



Summary of 25 year Renewal and Replacement Analysis

2021

Brown AND Caldwell :



Renewal and Replacement (R&R) Analysis Overview

High-level analysis to estimate 25-year R&R needs in the water system

Assets organized and analyzed based on nine asset categories

Considerations:

- Asset useful life assumptions
- Year of last R&R activities
- Unit replacement cost assumptions

Water System Asset Categories

1. Treatment
2. Treated water transmission and distribution pipelines
3. Untreated water transmission and distribution pipelines
4. Treated water storage
5. Untreated water storage
6. Groundwater wells
7. Planning
8. Miscellaneous
 - a. Site Improvements
 - b. SCADA
 - c. Security
9. Pump stations

Useful Life Assumptions

Asset type	Useful life assumption, years
Pipelines	80
Structures	65
Mechanical components	20
Electrical components	20
Instrumentation and Controls	10
Site improvements	50
Storage Tanks	
Redwood	50
Steel bolted tanks	30
Welded steel	70 (recoating 15-20)
Prestressed concrete	100
Groundwater well	50

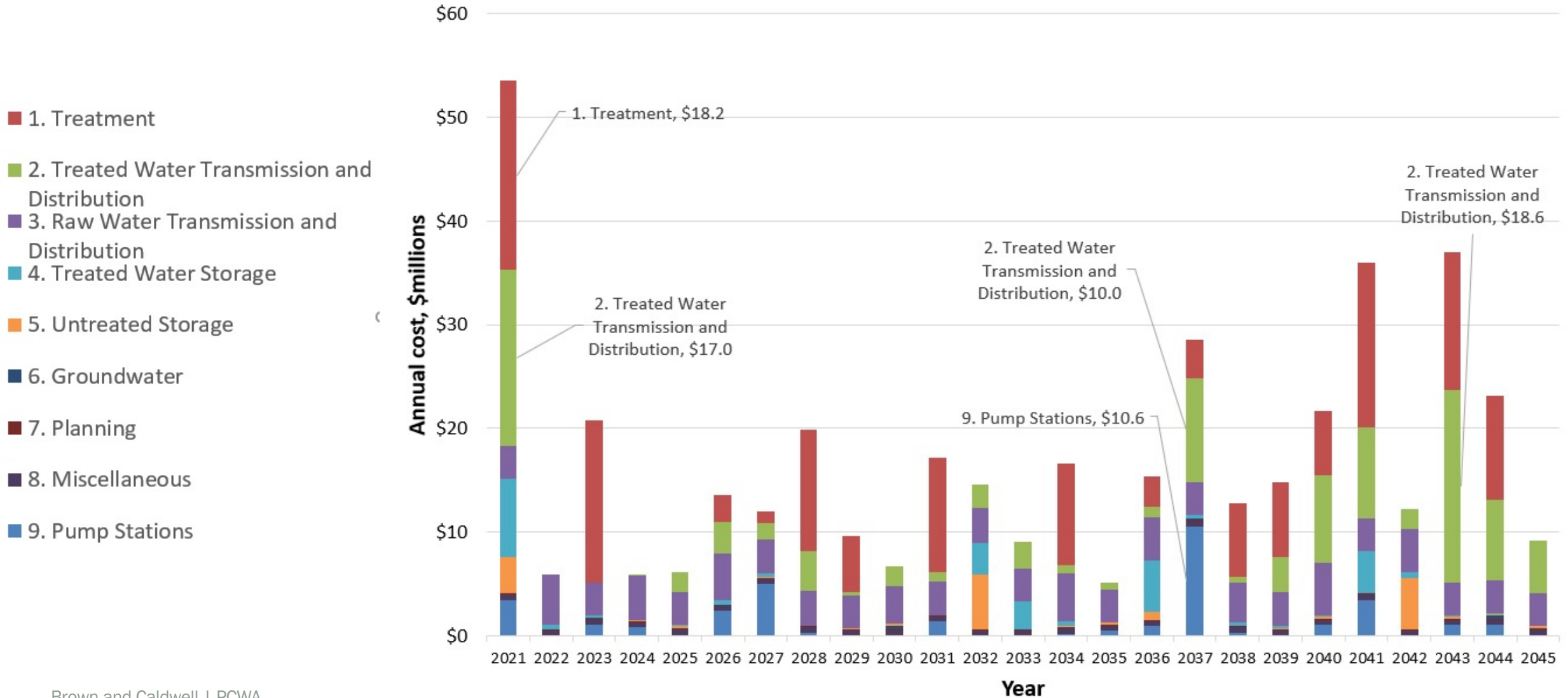
Data Sources:

