



The Impossible Dream

What it is and why no one has it...

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April 12, 2025

Discussion Outline



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- Why are we talking about this?
- Concept of, and need for, Fiscal Sustainability
 - Hidden by traditional accounting
 - Counter to short term stakeholder interests
- How to assess Fiscal Sustainability
- So What? Implications and Next Steps
- Your comments and suggestions

Why are we talking about this?



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- Longstanding bad/terrible/atrocious financial discipline...
- Combined with higher inflation...
- ... and likely Federal and State funding cutbacks...
- Have led to a looming fiscal crisis..
- Both Nationally and Locally...
- Plus, our Infrastructure is in poor condition, and underfunded
- ... and recent State, Regional and local funding initiatives threaten to make things worse, some without realizing it
- So, we need a framework for analysis which highlights the implications of all the above, and helps prevent another Intergenerational Injustice...

Quiz: Cost of this Memorial Park Bench?



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➤ Your answer is:

A. \$1,000

B. \$2,500

C. \$5,000

D. INFINITE!

➤ Because it will have to be sanded, repainted, de-rusted, and re-built... forever.



Public Works Assets Are Perpetual



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- Because as long as our civilization survives, we will have to continue to provide the services those assets support:
 - Roads
 - Water
 - Sewer
 - Power
 - ... and more, maybe – Schools, Transit
- Thus, we have to fund them.... Sustainably

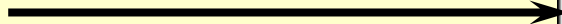

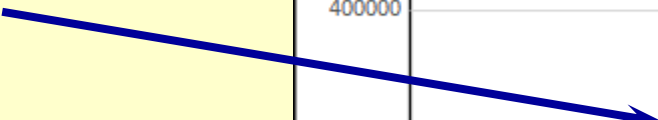
Definition of Fiscal Sustainability



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- *“Fiscal sustainability, or public finance sustainability, is the ability of a government to sustain its current spending, tax and other policies in the long run without threatening government solvency or defaulting on some of its liabilities or promised expenditures.”*
- In other words, to be able to provide essential services in perpetuity...

