

## SUMMARY WHITE PAPER: REGIONAL APPROACHES TO WATER RECYCLING



### OVERVIEW & CONTEXT

In March 2021, the WaterReuse Association convened the virtual 36th Annual WaterReuse Symposium, which included eight live roundtable discussions with facilitated breakout sessions. Led by WaterReuse members and Champion sponsors, the live roundtables were presented in a format that allowed both knowledge sharing and interaction between participants. First, a group of six to ten experts on a given roundtable topic participated in a web-based video panel discussion viewed by several hundred attendees. When the live roundtable discussion concluded, the attendees moved into one of six pre-selected breakout sessions. Each breakout session focused on one aspect of the broader live roundtable discussion. WaterReuse member volunteers facilitated the breakout dialogs, with one taking notes that were later used to produce this series of summary white papers.

**This paper summarizes the discussions held during the 36th WaterReuse Symposium Regional Approaches to Water Recycling roundtable.**

### LIVE ROUNDTABLE SUMMARY

During the live roundtable, the panel of eight experts discussed the varied regional approaches to water recycling from the perspectives of the Southeastern, Northeastern, Midwestern, Northwestern, South Central, and Southwestern United States.

Drivers and challenges for implementing water recycling projects vary drastically across the United States, requiring distinct considerations to ensure project success. However, panelists touched on common themes and highlighted the importance of sharing experiences across regions so that water practitioners can learn from each other.

One key driver that multiple panelists touched on is the need to minimize wastewater effluent discharge, thereby creating an incentive to find beneficial reuse opportunities. In the City of Altamonte Springs, Florida, for example, population growth meant the community was generating more effluent than it could return to the local watershed, leading the city to develop a water reuse

#### SPEAKERS

- DAVID AMMERMAN, Division Director – Water, Wastewater and Reuse, City of Altamonte Springs, Florida
- BOB ANGELOTTI, Executive Director, Upper Occoquan Service Authority, Virginia
- DOUG BODE, Utilities Maintenance Supervisor, City of Waconia, Minnesota Public Services Department
- ALLISON ESVELT, Partner/Principle, Esvelt Environmental Engineering, Pacific Northwest
- CORY MILLER, Executive Director, University Area Joint Authority, Pennsylvania
- LYDIA PERI, PE, Emerging Resources Program Administrator, Truckee Meadows Water Authority, Nevada
- JOE VESEY, SVP & Chief Marketing Officer, Xylem (Moderator)
- MICHAEL WATTS, Senior Process Engineering, Water Reuse Practice Leader, Garver

program. In Virginia, the Upper Occoquan Service Authority adds purified recycled water into a stream above Occoquan Reservoir, a potable water supply source for Fairfax County. To the north at the headwaters of the Chesapeake Bay, the University Area Joint Authority in Pennsylvania experienced a similar need to reduce wastewater effluent discharges, opting to reuse its water for industrial applications.

The panelists stressed the importance of integrated and long-term planning. In Altamonte Springs, population growth and changing water demands has led the city to pursue potable reuse in addition to its existing non-potable, purple pipe system and stormwater reuse project. To avoid stranded assets as new water recycling projects are pursued, it is critical to think about long-term water needs. Similarly, long-term knowledge around treatment trains and pathogen removal technologies supports optimization of system design for changing contexts. In designing the water reuse infrastructure necessary for the University Area Joint Authority's system, integrated planning might have allowed for dual-purpose easements and construction activities. Each of these panelists' examples illustrated the importance of comprehensive planning that considers long-term volumetric and water quality demands as well as cross-cutting community needs.

While several regions cited the need to minimize wastewater effluent as a driver for implementing water reuse,

panelists from water abundant areas of the country discussed the need to minimize stormwater flows as a key driver. The City of Waconia, Minnesota's water reuse program captures and treats stormwater to mitigate flooding and provide water for irrigation. While flood control is an important driver for water reuse, perceived water abundance can challenge public support.

Inversely, drought can often garner public support for investments in water reuse. Panelists representing the South Central, Southwestern, and Northwestern U.S. all cited drought resiliency and the protection of potable water supplies as main drivers for water recycling projects. Nevada's Truckee Meadows Water Authority has been recycling water for irrigation for decades, decreasing the demand for potable water. The environmental benefit of maintaining water levels in streams and lakes can be an important driver for water reuse in western regions, particularly during periods of drought.

Panelists noted that challenges associated with regulation were more universal across regions of the country. The discussion emphasized the importance of public outreach to ratepayers, as well as political and regulatory officials. Collaboration with local officials has proven to be especially important when water reuse projects are proposed in a location that has not yet developed water reuse regulation.



