



MEETING REPORT

The City Upstream and Down:

How Integrated Water Management Can Help Cities Thrive





About American Rivers

American Rivers is the leading organization working to protect and restore the nation's rivers and streams. Rivers connect us to each other, nature, and future generations. Since 1973, American Rivers has fought to preserve these connections, helping protect and restore more than 150,000 miles of rivers through advocacy efforts, on the ground projects, and the annual release of America's Most Endangered Rivers. Headquartered in Washington, DC, American Rivers has offices across the country and more than 100,000 supporters, members, and volunteers nationwide. For more information about American Rivers, visit our website at www.AmericanRivers.org

About Great Lakes & St. Lawrence Cities Initiative

The Great Lakes and St. Lawrence Cities Initiative is a Great Lakes Map binational coalition of over 120 U.S. and Canadian mayors and local officials working to advance the protection and restoration of the Great Lakes and St. Lawrence River. The Cities Initiative and local officials integrate environmental, economic and social agendas and sustain a resource that represents approximately 20 percent of the world's surface freshwater supply, provides drinking water for 40 million people, and is the foundation upon which a strong regional economy is based. Members of the Cities Initiative work together and with other orders of government and stakeholders to improve infrastructure, programs and services and increase investments that protect and restore this globally significant freshwater resource. Only by working together to protect the Great Lakes and the St. Lawrence can we preserve and enhance the quality of life and economic well-being of the people of the region. The Cities Initiative works with mayors and municipal staff to protect and preserve the Great Lakes and St. Lawrence region at the local, regional, and basin-wide levels

About Johnson Foundation at Wingspread

The mission of the Johnson Foundation at Wingspread is to be a catalyst for positive and lasting change leading to healthier environments and communities. The Foundation achieves this by convening the right people on timely and compelling topics and empower them to find innovative solutions with sustained impact. Hosted at Wingspread, a Frank Lloyd Wright designed National Historic Landmark, our meetings among leaders and experts are small and intimate: the issues they address are big and important. Our neutrality creates a unique oasis of trust so the diversity of perspectives around the table are heard and respected. World-class facilitation inspires provocative, yet collaborative, dialogue.

About Mayors Innovation Project

The Mayors Innovation Project is a learning network among American mayors committed to "high road" policy and governance: shared prosperity, environmental sustainability, and efficient democratic government. Around the country, mayors are taking the lead on pressing social issues—climate change, infrastructure, economic revitalization, health care, prison reentry, and more. We support and encourage this innovation by providing cutting-edge thinking and concrete examples that your city can use right away. Building high road cities and metropolitan regions is both good for citizens and a key way to move the country to the high road nationally. Cities have enormous untapped assets and political strengths that can be organized better now. The Mayors Innovation Project exists to help its member participants lead by example, share their experiences with peers, and make this argument for cities nationally.

Acknowledgments

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CITY UPSTREAM & DOWN EXECUTIVE SUMMARY



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Water systems in the United States are among the safest in the world and yet, the fragmented way in which most cities have managed water historically is not viable for handling the serious water challenges confronting urban areas across the nation today and into the future. With climate change driving dramatic changes in the water cycle and rendering traditional approaches to water resources planning obsolete, the time has come for cities to adopt more holistic and resilient water management strategies. Based on the outcomes of an October, 2015 meeting of mayors, municipal leaders and urban water managers, this report encourages the pursuit of integrated water management as a pathway to addressing urban water challenges within and beyond city limits. The report explains the concept of integrated water management; illustrates the potential benefits of pursuing its implementation; and provides practical guidance about steps elected officials, water utility managers, and other municipal leaders can take to get started.

In the report, “integrated water management” refers to an approach to water management that centers on breaking down “silos” to create holistic, coordinated water systems that maximize economic, social, and environmental benefits in an equitable and sustainable manner. In this context, integrated water management is an approach to managing water resources that optimizes cross-departmental and multi-jurisdictional coordination and management of water infrastructure. Integrated water management is practiced through inclusive and jointly planned management of all water systems—wastewater plants, water supply systems, stormwater collection, and source water—in order to create a more secure, flexible, and resilient water future. The report suggests that by taking specific actions at the utility, city, and watershed scale to better integrate how different agencies and organizations manage water, communities can:

- Increase their resilience to climate change.
- Enhance the quality of life for residents.
- Optimize local economic growth.
- Improve watershed health.
- Increase the efficiency and effectiveness of local government.