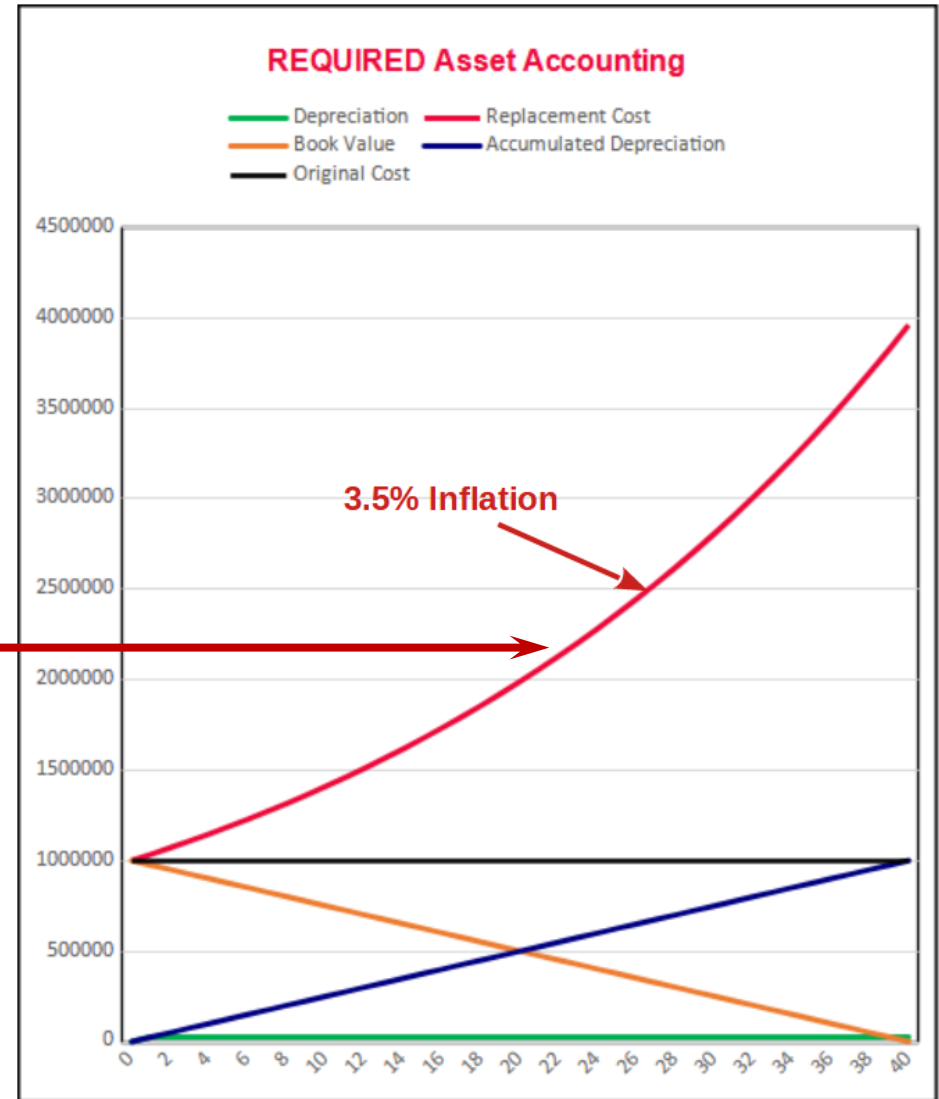
Current Accounting

1. Assets start at Original Cost... 
2. Each year Depreciation reduces the Book Value 
3. Accumulated Depreciation eventually reaches Original Cost at end of Asset Useful Life 



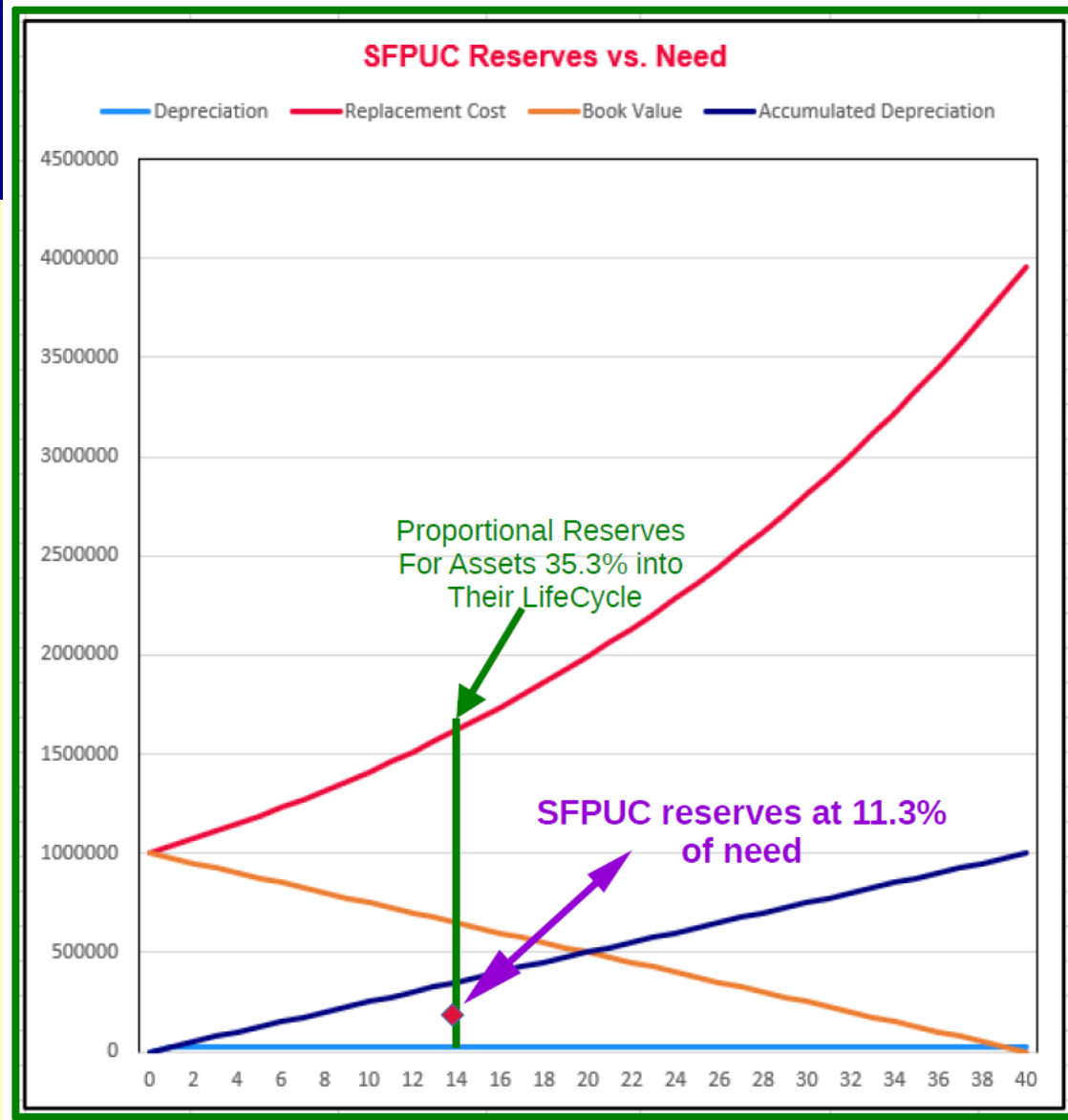
Reality: Accounting Is Deficient

- Over past 25 years, Public Works construction cost inflation has been ~3.6%
- The Replacement Cost of exhausted assets reaches 4X original cost after 40 years at 3.5%
- The 'expense' recorded by 'Depreciation' is far lower than required for Asset Replenishment



Example: SFPUC

- Most governmental bodies hold reserves FAR LOWER than required to replenish assets without borrowing.
- Political forces and lack of financial expertise allow this.
- SFPUC has a Reserve Deficit of \$6.7 Billion
- Thus, Borrowing at ~75% extra cost will be required as the assets are exhausted
 - *Recent bond rates may make this~100%...*



Who Says This Approach Is Correct?



