



American Planning Association

Making Great Communities Happen

Water Planning Policy Guide – February 2016 Draft

Introduction

Traditionally the role of planners with respect to water focused on environmental resources, hazard mitigation and flood control. Water service issues, including water quantity and quality, were left to the water utilities. Today, water planning is undergoing rapid change with the impact of population growth, climate change, infrastructure conditions and the continuing influence of the environmental movement. Droughts, floods, infrastructure failures, concerns about emerging contaminants and technological advances have caused a revolution in the water industry. Water engineers are beginning to recognize they cannot provide sustainable services without involving those in the development community - including planners, architects, and community activists. Leading edge planners also are reaching across the aisle to water managers to help advise on their comprehensive plans, not only to meet environmental objectives, but also to add value and livability, rooted in the vision of the community. This new paradigm of incorporating water into all aspects of the built environment is called “One Water” and emphasizes integrated, regional water planning and partnerships between water resource managers and land use planners.

As a result of this changing perspective, the American Planning Association created a Water Task Force in 2014 to offer recommendations to the Board of Directors. In April 2015, the APA Board accepted the report and adopted its recommendations. A major recommendation of the report was that APA’s water policy should be updated to further the themes of the Task Force Report.

The present document is an effort to develop an integrated approach to policies for water based on the core themes of the Task Force Report. The report recognizes ***the importance of water as a central and essential organizing element in a healthy urban environment along with the importance of planning to insure that land-use, environmental and infrastructure planning for water will increase resilience to extreme events and climate change.*** However, the report also acknowledges that -- ***new mechanisms for interdisciplinary efforts are critical to effective water management and the protection of the water environment.***

Specifically, the report calls for:

- ***A planning practice that employs an integrated, systems-oriented, comprehensive approach to water management.***
- ***Innovative land-use planning and urban designs to improve and protect water environments.***
- ***New and improved professional practices to manage water more sustainably and equitably.***
- ***Awareness of the potential for inequity in access to water supply, water pricing that is not sensitive to ability to pay (and yet does not fully account for the cost of water), and environmental justice issues where discharge of pollution to waterways occurs and where there is insufficient attention to flood mitigation.***

This policy guide is divided into five sections. The first addresses traditional urban water services (water supply and wastewater) as they are evolving to meet the challenges of the future. The second is focused on stormwater management and flooding, while the third concentrates on ecological and natural resource issues for water. The fourth section looks at policies to insure that all these aspects of water are integrated in terms of planning and implementation. The fifth section addresses specific policies for APA itself in order to promote an integrated water paradigm that supports both human and ecological uses of water.

Water Quantity and Quality

Urban water services include water supply and wastewater—that is, water quantity and quality for human uses. Traditionally, urban water service planning was left to water resource managers and engineers. Urban planners provided population figures based on projected development but left the planning details to the utilities.

Climate change, population growth, emerging contaminants and deteriorated infrastructure make this model obsolete. It is essential to consider the scarcity of water, the actual cost of water, and the role water plays in our way of life and economy in order to plan and provide for future water needs. Water utilities are moving towards an integrated paradigm that embraces multiple sources of water for supply including reuse of wastewater and stormwater and the recovery of nutrients and embedded energy. Architects and landscape architects are embracing the integration of water systems at the site level – “net zero water” - while planners are looking for more sustainable ways of providing water services for their communities.

Water scarcity, particularly in the Western United States and drought-stricken parts of the country, is also of crucial concern. (See accompanying sidebar) The protection of water quality ranks equally in importance since failure to protect scarce resources can render them unusable.

The American Planning Association and its Chapters and Divisions support the following objectives to ensure the future adequacy and quality of our water resources:

(Objectives)

The American Planning Association and its Chapters and Divisions support the following policies:

