

## **Meeting the Challenges of Water Tours**

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Tours offer a powerful way for water utilities to reach out to their communities and strengthen relationships with end users. Tours provide person-to-person interaction that can help a utility to promote public attitudes and actions that make the utility's job easier. However, in the face of increasing financial constraints, security concerns (particularly since 9/11), and safety and liability considerations, some utilities have reduced access to facilities and other opportunities to provide tours. This paper discusses the benefits of tours for water utilities, reviews the challenges and how they can be met. Examples are provided of how and how water tours have been conducted and tailored to provide maximum benefits with minimum risk.

Water utilities can tailor tours to specific audiences to reach a broad array of tour participants, Understanding a group beforehand, and collaborating with group leaders in advance, can help generate good ideas and align expectations for a successful tailored tour. Some examples of types of tours that may be developed for specific types of audiences include the following:

- For professional societies and researchers: guided walking tours of facilities can be combined with briefings on technical features, with opportunities for questions and discussion
- For school groups: teachable moments can be created, working in conjunction with educators, to include memorable, hands-on experiences suitable to different student age groups
- For active adults: bike tours through a watershed, with stops at key features in a water system, can be combined with narratives on local water history to provide community members with a greater appreciation of utility projects and water sources
- For non-profit groups: valuable partnerships can be formed through collaboration on excursions to waterside habitats and river restoration projects

Newer technologies can also be used, such as online virtual tours, with films, slideshows, live webcams, and other media. These education tools can greatly increase the outreach capabilities of water utilities, providing opportunities for remote interactions. However, in-person tours can have a stronger impact on participants than virtual tours, and mobilize the power of groups.

### **Touring Urban Water Systems by Bike**

Water systems exist mostly in underground pipes; for most people, water systems are out of sight, out of mind. As emphasized elsewhere (Frank, 2009), it is important for utility customers to see

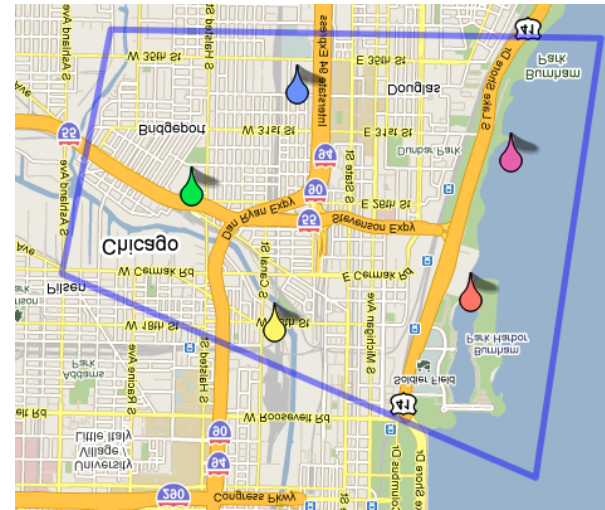
where their water comes from. One way to make people think about their water supply is to bike over the route that the water systems take.

**Example: New York City's Old Croton Aqueduct Tours:** Since 2009, Aqueous Bike Tours has offered guided tours of New York City's water system. The tour focuses on the city's oldest supply of surface water, the Old Croton Aqueduct of 1842. Participants trace the route of the aqueduct, beginning in Central Park and gradually heading north to one of the reservoirs near the city limits, under the leadership of Matthew Frank. This tour provides the opportunity to view historic parts of the water system like the High Bridge, to explore unfamiliar parts of the city, and to hear stories of local history and politics (and sewage smells) told by an enthusiastic and engaging guide. As an example of the community goodwill that water tours generate, The Friends of the Old Croton Aqueduct, a non-profit organization formed to protect and preserve this historic artifact, has supported the tour. Bike tours like this allow utilities to engage people in a fun and physical way that helps foster positive attitudes about the water supply.