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- The AWWA, several papers by professors, and some U.S. regulations.
- The clearest definition is from the reserve study industry which developed the National Reserve Study Standards in conjunction with Community Associations Institute (CAI).
- The authors of the standards defined the term “fully funded” as being “100 percent funded when the actual (or projected) reserve balance is equal to the fully funded balance. **The fully funded balance is the balance that is in direct proportion to the fraction of life “used up” for a given component.**”**

* <https://www.reserveadvisors.com/resources/blog/are-your-reserves-fully-funded/>

How Does This Happen?



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In 1974, we got 7/8ths of the money from the Clean Water Act, then we forgot we'd have to replace the plant.

- Quote from a founder of a local water and sewer agency, who does not want to be identified...

So, What Now?



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- Almost every governmental agency is behind on reserves
- Future generations will suffer from our lack of fiscal responsibility
- Very soon, Bay Area Transit Agencies will attempt to raise taxes and fees to cover for their losses and reserve deficits
- SHIFT will analyze transit and other agencies to determine whether the current infrastructure is worth preserving...
- ... or whether Alternative Agile and Affordable Transit makes more sense
- Then we'll research water, sewer, cities, and more...

What To Expect - A Hint...



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- Looking only at Capital Reserves, BART** has:
 - Reserves of 15.5% of what is required, thus...
 - A \$5.3 Billion deficit...
 - In addition to operating cost deficits...
 - Resulting in costs and GHG emissions higher than automobiles
- BART is cash flow negative, thus cannot accumulate reserves
- Borrowing to fund that deficit will add ~\$4 Billion in costs
- Thus: BART has capital costs of over \$9 Billion not reported in financial statements
- A more thorough SHIFT evaluation is coming...

**Based on 6/30 24 financial statements

Why Should We Care?



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**“The Ultimate Test of a moral society
is the kind of world
that it leaves to its children.”**

- Dietrich Bonhoeffer

Fiscal Sustainability



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**Your comments and
suggestions?**

The Approach: Understandable? Believable?
Desired Next Steps and Priorities?

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Supplemental Slides



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... Used in prior presentations to Cities and Public Works Districts in San Mateo County..

Methods of Funding Capital Assets



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- Reserve funds from operations, then replenish
- Borrow funds...
- Bail-out from governmental agencies...
 - ◆ e.g. Clean Water Act in 1973

"We got 7/8ths of the money from the Clean Water Act, then we forgot we'd have to replace the plant"

