

2019 WATER UTILITY CLIMATE ALLIANCE ANNUAL REPORT



Denver, CO. (Getty Images)

Summary of Activities

This report documents the Water Utility Climate Alliance's 2019 Work Plan progress and provides a list of next steps.

2019 Water Utility Climate Alliance Annual Report

MESSAGE FROM THE CHAIR

October 2019



As 2019 comes to a close, and with it Denver Water's term as chair and executive chair, I'm happy to report many significant achievements.

During 2019, WUCA undertook projects to identify leading practices in climate resilience, better understand the impacts of extreme heat on utility operations and staff, learn from engineers about their experiences in planning for climate change, and understand how other agencies are addressing sea level rise.

We, the staff, appreciate your continued support for WUCA, and we look forward to highlighting our 2019 accomplishments and presenting our plans for 2020 at this year's GM Business Meeting. We also look forward to welcoming Central Arizona Project as it prepares to lead WUCA during the next two years.

Laurna Kaatz
Chair, WUCA
Climate Program Manager, Denver Water

SUMMARY OF ACTIVITIES

INTRODUCTION

Each year the Water Utility Climate Alliance (WUCA) develops a list of projects that will help meet priorities outlined in its 2017-2021 Strategic Plan. A project description and budget is developed for the highest ranked projects based on: (1) the Alliance's current strategic priorities; (2) the value added to individual WUCA utilities; and (3) staff time available to execute the project. This forms the annual work plan and budget presented to WUCA executives each year at the General Managers' Business Meeting in October. All projects are executed using a committee process made up of three or more WUCA staff contributors, with one staff member taking the lead to manage each project. The total budget for 2019 activities was \$180,139. This report documents WUCA's 2019 accomplishments and next steps for its projects.

2019 ACCOMPLISHMENTS

Business Function Mapping (Laurna Kaatz)

WUCA and WRF are jointly funding this work to develop a Water Utility Business Risk and Opportunity Framework. This is a flexible and replicable process framework and guidebook that utilities can use to assess the potential risks and opportunities of climate drivers that could affect the critical path of water utility business functions. The goal of this project was to develop a comprehensive, enterprise-level framework that could be used for both understanding the exposure and sensitivities of water utility business functions to a changing climate and accelerating the mainstreaming of climate considerations into utility management.

To perform the work, the research team analyzed existing scientific data and information relevant to assess water utility business function risks and opportunities and drew on lessons learned from seven case studies. Four case studies (Tampa Bay Water, Southern Nevada Water Authority (SNWA), Austin Water, and New York City Department of Environmental Protection (NYCDEP) were from WUCA utilities. The final product will provide utilities with: (1) an improved understanding and lessons learned from these utilities; (2) key drivers for and barriers to assessing climate risks and opportunities; (3) capabilities needed to support business function leaders through this process; (4) the type of data and information needed to assess business function risks; and (5) opportunities to improve climate adaptation at various scales.

The project (WRF #4729), is currently in production. WUCA and WRF will jointly fund Phase 2 of this project to test the framework with two WUCA member utilities that will also contribute additional funding. These member utilities are Denver Water and San Francisco Public Utilities Commission. Phase 2 will enhance the framework and guidebook to begin identifying opportunities to accelerate the mainstreaming of climate considerations and resilience into utility management.

Climate-Resilient Planning for Urban Stormwater and Wastewater Utilities (Alan Cohn)

WUCA held its first workshop focused on stormwater and wastewater on July 16-17, 2019, in New York City with the Water Research Foundation and the RAND Corporation. (RAND is part of the Mid-Atlantic Regional Integrated Sciences and Assessments (RISA) program). Following the formation of WUCA's first stormwater and wastewater subcommittee in 2018, the workshop sought to advance the state-of-the-science and provide value for utilities in three ways: (1) identify new methods and best practices for managing urban stormwater and wastewater while considering climate change and future uncertainties; (2) share ideas to inform more robust urban stormwater and wastewater infrastructure strategies to meet future needs; and (3) build capacity to adopt and implement new integrated planning methods.

The workshop followed four key themes: (1) stage-setting; (2) integrated planning and the current regulatory context; (3) climate resilience and scenario inputs; and (4) modeling tools



and integration. The plenary panel set the stage for the workshop, providing an overview of the current state of urban stormwater and wastewater planning in the face of climate change and other uncertainties. Subsequent panels focused on: (1) the range of operational and planning objectives that stormwater and wastewater utilities are trying to achieve now and in the future; (2) how hydrologic uncertainties are being represented and applied; and (3) new and innovative approaches to develop and apply to support climate-resilient planning. WUCA members from New York City, Seattle, Philadelphia, San Francisco, Austin and Tampa Bay provided their unique perspectives, often presenting common themes, at the workshop.