1. The requirements of the Clean Water Act, including provisions to enforce water quality criteria and standards and the prohibition of discharges into a body of water unless permitted by National Pollutant Discharge Elimination System (NPDES) point source permits or non-point source programs.
2. Legislation that would require land use and health regulations for source water protection in order to protect the yield and water quality of aquifers and surface water resources, including requirements to jointly manage connected surface and groundwater resources.
3. Legislation that would establish standards and permits for the construction, operation, and abandonment of all wells to protect groundwater resources from potential contamination.
4. Incentives for the use of design alternatives that include water catchment for potable and non-potable uses that can be used either on a localized or regional scale.
5. The use of innovative land use planning and urban design that result in low-impact development for water.
6. The creation of tools that can be used by planners to facilitate water neutral or “net zero water” development.
7. Rating systems for water management that rewards sustainable water management practices.
8. Financing and integrated capital investment that incentivizes innovative infrastructure and design.
9. Funding to rebuild aging infrastructure to maintain a state of good repair and that will avoid the introduction of contaminants into water supplies.
10. Continued funding for Title V of WRRDA, the Water Infrastructure Finance and Innovation Act (WIFIA), which establishes a new financing mechanism for water and wastewater infrastructure projects, and which provides low interest rate financing for the construction of water and wastewater infrastructure. In addition, continued federal support for the State Revolving Fund (SRF) programs to provide subsidized financing for large dollar-value projects (in addition to WIFIA).
11. Legislation and funding to establish state comprehensive water planning, which also incentivizes best practices in conservation, recycling and reuse both on and off site for both potable and non-potable uses.
12. Implementation of local regulations that recognize the potential incompatibilities of some land uses with hydraulic fracturing.

13. Future investments in water-related infrastructure that seek to redress imbalances in water resource availability and quality, improve infrastructure in lower income neighborhoods that would otherwise be overlooked by new private investments, address repetitive flooding, and implement pricing strategies that recognize the fundamental right to water for health and safety.

(Special sidebar section)

Water in the West

The dry, western part of the U.S. has always had to contend with a different set of water issues than most of the country. Water is a scarce commodity, fought over for more than a century and a half, and the subject of controversial and complex laws. Simply put, water rights dictate who has access to how much, where and when, and are very tough to change. In many parts of the west, historic water rights are held by rural land owners, often making it difficult to accommodate the needs of growing urban areas.

There is a strong need to balance the water needs of rural, agricultural land uses, with the need for water to support development in urban areas. Western states typically have established ranching and farming communities, which are part of the economy, but perhaps even more importantly are part of the culture and heritage of the West. At the same time, cities within the West have experienced considerable growth and economic success and have become the centers of commerce. Managing state water resources will require consideration of the location of water resources; areas of water use; means to conserve and store water; and systems for the delivery of water. The difference in way of life and perceived need, creates a disparate viewpoint of the need for infrastructure and services. It is important to recognize that support and voter approval of large infrastructure projects such as reservoirs and delivery systems will require statewide outreach and education. State water plans can be critical tools to set the stage for meeting statewide needs by considering the varying needs and circumstances of different geographic and economic areas.

A significant factor in Western water law is the right of “prior appropriation”, or first in time, first in right. Those with senior water rights, which are often farmers and ranchers who have early and historic claims, are at times faced with either using their full allotment or losing it to downstream users. This can lead to wasteful watering practices. In states where water law currently is based on a “use it or lose it” structure, it is important to support legislation that will preserve the private property right of the water owner. One way to accomplish this is to allow the holder of senior water rights to assign them to another user in years where they are not needed without fear of losing them due to lack of use. This would eliminate potential wasteful practices that result in unnecessary use to avoid losing the water right.

Perhaps an even bigger issue is the use of flood irrigation, which uses far more water than more intensive farming practices. In California, for instance, about 80% of the state's water supply is reserved for the farms of the Central and Imperial Valleys, where extensive use of flood irrigation is the norm.

Proposed Policies

There are many tradeoffs involved in all of these situations, but the reality of a growing population combined with the probability of increasing drought conditions throughout the west will make new policies and legal arrangements imperative. In order to help resolve some of these complex issues, the American Planning Association and its chapters and divisions support the following actions:

Creation of a multi-state body to study the legal and regulatory impediments to changing water laws and allocation procedures that impede the efficient distribution of water, and possible approaches to enacting changes to those laws and regulations.

Watershed based hydro-geologic studies by state and/or regional authorities, as appropriate, to determine the most efficient allocation of scarce resources in advance of more serious water crises in the future.

Stormwater and Flooding

Stormwater and flood management are serious local concerns, both because of federal regulations to control pollution caused by urban runoff and also because of the damage due to increasingly severe weather events. Flood damages are estimated to be more than \$10 billion per year since the Year 2000, and the costs of just two recent hurricanes (Katrina and Sandy) cost taxpayers more than \$200 billion. Loss of life is also a concern.