CITY UPSTREAM & DOWN INTRODUCTION



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Water is the lifeblood of our communities and environment, yet an array of emerging water challenges pose threats to the integrity and reliability of water resources across the country. Water infrastructure in the United States is aging and on the brink of failure in many places, and generally not suited to adapt to climate change impacts. Meanwhile, changes in urban demographics are putting additional pressure on already-stressed drinking water, wastewater, and stormwater management systems. Moreover, source waters and their watersheds are very often shared beyond political and water management boundaries, and sustaining these finite water resources presents governance and coordination challenges. These challenges are magnified as communities face a future with too much water, too little water, or water at the wrong time. This report encourages elected officials, water utility managers, and other municipal leaders to pursue integrated water management as a pathway to addressing water challenges within their jurisdictions, service areas, and watersheds, while generating a suite of economic, environmental, and social benefits for their communities. The content of the report is based on the outcomes of a three-day convening of mayors, municipal leaders and urban water managers held at The Johnson Foundation at Wingspread in Racine, Wisconsin in October, 2015. The report is designed to explain the concept of integrated water management; illustrate why cities should consider pursuing its implementation and how cities can lead the way toward solving water challenges across their shared watersheds. The report also provides practical guidance about how city leaders can initiate this important work where they reside.

CITY UPSTREAM & DOWN WHAT IS INTEGRATED WATER MANAGEMENT?



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This report will use the term “integrated water management” to refer to an approach to water management that centers on breaking down “silos” to create holistic, coordinated water systems that maximize economic, social, and environmental benefits in an equitable and sustainable manner. In this context, integrated water management is an approach to managing water resources that optimizes cross-departmental and multi-jurisdictional coordination and management of water infrastructure. Through integrated water management, communities seek to ensure enough clean water to meet the needs of both human and natural communities. Integrated water management is practiced through inclusive and jointly planned management of all water systems—wastewater plants, water supply systems, stormwater collection, and source water—in order to create a more secure, flexible, and resilient water future.

Integrated water management is closely related to other concepts aimed at achieving similar goals, particularly the realization of triple-bottom line benefits from water system investments. For instance, the [Global Water Partnership](#) defines the conceptually-related approach known as Integrated Water Resources Management (IWRM) as:

[A] process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of ecosystems.²

As a concept, IWRM has a long history that has evolved in response to challenges and criticisms. That history provides an important backdrop for our proposed notion of integrated water management without constraining it. Most important, as the definition suggests, IWRM is not an end in itself, but a pathway to achieve triple-bottom-line outcomes by weaving the consideration of water management into other areas of municipal and resource planning and policy making that impact and are impacted by water resources.

The emerging concept of One Water, as articulated by the [Water Environment Research Foundation \(WERF\)](#), can be considered an urban-centric application of integrated water management. WERF has defined it as follows:

The Triple-Bottom-Line¹

Cost comparisons between water system alternatives can provide an incomplete picture of the return on public investment. Alternatively, a triple-bottom-line analysis can provide an understanding of multiple economic, social, and environmental benefits to guide the development of an integrated program that prioritizes and maximizes multi-benefit returns on investment and addresses water system needs as well as broader community enhancements. Typical benefits of triple-bottom-line solutions include:

- Increased recreational opportunities
- Improved property values
- Reduction in heat stress mortality
- Enhancement of water quality and aquatic
- Increased human health and wellbeing
- Affordability of utility services
- Air quality improvements
- Reduced energy usage and related savings
- Reduced disruption from construction and maintenance

The One Water approach considers the urban water cycle as a single integrated system, in which all urban water flows are recognized as potential resources, and the interconnectedness of water supply, groundwater, stormwater and wastewater is optimized, and their combined impact on flooding, water quality, wetlands, watercourses, estuaries and coastal waters is recognized.³

WERF's definition of One Water recognizes that water management encompasses much more than the provision of drinking water, wastewater and stormwater management services. Instead it emphasizes management of the urban water cycle as a core component of livable cities.⁴ To advance the concept, the [U.S. Water Alliance \(USWA\)](#) is building a diverse national network of leaders who are committed to implementing One Water. The USWA campaign seeks to unite leaders in a concerted effort to address the policy, institutional, and technical aspects of realizing One Water.⁵

Pursuing integrated water management as an approach opens up myriad ways in which leaders can reimagine the role of water in strengthening local economies, improving ecosystems, and enhancing citizens' quality of life. However, developing a vision for integration is only the first step. At a fundamental level, operationalizing the concept requires extensive, creative, and sustained collaboration and stakeholder engagement to break down silos between local government departments; among public, private sector, and nongovernmental organizations; and across regulatory jurisdictions and political boundaries.