RAND developed meeting proceedings following the workshop. The proceedings will be published by the Water Research Foundation and used by the WUCA subcommittee to evaluate next steps including opportunities for further research and collaboration on these emerging themes.

Climate Resilience Training (Tirusew Asefa, Laurna Kaatz)

WUCA, in collaboration with the Florida Water and Climate Alliance (Florida WCA), organized and successfully hosted a training entitled: Building Resilience to Changing Climate: A Technical Training in Water Sector Utilities Decision Support. The training was held in May at Tampa Bay Water’s head office in Clearwater, Florida. The objectives were:

- Enhance understanding of the capabilities and limitations of climate science and learn best practices for using it in long-term water, wastewater, and stormwater utility planning.
- Learn about planning methods for addressing uncertainty when incorporating climate science into utility decision-making processes.
- Learn communication strategies to address institutional barriers and generate engagement around utility climate adaptation and resilience building.

Over 60 attendees from Tampa Bay, Florida, and around the country participated, including partnering WUCA utilities, during this two-day training. Both WUCA and Florida WCA partners presented case studies that described planning for climate and other factors, understanding the science of decision making under deep uncertainty, challenges and opportunities in climate data projection, customization for local hydrological impact assessment; and strategies for communicating to different stakeholders. As observed from the participants’ feedback, the training was quite successful.



Next Steps

The second 2019 training is scheduled for December 3-4, 2019 in Austin, Texas. The WUCA training planning committee is working with Austin Water to refine materials, identify relevant local case studies, and complete the significant logistical work needed to host a successful training. The Austin training is the first to seek

consulting sponsorships to help offset logistical costs. If this is successful, we will repeat this step in future events.

Going forward, WUCA will host two trainings a year through 2021, at which time each WUCA region will have hosted an event. During this time WUCA will continue working with the NOAA Climate Program Office to turn training materials and presentations into modules for nation-wide distribution.

Communications Phase 2: Engineering Case Studies (Kavita Heyn)

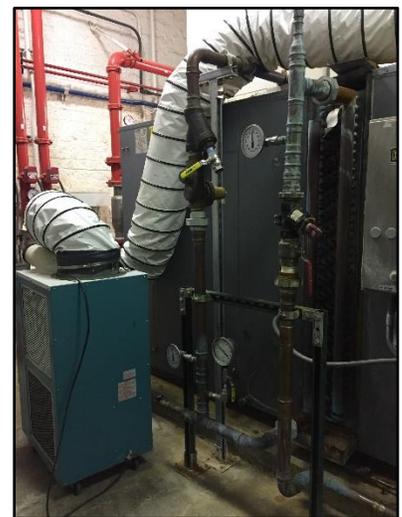
In 2019, WUCA built on the Communications project initiated in 2017 by conducting Phase 2 of the effort: developing Engineering Case Studies from the field to demonstrate how climate change data and information are being used to design, redesign, and build assets, change levels of service, and assess risk to infrastructure in utilities across the country, in the context of a range of climate impacts. In Phase 1 of the project, WUCA engineers specifically asked to see practical examples of how climate adaptation is unfolding at the project level amongst peer utilities. This project is creating a suite of profiles to highlight how utilities have used climate information in projects, the process of integrating climate information, and the internal utility stakeholders who were influential in mainstreaming climate change into projects.

WUCA subcommittee members used their peer networks to identify potential case studies and conducted interviews and research to solicit information on these examples. A subset of 10 case studies was identified for further development into concise one- to two-page profiles that will be hosted on the WUCA website, which will provide links to utility contacts and resources related to the project. WUCA is consulting again with Heidi Roop, strategic communications lead at the University of Washington Climate Impacts Group, to design visually compelling factsheets from these case studies using targeted messaging for engineers and utility staff. The goal is to develop all case study profiles by the end of 2019, with a couple of examples to be provided at the WUCA General Managers Annual Meeting/Retreat in October. Over time additional case studies could be developed and added to the web platform, dependent on future funding.

Heat Impacts on Infrastructure & Personnel (Keely Brooks)

WUCA began the Heat Impacts on Infrastructure & Personnel study (Heat Impacts Study) in spring 2019. The study does not focus on impacts to water supplies, but rather the objective was to estimate the impacts of temperature change on: (1) physical water infrastructure including treatment facilities and buildings; and (2) human health concerns for water utility workers exposed to extreme heat conditions. The five geographically diverse case study utilities included Portland Water Bureau, Denver Water, SNWA, Oklahoma City Utilities, and Miami-Dade Water and Sewer Department.