Historically stormwater systems are designed for fast conveyance of rainfall runoff to nearby rivers and streams. Given the enormous addition of impervious surfaces to the suburban and urban landscapes over the past 100 years, this has significantly changed the natural shape, morphology, and environmental character of streams and rivers. In addition, in most of the country stormwater programs do not have a dedicated revenue stream, as water supply and wastewater services do. Flood control for minor systems has typically been the responsibility of the local streets department, while special districts and the Army Corps of Engineers have managed the major systems.

Stormwater

The American Planning Association and its Chapters and Divisions support the following objectives for Stormwater management:

- Stormwater should reach streams and rivers in ways that **mimic natural runoff patterns to the maximum degree possible.**

- Policy and infrastructure design should shift away from the fast conveyance of rainfall runoff and achieve more natural stormwater control through the integration, implementation and maintenance of **Low Impact Designs and Green Infrastructure**.
- Stormwater drainage systems, which for the most part are largely unfunded due to the lack of service fee structures, need to be **re-conceived as a formalized service provided to communities**.

To achieve these outcomes the APA and its Chapters and Divisions support the following policies:

1. Development of stormwater-specific content for managing stormwater as part of Sustainable Communities Sustaining Places comprehensive plan standards
2. Federal and state Clean Water Act implementing regulations that recognize the importance of, and preferentially favor, environmentally sustainable stormwater management designs for stormwater systems, in achieving water quality goals for streams, rivers, and oceans.
3. The development and application of innovative land use planning and urban design that result in low-impact development from a stormwater management perspective.
4. Watershed-wide plans that cross jurisdictional lines, and interagency cooperation in data sharing at all levels of the private and public sectors.
5. Encouragement of upstream land use authorities to consult with downstream communities within a watershed.
6. Establishment of a national catalogue of green infrastructure best practices and successful case studies of mitigation and adaptation.
7. Green infrastructure and planning for multiple objectives as a cost-effective method for mitigating the effects of natural hazards while also supporting other benefits to the community.
8. A demonstrated, integrated, systems-oriented approach to water management using water quality improvement features, such as bioswales, unlined stormwater detention ponds, and other low impact and green infrastructure approaches that improve water quality and promote livability.
9. Increased federal and state research into green infrastructure techniques appropriate to specific regions and the hazards they face.
10. Development of performance standards for stormwater management during development review that shift priorities from conventional fast-conveyance designs to more environmentally sustainable low impact designs.
11. Creation and implementation of zoning and design incentives, such as density bonuses, for projects that manage stormwater more sustainably, and that capture runoff from adjacent fast-conveyance systems.
12. Identification and creation of new funding to rebuild oft-underfunded stormwater drainage systems, and to provide retrofit and modification of

such systems to achieve more natural, slow-conveyance, high storage designs.

13. New federal and state legislation that specifically provides for the creation of Stormwater Utilities that follow prescribed standards of practice and operation, to allow the sustainable and effective operation and management of stormwater drainage systems.
14. Development by local communities of dedicated revenue streams designed specifically for stormwater management and infrastructure improvements.
15. New training programs that allow the development of a workforce specifically trained and equipped for construction and maintenance of low impact and green infrastructure designs, which require more regular maintenance than highly engineered pipe systems due to their natural environmental designs.

Flooding

The objectives and policies in this section are derived from the Hazards Mitigation Policy Guide, which provides more specific guidance for water-related hazards, among others. The American Planning Association and its Chapters and Divisions support the following objectives to address the issue of flooding:

- Accurate information on the location and level of risk within communities,
- Land use regulations that minimize new development within areas subject to flooding,
- Reduced incentives that encourage land development (or redevelopment) within flood hazard areas,
- New projects to protect existing residents from flooding, with the goal that natural solutions are generally preferable to structural controls, and
- Clear and equitable methods for revising flood insurance premiums to more closely reflect the actuarial cost.

To achieve these outcomes the APA and its Chapters and Divisions support the following policies:

1. Frequent updates to small area flood maps.
2. Development of small area rainfall and water use data and predictive models that can be used by local governments and water utilities.
3. For communities subject to coastal flooding, plans should include the potential change in sea level as a factor for future risk.
4. Establishment of federal, state, and local land-use planning decision frameworks that avoid locating development, critical infrastructure and vulnerable populations, in areas subject to risks.

