & MAINTENANCE	5,500,000
DEPRECIATION/AMORTIZATION	2,100,000
OTHER OPERATING EXPENSES	900,000
TOTAL OPERATING EXPENSES	8,500,000

## STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET ASSETS

### OPERATING EXPENSES

OPERATIONS & MAINTENANCE	[1], [2]	5,500,000
DEPRECIATION/AMORTIZATION	[4]	2,100,000
OTHER OPERATING EXPENSES		900,000
TOTAL OPERATING EXPENSES		8,500,000

FCS GROUP

## PLANT EMERGENCY

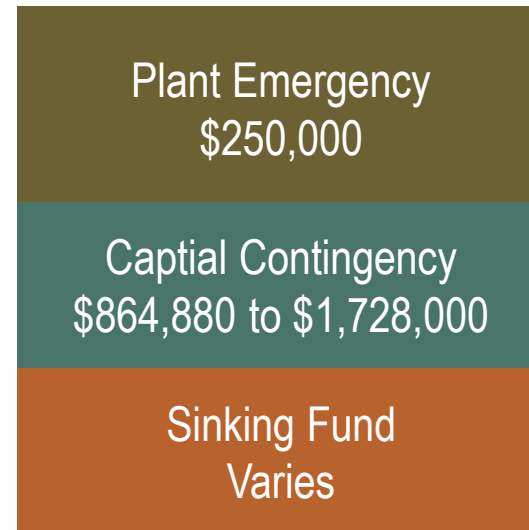
Cost of Equipment Failure Estimate \$250,000  
Varies

## CAPITAL CONTINGENCY

Total Operating Expenses \$86,400,000  
Multiplied by .01 864,000  
Multiplied by .02 1.728,000

IF NOT COVERED BY ANNUAL DEPRECIATION EXPENSE CONTRIBUTION

## SINKING FUND



\$1,114,000 to \$1,978,000

# Debt Reserve



**Established by  
covenant or  
agreement  
associated with  
revenue bonds or  
loans**



**Typically requires a  
reserve equal to one  
annual debt service  
payment be  
maintained for the  
entire term**



**Usually funded from debt  
proceeds**



**Insurance becoming  
a commonly-used  
alternative to  
maintaining a reserve**

# Reserve Management







# Impacts of Well-Crafted Reserves



**Lowers  
undesignated,  
potentially  
controversial,  
cash balances  
and identifies  
needs-based  
uses for cash**



**Allows rates to  
be less  
conservatively  
set**



Rates should be set  
based on average-year  
conditions

Monitor conservation,  
as it impacts revenues:  
Is it a short-term or  
permanent shift?



**Good reserve  
management  
helps to  
stabilize rates**



**Increases ability  
to continue full  
operations  
despite short-  
term or  
temporary  
financial  
fluctuations**



# Implementing & Adjusting Reserves



**Incorporate  
reserve policies  
in adopted  
financial plans  
or budgets**



**Reserves are  
there to be used**



Static reserves are  
unnecessary



**Replenishing  
reserves**



Take your time to avoid  
rate shocks  
Perhaps set policies or  
“rules” on  
replenishment



**Using excessive  
reserves**



Avoid deficit budgets  
and look for one-time  
needs



# Summary

- **Reserves are an essential for long-term financial sustainability**
- **Used in determining credit rating for your utility**
- **Formal adopted policies important to guide and govern decision making**
- **Pay attention to rate structures and how rate structures may affect reserve planning**
  - » E.g. amount of debt and debt coverage requirements
  - » Conservation based rates and greater volatility in higher levels of water usage



# CPE KEY WORD LETTER #5 OF 5

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# Thank you!

## Questions?

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