Image (right): A temporary air conditioner placed on a cart is currently functioning to pre-cool air going into a single air handler. The air handler cools a chlorine facility at one of the case studies.



2019 Accomplishments

To date, the utilities developed detailed scopes of work and non-disclosure agreements with the consultant and exchanged facility and personnel inventories. Each utility selected representative facilities, such as a critical water treatment facility, pump station, and/or chemical storage facility.

Next Steps

These facilities will be used to estimate projected changes in heating and cooling demands for: (1) future climate projections; (2) the cost of those changes; (3) potential cost impacts from service disruptions from facilities experiencing heat events exceeding design capacity; and (4) the cost to mitigate the impacts. Additionally, projected health impacts to workers will be estimated assuming no action versus adaptation. Preliminary results are due in fall 2019.

**Leading Practices in Climate Adaptation – formerly Best Practices
(Laurna Kaatz)**

It has been an incredibly productive year for the Best Practices Committee. This committee differs from other WUCA efforts in that all WUCA agencies are contributing to the project. The practices are based on individual and collective WUCA experiences and provide a vast set of strategies that are proven to work on the ground. Nearly 70 practices have been identified and the committee selected over 30 to highlight and detail.

In May, feedback was solicited from distinguished peers and partners at a special evening event during the National Adaptation Forum. With a 100 percent attendance, feedback was overwhelmingly positive, and WUCA was encouraged to publish the practices as soon as possible. Our peer reviewers also suggested WUCA share the stories behind the practices, explaining how they came to fruition as part of our communications.

This project will be highlighted at the 2019 GM Business Meeting and is on track to be completed in December.

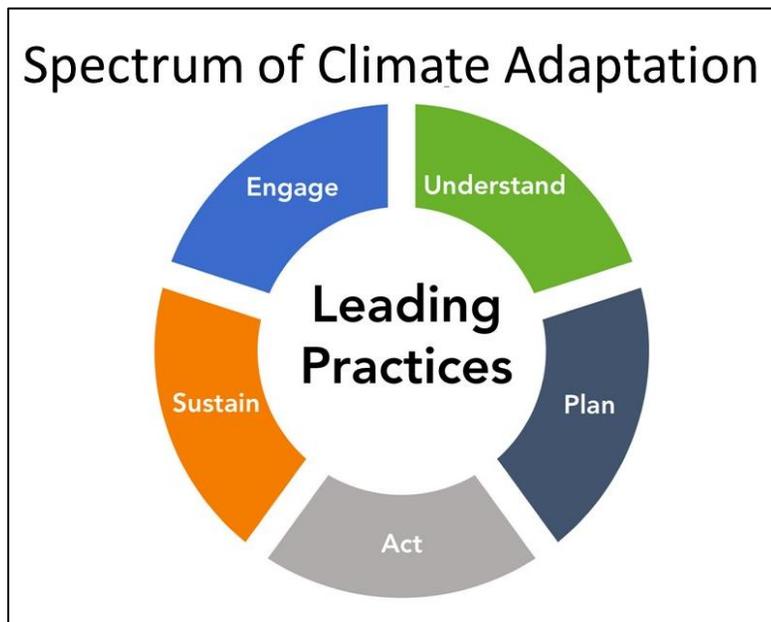


Image (left): The Spectrum of Climate Adaptation is used to categorize the breadth of activities associated with successful climate adaptation.

Next Steps

We are in the process of designing a living learning webpage that will reside on the WUCA website and include a way to download a report. As a living document, best practices will be added, refined, or replaced as our collective experiences in adaptation evolve over time. We plan to revisit the practices in detail every few years to make adjustments and additions, as necessary, and reinvigorate and promote the webpage.

Learning From Each Other (Alan Cohn)

WUCA continued its “Learning from Each Other” series with several presentations from member utilities.

Daryl Slusher and Joe Smith from Austin Water described the impacts of heavy rains and flooding in October 2018, which led to unprecedented levels of sediment that affected normal treatment processes. Daryl and Joe described Austin Water’s response to this event, including the first citywide boil water notice in Austin Water’s history.

Next, we heard from Emmet Owens from NYCDEP. Emmet provided an update on New York’s climate modeling activities, including the development of a stochastic weather generator to study the impacts of climate change on streamflow and stream turbidity.

Finally, Keely Brooks and James Curbeam from SNWA described their experience implementing an Enterprise Risk Management assessment and how they leveraged that effort to mainstream climate change information into their planning and operations.