## BREAKOUT DISCUSSIONS TAKEAWAYS

**Following the themes of the roundtable, the six breakout rooms discussed the state of water reuse in six regions of the U.S. Participants discussed drivers that promote or stall reuse, key factors for economic feasibility, and regulation at the regional level and national level. Discussions included 114 attendees, with anywhere from 14 to 28 attendees in each room.**



### BREAKOUT ROOM 1 SOUTHEASTERN U.S.

In this breakout room, participants focused on the drivers for water reuse, including water scarcity and stricter nutrient limits for wastewater discharges. Economic feasibility was cited as a critical barrier to more widespread water reuse. Participants agreed that cost sharing partnerships

is an important way to combat this challenge. The discussion also highlighted the importance of understanding the local water market to economically match water sources with demands. Participants noted that local and regional standards, as opposed to national standards, are better able to adapt to unique project requirements.



## **BREAKOUT ROOM 2** **NORTHEASTERN U.S.**

This breakout discussed the importance of long-term planning to increase project affordability. Key components of promoting water reuse include developing projects that quantify community benefits, including social benefits in economic evaluations, and conducting outreach to improve public perception. Participants acknowledged,

however, that public perception concerns can stall reuse projects if they are not addressed. Attendees agreed that looking at water reuse education materials and regulatory best practices from other regions is advantageous. However, the group felt it would be best if national agencies take the lead, particularly around treatment technology standards, thereby supporting states and local agencies in project design and protection of public health.



## **BREAKOUT ROOM 3** **MIDWESTERN U.S.**

This breakout group cited agricultural water requirements, leading to decentralized reuse projects, as a primary driver for water reuse in the region. Barriers for reuse include both prohibitive state regulation, as well as perceived water abundance. Additionally, participants spoke to the challenge of incentivizing

water reuse in the context of low costs to discharge wastewater and the need to support local industries. Participants discussed using water quality and reuse trading credits as a tool to ensure reuse projects are economically feasible. In the context of regulation, participants voiced that state-level or regional, rather than national, regulations are needed that understand the local drivers for reuse.



## **BREAKOUT ROOM 4** **NORTHWESTERN U.S.**

Participants identified environmental protection as a main driver for water reuse in the region, with declining water supplies as a secondary driver. While periods of drought can aid public acceptance of water reuse in the region, the group noted that public perception can still be a barrier to project actualization particularly during periods of perceived water abundance. Echoing perspectives shared in the Southeast, participants emphasized the importance of

understanding local water markets and ensuring projects are economically feasible by matching sources of water with demands. Participants also spoke to the importance of quantifying local community benefits associated with water reuse projects, including the increased resiliency that come with a more diverse water supply portfolio. The group discussed the benefit of national guidance that sets a basis for regulation and supports public acceptance. To supplement the national guidance, participants supported state regulation that can be flexible to local needs.

**Upper Occoquan Service Authority  
Regional Water Reclamation Plant**





**In Waconia, MN, stormwater is collected in a retention pond and then treated for reuse.**



#### **BREAKOUT ROOM 5** **SOUTH CENTRAL U.S.**

This breakout centered around water recycling drivers, including water scarcity and potential funding availability. In quantifying economic feasibility, participants noted the importance of including externalities such as ecosystem benefits and holistic water management costs. Sharing these benefits with community members through public outreach helps address the challenge of water reuse

acceptance. Similar to community outreach, participants discussed the challenge of regulatory outreach and trust-building. The group discussed the importance of a collaborative, streamlined regulatory process and the need for low-interest financing. Regarding regulation, participants had varied perspectives on which geographic scale might help further water reuse. However, the group was interested in a national evaluation of state regulations as a reference.



#### **BREAKOUT ROOM 6** **SOUTHWESTERN U.S.**

Breakout participants discussed the challenges associated with water rights, which can often be a barrier for water reuse, particularly in Utah and Colorado. Additionally, the low cost of water can be an impediment to pursuing reuse. The group highlighted the social justice aspects associated with water reuse and noted the importance

of having water that is equally accepted by community members. Participants agreed that quantifying community benefits of water reuse projects and building in incentives for reuse adoption are key to community acceptance. Similar to the South Central region, this breakout had varied perspectives on regulation. Participants noted that state and local regulation allows for innovation and flexibility, while national guidance could reduce the burden on utilities.

## **CLOSING SUMMARY OF THE DISCUSSION**

**Moderator Joe Vesey concisely captured the importance of quantifying co-benefits associated with water reuse projects and highlighting those benefits during public outreach efforts. Integrated planning, stakeholder collaboration, and value creation are all key to ensuring success and economic sustainability. While there were varied regional perspectives on the greatest drivers and barriers to reuse, many regions were interested in regionally informed regulation coupled with national incentives for reuse.**

***The WaterReuse Association thanks Xylem for sponsoring this live roundtable at the 36th Annual WaterReuse Symposium.***