

Small Water System Asset Management

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Which car represents your water system?



Why is Knowing your Assets Important

- Value and Condition of your Assets will Determine
 - Cash Value of Current Items
 - Future Liabilities
 - Provides Cost Information to Set Water System Rates/Fees
 - Connection Fee Charge based on Current Cash Value of Water System
 - Additional Revenue (reserves) needed to fund future projects
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Small Water System Management Plan

- Chapter 2 – 2.4 Component Inventory and Assessment
 - Chapter 3 – 3.1 & 3.2 Asset Replacement
 - 3.3 Budget
 - 3.4 Water Rates
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Table 2-4B
Long-Lived Asset Component Inventory and Assessment (service life is longer than 10 years)

Long-Lived Asset Component	Size, Length, Diameter, and/or Capacity Where necessary, list each individual component separately	Year Constructed or Installed	Estimated Life Expectancy	Current Age	Estimated Cost to Replace	Replace in Next 6 Years?
EXAMPLE Well	Well #1 8-inch diameter and 200 feet deep	Drilled 1924	50-100 years	87 years		<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (Well #1) If Yes, Year 2014
	Well #2 12-inch diameter and 145 feet deep	Drilled 1986		25 years		
EXAMPLE Submersible Well Pump	Well #1 10 hp	Installed 1996	10-15 years	15 years		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year ____
	Well #2 25 hp	Installed 2006		5 years		
Well			50 years		\$50,000	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year
Submersible Well Pump			15 years		\$10,000	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year
Source Meter			10 years		\$1,500	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year
Well and Pump House			40 years		\$200/ft2	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year
Reservoirs			50 years		\$2/gallon	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year
Gate Valves			50 years		\$700/2"	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year
					\$1,000/4"	
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Altitude, Pressure Reducing, Pump Control, Surge Anticipation Valves			20 years		\$2,000 (2")	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, Year
					\$4,000 (4")	
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RCAC Asset Inventory Spreadsheet

RCAC – Rural Community Assistance Corporation is a nonprofit organization that provides training, technical and **financial resources** to rural communities.

Asset Inventory Spreadsheet

<https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/WaterSystemAssistance/DrinkingWaterStateRevolvingFundDWSRF#Construction>

Instructions

[https://www.doh.wa.gov/Portals/1/Documents/4200/Asset%20Inventory%20RCAC%20Instructions\(1\).pdf](https://www.doh.wa.gov/Portals/1/Documents/4200/Asset%20Inventory%20RCAC%20Instructions(1).pdf)

RCAC Spreadsheet - Example

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	System A1	9/17/2020	Number of Units (Connections, ERUs etc.):			100	Total Equity:	\$213,095	Connection Fee:	\$4,131	Monthly Cost Per Unit to Reserves:		\$142.66			
2											Annual \$\$ to Reserves:		\$171,192			
3	Max Payments Occur Thru Year 5; Revenue in year 15 above listed needs:						\$1,167,472		Reserve Cash Applied:		\$200,000	Payments over 15 years:		\$1,697,621		
4	2020	Calculated Replacement Life					Calculated Equity					No Calculation <input type="checkbox"/>		Replacement Cost		
5	Asset and Description RCAC V14	Install Date	Est. Effective Life	Condition Rating	Critical Number	Calc Remain Life	Original Cost	Book Value Original \$\$	Replacment Cost	Infl. Rate	Accum Loss of Value (Dep)	Debt and Grants	Equity	Cash Replace?	Saving Acc't Interest	Future Cost
6		Year	Years	1 to 10	1 to 5	Years	Cost \$	Value \$	Cost \$	%	Loss \$	Value \$	Value \$	X	%	Value \$
7				Tab A	Tab A											
8	Well # 1, North well	1995	40	1	1	15.0	\$50,000	\$27,205	\$200,000	1.5%	\$125,000		\$75,000	x	1.0%	\$250,046
9	4,000 feet 4-inch PVC main	1975	70	7	1	5.0	\$250,000	\$34,897	\$1,000,000	1.5%	\$928,571		\$71,429	x	1.0%	\$1,077,284
10	Well #1 Pump	2015	15	1	2	10.0	\$5,000	\$3,591	\$10,000	1.5%	\$3,333		\$6,667	x	1.0%	\$11,605
11	Reservoir 1, North Tank	1975	60	3	1	12.0	\$120,000	\$46,901	\$300,000	1.5%	\$240,000		\$60,000	x	1.0%	\$358,685
12																
192																
193							\$425,000	\$112,594	\$1,510,000		\$1,296,905	\$0	\$213,095			\$1,697,621

