Integrated Planning The Time Is Now

EPA’s CWA Framework for Local Prioritization and Flexibility

By Jeff Eger, Trent Stober, David Clark, Amanda McInnis and Jennifer Duffy, HDR

Integrated planning is an idea whose time has come; whose time is now. In 1972, the Clean Water Act (CWA) was instituted to improve the nation’s water quality, making it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained. Since that time, the EPA has implemented numerous pollution control programs, setting wastewater discharge standards and water quality standards for all contaminants in surface waters. Over the past four decades, the list of unfunded CWA mandates has grown, requiring local governmental agencies to take on additional wastewater and stormwater responsibilities while struggling to allocate diminishing resources to comply with these regulatory standards.

Recognizing that many U.S. cities have struggled to sufficiently fund their wastewater and stormwater programs to comply with CWA mandates, and potentially expensive EPA enforcement and/or legal challenges by third-party entities, the U.S. Conference of Mayors (USCM) and the National Association of Clean Water Agencies (NACWA) lobbied the EPA for a more flexible, community-driven, affordable approach. In June 2012, EPA released an Integrated Municipal Stormwater and Wastewater Planning Approach Framework to help local governments meet CWA water quality objectives and prioritize capital investments using an Integrated Planning and Permitting Policy approach. Simply, this process provides the flexibility to make smart decisions based upon community priorities.

Integrated planning encourages the use of sustainable and comprehensive solutions, including green infrastructure, to protect human health, improve water quality, manage stormwater as a resource, and support other economic benefits and quality of life attributes that enhance the vitality of communities. Through the six-step integrated planning process, (shown in Figure 1.) these solutions are prioritized, taking into consideration stakeholder input and community values, the cost and benefits of water quality improvement projects, and the community’s ability to afford these costs over time.

Affordability is fundamental to the integrated planning process. Further discussion with USCM regarding the EPA’s use of the median household income (MHI) to assess a community’s ability to afford water quality improvements led to the EPA’s issuance of a January 2013 memorandum, Assessing Financial Capability for Municipal Clean Water Act Compliance1, that allows for a broadened scope for assessing affordability. Subsequently, in a collaborative effort with the American Water Works Association (AWWA), and the Water Environment Federation (WEF), the USCM published the Affordability Assessment Tool for Federal Water Mandates (Assessment Tool)2 to help further define the alternative ways affordability may be viewed in any given community.

Figure 1. Integrated Planning and Permitting Policy approach provides the flexibility to make smart decisions based on community priorities.
Proven and Potential Benefits of the Integrated CWA Planning Approach

Adopting an integrated approach to CWA obligations is a voluntary and locally driven process, requiring a collaborative effort between the permitted agency, local permit authorities, the EPA, and local enforcement officials. Examples of several locally driven water quality compliance plans are shown on the following pages to illustrate the benefits of an integrated process.

Benefits of an Integrated Process:
Incorporating Local Community Characteristics and Values

SANITATION DISTRICT NO. 1 OF NORTHERN KENTUCKY (SD1), KY

As the former Executive Director of SD-1, our utility was the first in the nation to successfully negotiate an integrated approach to achieving water quality goals with state and federal regulators through SD-1’s Watershed-based Consent Decree. I understand the dynamics of local politics and the keys to getting diverse political jurisdictions to work together to support integrated planning efforts. And, as a former Executive Director of the Water Environment Federation (WEF), I know how important Integrated Planning is, across our industry, for Local Prioritization and Flexibility – The Time is Now! – Jeff Eger

Sanitation District No. 1 of Northern Kentucky (SD1) was the first utility in the country to adopt and implement an integrated plan to meet Clean Water Act compliance. The SD1 Consent Decree, approved by the state and federal regulatory agencies, represents a paradigm shift in wet-weather control programs. Traditionally, most consent decrees focus solely on CSOs and SSO, with an emphasis on hard gray infrastructure solutions. SD1’s approach identifies the various characteristics of individual watersheds and considers CSOs and SSOs along with other pollution sources impacting the waterways (such as stormwater runoff and dry weather sources). By taking a watershed-based approach, SD1 has made use of a wide variety of data points to assess the relative impact of different pollutant sources on the receiving waterways. This approach prevents the pitfalls of directing funds towards increasingly higher levels of CSO and SSO controls when those investments are not proven to provide corresponding improvements in water quality.