Courtesy of Water Environment Research Foundation.

CITY UPSTREAM & DOWN WHY SHOULD CITIES PURSUE INTEGRATED WATER MANAGEMENT?



Water is an integral aspect of urban life and cities stand to benefit tremendously from weaving consideration of water into planning processes and infrastructure decisions that affect water and community resources. Conducting water and city planning separately tends to be inefficient and does not generate optimal outcomes for communities. Traditionally, water resource planners have worked in isolation from city departments while using historical data to project future environmental conditions and design new infrastructure. Beyond the challenge of increasing coordination between silos, the influence of climate change means that today's planners can no longer assume "stationarity," which is the notion that past environmental conditions are a good indicator of the future. Water managers and city leaders must assume that "stationarity is dead"⁶ and adopt adaptive, scenario-based planning and infrastructure management strategies that account for potential climate variability. Through integrated water management, elected officials, water utility managers, and other municipal leaders across the United States have an opportunity to manage water resources in new and exciting ways that better protect communities from the impacts of climate change while simultaneously generating triple bottom-line outcomes—improved quality of life, economic growth, and healthier watersheds. Integration can also lead cities to increased communication and coordination more generally, and therefore they may realize the ancillary benefit of stronger local and regional governance. While water may not be perceived as a top priority for many elected officials, increasing effective governance and building climate resilience should be universal priorities, and integrated water management is a demonstrable way to achieve these objectives.

Livable Urban Communities

Integrated water management can help cities and neighboring communities upstream and down better cope with environmental challenges including water shortages, flooding, stringent water quality regulations, and protecting public health. Integration is a useful guiding concept for rehabilitating and modernizing aging urban water infrastructure, as well as buildings, roads, and open spaces. Combining green and grey stormwater infrastructure (human-engineered systems) with natural infrastructure (infrastructure provided by nature), including both landscape-scale conservation measures and site-scale green stormwater infrastructure, helps optimize the performance of drinking water,

Restoring a Waterfront Asset in Racine

The City of Racine, WI used a combination of improved beach maintenance, new health ordinances, and green stormwater infrastructure to reduce water quality violations at its beloved North Beach. A team of staff from several municipal departments—including Health, Parks and Recreation, and Public Works—combined their skills and resources in a collaborative effort that resulted in one of the nation's best beaches for families and the best tasting water in America.^{B1}

wastewater and stormwater systems. For instance, managing wastewater and stormwater as resources provides benefits to communities downstream from cities by reducing flooding, sewage overflows, and other problems that flow down rivers and streams. Natural infrastructure elements also beautify urban spaces and make them more livable. Pursuing integrated water management can also serve as a springboard for more flexible and adaptive water management strategies, which communities must embrace to build resilience to climate change and extreme weather events associated with increasing variability in the water cycle.

Vibrant Local Economies

Investment in integrated strategies such as green stormwater infrastructure creates local jobs as well as communities that are more attractive for both residential and commercial development. Beyond city boundaries, integrated water management involves watershed-scale strategies such as protecting water supply sources upstream, which can reduce costs associated with drinking water supply in cities. Innovative methods for recovering nutrients, energy, and other resources from wastewater and converting them into marketable products point toward wastewater utilities becoming viable businesses that contribute to economic growth rather than simply providing a fee-driven service. The most well-known example is the Milwaukee Metropolitan Sewerage District (MMSD) in Wisconsin, which has been recovering nitrogen from its wastewater operations and producing and marketing the organic nitrogen fertilizer Milorganite since 1926.⁷ A number of other wastewater utilities have also developed fertilizer products from recovered nitrogen. In addition, an increasing number of wastewater utilities are now generating renewable energy using biogas produced through anaerobic digestion. For instance, DC Water built a waste-to-energy facility at the Blue Plains Advanced Wastewater Treatment Plant in the District of Columbia, which will produce 10 megawatts of power on-site, reducing the plant's electricity costs by approximately 30%. The facility will also produce higher quality biosolids that can be used to fertilize local gardens and green stormwater infrastructure projects, saving millions of dollars in hauling costs.⁸ Savings like that can then be passed on to customers.