Initial Equipment Entry

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Recommend 2.5%

From SWSMP Tables

From original installation notes/receipts, if kept.
Otherwise estimate

Common Items

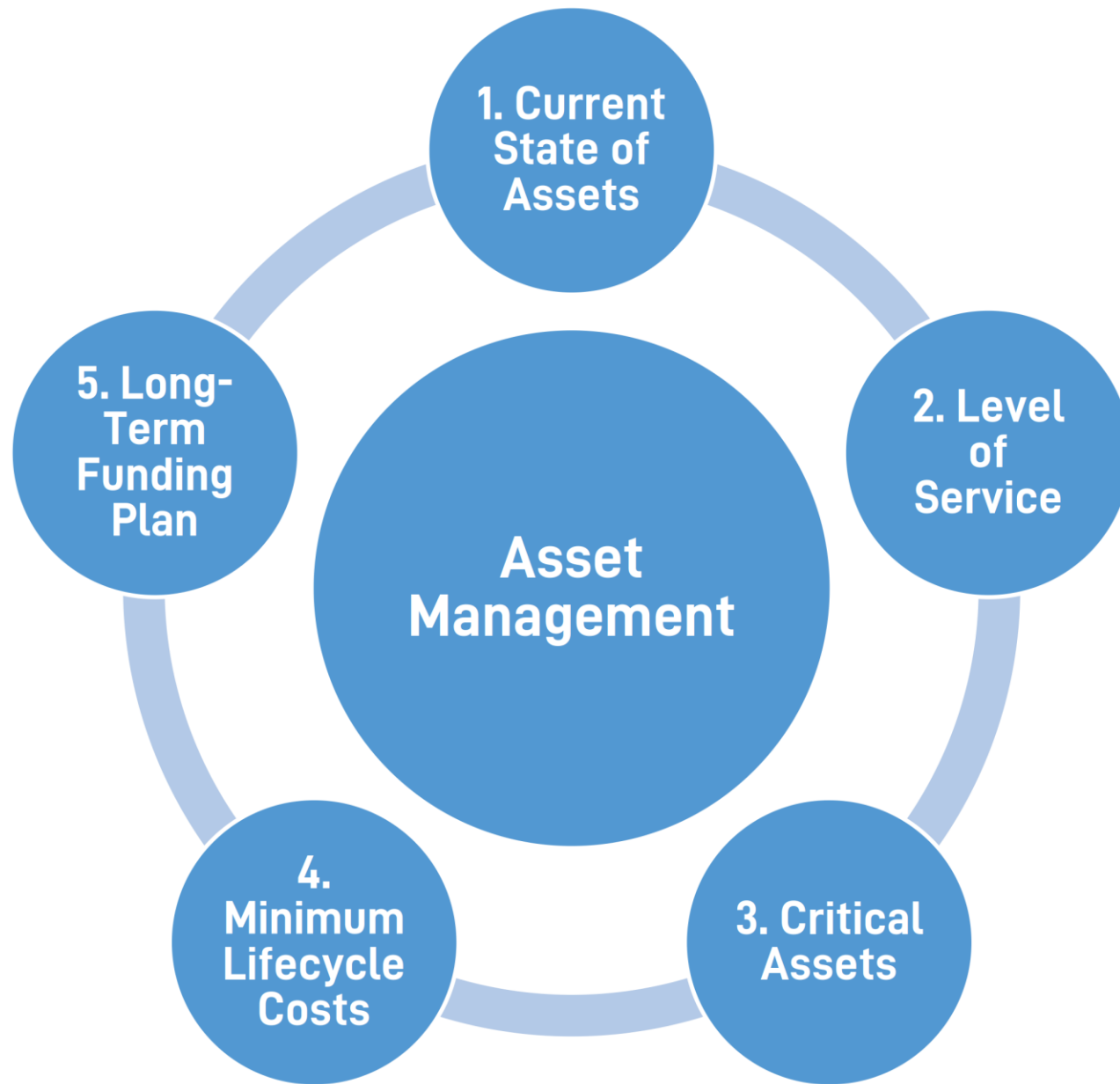
- Wells - \$50,000 (\$25,000 well + \$25,000 testing approval and connection costs)
 - Well Pumps - \$5,000
 - Waterlines - \$100 per linear foot
 - Storage Reservoirs - \$2 per gallon plus \$25,000 for prep and site piping
 - Booster Pumps - \$3,000 (2 HP) \$5,000 (larger)
 - Pressure Tanks - \$20/gallon
 - Bladder Tanks - \$2,000 (installed)
 - Air Release/Blow-off Valves - \$5,000 each
 - Gate Valves - \$2,000
 - Oxidation/Filtration Treatment System - \$50,000
 - Building - \$200 per square foot
-

