Integrated Water Management:
Ensuring a Reliable, Sustainable, and Affordable Water Supply

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In the developed world, we largely take for granted widespread access to a reliable and affordable supply of clean water. Yet across the US, water management challenges are increasing, with pressures from urban densification, water scarcity and flooding, aged infrastructure, and a management system that does not reflect the true cost of water. In the face of these challenges, it is necessary for water utilities to move to a new business model that promotes end user efficiency while maintaining the utility’s revenue stability, analogous to the shifts in electric utility business models.

Complementing the transition towards the water utility of the future, integrated water management is an emerging water management paradigm that emphasizes the interconnectedness of water throughout the water cycle, and focuses on opportunities to meet some water demand not by simply generating more potable water from an established natural source but rather by leveraging alternative sources – including utilizing treated gray water or black water. Specific examples of integrated water management include: rainwater capture, local reuse of graywater, aquifer storage and reuse, and green stormwater infrastructure development. The diagram illustrates sources of water, entities involved in the treatment and distribution of water, key customer classes, different classes of wastewater, and viable pathways for water re-use. Integrated water management may lead toward more distributed water capture and treatment processes.

Two key aspects of integrated water management are coordination of water management processes across the water stakeholder community and valuation of water that reflects its true cost. The diverse stakeholder groups involved in integrated water management include potable water providers, stormwater managers, and watershed protection services, as well as those who are involved in the financial and economic dimensions of water management.

The utilities play a central role in water planning, maintenance, and operations that positions them uniquely to drive change in the business models for integrated urban water management. At a time when US water utilities are faced with the challenges of urban densification, water scarcity and flooding, aged infrastructure, and insufficient capital budgets, the integrated water management approach offers an avenue to adapt the utility model towards achieving sustainable, resilient, and integrated urban water systems, and to maintain affordability of our water.