- The Clean Water and Drinking Water Infrastructure GAP Analysis (EPA, 2002)
- AWWA M42 Steel Water Storage Tanks
- Industry standards

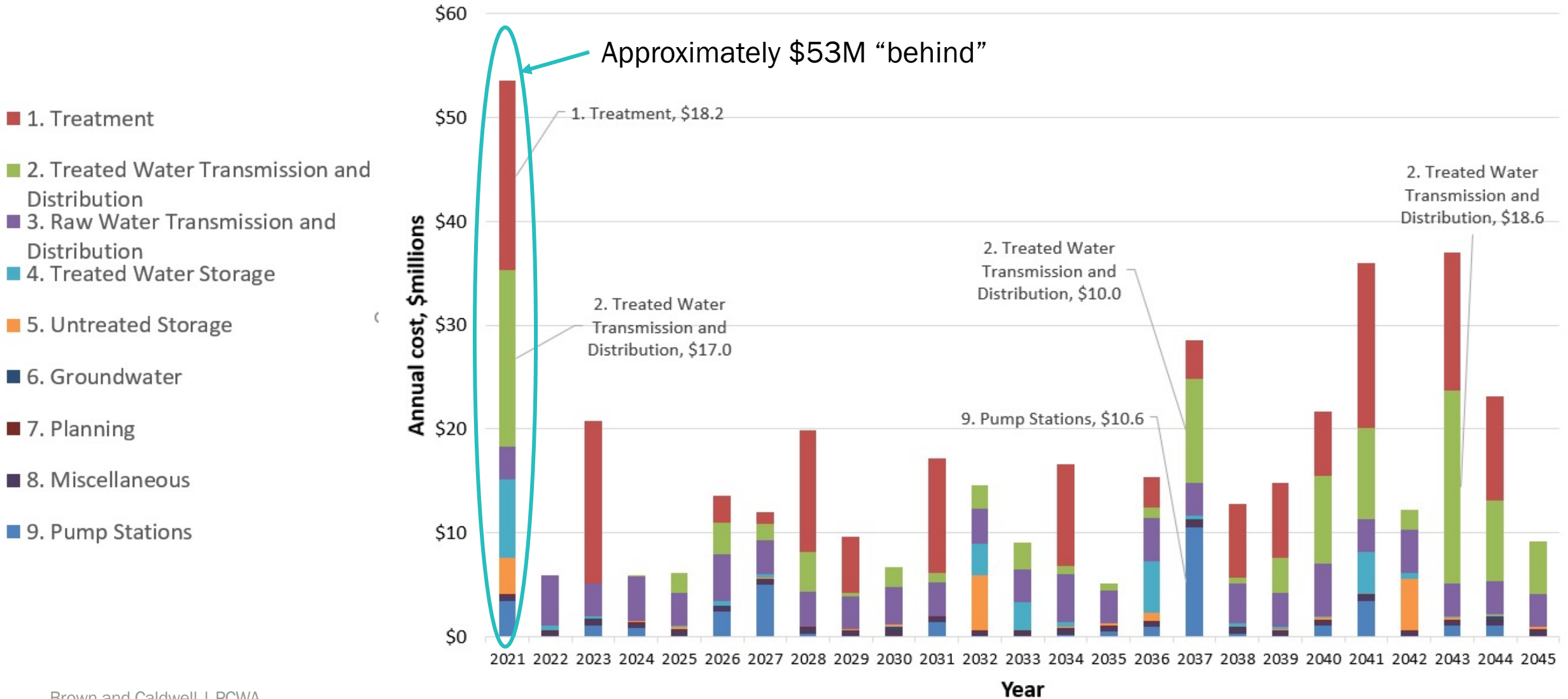
Cost Assumptions

- Where possible, based on Agency bid tabs, historical project costs, and statement of value data
- Costs typically included in O&M budgets are not included
- Present day costs (2020 dollars), do not include escalation over 25-year period

