

Ralph P. Marra

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Ralph Marra, founder and senior principal at Southwest Water Resources Consulting, has over 30 years of experience as a municipal water-utility manager and as a strategic-planning consultant. He retired from the City of Tucson Water Department, where he served for many years

as chief hydrologist and water-resources management administrator. He was an early adopter of scenario planning and became its champion within the Utility and the region. As an experienced scenario-planning practitioner, educator, and trainer, Ralph assists organizations and communities in enhancing their adaptive flexibility and preparedness as their planning environments change over time. His professional imperative is to share his knowledge and experience so that a new generation of professionals will have the skills and tools needed to address the planning uncertainties and operative challenges that lie ahead.

Relevant Work Experience & Professional Services

Senior Principal

Southwest Water Resources Consulting, LLC
Tucson, AZ • Dec 2011 – Present

Provides scenario planning services to clients operating in uncertain planning environments. Services include:

- Workshop design, facilitation, and scenario development
- Future mapping: Identifying the strategic options
- Strategic communications and stakeholder outreach
- Strategic orientation for transitioning management and leadership teams
- Scenario training: Teaching others

Strategic foresight services support integrated water-resources, urban land-use, transportation, environmental/climate-change, and economic planning.

Water-Resources & Land Management: Assistant Program Manager

BKW Farms, Inc.

Marana, AZ • Mar 2013 – Present

Provides program oversight for managing ~17,000 acres of water farms on behalf of the City of Tucson

Documents onsite land-management needs and recommendations for client review

Advises on regulatory issues related to land management, maintenance, and improvements

Conducts water and land-use policy review, development, and position advocacy

Advises on implementation of habitat conservation planning

Explores opportunities and challenges to acquire long-term access to future water supplies

Advises on recharge-and-recovery facility design, master planning, permit acquisition, and surface-spreading basin maintenance and rehabilitation

Provides stakeholder liaison services on behalf of client and BKW Farms

Water Administrator

Water-Resources Management

City of Tucson Water Department

Tucson, AZ • Sep 2005 – Oct 2011

Managed integrated water-resources and conjunctive-use planning for the City of Tucson

Managed scenario-planning applications to address strategic resource and supply uncertainties

Supervised development of surface-water and effluent recharge and recovery facilities

Initiated development of the City's Recycled Water Master Plan to prepare for potable reuse

Negotiated with state regulators to address water-resource and environmental and water-resource issues

Initiated development of Utility's first climate-change adaptation plan to assess resource and supply vulnerabilities

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Developed and negotiated strategic initiatives to acquire additional water resources

Coordinated policy- and planning-related actions with other municipal utilities, governmental agencies, and environmental organizations

Supervised management of the City of Tucson's 100-year Assured Water Supply Designation

Chief Hydrologist

Research & Technical Support Section
City of Tucson Water Department
Tucson, AZ • Sep 2000 – Sep 2005

Managed technical R&D / hydrologic unit with 27 professional and support staff

Developed annual 50-year water-demand/resource-utilization projections to identify supply issues

Supervised compliance reporting for Utility's groundwater pumping and aquifer recharge and recovery

Provided technical review to assess and mitigate areas impacted by contaminated groundwater

Developed recharge facility plans incorporating environmental enhancements and educational amenities

Served as Utility's technical lead in developing the City's multi-species habitat conservation plan

Reviewed proposed changes in City water policy, federal/state regulatory rule, and state statute

Served as departmental representative at technical, political, and public forums

Hydrologist II/I & Hydrologic Intern

Research & Tech Support/Hydrology Section
City of Tucson Water Department
Tucson, AZ • Dec 1986 – Sep 2000

Prepared technical assessments to address time-sensitive issues for decision makers

Conducted field assessments to assess aquifer-recharge feasibility

Coordinated permit acquisition for new supply wells and aquifer recharge facilities

Provided technical review of academic/applied water-resources and water-treatment research investigations