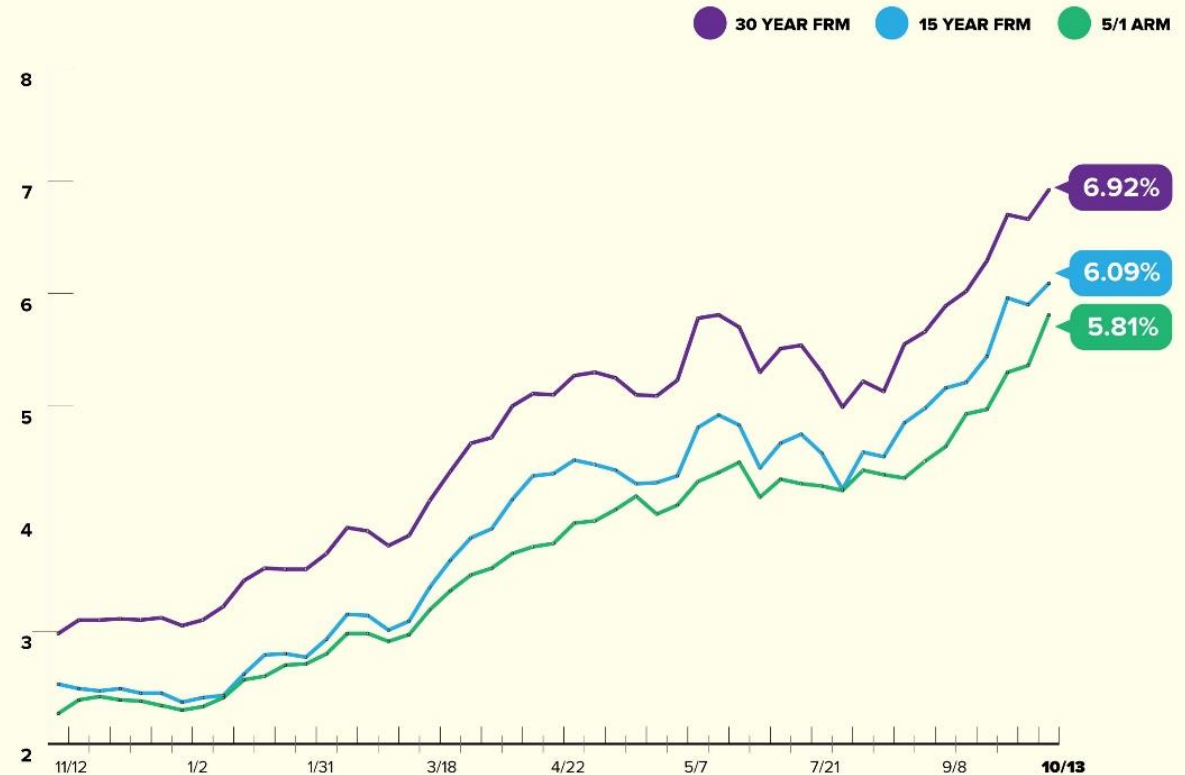
Borrowing Costs



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- In recent years, interest rates were at all-time lows.
- Recently, rates have risen markedly >
- Current borrowing rates add 84% to the cost of each asset financed.

Mortgage Rate Trends



SOURCE: Freddie Mac

Inflation

For the past couple of decades, public works construction costs inflated at about 3.5%

In California, recently inflation has spiked...

California Construction Cost Index 2021-2025

Month	2025	2024	2023	2022	2021
January			15% ←	8151 ←	7090
February				8293	7102
March				8736	7130
April			24.5% ←	8903 ←	7150
May					7712
June					7746
July					7892
August					8122
September					7900
October					8080
November					8141
December					8072
Annual % *					13.4%

*Annual Percentage is calculated from December to December.

AWWA Reserve Policy Insight (2018)

- Determine Replacement Cost
- Estimate remaining life
- Reserve pro rata amount each year

Example Calculation of Rehabilitation and Replacement Needs (in \$1,000)

Line No.	Asset Category	Original Cost	Current Cost*	Service Life (years)	Annual R&R (rounded)**
Source of Supply Plant					
1	Wells and Springs	710	2,560	30	90
2	Supply Mains	1,340	3,760	60	60
Pumping Plant					
3	Structures and Improvements	1,430	6,490	30	220
4	Pumping and Power Production Equipment	2,080	3,050	25	120
Water Treatment Plant					
5	Structures and Improvements	550	2,100	30	70
6	Sand or Other Media Filtration Equipment	250	260	30	10
Transmission and Distribution Plant					
7	Distribution Reservoirs and Standpipes	950	1,770	50	40
8	Transmission and Distribution Mains	12,070	40,940	80	510
9	Services	6,990	12,290	30	410
10	Meters	2,850	5,400	20	270
11	Hydrants	1,990	3,530	45	80
General Plant ***					
12	Computer Equipment	50	30	4	10
13	Transportation Equipment	590	710	10	70
14	Tools, Shop and Garage Equipment	240	300	20	20
15	Power Operated Equipment	470	710	15	50
16	Communication Equipment	120	170	10	20
17	SCADA Equipment	1,470	450	10	50
18	Total	\$34,150	\$84,520		\$2,100

* Current cost may be calculated based on multiplying an inflation factor to the original cost, based on the year of installation for each asset, or by engineering estimates of the current replacement cost.

** Annual rehabilitation and replacement amount is equal to the current cost divided by service life.

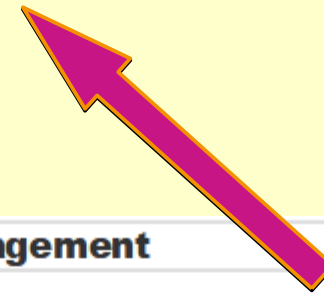
*** Any of these assets included in separate equipment replacement reserves should be excluded from the rehabilitation and replacement reserves.

Key Concepts Proposed



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- Must assess reserves against **current** replacement costs
- Must **reserve annually** based on replacement costs
 - ◆ (AWWA 2018 guidelines)
- Fitch Rating methods on use of depreciation
- Avoid borrowing costs, unless desperate
- Each ratepayer generation 'pays as it goes'
- Establish benchmark data



Capital Planning and Management

Metrics to Support Assessment

- Fitch calculates a ratio to measure the status of a utility's life cycle based on information from a utility's financial statements and typically over the most recent five-year period. The life cycle ratio is calculated as age of plant as the numerator divided by the sum of age of plant plus remaining useful life. Age of plant is calculated as accumulated depreciation divided by annual depreciation expense, while remaining useful life is calculated as net capital assets divided by annual depreciation expense. In cases where accumulated depreciation is not available, Fitch will calculate age of plant as follows: $45 - (\text{remaining useful life})$.