Integrated water management helps communities enhance:

- Resilience to climate change
 - Quality of life
 - Local economic growth
 - Watershed health
 - Efficiency and effectiveness of government
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Healthier Watersheds

In most cities, the reliability and integrity of water resources is inextricably linked to upstream communities' water management, and likewise cities have a responsibility to downstream communities to manage water responsibly. Since cities are major water users and typically possess significant political power within a given region, urban water utility managers and city officials are logical choices to lead efforts to coordinate water resource planning and management across a shared watershed. In Oregon's Tualatin River Valley the local wastewater and stormwater utility, Clean Water Services, spearheaded a watershed-wide tree planting initiative called [Tree for All](#) which set out to plant one million native trees and shrubs along the Tualatin River and its tributaries within one year, a goal which was exceeded due to active engagement of a broad array of partners. Streams lined with native vegetation provide cleaner, cooler water, better flood management, and fish and wildlife habitat, while also creating a better overall quality of life for watershed residents and a more attractive locale for businesses.⁹ By serving as a hub for watershed-based planning, urban leaders can help bring stakeholders together to develop and implement comprehensive management strategies that restore impaired hydrological functions, improve overall ecosystem health, and secure adequate supplies of clean water for all users in the watershed.

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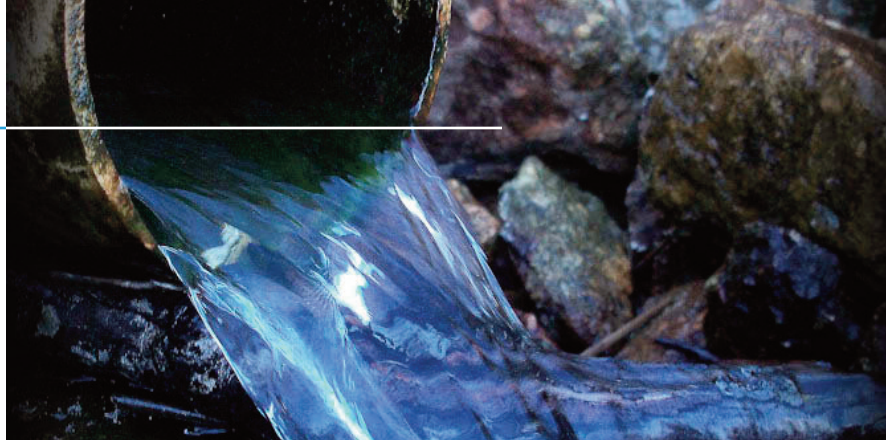
Efficient and Effective Governance

Recognizing water management as a common thread that runs through all community planning and infrastructure decisions can help city governments achieve administrative and financial efficiencies. Water can serve as a focal point for coordination among departments within local government and across political jurisdictions within a watershed. The collaboration required for integrated water management creates opportunities to leverage staff capacity and financial resources, save taxpayer dollars, and respond more nimbly to requests from the public by reducing redundancy and increasing the likelihood that solutions will be sustained. For example, better coordination between stormwater agencies, public works, and transportation departments might enable more timely and cost-effective implementation of green stormwater infrastructure which can be incorporated into already-planned street rehabilitation projects. Ultimately, integration can lead to stronger, coordinated governance that is better equipped to generate triple-bottom-line benefits.

"We offer the best product imaginable. When people ask me how many jobs DC Water supports, I say every job in the District of Columbia. No business, organization, or household can function without the water services we provide."

— George Hawkins,
General Manager, DC Water

CITY UPSTREAM & DOWN ARTICULATING A VISION FOR INTEGRATED WATER MANAGEMENT



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The greatest hurdles to integration are not related to technological deficiencies or a lack of effective management practices. Instead they are primarily institutional, political, and cultural. Integrated water management is primarily about shifting mindsets within public and private institutions and among the general public, such that all community members are committed to considering water in their decision making. Shifting the mindset of an entire city or watershed is a challenging task that requires a multi-pronged, multi-scale strategy.