5. Development and adoption of building codes that provide greater resiliency toward water hazards.
6. Federal, state, and local tax incentives to utilize environmentally sensitive building and development techniques.
7. Federal, state, and local tax credits for conservation easement donations based on the ecological values protected and preserved through the easement and the ability to reduce the severity of the potential flood hazard.
8. Green infrastructure approaches to storm and flood management; use of traditional engineered structural solutions only when necessary to protect life and property.
9. Use of redundant, smaller-scale infrastructure over larger-scale infrastructure to promote the resilience of physical networks (such as roadways and waterways).
10. Research to address the legal, financial and ethical issues of regulatory strategic retreat away from areas of high flood hazard to more resilient locations.

Water Resources and the Environment

Many planners have been active in efforts to protect and restore the natural environment and ecosystems, both in freshwater and coastal settings. Pioneering comprehensive plans recognize the value of the natural environment, and a large number of non-profits have been actively working to protect water resources since the beginning of the environmental movement in the late sixties. Their efforts were felt in the passage of the Safe Water and the Clean Water Acts in the early 70's. Green Infrastructure is a recent addition to the urban lexicon, and many non-profits are active today in watershed planning.

However, problems still remain with respect to the conservation, protection and restoration of wetlands, aquatic ecosystems and other ecological resources. Of particular concern is the absence of planners in watershed planning efforts funded by EPA.

Wetlands and other aquatic ecosystems near lakes, rivers and oceans perform functions that are vitally important to the environmental and economic health of the nation, such as flood protection, the improvement of water quality, protection of biodiversity, and carbon sequestration. In recent decades, a number of federal, state and local government programs have been developed for preserving and restoring wetlands and aquatic ecosystems. Although the rate of loss of these resources has slowed markedly, both conservation and regulatory approaches typically have not been effective in preventing continued, large and small-scale losses. Some states have also adopted wetland programs that focus on one or more core elements established by the EPA. Most state programs only partially address the need for comprehensive

aquatic resource protection, and are often adopted in a piecemeal manner. Planners can protect valuable aquatic resource and wetland functions by identifying them in plans and considering impacts to them during the review process.

The American Planning Association and its Chapters and Divisions support the following objectives to address wetland and other aquatic resource issues:

- No overall net loss of the nation's remaining wetland and aquatic ecosystem resource base;
- Restoration of lost and damaged wetland and aquatic ecosystem resources, as defined by function, acreage, volume, location, type, and scarcity.

In order to achieve these goals, APA and its Chapters and Divisions support the following policies:

1. Legislation and other actions to enhance, restore and create wetlands and aquatic ecosystem resources along waterways where feasible, in order to increase the quality and quantity of the nation's aquatic resource base.
2. Use of a watershed approach at the local or regional scale to determine wetland and other aquatic resource mitigation requirements.
3. Development of watershed information related to climate, hydrology, historic wetland distribution, habitat for fish and wildlife, cultural, commercial and recreational importance, current landownership, and existing environmental stressors.
4. Development of watershed-wide mitigation regulations for wetland and other aquatic resource management.
5. A collaborative planning approach to sustainable water resource management to provide the broad multi-disciplinary perspective needed to achieve wetland and other aquatic resource planning goals as part of comprehensive regional planning activities. As part of the collaborative approach landowners rights must be acknowledged as plans are developed to manage and restore wetland and other aquatic resource areas.
6. Adoption of local zoning and/or development performance standards for wetlands and other aquatic resources and their adjacent lands to achieve comprehensive floral and faunal aquatic resource protections that, in many cases, may obviate the need for federal or state permits.
7. Research and demonstration projects in the use of created wetlands and other aquatic resources as "natural capital" solutions for attenuating non-point source water quality problems and climate change issues resulting from greenhouse gas emissions.

Integrated Water Resource Management

Integrated management of urban water resources optimizes the way that communities, cities, and regions manage and adapt to current and future demands on water resources. A more systematic and integrated approach (given previously disparate and uncoordinated activities, policies, institutions, and industries) will promote more sustainable planning with regard to water resources, particularly water management, water use, and the construction and management of infrastructure associated with water resources. The term One Water is now being used as a concise way of talking about this comprehensive way of managing all water resources.

Planning, by virtue of its talent and focus on collaboration and community engagement, and its tools to manage land use, has an important role to play in coordinating the various agencies involved in water resource management and water services, resulting in a comprehensive systems-oriented approach. This includes, promoting more collaborative institutional arrangements and management to integrate planning and management of water supply, wastewater and stormwater and flood systems. This also includes insuring that water systems that support built areas minimize impact on the environment and maximize the contribution to social and economic vitality. Efforts to coordinate and optimize planning, development and management of water with land and other resources and infrastructure such as energy and waste are also paramount.