Determining Replacement Cost



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- **Three Methods:**
- Summary or "birds-eye view" method, *described herein*
- Detailed method
 - ◆ Update asset inventory values from when-purchased to current using public inflation indices for public works
- Thorough method
 - ◆ Update asset inventory values from when-purchased to current using public inflation indices for public works
 - ◆ Adjust remaining life based on asset condition audit and technology assessment, considering cost/benefit of replacement

Summary FS Assessment



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- Use public financial statement data
- Calculate implied assets' life, age
 - Per Fitch Rating methodology
- Estimate current replacement cost:
 - Inflate original asset cost based on age & inflation index
- Compare reserves to asset-aged requirement

Derivation of Terms



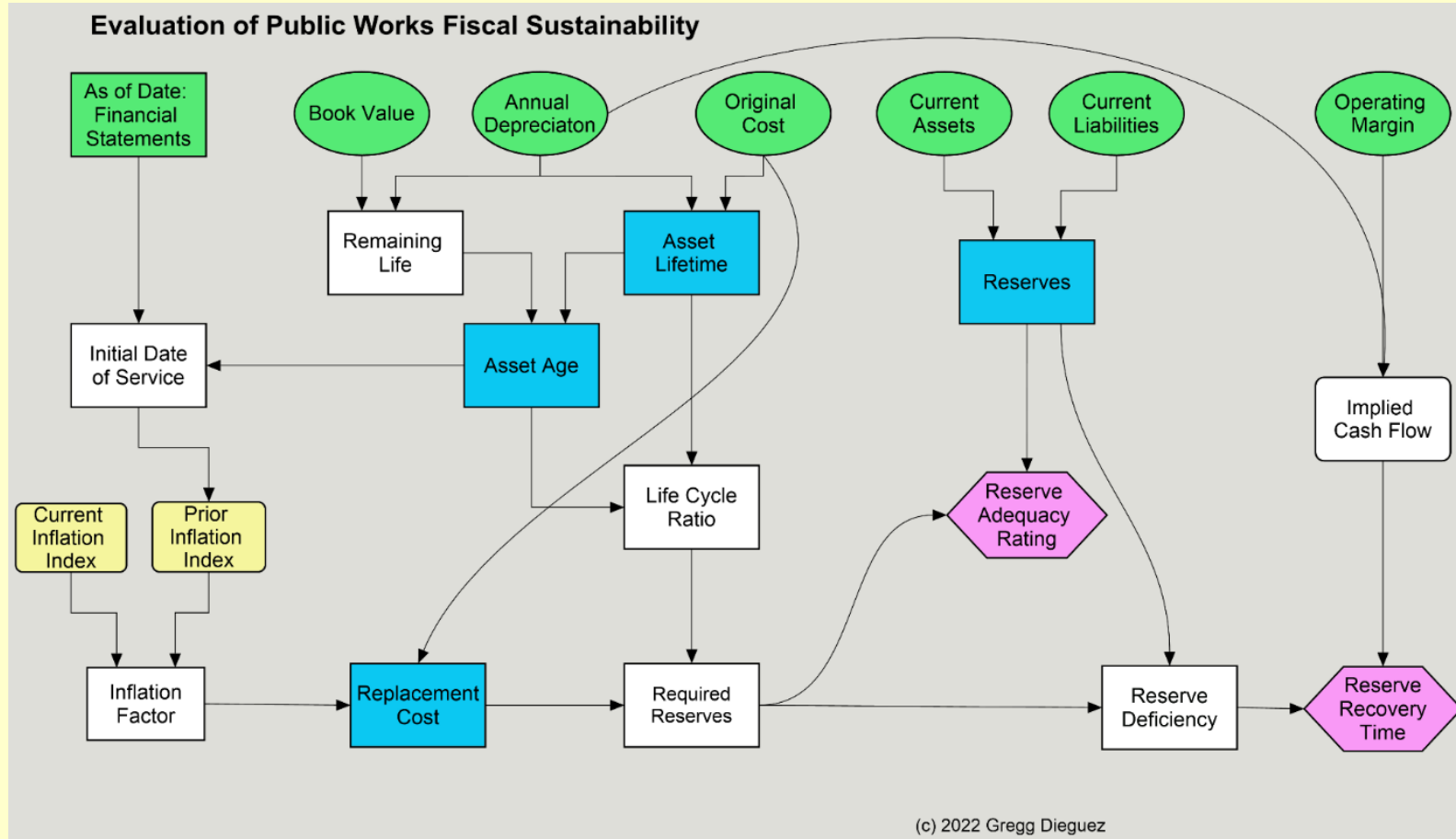
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- $\text{Implied Cash Flow} = \text{Operating Margin} + \text{Depreciation}$
- $\text{Asset Lifetime} = \text{Original Cost} \div \text{Annual Depreciation}$
- $\text{Remaining Life} = \text{Book Value} \div \text{Annual Depreciation}$
- $\text{Asset Age} = \text{Asset Lifetime} - \text{Remaining Life}$
- $\text{Date of Service} = \text{as of date, Fin'l Stmts} - \text{Asset Age}$
- $\text{Inflation Factor} = \text{Inflation Index}_{\text{today}} \div \text{Inflation Index}_{\text{date of service}}$
- $\text{Replacement Cost} = \text{Original Cost} \times \text{Inflation Factor}$
- $\text{Life Cycle Ratio} = \text{Asset Age} \div \text{Asset Lifetime}$
- $\text{Required Reserves} = \text{Replacement Cost} \times \% \text{ Asset Aged}$
- $\text{Reserve Adequacy Rating} = \text{Reserves} \div \text{Required Reserves}$