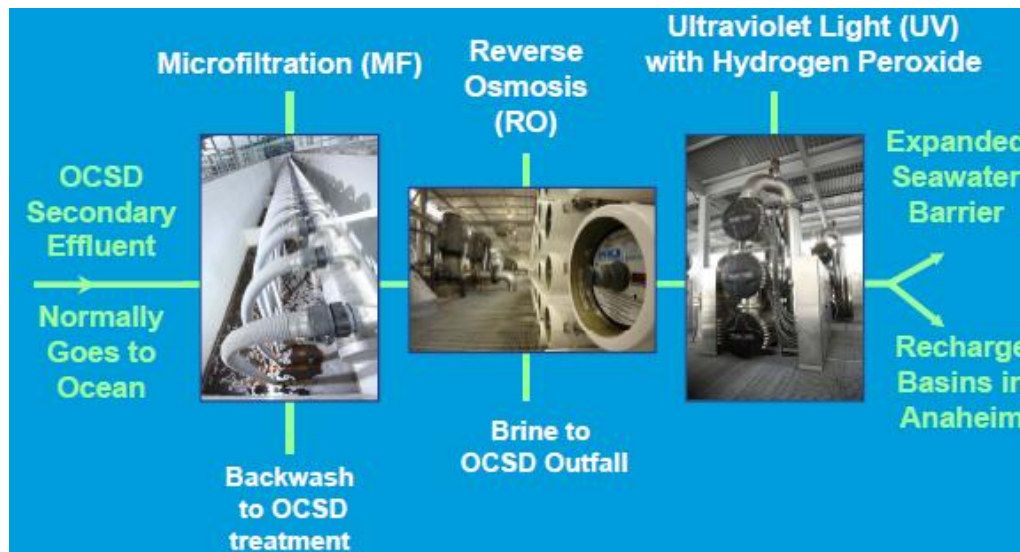
**Example: Chicago's Bike Tour during 2010 AWWA ACE:** In 2010, Watercat Consulting and Aqueous Bike Tours collaborated to produce a bike tour of Chicago's Water System. This tour was tailored to participants at the 2010 American Water Works Association (AWWA) Annual Convention and Exposition (ACE), departing from and returning to the convention site. The tour included:

- sites where participants could learn about the reversal of the Chicago River and see its many uses, including the water taxi;
- a visit to Stearns Quarry, recently opened as a park after being restored from use as a quarry and landfill;
- the Stephen Douglas estate, which was once used to house soldiers during the Civil War, with water quality that was a greater threat to the soldier's lives than their injuries;
- the sports stadiums for both the Chicago Bears and the Chicago White Sox, which have integrated very different approaches to stormwater management in their parking systems
- a special visit by Acting Deputy Commissioner Michael Sturtevant, of the City of Chicago's Department of Water Management, to review the City's extension of water supply into Lake Michigan.

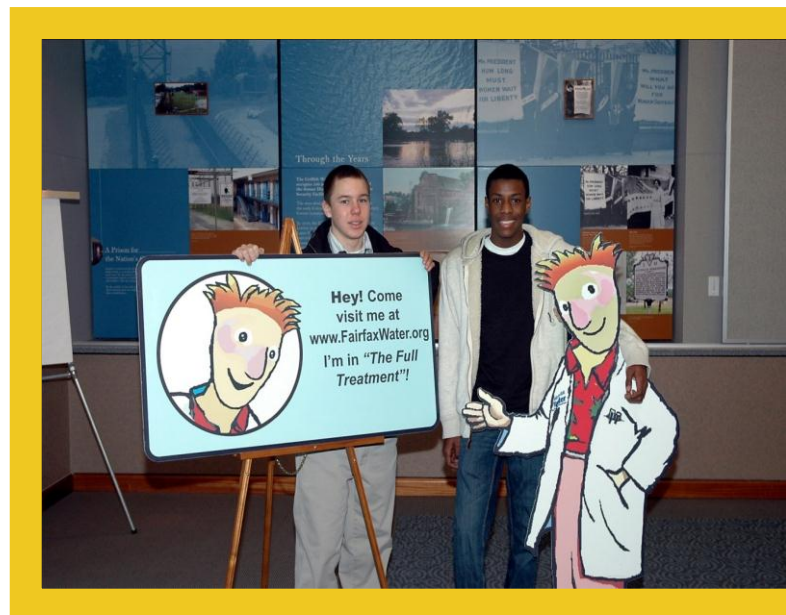
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- Figure 1: Area of the tour
- of Chicago's Water System
- (© Matthew Frank, Aqueous
- Advisors)



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- Figure 2: Topics on a Tour
- for Public Acceptance of
- Water Reuse
- (© Cat Shrier, Watercat
- Consulting)



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- Figure 3: Students at Fairfax
- Water with the Sci-Guy
- from "The Full Treatment"
- (© Fairfax Water)



## **Tours to Promote Public Acceptance of Water Projects and Programs**

Water tours have proven to be an invaluable resource for utilities that are attempting to integrate innovative, alternative water storage and management methods into their water supply systems, as well as for water resources agencies developing collaborative watershed planning programs. Tours can be an essential component in stakeholder outreach, public communication, collaborative regional planning, and permitting efforts, often achieving objectives of communicating safety, mitigation of risks, and feasibility of use of various water management methods and achieving trust and support from specific audiences and the general public.