Most importantly, elected officials, water utility managers, and other municipal leaders must play an active and steadfast role in articulating a vision and rationale for pursuing integrated water management. Leaders interested in introducing such a vision in their communities can be either reactive or proactive in making the case to the public. Occasionally, a valuable opportunity to articulate such a vision may arise from a crisis situation such as a public health incident or a costly regulatory enforcement action against a community. Leaders should be prepared to react and seize opportunities to advocate for integrated water management that may arise from such crises.

Elected leaders in particular should proactively articulate a commitment to integration and base their decision making and management of local government on that commitment. Mayors and other elected officials are typically in the best position to connect water to the community issues of the day and tap into local values that align with the potential benefits of integrated water management. Water utility managers similarly have a vital role to play in articulating a path toward a resilient water future. A strong vision will clearly communicate the value proposition of doing things differently with water. Elected leaders can also benefit from partnering with advocacy organizations, schools, and other water champions in the community to deliver carefully-framed messages that reinforce the executive's vision, and help educate the public about the importance of water to daily life, business, and the environment.

Converting Crisis into Action in Toledo

In August 2014, over 400,000 residents in the City of Toledo and the Lucas County region were without clean drinking water for more than two days when a harmful algal bloom became stagnant over their water intake. The bloom produced a toxin called microcystin, which can produce hives or blisters from direct contact with the skin or, if swallowed, can cause headaches, fever, nausea, vomiting, and diarrhea.

After this wake-up call, the city and county put a higher priority on their source water protection plan, wastewater treatment technology, and green stormwater infrastructure planning efforts. The city's green stormwater infrastructure task force now participates in a broader watershed planning effort to prioritize areas where green infrastructure will be most beneficial to reducing nutrient loading. Once the watershed plans are complete, the task force will work to set regional goals and metrics to reduce stormwater runoff, decrease sewer overflows, improve habitat, and infiltrate water back into the ground.^{B2}

CITY UPSTREAM & DOWN STRATEGIES FOR ADVANCING INTEGRATED WATER MANAGEMENT



Realizing a vision for integrated water management is a transformative process that consists of several key elements that must be considered. Part of WERF's recently released suite of resources focused on institutional innovation for One Water, *Pathways to One Water: A Guide for Institutional Innovation*, outlines the following six elements of a One Water paradigm shift:

- 1) Bold leadership;
- 2) Planning and collaboration;
- 3) Culture, knowledge and capacity;
- 4) Citizen and stakeholder engagement;
- 5) Economics and finance;
- 6) Regulation and legislation.

WERF also developed a series of case studies that illustrate how specific communities have succeeded in putting the elements into action.¹⁰ The outcomes of American Rivers' October 2015 Wingspread convening strongly reinforced WERF's findings, especially the need for bold leadership and action by champions of integrated water management. The balance of this section outlines practical steps leaders at different scales can take to spark movement toward integrated water management in their communities and watersheds.



Courtesy of Water Environment Research Foundation.

Utility-Scale Strategies

Utility managers have an opportunity to play a much more visible leadership role in communities since they manage critical services that people depend on. For that reason, they can serve as trusted voices and effective allies of mayors and other elected officials in creating a culture of integrated water management. Internally, drinking water, wastewater, and stormwater utilities need to examine their organizational structures and cultures and take intentional action to break down silos and infuse a spirit of collaboration throughout the organization. Like elected officials, utility managers must set the tone by articulating a vision for the operation and support that vision with mechanisms that drive organizational culture change. Practical measures that utilities can implement include:

- Set ambitious organizational goals that align with the principles of integrated water management.
- Educate executive, administrative, and operations staff about the concept and principles of integrated water management.
- Cross-train operations staff so that they understand all aspects of the operation and how their duties relate to others and the overall functioning of the system and watershed;
- Establish inter-disciplinary teams that foster collaboration, innovation, and efficiency;

- Incorporate directives and expectations regarding inter-departmental collaboration and coordination into job descriptions and performance review criteria.
- Designate and assign authority to a staff person who works across departments or divisions to facilitate collaboration.
- Create incentives and a corresponding reward system that encourages staff to contribute ideas about innovative improvements to the operation.