Basic Calculation Flow



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First, The Bottom Line...



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- **Daly City** has **\$323M** of assets at current replacement cost
- They are on your books at **\$64M*** * As of 6/30/22
- Those assets are **57%** into their useful lifetime
- Reserves of **\$184M**, held now and adjusted for replacements and aging in coming years, would **prevent borrowing**.
- Borrowing **ADDS 93%** to the cost of each asset at today's rates*
- Your current reserves are \$57M
- You have a reserve deficit of **\$127M**
- With borrowing, funding the missing reserves will cost **\$245M***
- *Subsequent slides show how we derived this information...*

* At a 5% interest rate

Daly City Calculations

as of 6/30/22



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- Annual Cash Flow = 20,949K
- Asset Age = 23.3 years
- Remaining Life = 17.6 years
- Asset Lifetime = 40.9 years
- Date of Service = 1998.2
- Inflation Factor = $937.81 \div 459.4 = 2.04x$
- Replacement Cost = \$323M
- Life Cycle Ratio = 57% (23.3 yrs \div 40.9 yrs)
- Required Reserves = \$184M [vs. \$57M on hand... a **\$127M deficit**]
- Reserve Adequacy Rating = 30.9%

Full calculation methodology at: <https://www.coastsidebuzz.com/public-works-deficits-how-deep-is-the-hole/>

ReserveBenchmarks	
PW Entity:	Daly City - water
Information As Of Date:	
Source:	2022 CAFR
Current Assets:	28938.084
Current Liabilities:	2482.154
Original Cost:	51004.528
Annual Depreciation:	1226.189
Book Value:	22447.961
Operating Margin:	10964.929
Implied Cash Flow:	12,191
Accumulated Depreciation:	28,557
Asset Age (Years):	23.3
Remaining Life:	18.3
Asset Lifetime:	41.6
Life Cycle Ratio %:	56.0%
Date of Service:	1,998.2
Inflation Index (DoS):	459.4
Inflation Index 2022:	937.81
Inflation Factor:	2.04
Replacement Cost:	104,120
Required Reserves:	58,295
Reserves (Net Current Assets):	26,456
Reserve Adequacy Rating:	45.4%
Reserve Deficiency:	31,839
Reserve Recovery Time:	2.6
Reserve Coverage %:	25.41%
Implied Asset Lifetime:	91.7
Implied Remaining Life:	68.4
Lazarus / Rebirth Factor:	2.2