SD1’s plan was developed with extensive public stakeholder input. The iterative structure of SD1’s Watershed Plans allows time to investigate new technologies and adjust the approach so that solutions for updated plans will be developed using information gained from implementation of projects in a five-year cycle. This included utilization of green infrastructure that has resulted in cost-effectively improving water quality in two major watersheds and reduced overflows by 28 percent.

Broad Vision for Integrated Planning

CITY OF SPRINGFIELD, GREENE COUNTY, AND CITY UTILITIES OF SPRINGFIELD, MO

Springfield is blazing a trail for cities by striving to balance community priorities with regulatory and infrastructure drivers. The opportunity to engage with city and county leaders to develop strategies and tools to meet these goals has been a highlight of my career. Our partnership has yielded unique approaches for prioritizing environmental improvement opportunities that align with community goals by leveraging our team of national thought leaders with local experts. – Trent Stober

Leaders from the City of Springfield, Greene County, and City Utilities of Springfield, Missouri, have embarked on developing an integrated plan to address the regulatory challenges facing their wastewater, stormwater, drinking water, and power utilities. The integrated plan is based largely on the EPA’s integrated planning framework. However, the Springfield-Greene County approach is unique in that it includes not only stormwater and wastewater, as the EPA guidance suggests, but also includes resources related to solid waste, drinking water, and air quality. The planning approach has received written endorsement from both state and federal regulators and was selected as a national pilot study by the EPA in October 2014.

Balancing and prioritizing water quality improvements are challenging in integrated planning due to the dissimilar nature of stormwater and wastewater alternatives. Senior management at Springfield determined that they needed a framework to make informed decisions regarding sustainability in order to balance economic, environmental, and social impacts. Towards this end, the City decided to use a decision economics methodology called Sustainable Return on Investment (SROI) to clearly quantify and monetize the costs and benefits associated with competing wastewater and stormwater quality improvement alternatives. The SROI process builds upon best practices in cost-benefit and financial analysis methodologies, complemented by advanced risk analysis and stakeholder elicitation techniques.
Incorporating Financial Capability and Affordability Assessments

UPPER CHARLES RIVER COMMUNITIES OF BELLINGHAM, FRANKLIN AND MILFORD, MA

The EPA’s “Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin and Milford, MA” concluded that meeting TMDLs in the Upper Charles River Basin could cost these small communities anywhere between $79 million and $100 million—far beyond their financial capabilities. The EPA has clearly stated that water quality standards, including TMDLs, will not be waived under integrated plans, but communities can deploy the new framework to develop plans that address water quality milestones over a greater, but defined, period of time, that’s also financially feasible.

SEATTLE PUBLIC UTILITIES, SEATTLE, WA

Seattle Public Utilities (SPU) submitted its integrated plan to the EPA in May 2015. The EPA had 90 days to review the integrated plan for compliance with SPU’s consent decree. The approved plan charts the course for investments in CSO and stormwater projects from now until 2030. According to Kevin Buckley, Strategic Stormwater Advisor, SPU wants to get ahead of future regulations and the upcoming Lower Duwamish Superfund cleanup requirements so they can manage rates and optimize water quality improvements. The relatively small CSO projects remaining have a high cost per gallon to implement. The integrated plan concludes that alternate stormwater projects will yield higher value in terms of pollution avoided. SPU expects to meet or exceed the integrated plan pollutant removal estimates, which were based on conservative assumptions using a Monte Carlo simulation. Based on the significant benefits analysis, the Seattle mayor and Council approved submitting the integrated plan to the EPA and Washington Department of Ecology for consent decree compliance.