Developed numerical/analytic groundwater models for research, permitting, and litigation support

Developed and reviewed environmental work plans to address groundwater contamination issues

Managed the City's extensive ground-water rights portfolio overseeing modifications, extinguishments, and Assured Water Supply credit accruals

Incorporated a new wetlands treatment system into an expansion of effluent recharge/reuse facilities

Served as departmental liaison on cooperative projects with county, state and federal agencies

Served as the City's voting representative on multi-jurisdictional environmental planning committees

Prepared water-resources reports and briefings for technical, political, and lay audiences

Relevant Knowledge & Skills

Highly developed scenario-planning process design, facilitation and training skills

Strong integrative, multi-disciplinary orientation

Understands intricacies of water-resources planning in arid, rapidly developing areas

Proven ability to deliver high-quality work products

Demonstrated capability to work both independently and collaboratively

Communicates effectively with political, technical, lay, and international audiences

Excellent writing, presentation, facilitation, and public-speaking skills

Publications

Marlow, J., H. Oliver, R. Quay, and R.P. Marra, 2015. Integrating Exploratory Scenario Planning into a Municipal General Plan Update; *Lincoln Institute of Land Policy Working Paper WP-15JMI*.

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Scott, C.A., C.J. Bailey, R.P. Marra, G.J. Woods, K.J. Ormerod, and K.E. Lansley, 2012. Scenario Planning to Address Critical Uncertainties for Resilient Water-Wastewater Infrastructures under Conditions of Water Scarcity and Rapid Development; *Water*, Volume 4: Issue 4.

Marra, R.P. and T.M. Thomure, 2009. Scenario Planning: Making Strategic Decisions in Uncertain Times, *Southwest Hydrology*, Issue: May/June 2009.

Thomure, T.M., W.R. Wilson, A. Philbin, and R.P. Marra, 2008. Considering Sustainability in Long-Range Water Resources Planning in Tucson, AZ, *American Water Works Association*.

Thomure, T.M., W.R. Wilson, and R.P. Marra, 2007. Master Planning Recharge Facilities to Provide Flexibility for the Future, *Proceedings: International Symposium on Managed Aquifer Recharge (ISMAR6)*, Phoenix, AZ.

Thomure, T.M. and R.P. Marra, 2005. The Role of Recharge in Tucson's Sustainable Water Future, *Proceedings: 12th Biennial Symposium on Groundwater Recharge*, Arizona Hydrological Society.

Education/Advanced Training

2012: Global Business Network: Berkeley, CA Intensive Scenario Planning Process Training Certificate

1992: University of Arizona: Tucson, AZ Master of Science (Major: Hydrology)

1985: Southern Illinois University: Carbondale, IL Graduate Standing (Major: Geology)

1980: Southern Illinois University: Carbondale, IL Master of Arts (*Honors Recognition*; Major: Teaching English)

1973: California State University: Fullerton, CA Bachelor of Arts (*Honors*; Major: Sociology)

Scenario Projects/Trainings

Colorado Water Conservation Board (2017). Assisted in quantifying information generated in the State's multi-stakeholder scenario planning process to

further refine Colorado's State Water Plan—working in partnership with CH2M Hill.

Denver Water (2016). Designed and facilitated a five-workshop scenario-planning process to formulate a range of Planning Futures to support *Integrated Resources Plan 2065*—working in partnership with CH2M Hill.

Keystone Institute/Sonoran Institute (2016). Designed and facilitated workshops and provided training to Sonoran and Keystone staff as part of the *Colorado Water and Growth Dialogue*—working in partnership with the Lincoln Institute of Land Policy.

City of Denver: Community Planning and Development Department/Sonoran Institute (2016). Facilitated process to define the City of Denver's Strategic Planning Question and designed two scenario workshops to develop a diverse range of Planning Futures as part of *Blueprint Denver*, an integrated City and County land-use, recreation, and transportation plan—working in partnership with the Lincoln Institute of Land Policy.

