

# The Case for Integrated Wastewater and Stormwater Planning for Ohio’s Communities

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As we approach 50 years since the infamous burning of the Cuyahoga River and more than 45 years since the Clean Water Act (CWA) amendments to the Federal Water Pollution Control Act, communities still struggle to meet the fishable and swimmable (at all times) goals set forth in the CWA. This struggle led to sewer overflow enforcement actions and long-term control plans that are unaffordable for many communities. U.S. EPA responded with a potential solution – integrated planning for wastewater and stormwater. This article addresses:

- ◆ Background on integrated planning
- ◆ A User’s Guide for conducting integrated planning
- ◆ Financial capability and Ohio’s economic circumstances

## BACKGROUND ON INTEGRATED PLANNING

U.S. EPA ramped up CWA enforcement efforts in 2008 to push municipalities into remedying chronic dis-investment in both combined and separate sewerage systems. The resulting “siloe” enforcement approach failed to recognize how regulatory inflexibility was leading to economic consequences (dis-investment in stormwater and drinking water infrastructure) and environmental consequences (lack of meaningful improvements in water quality).

In response to increasing enforcement, the U.S. Conference of Mayors and other stakeholders engaged U.S. EPA and the Department of Justice (DOJ) to articulate the unintended consequences. The U.S. EPA responded with two new policies, Integrated Municipal Stormwater and Wastewater Planning Approach Framework (June 2012) and Financial Capability Assessment Framework for Municipal Clean Water Act Requirements (November 2014). These new policies have the potential to modernize CWA enforcement actions throughout the country and may facilitate the rebuilding of our nation’s infrastructure more cost-effectively.

Embodied in these two policy memoranda is a new, potentially more sustainable approach to obtaining CWA compliance. Integrated planning, as outlined in the June 2012 document, recognizes that communities should prioritize CWA-related projects based on mitigating adverse human health and water quality impacts within a community’s unique financial circumstances. Integrated planning allows communities to include social considerations and explore a broader understanding of the technical and scientific information available for CWA decision making. This may result in environmental solutions that achieve multiple benefits, leading to more

comprehensive approaches that not only address water quality issues but enhance community vitality and support other economic and quality of life attributes for communities as wastewater treatment plants move to “utilities of the future”.

In the framework memoranda, the U.S. EPA outlined six overarching elements that each integrated plan should contain. The key principles of integrated planning are detailed in Table 1.

<b>Element 1</b>	Water Quality, Human Health and Regulatory Issues
	<ul style="list-style-type: none"> <li>◆ Describes the challenges a community selects to included in the integrated plan</li> <li>◆ Includes identification of human health threats, water quality standards, wasteload allocations, total maximum daily loads, etc.</li> </ul>
<b>Element 2</b>	Existing Systems and Performance
	<ul style="list-style-type: none"> <li>◆ Description of existing wastewater, stormwater and other utility programs being included in the integrated plan</li> <li>◆ Includes evaluation of the current performance of the utility systems</li> </ul>
<b>Element 3</b>	Stakeholder Involvement
	<ul style="list-style-type: none"> <li>◆ Focuses on the stakeholder process necessary to gain public and regulatory consensus for the integrated plan</li> <li>◆ Includes open channels of communication for input from relevant stakeholders</li> </ul>
<b>Element 4</b>	Evaluating and Selecting Alternatives
	<ul style="list-style-type: none"> <li>◆ Developing decision criteria to prioritize investments and select projects for the renewal of systems</li> <li>◆ Can include green infrastructure for more sustainable solutions</li> </ul>
<b>Element 5</b>	Measuring Success
	<ul style="list-style-type: none"> <li>◆ Identifies performance criteria that will be used to determine success of the integrated plan</li> <li>◆ Includes various monitoring and evaluation programs</li> </ul>
<b>Element 6</b>	Improving the Plan
	<ul style="list-style-type: none"> <li>◆ Identification of additional projects or modifications to the plan</li> <li>◆ Adapting to changing circumstances</li> </ul>

Table 1: The elements of an integrated plan

## USER'S GUIDE FOR INTEGRATED PLANNING

As communities consider whether to embrace the elements of integrated planning, many questions arise. To help communities determine if an integrated plan is the appropriate path and to further understand how integrated planning is working and not working, the Water Research Foundation (formerly the Water Environment and Reuse Foundation) funded a research project (SIWM9R14) that included the development of a User's Guide for Integrated Wastewater and Stormwater Planning, that will be publicly available in late spring.