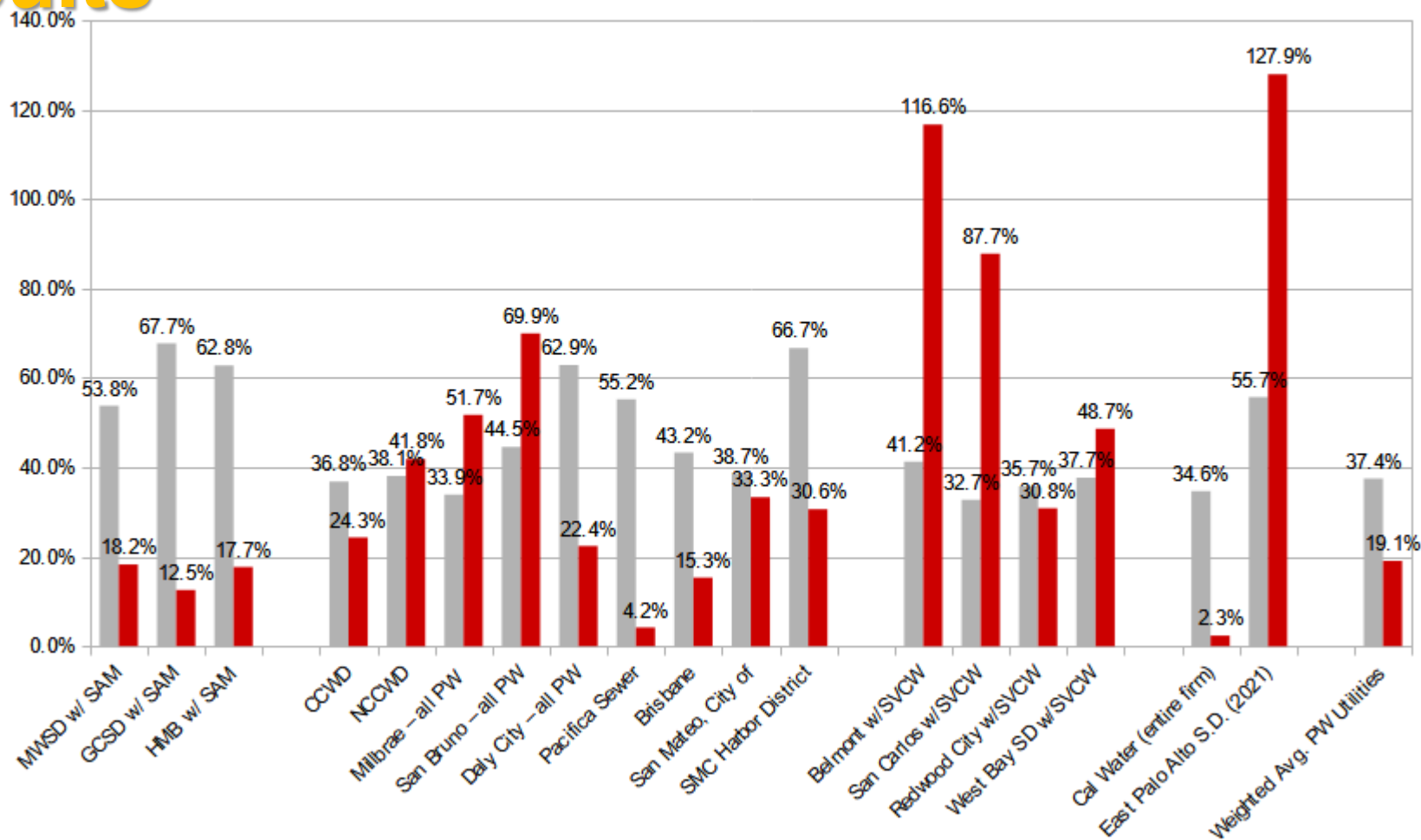
ReserveBenchmarks	
PW Entity:	Daly City- sewer
Information As Of Date:	
Source:	2022 CAFR
Current Assets:	33288.661
Current Liabilities:	2807.01
Original Cost:	107360.492
Annual Depreciation:	2433.94
Book Value:	41881.635
Operating Margin:	6323.539
Implied Cash Flow:	8,757
Accumulated Depreciation:	65,479
Asset Age (Years):	26.9
Remaining Life:	17.2
Asset Lifetime:	44.1
Life Cycle Ratio %:	61.0%
Date of Service:	1,994.6
Inflation Index (DoS):	424.91
Inflation Index 2022:	937.81
Inflation Factor:	2.21
Replacement Cost:	236,953
Required Reserves:	144,517
Reserves (Net Current Assets):	30,482
Reserve Adequacy Rating:	21.1%
Reserve Deficiency:	114,035
Reserve Recovery Time:	13.0
Reserve Coverage %:	12.86%
Implied Asset Lifetime:	209.1
Implied Remaining Life:	182.2
Lazarus / Rebirth Factor:	4.7

ReserveBenchmarks		3 of 3
PW Entity:	Daly City - Public Works	New
Information As Of Date:	Consolidated	Delete
Source:	2022 CAFR	Restore
Current Assets:	62,227	Find Prev
Current Liabilities:	5,289	Find Next
Original Cost:	158,365	Criteria
Annual Depreciation:	3,660	Close
Book Value:	64,330	
Operating Margin:	17,288	
Implied Cash Flow:	20,949	
Accumulated Depreciation:	85,278	
Asset Age (Years):	23.3	
Remaining Life:	17.6	
Asset Lifetime:	40.9	
Life Cycle Ratio %:	57.0%	
Date of Service:	1,998.2	
Inflation Index (DoS):	459.4	
Inflation Index 2022:	937.81	
Inflation Factor:	2.04	
Replacement Cost:	323,283	
Required Reserves:	184,275	
Reserves (Net Current Assets):	56,938	
Reserve Adequacy Rating:	30.9%	
Reserve Deficiency:	127,338	
Reserve Recovery Time:	6.1	
Reserve Coverage %:	17.61%	
Implied Asset Lifetime:	132.3	
Implied Remaining Life:	109.0	
Lazarus / Rebirth Factor:	3.2	