SPU’s integrated plan proposed to delay correcting six low-frequency, low volume CSOs for five years. In exchange, SPU will implement a near-term stormwater project and two programs to remove a substantially greater pollutant load from area waters. The South Park Water Quality Facility (WQF) will remove pollutants entering the Lower Duwamish from a 250-acre basin. The WQF leverages a local flood-control project whose pump station will deliver stormwater flows to the treatment facility. The Natural Drainage Solutions Program aligns with the City’s “Green Goal” and “Neighborhood Greenways Initiative.” To leverage collateral benefits, SPU partnered with

Figure 2. The Integrated Planning process provides an assessment of existing and future challenges in meeting regulatory requirements.
Spokane, WA

the Seattle Department of Transportation (SDOT), the Office of Sustainability and Environment, and community groups to develop roadside rain gardens that also serve as traffic-calming facilities. The successful “Street Sweeping for Water Quality” program, initiated in 2011, doubles the frequency of arterial sweeping to weekly, and extends the number of weeks of sweeping each year. As part of the integrated plan, SPU will monitor the stormwater project to make sure project goals are met.

An unexpected benefit is that facilities not scheduled for construction in the foreseeable future will now be implemented because of the water quality benefits they will deliver, drawing kudos from the Department of Ecology for innovation. Buckley attributes SPU’s success so far to its use of an expert panel throughout plan development. To provide for a smooth “no surprises” review by regulators, SPU met regularly with the EPA and Ecology and included both agencies on the expert panel. SPU should have the EPA’s and Ecology’s decision by the end of August.

**CITY OF SPOKANE, SPOKANE, WA**

The City of Spokane is preparing an integrated clean water plan to manage stormwater and wastewater to meet Clean Water Act requirements and will invest $300 million on projects over about the next five years that will vastly improve the quality of the water in the Spokane River. The City’s integrated plan includes:

- a series of projects to control combined sewer overflows
- tertiary treatment at the Riverside Park Water Reclamation Facility to meet the requirements of the Spokane River dissolved oxygen total maximum daily load (TMDL) that requires very low phosphorus, CBOD, and ammonia nitrogen effluent limits
- management of stormwater from the Cochran Basin on the North Side of Spokane
- The City separated storm sewers in this basin in the 1980s, and because of the volume of water that reaches the river through this single stormwater outfall, this voluntary project will have a far greater impact on pollutants than the combined sewer projects.
- implement the “Integrated Streets” program that will remove stormwater whenever a street is rebuilt to help mitigate climate change and population growth

The City’s goals are to provide significant environmental and financial value in the single largest infrastructure investment in the City’s history. The City’s goals for the integrated plan are as follows:

- A Cleaner River Faster
  - Prioritize projects that have a greater impact on reducing pollution in the river rather than just focusing on overflows from combined sewers
- Implement Cost-Effective & Innovative Approaches
  - Consider new “green” strategies—storm gardens, pervious pavements, and other technologies
- Holistic Integration with Other Infrastructure
  - Leverage investments to gain additional neighborhood infrastructure improvements, including street rehabilitation, water main replacement, park improvements, sidewalks, sewer pipe upgrades, and pedestrian/bike lanes or trails

**Tackling Multiple Infrastructure Challenges**

**CITY OF BILLINGS, BILLINGS, MT**

The City of Billings is facing many water management challenges. First, the discharge permit from the central wastewater treatment plant to the Yellowstone River is due for renewal, three major local industries have asked for connection to City sewer service, and multiple total maximum daily loads (TMDLs) are scheduled for development on the Yellowstone River. Second, the drinking water treatment facility is nearing capacity. Third, the City is facing new stormwater quality...
Our municipal utilities are facing an evolving landscape of regulatory, operational, and financial drivers. Integrated Planning provides US cities with an opportunity to balance regulatory drivers with community priorities that has been lacking for some time. We really encourage our utility clients to consider implementing this planning process to chart a course forward that provides long-term certainty for both the utility and customers. - Dave Clark