Typical Asset Life (from Instructions)

Asset Type	Average Effective Life (years)	Asset Type	Average Effective Life (years)
Intake Structures	40	Lab Monitoring Equipment	5–10
Wells/Springs	40	Tools & Shop Equipment	10
Chlorination Equipment	7–10	Office Furniture	10
Small motors	10–15	Computers	5
Storage Tanks	60	Vehicles	10
Pumps	10–15	Civil Structures	75
Pipe	60–90	Electrical Motors (large)	30
Valves	20–30	Electrical panels	20–25
Backflow Devices	15–20	Controls	15–25
Meters	10–15	Building assets	60
Hydrants	30–45		

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The Five Core Questions of Asset Management

Asset Management

Condition and Estimated Life

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This will require assessment of the actual equipment. May want your operator or an engineer to assistance.

Items in bad condition will have a shorter remaining life. Pipe life span dropped from 70 to 50 years.

Condition Assessment

A-1 Condition Assessment			
Condition Rating	Description	Maintenance Level	Condition Multiplier
1	Good/Expected Condition	Normal Preventive Maintenance (PM)	1
2			0.95
3	Minor Defects Only	Normal PM, Minor Contract Maintenance (CM)	0.8
4			0.7
5	Moderate Deterioration	Normal PM, Major CM	0.5
6			0.35
7	Significant Deterioration	Major repair, rehabilitate	0.2
8			0.1
9	Virtually Unserviceable	Rehab unlikely	0.05
10	Unserviceable	Replace	0





Well #1



Well #2



Wells #1, #2, #3, Controls

1. To start
2. To stop
3. To start
4. To stop
5. To start
6. To stop
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For most small system with no redundancy this column will be all 1s.

Critical Number	Description
1	The water system would essentially shut down if this component fails. This asset has no backup and is so important that an emergency plan must be in place as well as funding to replace it. Example: Single well pump failure; single reservoir failure; anything that could cause a violation of the Safe Drinking Water Act.
2	This asset would have a serious impact on the water system if it failed, however, procedures could fix the problem within a reasonable time. Example: Two wells and primary wellpump fails; Electrical compents in panels fail: backflow assembly did not pass testing; key pipe failure that could be repaired; single chlorinator failure; pressure reducing valve failure.
3	The condition of this asset causes continued unnecessary operational costs to your utility. Examples: deteriorating buildings, equipment and rolling stock; leaks in piping; old and worn-out electrical equipment.
4	This asset's condition or failure may cause inconvenience to customers via reduced service, outages, or minor taste or odor complaints. Examples: excessive leaks, valves frozen partway closed, hydrants not working so flushing cannot be done; poor billing program.
5	These assets have been in service for a long time and their condition may not be well known. Evaluation should take place and a determination made as to what may be needed.

****Modify to include reserve account value****

Monthly capital charge to users

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Current value of water system

Future Liabilities

Additional Resources

- Other WIWSA Members
 - USA Bluebook <https://www.usabluebook.com/>
 - Your Operator
 - Water System Professional Engineer
 - Evergreen Rural Water <https://www.erwow.org>
 - Island County Health Department (past submittals in water system files)
 - Department of Health
<https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/WaterSystemAssistance>
-

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