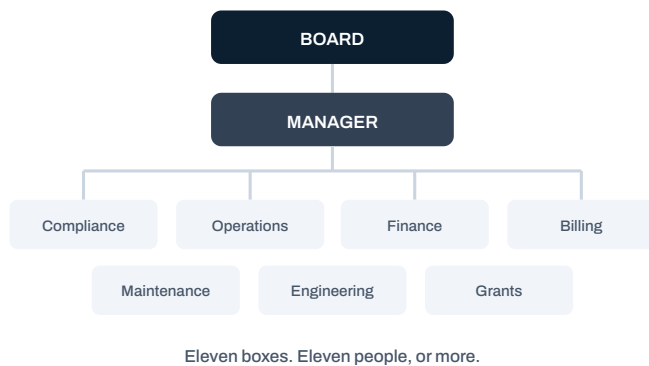


WHY SMALL WATER SYSTEMS FAIL

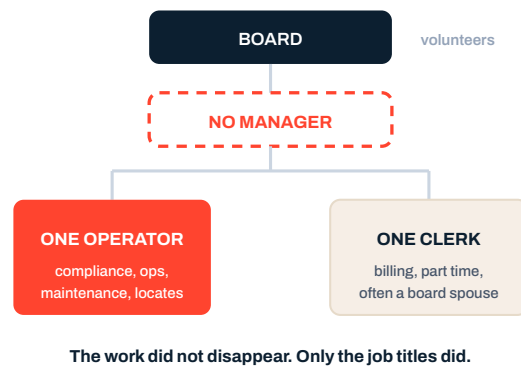
Same rulebook. One percent of the customers.

A district serving ninety households is held to the same drinking water standards as Phoenix, and it should be. The child drinking the water does not care how many neighbours they have. But Phoenix divides that cost across a million and a half people. **Ninety connections divide it across ninety.** Almost everything else follows from that one sentence.

A 10,000-CONNECTION UTILITY



A 350-CONNECTION DISTRICT



Two real organisation charts, side by side. The small one is not a simplified version of the large one. It is the same chart with boxes deleted and the work redistributed onto whoever is left.

COSTS DO NOT SCALE DOWN

Vendors bill per system, not per customer. A 180-connection district pays the same **\$400 a month** for billing software as a 4,000-connection utility. Twenty-two cents a customer against one cent. Same for the lab, the audit, the insurance, the legal notice.

PIPE DOES NOT SCALE DOWN EITHER

Nationally there are about **308 people per mile** of water main. The rural average is nearer 200. Districts in this county average about **25**. One tenth the revenue holding up the same pipe under the same rules.

AND IT BREAKS MORE

Smaller utilities run main break rates **at least double** those of large ones. Older pipe, shallower burial, less money for proactive replacement, and no crew standing by when it goes.

33,000
POUNDS OF WATER

That is roughly what a typical household water bill moves into a house in a month, takes the dirty water back out, treats, and tests so it will not hurt anyone. People will spend fifty dollars on lunch without blinking and then call the office angry about a forty dollar water bill for the month.

Nobody does that math, and honestly they should not have to. But it is worth knowing that rural water is not expensive. It is underpriced, and it has been underpriced for fifty years, which is a different problem entirely.

1,508

Regulated public water systems in Arizona

95%

Of them serve fewer than 10,000 people

25

People per mile of main on districts in this county. National average is about 308.

3

Volunteers on a typical district board, with statutory power over rates, debt and infrastructure

THE FOUR THINGS THAT ACTUALLY BREAK

It is almost never the pipe

1 · THE BOOKS HIDE THE PROBLEM

These systems keep cash-basis books. Money in, money out. A year where nothing breaks looks like a year where they broke even, and everyone relaxes.

The pipe is depreciating the whole time. The number a district should set aside annually is **depreciation plus about ten percent**. Most have never run that calculation once. So they are two or three million dollars behind and feeling fine, right up until a well fails and the account is empty.

2 · NOBODY WAS TRAINED FOR THE HARD HALF

Systems are graded on technical, managerial and financial capacity. The technical half has certification, training and continuing education behind it. **The managerial and financial halves have nothing**. A retiree who volunteered for the board inherited a fifty-year-old utility and the instruction: do not mess it up.

3 · THE KNOWLEDGE IS IN ONE HEAD

Where the valve is. Why the chlorinator is set the way it is. Which hydrant is dead. Which customer has the shutoff under a deck. None of it written down, because writing it down was never anyone's paid job.

4 · IT IS THE PAYBACK ERA

The post-war build-out was paid for with growth money and impact fees, and the true cost of ownership never showed up on a rate sheet. Wells, tanks, mains and controls are now aging out at the same time. **We have moved from building new to paying to keep what we have**, and no small system budgeted for that transition.



A night call on a rural system. One truck, one light, usually one person. There is no second shift to hand it to.

THE TRAIN WRECK TEST

Ask any small system: if one person is hit by a train tomorrow, or the building burns, what disappears? The answer is always the same three things. **System knowledge, the passwords, and the billing data.**

Two real cases from this county. In 2002 a district lost its maps and customer records in the Rodeo-Chediski fire; more than twenty years later they have never been reconstructed. In 2023 a system's sole owner-operator died with no will. Accounts frozen in probate, no employees, no passwords, no records, wells offline. Somebody had to come in under an emergency contract just to keep water moving.

WHAT DOES NOT FIX IT

Telling them to raise rates. They should, and responsible districts do. But a million-dollar compliance project across ninety households is **\$19,000 a door**. There is no rate schedule that reaches that number and no bank that lends into it.

“Small systems do not fail because nobody cares. They fail because the economics are structurally hard, and because we ask a volunteer board to run a capital-intensive public health utility in their spare time.”

WHAT HELPS · 1

Money for the paperwork

Not more capital. Capital exists. Pay for the application, the administration and the closeout for systems that already qualify, and eligibility turns into pipe.

WHAT HELPS · 2

Training the other half

Board governance, rate setting, asset management and capital planning. The technical half of capacity has a whole training apparatus. The managerial half has almost nothing.

WHAT HELPS · 3

Shared capacity, local control

One good operator across six systems. Billing and back office run once. Governance stays exactly where it is, with the neighbours who answer for it at the grocery store.