

# Mixing It Up: How Active Tank Mixers Help Rehabilitate Aging Water Systems

*Strategic Mixing Technologies Improve Compliance, Extend Asset Life, and Reduce Costs for Utilities Operating Under Budget Pressure*

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In the world of municipal water systems, one challenge persists across decades: aging infrastructure. Across North America, water tanks and towers, some built half a century ago, remain in service today. While much attention is focused on structural rehabilitation, what's happening inside those tanks also deserves scrutiny.

As water remains idle, it naturally stratifies into thermal layers, disrupting disinfectant distribution and encouraging biofilm formation. Sediment can collect at the bottom, compounding water quality issues that may lead to customer complaints, reduced chlorine residuals, and even exceedances of disinfection byproduct (DBP) thresholds.

“Stratification and stagnation are two of the biggest enemies of water quality in storage tanks,” says Paul Amos of Kasco®. “Yet these internal conditions often go unnoticed until there’s a noticeable issue.”

## The Case for Active Mixing

Traditionally, many storage tanks relied on passive turnover from inflow and outflow to maintain water movement. However, such methods are frequently inadequate, especially in low-demand areas or systems with variable flow conditions.

Active mixing systems provide a more dependable approach. By continuously circulating water throughout the tank, these systems help ensure disinfectants are evenly distributed and temperature gradients are minimized. This results in more consistent residuals, fewer taste and odor concerns, and a reduced need for tank flushing.



A submersible mixer such as the CertiSafe™ Tank Mixer by Kasco® can help utilities provide drinking water more efficiently



“When chlorine residuals drop or DBPs rise, flushing is often the first corrective action,” Amos explains. “But that consumes water, time, and labor. With proper mixing, these corrective actions become less frequent.”

Numerous utility case studies demonstrate the value of active mixing. Following installation, many systems report improved compliance with EPA’s maximum contaminant level for total trihalomethanes (TTHMs), 80 parts per billion, and more stable disinfectant performance overall.

Mixers also help mitigate seasonal risks. Warm summer temperatures can accelerate chlorine degradation and increase stratification. In colder months, unmixed tanks are susceptible to ice formation. Continuous mixing helps maintain a uniform thermal profile and keeps water moving year-round.

## **Balancing Performance and Efficiency**

Operational budgets are top of mind for many utilities. A common concern about active mixing involves energy usage. However, most modern systems are engineered for efficiency, drawing relatively little power even when run continuously.

For example, a half-horsepower mixer typically uses under 6 amps, translating to an estimated \$800–\$900 in annual energy costs based on national electricity averages. This relatively small operational cost is often offset by reduced flushing, improved disinfectant stability, and longer infrastructure life.

In systems with multiple tanks, especially rural or regional networks, standardizing performance with mixers can improve outcomes across the board without major capital expenditures. By maintaining consistent water quality systemwide, utilities can better anticipate maintenance needs and allocate resources effectively.

## **Equipment Longevity Through Refurbishment**

Another consideration for budget-conscious utilities is equipment replacement. Over time, even well-constructed mixers may require service. Rather than pursuing a full replacement, some manufacturers offer refurbishment programs that restore mixing units to near-new condition using original specifications and components.

These services are particularly valuable for utilities seeking to maintain performance while managing capital costs. Rather than retire a functioning mixer prematurely, refurbishment allows for extended service life and deferred replacement schedules.

This practice also contributes to broader sustainability goals. By reducing waste and lowering the carbon footprint associated with manufacturing and shipping new equipment, refurbishment supports environmental targets as well as financial ones.

“Utilities are often surprised by how cost-effective it is to get a mixer back in the field,” Amos says. “It’s a practical way to stretch budgets and keep systems operating reliably.”

## Best Practices for Tank Mixing

When implementing active mixing systems, utilities can follow a few core principles to ensure success:

- **Appropriate Sizing:** Match the mixer’s flow rate and horsepower to tank volume, demand levels, and seasonal variation. Improper sizing can reduce effectiveness or waste energy.
- **Simple Installation:** Consider systems that can be installed without draining the tank or requiring confined space entry. Drop-in designs are preferable for ease and safety.
- **Ease of Maintenance:** Select equipment that’s accessible for regular inspection, retrieval, and service. Features like tethered cords support operator safety and reduce downtime.
- **Compliance Standards:** Ensure mixers are certified to NSF/ANSI 61 and 372 for use in potable water systems. These standards support both regulatory compliance and public health assurance.
- **Monitoring Options:** For added visibility, utilities may want mixers compatible with SCADA or remote monitoring platforms.

“There’s no universal solution,” Amos adds. “Each tank is different. But with careful selection and proper sizing, active mixing can deliver immediate and lasting benefits.”

## A Long-Term Approach to System Resilience

As utilities look to rehabilitate infrastructure, internal water quality cannot be overlooked. Active mixing offers a proactive way to support regulatory compliance, reduce maintenance frequency, and extend asset longevity.

For instance, in many ground storage or elevated tanks, a unit like the CertiSafe™ mixer can be retrofitted with minimal disruption – adding internal circulation to an existing structure without redesign or draining.

Such solutions are especially important for communities balancing operational performance with long-term planning. As Amos notes, “It’s not just about today’s water – it’s about ensuring quality and reliability for years to come.” Contact the CertiSafe sales team for more information at: [kascomarine.com/contact-us](https://kascomarine.com/contact-us).