Clean Water Services—One Water, Many Hands

Clean Water Services in Hillsboro, Oregon is a “water resources management utility,” that has embraced integrated water management and taken action on several fronts to bring a broad range of benefits to 560,000 customers in the Tualatin River Watershed. *One Water, Many Hands*, the utility’s [2014-2015 Annual Report](#), details how Clean Water Services is engaging public and private partners throughout the watershed in its innovative stormwater and wastewater management projects. Projects include an engineered wetland water filtration system, Tree for All, and beer production using recycled water. Internally, the utility’s leadership inspires collaboration and coordination among staff by engaging employees in setting aspirational annual goals. The goals are then linked with a monetary incentive, with all employees receiving an equal bonus at the end of the year that is based on the percentage of goals the organization attains collectively.



Courtesy of Clean Water Services

City-Scale Strategies

To overcome the inertia around traditional city government bureaucracy, elected executives and department directors need to provide clear and consistent direction to staff regarding the city’s commitment to integrated water management. This will require adjusting city-scale planning processes and project implementation in departments that are not directly tied to water but have an impact on water quality and management. Such departments include land use planning, public works, transportation, parks and recreation, budgeting, and procurement. There are a number of specific steps mayors and other municipal leaders can take to catalyze change:

- Set ambitious city-wide vision, strategy, and goals that align with the principles of integrated water management.
- Engage non-governmental community leaders and seek their support for integrated water management.
- Educate executive, administrative, and operations staff about the concept and principles of integrated water management and its importance.
- Incorporate directives and expectations regarding inter-departmental collaboration and coordination into job descriptions and performance review criteria.
- Mandate a review of local ordinances and codes to identify opportunities to enhance efficiency and sustainability.
- Mandate a review of procurement practices to identify opportunities to minimize negative impact on water resources.

Ambitious Goals and Consistent Messaging in Milwaukee

The Milwaukee Municipal Sewerage District (MMSD) has invested a great deal of capital into grey infrastructure in an effort to reduce Combine Sewer Overflows. However, despite their success, they still average about two overflows a year. In an effort to improve upon their performance, the Sewerage District launched Fresh Coast Green Solutions, a strategy document with a simple, but ambitious and clear goal—zero overflows. MMSD outlined a set of green strategies to achieve the goal and incorporated related information and messaging into factsheets, presentations, and citizen outreach campaigns with a focus on how the projects and the ultimate elimination of overflows will benefit the communities they serve.^{B3}

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- Review rules regarding budgeting and management of enterprise funds and identify opportunities to revise them in ways that enable funding of innovative water projects.
 - Designate and assign authority to a staff person or team that works across departments to facilitate collaboration.
 - Make funding available to pursue integration.

Watershed-Scale Strategies

At the watershed scale, a trusted organization or party is necessary to bring the city as well as upstream and downstream stakeholders together so that they may collaboratively identify challenges and opportunities for broad-scale, mutually-beneficial solutions. Other important strategic considerations for advancing integrated water management at a watershed-scale include:

- Ensure stakeholders understand their role as it relates to water use and water quality within the watershed and how it relates to others upstream and downstream.
- Define the challenges in terms of the opportunities they present and without assigning blame to anyone.
- Create a water management structure and development process that enables short-term wins while working toward larger, long-term goals.
- Establish written agreements and a common vision among municipalities, utilities, farmers, fishery managers, and other partners so that roles and responsibilities are clear and parties can be held accountable.
- Encourage partners to share existing information, models or tools that will benefit the effort.
- Identify and designate effective messengers that can reach out to different audiences, grow public understanding and support, and bring new stakeholders into the conversation.
- Gain political and financial commitments from partners to support the plan.

Balancing Water Needs for the Benefit of All

After decades of fighting over water, a diverse group of stakeholders in the Yakima Basin set aside differences and took risks to build the Yakima Basin Integrated Plan, a commonsense approach to reducing drought impacts, improving water quality, sustainability with a changing climate and securing a reliable water supply for all users. The Plan improves water supply and management for agriculture and municipalities; restores salmon and steelhead populations by improving habitat and fish passage; protects public lands and waters for all to enjoy; and drives a healthy economy by supporting forest restoration and enhancing the watershed's world-class recreation opportunities. By working together to balance the needs of people with the needs of the land and river, the Yakima Basin Integrated Plan will help restore the health and integrity of the Yakima Basin in the near term and into the future as climate change affects the water supplies.^{B4}