Comparative F.S. Results

PRELIMINARY Fiscal Sustainability Metrics
Selected SMC PW Utilities

■ Life Cycle Ratio % ■ Reserve Adequacy Rating



Reasonableness Tests

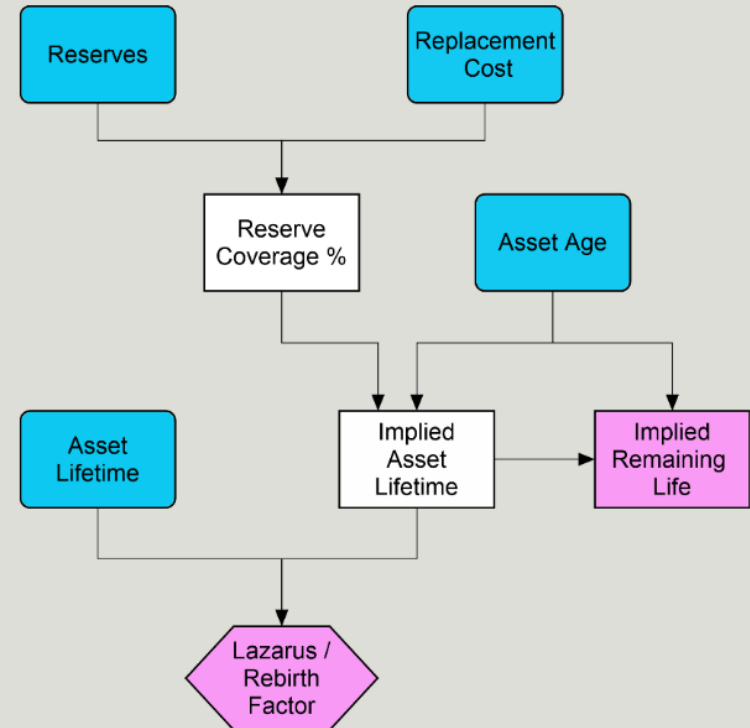
Calculation Flow



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- These supplemental metrics evaluate the adequacy of capital reserves:
 - Implied Remaining Life:
 - ✓ How many years long an asset must last, in order for the existing reserves and cash flows to allow it to be replenished without debt.
 - Lazarus/Rebirth Factor:
 - ✓ How many times an asset must be magically re-born before reserves grow sufficiently to replace it without debt.
- *Often, these metrics make it clear how ridiculously poor the current capital asset financial situation is.*

Evaluation of Public Works Fiscal Sustainability Supplement: Calculating Asset Lifetime Implied by Current Reserves & The Lazarus Ratio



Accuracy Concerns



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- Assets depreciated to Zero (\$0)
- Assets gifted or acquired for minimal (e.g. \$1)
- Use of net current assets vs. Specific capital reserves
 - Overstates reserves; but the latter is not commonly detailed
- Land: not depreciated, but with SLR perhaps should be.
- Accounting duration \ll real-world extended lives
 - Will extending assets' time in service overcome the problem?
 - What asset lifetime is implied by your reserve position? = 132 years
 - Assets would have to last 3.2x longer than implied by depreciation

So What? - Implications



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- Because Daly City has a \$127M reserve deficiency, it will have to eventually borrow that amount, or more (**higher future inflation**)
- Those borrowings, at current interest rates, will **cost ratepayers an additional \$118M** at 5%
- Daly City can conduct a **detailed** Asset Management Review to refine this analysis, as follows:
 1. Produce asset inventory tied to recent financials
 2. For each asset, calculate current replacement cost
 3. For each asset, assess remaining life
 4. Calculate reserves required at current asset ages

So Now What?...



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- Charge connection fees at pro rata share of asset foundation
 - ▶ > ?? How much more than now ??
 - ▶ > *indexed to inflation annually*
- Charge new joiners entire lifecycle cost of dedicated new assets
 - ▶ > including O&M and **perpetual** asset replenishment fee
 - ▶ > *indexed to inflation annually*
- Institute an annual asset replenishment fee
 - ▶ > *indexed to inflation annually*
- Build a financial model of the district to assess fiscal sustainability

Long Term Debt



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- Current: treat as “capital”; assume interest in ongoing operating margin suffices as ‘cost’
 - Edge case: *Day After*: The day you add a \$10B bond, and \$10B cash, clearly you have not increased reserves.
- Longer Term: Subordinated Debt treated as “capital” in many businesses – however, Gov’t Bonds not typically subordinated? – in fact, covenants require repayment reserves
- Current: Implied cash flow adds depreciation to operating margin, but EXCLUDES Bond Principal repayment.

Long Term Debt – Pot'l Adjustment



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- Reduce cash flow by amount of principal repayment
 - ✓ (interest is already decremented as part of operating margin)
- *To do so:*
 - subtract interest from debt service shown in Flow of Funds => principal repayment
 - Then subtract principal repayment from 'Implied Cash Flow'
 - Thus: $\text{Implied Cash Flow} = \text{Operating Margin} + \text{Depreciation} - (\text{Debt Service} - \text{Interest})$
 - Which would make many agencies look worse...



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Questions and Comments?