El Colegio de Sonora/Hermosillo Water (2016). Conducted two scenario workshops with facilitated breakout sessions to introduce professors, graduate students, water utility managers, and civic leaders to scenario planning and how it can serve as a means to manage uncertainties in water-utility planning—working in partnership with the University of Arizona.

United Nations—Food and Agriculture Organization (2015): Trained United Nations and Departamento General de Irrigación (DGI) and United Nations staffs on how to conduct a scenario-planning assessment of development challenges in an over-allocated subbasin in DGI's service area in Mendoza Province, Argentina.

University of Arizona (2015): Participated in a two-day scenario-planning workshop with faculty, academic practitioners, and consultants to review various techniques and lessons learned when applying a range of methodologies—working in partnership with the University of Arizona.

Southwest Colorado Council of Governments (2014 & 2015). Served as scenario-planning workshop designer, trainer, and facilitator tasked with engaging representatives of key economic sectors in the five counties of southwest Colorado in order to explore the

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potential environmental implications of extended long-term drought on the regional economy—working in concert with Sonoran Institute and Lincoln Institute of Land Policy.

Colorado Water Conservation Board (2013/2014). Served as the Scenario Planning Advisor providing guidance on the strategic structure of the adaptive-management plan, drafted the scenario-planning section of the Colorado Water Plan, and provided advisory/material support for presentations.

White Mountains Land Trust (2013 & 2014). Assisted in designing the process and co-facilitated a series of scenario-planning sessions with multiple stakeholders from a two-county region of northeast Arizona to explore planning uncertainties, the associated opportunities and challenges, and possible adaptive options for consideration by local decision makers—working with the University of Arizona.

Lincoln Institute of Land Policy and Sonoran Institute (2013). Co-facilitated a second multi-day scenario-planning training workshop—Scenario Building: Building Resilience for an Uncertain Future. Event was directed at municipal water-resource planners, water-resource regulators, and land-use/urban planners from multiple agencies and organizations based in Arizona, Colorado, and Montana.

United Nations—FAO (2013). Served as member of an international water-resources planning team assembled by the United Nations consisting of technical experts from UN-FAO, The World Bank, and Chilean water agencies to provide the Departamento General de Irrigación of Mendoza Province and federal regulators an overview of Scenario Analysis and its potential applications.

Colorado Water Congress (2013) Conducted a scenario-planning workshop at the annual winter convention in Denver to provide an overview of the scenario approach as it applies to water-resources management for municipal water utilities and for regulatory agencies—in partnership with Denver Water.

Consensus Building Institute and Lincoln Institute of Land Policy (2012). Presented as a visiting scenario-planning practitioner at a two-day scenario-planning workshop—*Responding to Change and Uncertainty in the Western United States: Managing*

Risk in Decision Making. Participants included water-resources and land-use/urban planners, environmental planners and regulators from multiple agencies and organizations primarily based in Arizona.

City of Tucson Water Department (2010 & 2011). Guided project team tasked with developing a consultant scope for the Utility’s Recycled Water Master Plan based on a Scenario Planning update of the 2004 analysis.

City of Tucson Water Department, Pima County Wastewater Management, and University of Arizona (2009 & 2010). Introduced a multi-disciplinary research team from the University of Arizona to scenario planning and served as a participant to explore possible futures regarding the siting of future County wastewater and City re-use facilities to optimize treatment and cost efficiencies.

City of Tucson Water Department (2003 & 2004). Co-led the project management team responsible for updating Tucson Water’s 50-year integrated water plan by developing and applying two parallel scenario-planning processes to address water-supply uncertainty associated with using the City’s imported Colorado River water entitlement and its locally-generated municipal effluent allocation.

Personal Interests

Avid cyclist for both physical fitness and absolute pleasure

Amateur photographer specializing in portraiture and architecture—black-and-white and color formats

Memoirist and travel writer

References

On request