**Example: Water Tours to Support Collaborative Water Planning:** Watercat Consulting and its predecessor company (Cat Shrier, Water Resources Consulting) have organized tours as part of water education and outreach and collaborative planning efforts for more than 10 years. In 2000, for the Colorado Water Conservation Board (CWCB), Cat Shrier, Water Resources Consulting, organized 17 watershed planning meetings in 5 months, bringing together water conservancy districts, environmental groups, and other stakeholders to meet with CWCB staff on state technical assistance programs and to gain public feedback on the role the state would take in future water planning efforts. The feedback received from these meetings provided the basis for Colorado's Statewide Water Supply Initiative (SWSI) and Water for the 21<sup>st</sup> Century Act programs, including the Interbasin Company Committee, Basin Roundtables, Technical Roundtables, and Water Supply Reserve Account grants and loans.

In conjunction with the initial 2000 watershed planning meetings, Cat Shrier, Water Resources Consulting, organized tours for CWCB staff and area stakeholders to visit potential water storage sites and river restoration programs receiving funding from state programs, providing area stakeholders an opportunity to review with CWCB staff their interest in continued collaboration on water planning and support for water management projects. Sites visited included river restoration projects, instream flow protection projects, flood control projects, and potential off-stream storage sites, including tours in the Gunnison/Uncompahgre basin, North Platte basin, San Juan-Dolores-San Miguel Basin near Pagosa Springs; Rio Grande/Alamosa Basin Meeting near La Jara; and Lower South Platte Basin near Sterling (Tamarack Ranch State Wildlife Area).

**Example: Water Tours to Support Indirect Potable Reuse Projects:** When Orange County Water District (OCWD) began to explore indirect potable reuse, the utility recognized the importance of securing public and political good will. Public outreach began more than 10 years before project startup, with extensive research on public concerns and face-to-face presentations with community leaders, women, mothers, minorities, senior citizens, and other key audiences. OCWD offered tours to build public and political acceptance of the purified water reuse, even before their full treatment plant was built. OCWD created a pilot treatment facility called the Interim Water Factory, which provided the full suite of advanced tertiary treatment methods before building a full-scale system. This pilot facility, which treated 5 million gallons per day, became a site for tours throughout pilot testing from 2004 through 2006. When

the full scale treatment facility became operational in 2007, tours continued. Tours of the OCWD Groundwater Replenishment System include a testing station at the tertiary treatment plant, where tour participants can try the water as soon as it has been treated. As of December 2009, OCWD offers more than 180 tours per year (Wehner 2008).

In 2008, three separate meetings were held in Orange County, California, addressing separate issues related to potable water reuse. The three meetings were the Groundwater Resources Association of California's Annual Conference; the Water Reuse Association/International Water Association Potable Reuse Symposium; and the National Academy of Sciences Study Committee on Water Reuse for Water Supply. As discussed in a special issue of *The Water Report* (January 15, 2009), each of these meetings held separate tours of OCWD facilities, with a different focus for each group depending upon the focus of the group (e.g. ground water recharge, water treatment for reclamation and reuse, or water reclamation and reuse policy and technical issues).

Tours of treatment facilities – combined with an opportunity for water tasting – have also been a key elements of strategies elsewhere for public and political acceptance of potable water reuse. In Singapore, tours have been combined with a Visitor's Centre, "where process is evident and technology becomes transparent... a place to reframe mental models about treatment." (Macpherson, Linda, 2008.)

### **Challenges of Tours and Some Solutions**

Many water utilities have experienced challenges with water tours, including security issues; health and safety and liability issues; and financial issues. As a result, some utilities have curtailed or eliminated their tours. Each of these issues, however, can be surmounted with proper planning and recognition of the value added by well planned and well executed tours.

**Security Issues:** Security has been a crucial issue in water tours since 9/11 - but it is not a reason to cease offering tours entirely. Security for tours of water utilities can begin with security for operations. An assessment of operational security often begins by making a comprehensive list of security threats, and assessing each for the probability of its occurrence and the severity of its consequences. This list can serve as the basis for decisions on how to detect, delay, and respond to those threats. General policies, such as locking doors regularly, maintaining up-to-date maps and diagrams, and maintaining good computer security, also contribute to the security of the utility and its tours.