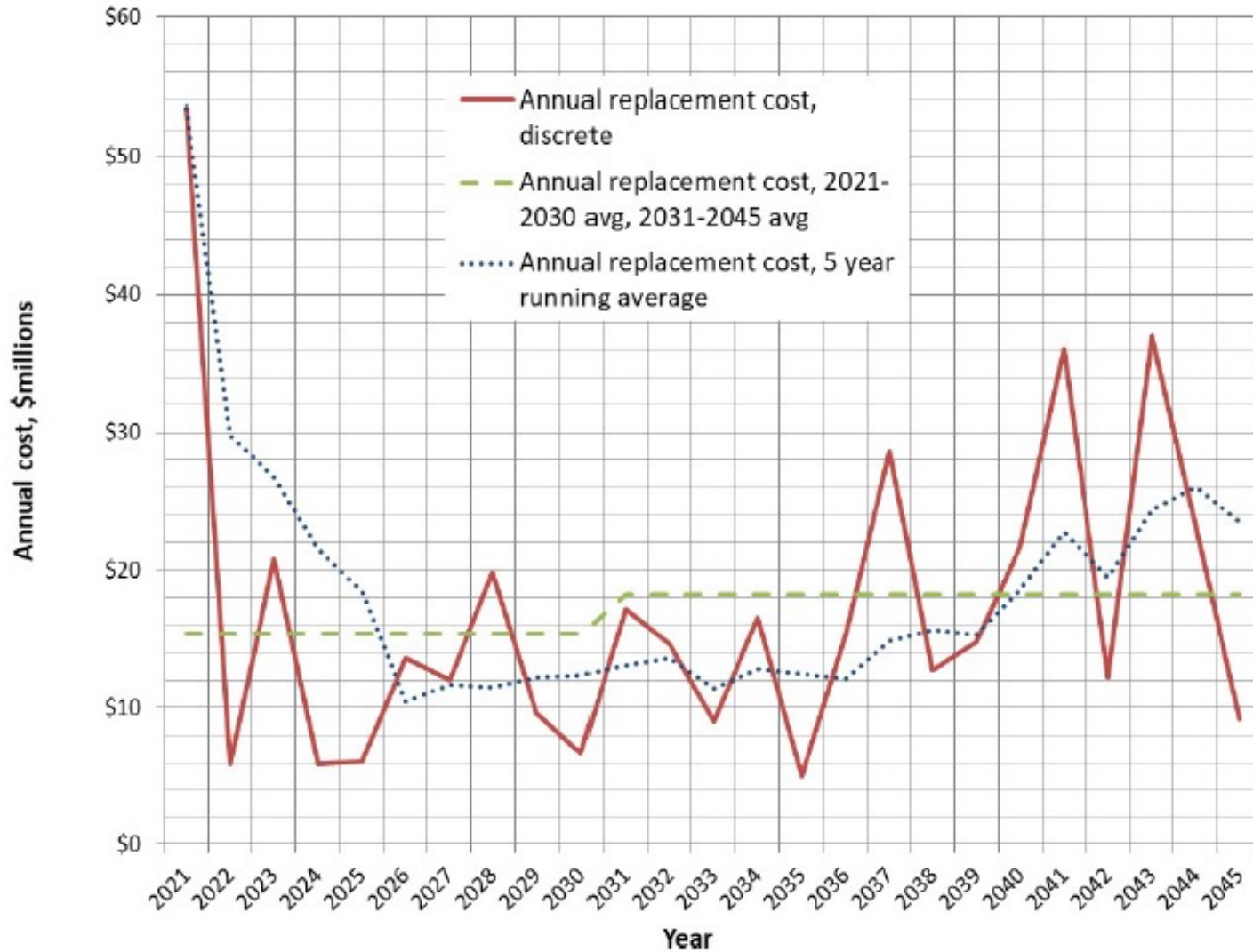
Total 25-year needs assessment \$427M



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Renewal and Replacement Needs



**Total average
annual cost:
\$17.1
million/year
(2020 dollars)**

Summary of Renewal and Replacement Needs

- Overall, 25-year needs assessment \$427.3M
- Average annual need \$17.1M (2020 dollars)
- Approximately \$53M “behind”