Cross-cutting Strategies for All Scales of Action

Leaders at each scale need to develop creative ways of engaging the public and the private sectors to build political support. Basic understanding of the hydrologic cycle and how water flows through cities is a fundamental building block. Most cities have an iconic body of water that people know and love, which can serve as a focal point for education about water resources. For example, less than half of American homeowners know where their water comes from, and research demonstrates a strong connection between knowledge of water sources and willingness to conserve.¹¹ Leaders can also leverage public adoration for their local waters to illustrate the potential benefits of integration to ratepayers, voters, and partners. To make a compelling case for action, municipal leaders should strive to provide quantitative as well as qualitative support for their vision of integrated water management. To gain public support for and sustain systems for integrated water management, it is also important to make efforts to reach out to the full range of community stakeholders using a variety of engagement tactics. Finding ways to incentivize and reward water stewardship will also help create a local culture that

values water and the investments associated with it. Most importantly, leaders need to demonstrate that they value input from partners and the public by either acting on specific suggestions or providing a clear explanation for why certain ideas are not feasible.

A Clean Water Design Competition in Philadelphia



The Philadelphia Water Department, the Community Design Collaborative, and the U.S. Environmental Protection Agency partnered to host a green stormwater infrastructure design competition called *Infill Philadelphia: Soak It Up!*

The competition engaged and educated local citizens and design firms on different water management strategies, bringing together non-traditional partners such as professional engineers, landscape designers, architects, planners and sustainability professionals from public and private sectors. Over 300 designs were submitted and three teams received \$10,000 prizes. The Water Environment Federation has a [report](#) available for cities interested in applying this particular engagement strategy.^{B5}



CITY UPSTREAM & DOWN NEXT STEPS TOWARD INTEGRATED WATER MANAGEMENT



A growing body of evidence indicates that integrated water management generates a broad range of triple-bottom-line benefits for cities and their upstream and downstream neighbors. With strong executive leadership and sustained effort from key stakeholders, the approach has been shown to create more livable communities, stimulate economic development, improve the health of watersheds, and produce efficiencies that strengthen local government. Given the enormous water infrastructure needs facing elected officials, water utility managers, and other municipal leaders across the United States, there are significant advantages to embracing the principles of integrated water management and taking steps to implement them.

This report outlines a wide variety of practical steps that municipal leaders can take to move toward integrated water management and position their communities to reap the related benefits. The group assembled at Wingspread identified practical and meaningful actions at the utility, municipal, and watershed scales which will drive progress toward adoption of an integrated approach. The following is a summary of actionable next steps that could help facilitate adoption of integrated water management at the utility, city and watershed scales:

- **Educating Change Agents**
 - Offer education and training programs on integrated water management. Target audiences may include elected officials, water utility managers and operations staff, executives, engineers and other municipal leaders and staff.
 - Provide peer-to-peer learning opportunities for mayors, other elected officials, and water utility managers and key staff.
 - Create informational resources and capacity building tools for state and federal agency staff, especially in funding and permitting positions.
 - Provide guidance and cross-training to facilitate communication among drinking water, wastewater, and stormwater management personnel.
 - Provide support and storytelling for case studies that illustrate lessons learned from successful as well as less-successful experiences.
- **Collaborating Across Silos, Departments and Geographies**
 - Establish inter-disciplinary teams within water utilities and municipal departments that foster collaboration, innovation, and efficiency.
 - Create incentives and reward systems for staff, or incorporate expectations related to collaboration and coordination into job descriptions and performance review criteria.

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- Encourage partners to share existing information, models or tools that will benefit the effort.
 - Empower effective messengers that can reach out to non-traditional audiences and bring new stakeholders into the conversation to inform or lead planning efforts.
 - Develop written agreements to ensure that roles and responsibilities are clear and parties can be held accountable.
 - Gain political and financial commitments from partners to pursue integration.
 - **Planning for Integration**
 - Embrace ambitious long-term and short-term goal-setting aligned with the principles of integrated water management.
 - Mandate a review of local ordinances and codes to identify opportunities to enhance efficiency and sustainability.
 - **Making the Case**
 - Compile case studies that capture the ability of integrated water management to redefine challenges in terms of opportunities.
 - Develop solutions and create integrated plans that provide “wins” for diverse partners.

To take these and other necessary next steps will require effective collaboration between professional and trade organizations, civic leadership organizations, academic institutions and the watershed and civil society organizations. For their part, the authors of this report are committed to expanding our own capabilities to assist in this nationwide effort, and to maintaining the momentum created by the initial Wingspread convening.

CITY UPSTREAM & DOWN

END NOTES

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Textbox notes

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