This User's Guide is intended to help a community determine if it should undertake integrated planning, and if so, provide considerations to develop a successful integrated plan. The guide is based on a survey completed by 69 communities regarding tools, problems, and gaps associated with integrated planning. The survey examined the decision-making process, priorities and challenges associated with integrated planning, and details regarding how communities are addressing each of the six elements detailed in Table 1. The survey results were used to inform the selection of seven communities to serve as case studies to represent the range of community experience with integrated planning, from those with completed plans to those who ultimately decided not to pursue integrated planning. This includes wastewater collection, wastewater treatment, stormwater, drinking water, and recycled water. The survey and case study findings, along with other critical topics that should be considered, are all contained within the User's Guide.

### Identified **Potential** Barriers to Integrated Planning

- ◆ Concerns of additional obligations
- ◆ Perceived increased enforcement risk
- ◆ Uncertainty about outcomes
- ◆ Lack of knowledge by state regulators
- ◆ Lack of state flexibility or support
- ◆ Lack of EPA flexibility

Community priorities for integrated planning include three main categories: environmental and public health benefits, utilization of resources, and financial capability and affordability. Communities are seeking to maximize water quality benefits by addressing the associated challenges (Figure 1) while simultaneously addressing other community needs. They need to be able to prioritize and reprioritize projects to achieve efficiencies and better allocate resources while implementing cost-effective solutions.

The project also provides a look at the lessons being learned by communities as they prioritize resources and maximize services with the integrated planning process. In some cases, uncertainty makes it difficult for communities to dedicate the necessary resources to effectively complete the process, especially as they struggle with the information gaps between the historical enforcement-based paradigm and today's more flexible approach. Some communities continue to be hampered by inconsistent reactions from regulators, but many are inclined to invest the resources into the integrated planning process to achieve widespread, innovative, and cost-effective solutions.

## FINANCIAL CAPABILITY AND OHIO'S ECONOMIC CIRCUMSTANCES

As part of U.S. EPA's commitment to addressing the CWA in a more sustainable manner, the agency issued a second memorandum, Financial Capability Assessment Framework for Municipal Clean Water Act Requirements (FCA) in November 2014. This updated FCA summarizes a range of information related to the ability to afford CWA infrastructure that may help provide a more complete picture of a community's financial capabilities. It expands the use of benchmark indicators of community and utility affordability and focuses on how the flexibility in the CWA can be used to prioritize and sequence projects identified through integrated planning while also providing for the incorporation of other community specific economic factors.