For managing the risks of water utility tours, utilities can synthesize the above guidelines for utility operations with guidelines for managing tours of other government buildings. As an example with unusually high security, one can look at the Pentagon's protocols for tours, which are available on the web: Visitors must register in advance. Visitors must not bring any cigarette packs or weapons or items with a battery. Modified versions of these guidelines can also be appropriate for water utilities.

Water utility tours do present pressing security issues. However, they are issues that are confronted regularly by many other governmental sites and utilities, which continue to offer tours. Moreover, they are issues which the water utility may also have other reasons to solve.

**Example: Metropolitan Wastewater Reclamation District, Colorado.** The Metro Wastewater Reclamation District is a water utility in Colorado which offers tours. They require a list of visitors prior to each tour, and ask foreign nationals to show a passport and, in some cases, further documentation. They allow some photos but restrict the areas that can be photographed.

*"Tours are THE best way to impart knowledge that has staying power about what we do."  
--Steve Frank, Metro Wastewater Reclamation District, Denver, Colorado*

- **Safety and Liability Issues:** Safety and liability issues for temporary visitors to water facilities are similar to health and safety planning measures for utility employees. Simple measures such as including a "safety minute" at the beginning of a tour, or pointing out emergency exits and restrooms along the way, are valuable ways to minimize risks and prepare for emergencies. Since tour participants are unlikely to be trained in safety measures, tour sponsors need to ensure that their guests have adequate fitness and hydration for the tour, and will avoid hazards on site. Being careful not to scare tour participants, utilities can make them aware of the health and safety measures taken at the facility and of emergency training. This can reinforce the public's understanding of the utility's commitment to safety.

**Example: Fairfax Water's "The Full Treatment" Tours and Educational Programs.** The Frederick P. Griffith Water Treatment Plant, located in Fairfax County, VA., was opened in 2006. The plant was planned to include a visitors' center for educational programs combined with tours of the facilities. Post-9-11 concerns, however, led Fairfax Water to carefully consider the use of the facility. As an organization committed to education, Fairfax Water found a way to combine learning with a limited facility tour. Through the use of an e-book specifically created for Fairfax Water's treatment process, "*The Full Treatment*," the students become familiar with how the plant works before venturing out for a tour. While most of the tours are for school age children (minimum age is third-grade level), tours are also provided to professional groups, civic groups, government agencies (EPA, DHS, etc.). Fairfax Water has also benefited through local partnerships with joint training opportunities for local first responders, fire and rescue and hazmat crews. Each group is required to submit a formal request and provide proper identification.

- **Financial Issues:** Tours cost utilities staff time and resources. However, tours also build communities of dedicated and informed water users, generating financial benefit that can offset those costs. Aside from these financial benefits, tours also generate political goodwill that allows the utility to do a better job.

**Example: Calculating the Value of a Wastewater Tour:** As an example, suppose fifteen people on a wastewater tour learn about the toxicity of the lead in automatic transmission fluid. How much does this benefit the utility? One car might contain 8 quarts of fluid with a lead concentration of 100ppm. Chemicals for treating liquids with lead at that concentration cost \$.50 per pound of liquid. So treating one car's worth of lead can cost:

$$8\text{qts} * (2.08 \text{ lbs/qt} ) * ( \$ .50 / \text{lb} ) = \$8.30.$$

If each tour participant refrains from dumping their transmission fluid down the drain this year, then the fifteen-person tour would save the utility \$125 dollars in lead-treatment costs. By adding the value of the saved annual capital costs; by adding the value of informing participants about better practices for plumbing and gardening and disposing of pet waste; by multiplying by twenty if the participants are like our friends who still remember tours from twenty years ago: the tour can pay for itself.

## **Conclusion**

Tours have clear attractions for utilities: they can help to build a community of dedicated and informed users of the watershed and create community support for new water investments. There are quantifiable benefits from a community that notices polluters and water waste, and understands the need for rate increases or new projects. By helping to increase awareness of water issues among participants, tours increase the likelihood that communities will notice and respond to such problems, and that they will accept cost increases on their water bills. These reasons can make tours cost-effective, providing benefits in excess of the costs needed to address the concerns above.

Utilities can also offer creative approaches to tours off-site, such as bike tours of the watershed and hands-on ecosystem restoration and river cleanup activities, which can be co-sponsored with community groups. Virtual tours can provide information to a broad audience, although they may have less of an impact on tours than a more interactive and personal experience.

This paper presents only a few aspects of water tours. As utilities continue to offer tours, and expand their range, we hope this paper will help to meet the challenges and find solutions for strategic and creative water tours.

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