The American Planning Association and its Chapters and Divisions support the following One Water objectives:

[Need Objectives]

In order to achieve these Objectives, The American Planning Association and its Chapters and Divisions support the following policies:

1. The One Water concept for *integrated* water resource management, which encourages planning for water by considering all aspects of water use, wastewater disposal, runoff management, surface and groundwater resources, and the natural environment in a way that minimizes the impact on the environment and maximizes the contribution to social and economic vitality.
2. Codify the concept of “One Water” and integrated water resource management in partnership with the water service industry in order to have a universal, working definition for use in communications among different professions and industries, including legislative initiatives that advance One Water strategies that integrate achievement of water supply, wastewater management, and stormwater management goals.
3. Education and training opportunities for the public, elected officials, practitioners, and stakeholders on the complexities and interconnectedness of water management topics, to create expanded awareness and

understanding of water resource management challenges, including the creation of Guidelines that encourage planning agencies and water service utilities to work together in developing and communicating unified water policy messages to the general public about regional or local water resource concerns.

4. Institutionalization of working relationships between planners and utility leaders in the community to plan how to best maximize more sustainable water and wastewater infrastructure implementation and improvements.
5. Focused professional development training on the full spectrum of water planning and the interdependencies of local, regional, and national issues and perspectives, recognizing the intersection of traditional planning concerns and water, energy, and climate issues.
6. Creation and strengthening of collaborative partnerships by identifying opportunities to integrate water and planning wherever possible to leverage expertise by connecting with larger associations and foundations that are dedicated to water issues in the urban environment, such as the American Society of Landscape Architects (ASLA), American Water Works Association (AWWA), Water Research Foundation (WRF), Water Environment Federation (WEF), Water Environment Research Foundation (WERF), American Institute of Architects (AIA), American Water Resources Association (AWRA), and many others that are too numerous to list in this policy guide.
7. Incorporation of water planning into the comprehensive planning process with full recognition of the various elements of water planning including source and availability, community wide water consumption patterns, drainage systems, conservation strategies, the effect of development patterns on water usage and wastewater generation, ecosystem biodiversity, and implementation strategies.
8. Development of a manual of model ordinances and local legislative mechanisms that promote adoption of integrated urban water management planning, targeted toward urban planners. This includes building code updates, use of green space as an approach to managing stormwater, water-neutral offset requirements, etc.
9. Legislation and funding to establish state comprehensive water planning and local ordinance improvements that would include provisions for watershed protection and evaluation of potential surface and ground water impacts.
10. Increased public interest and participation in determining ways the public can help communities transition to more integrated water management mechanisms.
11. Changes in water utility rate structure that recognize the true cost of water production, wastewater treatment, and stormwater, and also recognize the equity issues associated with widening income disparity.

American Planning Association Actions

In order to actively advocate for the above objectives and policies, the American Planning Association must undertake actions of its own. As an organization, APA will do the following:

- 1.** Work to advance sustainable water practices by collaborating and partnering with federal agencies and programs working on similar initiatives.
- 2.** Work with state governments to more efficiently address current and future water issues (drought, flooding, vulnerable ecosystems etc.) by helping to advance regulations and legislation supporting an integrated approach to water management. Standardizing approaches across regions as well as enforcing ordinances and guidelines promoting integration are important steps. Furthermore, given the silos constructed throughout the water industry, lack of data or even consistent data is a challenge.
- 3.** Identify and partner with other organizations working on water issues toward creation of a more integrated water management system. These interdisciplinary partnerships will help initiate steps to support legislative and regulatory changes that can ultimately support a more systematic approach. It is critical that these partnerships be active and long lasting. Partnerships should be inclusive and promote multiple on-going dialogues that allow water and planning professionals to learn from each other, leverage each other's work and undertake collaborative research opportunities together. Only with such robust engagements can innovative methods be developed and implemented in an integrated fashion.
- 4.** Work to enhance the technical skills of planners as they relate to the more scientific components of water issues. Developing this technical skill set will elevate the role of planners in a more integrated water system, by not only allowing planners to facilitate discussions, but also to serve as water planning experts. It is important to provide planners with a more technical skillset to address water issues so they have the confidence to continue their participation in water management dialogues. This type of education extends not only to planners but to elected officials and high level executives as well, to learn how their disciplines and expertise fit together, effectively breaking down silos.

References