The Integrated Planning Approach

Municipal utilities can achieve several benefits by using the Integrated Planning approach to tackle the multiple and diverse drivers facing today’s utilities:

- Balances and prioritizes regulatory obligations into a unified, integrated strategic plan
- Emphasizes stakeholder empowerment to establish clear investment priorities
- Highlights end-user affordability and financial capability of customers
- Provides a clear path to project implementation

NACWA AND THE U.S. CONFERENCE OF MAYORS

NACWA and the U.S. Conference of Mayors have committed to continuing to work toward implementing an integrated approach. Remaining critical issues to be addressed include affordability and fiscal impact on low-, moderate-, and fixed-income households; moving away from enforcement-driven consent decree actions to planning and partnering with the EPA; and how to merge consideration of drinking water mandates simultaneously with CWA obligations. The ultimate goal is to use the flexibilities in both permitting and enforcement to help communities develop solutions that protect human health and the environment, and to tackle the most important problems first, in a way that makes sense and is affordable.

REFERENCES

3 PNCWA-Summer 2015 Article (HDR)

The authors may be contacted at jeff.eger@hdrinc.com, john.stober@hdrinc.com and dave.clark@hdrinc.com.
Feeling Stuck?
We want to hear from you!

What Is Keeping You Up?

SHOULD I CONSIDER AN INTEGRATED PLANNING AND PERMITTING APPROACH?

Many states already encourage or require an integrated approach to water quality planning, so this approach may feel familiar. The local watershed planners among us have long been aware of the overlapping nature of wastewater and stormwater quality regulations, and many have been working toward integrated solutions to comply with various permit requirements. Using the Integrated Planning Framework will help communities engage with EPA and local regulators to develop sustainable water quality compliance programs that address existing obligations and help communities plan for and adapt to future challenges.

Is an Integrated Planning Approach right for your agency? Ask yourself these questions:

<table>
<thead>
<tr>
<th>FLEXIBILITY / PRIORITYIZATON</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ CHECK ALL THAT APPLY</td>
</tr>
<tr>
<td>Do my current planning efforts provide the flexibility I need to address CWA obligations?</td>
</tr>
<tr>
<td>Do I have a clear picture of my projected future CWA obligations?</td>
</tr>
<tr>
<td>Have I even considered the benefits of combining drinking water, wastewater, stormwater, solid waste, power, and other utilities together in one plan?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAPITAL IMPROVEMENT PRIORITIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Am I making a large investment in CSO/SSO reduction, but other investments have greater impact on water quality?</td>
</tr>
<tr>
<td>Are there environmental aspects that provide additional benefit?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WATER QUALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do my CWA investments emphasize offshore water quality but the greater need seems to be the nearshore?</td>
</tr>
<tr>
<td>Are my stormwater and wastewater programs addressing the same water quality issues but are not coordinated?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REGULATORY COMPLIANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does my existing consent decree align with current competing initiatives?</td>
</tr>
<tr>
<td>Does compliance with a new NPDES permit require a large investment?</td>
</tr>
<tr>
<td>Does a new MS4 permit include unforeseen obligations?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMUNITY/PUBLIC OUTREACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>How can I give the public a compelling voice in priority setting dialog with regulators?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FINANCIAL/AFFORDABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have I looked at the cost of service impacts on our rate payers?</td>
</tr>
<tr>
<td>Are ratepayers at or near the limits of their financial capability?</td>
</tr>
<tr>
<td>Would Integrated Planning provide the cost savings I need?</td>
</tr>
</tbody>
</table>

The authors may be contacted at:
jeff.eger@hdrinc.com
john.stober@hdrinc.com
amanda.mcginnis@hdrinc.com
jennifer.duffy@hdrinc.com
dave.clark@hdrinc.com