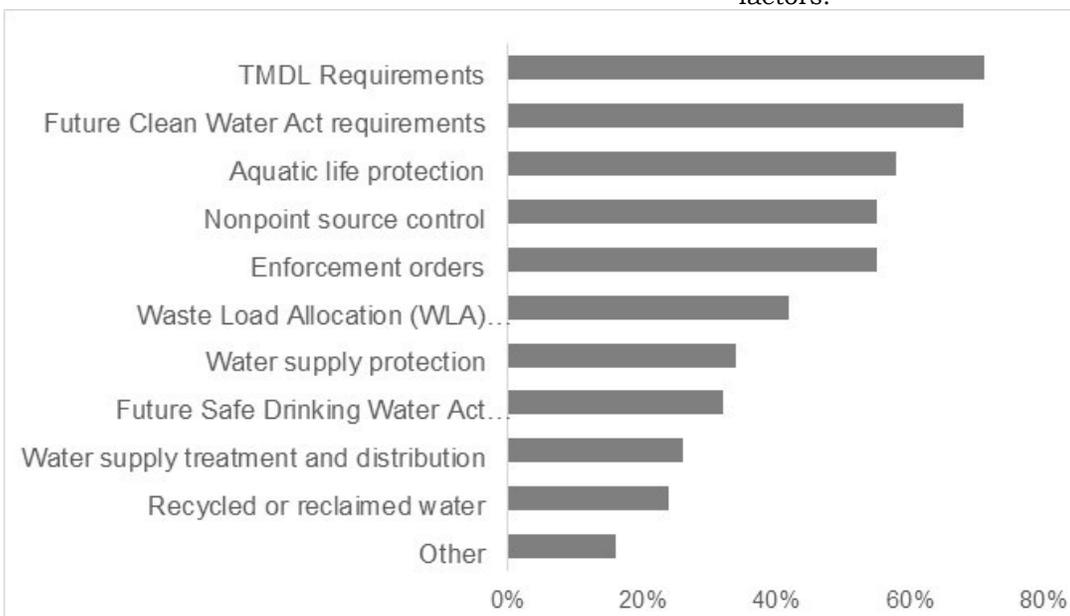


Figure 1: Clean water act challenges being addressed by communities. Percentages indicate the percent of the 69 communities that responded the WE&RF Community Insights Survey addressing each of the issues.

As in many other states, Ohio has communities facing harsh environmental and economic realities. As of September 2017, 72 Ohio communities are still mitigating CSOs either directly through National Pollutant Discharge Elimination System (NPDES) permits or via other enforcement orders. Many communities are struggling to control stormwater and there is widespread economic disparity within communities and throughout the state. While some areas in Ohio continue to prosper and grow, others face stagnant or declining incomes and populations. These communities have legacy infrastructure and the accompanying maintenance issues that are then borne by fewer ratepayers who may be struggling economically.

Ohio's clean water needs are estimated to be close to \$27 billion based on the results from the 2012 Clean Watershed Needs Survey and the 2011 Drinking Water Infrastructure Needs Survey and Assessment, both conducted by U.S. EPA and shown in Figure 2.

U.S. EPA's 2014 FCA opens the door for the consideration of different, more descriptive measures of affordability that communities more fully considered as they look to address their clean water needs. Communities now have a heightened ability to include more creative measures of affordability that have always been embedded within the CWA but have not always been carried out by regional enforcement authorities, such as evaluations of poverty rates and residual income.

U.S. EPA's FCA guidance relies heavily on the two percent of the median household income (MHI) test. The FCA framework emphasizes that this is not the "bright" line for defining the community's ability to pay for wastewater services. Simply by definition, half of the households in a community have incomes that fall below the MHI. The MHI alone does not consider income inequalities or what percentage of the population spends

more than two percent. This test fails to consider the impact on low-income populations. MHI provides a snapshot view of economic conditions but may obscure a community's overall affordability challenges. As many communities are experiencing declining populations and median incomes, what may be affordable now may not be in the future.

Evaluating the community population with incomes at or below the poverty rate provides more information than reviewing the MHI alone but has other short-comings. To its credit, the poverty rate specifically pertains to low-income households, has some credence for income inequality, and is widely accepted among most means-tested government programs to measure poverty. However the poverty rate does not adjust for the standard of living or geographic variation and are determined by identifying three times the cost of a minimum food diet in 1963 (updated for inflation and change in family structure). This historic mechanism excludes many factors including available assistance programs, the changing costs of non-food goods such as healthcare and housing, and the burden of high cost of living areas on households with incomes above the poverty rate.

Complex measures, such as residual income may more appropriately assess affordability, but prove challenging to analyze as more detailed data is required. The Residual Income Approach provides for measures of self-sufficiency, as it evaluates affordability based on the income needed to meet basic needs without relying on assistance and compares it to the predominant household earnings of different types of families in an area. This approach looks at the income remaining after housing, child-care, food, transportation, healthcare, taxes, and other miscellaneous needs are paid for. Evaluating residual income can account for differing family dynamics, geographic cost differences, and other site-specific impacts. The approach also benefits from bypassing abstract measures and looking specifically at household budgets and the financial realities real families face. The percentage of the residual income necessary to pay for clean water costs can then be determined to identify affordability issues in the area.

The intent of integrated planning is to provide for additional community-specific flexibility in the development and adoption of plans to address CWA issues. Initial suggestions indicated a disconnect between the concepts presented in the integrated planning approach and the direct implementation of an integrated plan. However, as an increasing number of communities embrace integrated plans, the barriers to the development of such plans are becoming more manageable. Adequately addressing economic issues communities face is likely to continue to be problematic. Integrated planning is providing for the development of more intricate methods to evaluate community affordability. These methods allow for a better understanding of the true economic impacts of addressing clean water issues. As Ohio's communities face economic disparities and pressing environmental needs, integrated planning provides a methodology to develop comprehensive and adaptable solutions.



Table 1: The elements of an integrated plan