WUCA looks forward to more presentations from member utilities, as well as external experts. In November, San Francisco Public Utilities Commission will discuss its work on decision scaling.

Midyear Planning Meeting (Lurna Kaatz, Mohammed Mahmoud, AMWA)

Every year, WUCA staff meet during the summer to update each other on Work Plan progress and respective utility activities. We also begin to discuss the next year’s Work Plan and the upcoming General Manager Business Meeting. In 2019, WUCA staff coordinated the midyear planning meeting with the National Adaptation Forum in Madison, Wisconsin.



Sea Level Rise Committee (Abby Sullivan)

In 2019, the WUCA Sea Level Rise (SLR) Committee was formed. It is a self-selected group of WUCA utility members that are preparing for rising seas. The committee was established to foster discussion and information-sharing between WUCAs in order to learn from each other and stay on top of adaptation best practices and sea level rise science. By sharing methods, decision-making tools, challenges, lessons learned, and success stories, WUCA utilities are supporting each other and directly impacting one another’s work. It is a nod to the power of WUCA’s social capital and the ability to use our collective experience and judgement to lead in the field of climate change adaptation. The SLR Committee will advance the way water utilities are adapting and building resiliency to sea level rise and its associated impacts (e.g., extreme events, saltwater intrusion). This committee supports several WUCA’s Strategic priorities and goals, including *Innovate and Lead*, *Knowledge Generation*, and *Knowledge Transfer*.

The SLR Committee, in partnership with the University of Connecticut and NOAA, held a side meeting at the National Adaptation Forum to gauge the need for and interest in the creation of a national group working on sea level rise adaptation, using WUCA as a potential model. It was intended to elicit ideas about the best way to collaborate on sea level rise adaptation planning and develop the community of practice. Over 45 people

registered and attended the event and roughly one-quarter were from local government. There was consensus that we should have a national group but who would lead and organize that group has yet to be determined.

In 2019, the SLR Committee's scope did not include a deliverable, such as a white paper, but focused on peer-to-peer education, information-sharing, and fostering conversations within the network. To commence the SLR Committee, a survey was conducted to gather baseline information about where each committee member's adaptation efforts were and how sea level rise science and projections were being utilized. Members then pitched topics of interest that might serve as themes for the committee calls.

WUCA Network (Mohammed Mahmoud)

In 2019, we built upon the efforts of the WUCA New Membership Committee that oversaw the successful addition of Austin Water and Philadelphia Water Department. Specifically, a WUCA Network was initiated to foster direct engagement with water utilities that are not WUCA members but are active and interested in water management and climate adaptation issues.

The WUCA Network provides several engagement opportunities, for both WUCA and WUCA Network participants:

Knowledge transfer. Allows organizations within the WUCA Network to obtain knowledge from WUCA products by interfacing with WUCA directly. Provides a benefit to WUCA by effectively distributing its products and activities. Helps organizations in the WUCA Network by expanding their knowledge on climate adaptation.

Information sharing. Allows information exchange between the WUCA Network and WUCA, such that WUCA benefits by learning from WUCA Network organizations about their climate adaptation work. This allows WUCA Network organizations to not just receive information from WUCA but to share knowledge as well.

Co-production. Allows for organizations in the WUCA Network to actively create work products with WUCA, such as, white papers, workshops, and events. WUCA Network organizations can now be partners in advancing climate adaptation for water utilities.

The WUCA Network had its kick-off call in May 2019, where participants discussed their areas of interest with respect to climate change and climate adaptation. Participants in the call included representatives from the Honolulu Board of Water Supply, City of Ann Arbor, Salt Lake Department of Public Utilities, DC Water, East Bay Municipal Utility District, Valley Water (formerly Santa Clara Valley Water District), Northeast Ohio Regional Sewer District, Los Angeles Department of Water and Power, Aurora Water, and City of Hillsboro, Oregon. Moving forward, the WUCA Network will hold quarterly calls that include rotating speakers presenting on various topics of interest to the group and provide opportunities to share updates on climate adaptation activities.

CONCLUSION

WUCA began its second decade with a slate of ambitious projects. In 2020, WUCA will build on the outcomes of this year's accomplishments to fully address the 2017-2021 Strategic Plan's goals and objectives, while continuing to develop relationships with other climate-focused organizations to further its mission. WUCA will also continue to improve and refine its practices to ensure it is most efficiently and effectively meeting goals and working together as an alliance. As it moves further into its second decade, WUCA looks forward to furthering its vision of building resilient utilities and thriving communities.