Assessing the Affordability of Federal Water Mandates

An Issue Brief

The United States Conference of Mayors

American Water Works Association

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Communities and the water agencies that serve them have limited resources, so the investments they make need to address the most important risks to public health and the environment and deliver maximum benefits at affordable cost. This issue brief summarizes the U.S. Environmental Protection Agency's (EPA's) methods for analyzing the affordability of federal mandates stemming from the Clean Water Act and Safe Drinking Water Act. The paper describes the Agency's current policies, offers a critique, and identifies a number of alternatives that might be more suitable for analyzing the affordability of water and wastewater mandates on American communities. Finally, the paper notes the importance of weighing the benefits as well as the costs of federal mandates while considering their affordability.

This paper is the result of a collaborative effort by the United States Conference of Mayors (USCM), the American Water Works Association (AWWA), and the Water Environment Federation (WEF). Its purpose is to raise issues and provoke discussion. It does not represent the official policy of these organizations or their members. The three associations also offer to their members, separately, an affordability assessment tool that allows communities to directly assess the affordability of water and wastewater mandates after considering the issues raised in this paper. Unless otherwise noted, the term "water" is used throughout this paper to mean drinking water, wastewater, and stormwater.

Background

Investment to meet federal water and wastewater requirements can impose significant financial hardships on households, businesses, and the broader communities in which they are located. When communities face large—and sometimes multiple—federal water mandates, the combined impact of the required expenditures can be extremely expensive for everyone in that community who pays a water or wastewater bill (most consumers get one combined bill for water and wastewater services). For the utility, the cumulative suite of required investments not only strains fiscal capacity but may also displace other important investments, including critical but nonmandatory capital improvement and infrastructure renewal projects. For the greater community, mandatory investments may also squeeze out other important priorities, such as social safety net programs and economic development efforts. For the residents and businesses in affected cities, the capital and operating expenses associated with federal mandates are often reflected in water and wastewater bills that must grow faster than household incomes and the general rate of inflation. Very significant affordability challenges are often created, particularly for lower-income households.

With the intention of providing a mechanism for relieving undue economic stress in the face of water mandates, EPA has developed "affordability" criteria to indicate when such mandates would cause substantial and widespread economic distress in the community. In those cases, the Agency might be willing to exercise some flexibility in the mandate, such as allowing a longer timeframe to achieve compliance with wastewater and stormwater requirements. The affordability of drinking water requirements is handled differently and can—at least in theory and case-by-case—affect the kind of technology that must be deployed in some small communities.

If EPA affordability criteria functioned properly, the economic hardship imposed on lower-income households might be alleviated in many communities by relaxing compliance requirements or stretching them out over a longer time frame. Unfortunately, there are several critical limitations to how EPA defines affordability and applies its assessment criteria. This is due in part to EPA's reliance on metrics such as median household income (MHI), which is highly misleading as an indicator of a community's ability to pay. As a result, regulatory relief is not provided in many communities where substantial and widespread economic hardships are indeed being created.

EPA's Two-level Affordability Screening Analysis for Wastewater and Combined Sewer Overflow (CSO) Controls

In 1995, EPA published its first set of affordability-related guidelines: *The Interim Economic Guidance for Water Quality Standards.* The 1995 Guidance contains a detailed discussion of the analyses a municipality should undertake to evaluate the economic impact of complying with water quality standards (WQS) under the Clean Water Act (CWA). In 1997, EPA published *Guidance for Financial Capability Assessment and Schedule Development* using a nearly identical approach to assess whether an extended compliance schedule might be granted to a community facing affordability problems. The analyses put forth in these guidance documents are divided into two parts:

1. The "preliminary screen" examines affordability using a factor called the Residential Indicator (RI). The RI weighs the average per household cost of wastewater bills relative to median household income in the service area. Ultimately, an RI of 2% or greater is deemed to signal a "large economic impact" on residents, meaning that the community is likely to experience economic hardship in complying with federal water quality standards.
2. A "secondary screen" examines metrics related to the financial capability of the impacted community. This screen applies a Financial Capability Indicator (FCI) reflecting the average of six economic indicators. Those indicators include the community's bond rating, its net debt, its median household income, the local unemployment rate, the service area's property tax burden, and its property tax collection rate. Each indicator is assigned a score of 1 to 3, based on EPA-established benchmarks. Lower FCI scores imply weaker economic conditions and thus an increased likelihood the mandate would cause substantial and widespread economic impact on the community or service area.

The results of the RI and the FCI are ultimately combined into an overall rating based on EPA's Financial Capability Matrix. This rating is intended to demonstrate the overall level of financial burden imposed on a community by compliance with Clean Water Act mandates.

EPA's Assessment of Affordability for Drinking Water Regulations

Whereas EPA's consideration of affordability for wastewater and CSO compliance is aimed at assessing an individual community's ability to comply with regulatory mandates and schedules, EPA's consideration of affordability in the context of potable water supply is limited to assessing the *national-level affordability of regulatory options for small communities.* EPA does not consider the affordability of drinking water requirements in any manner that pertains to individual utilities (even small ones), or to the category of medium and large utilities.

EPA has stated that it would consider a National Primary Drinking Water Regulation to be unaffordable to small communities (those with populations under 10,000) if the standard would result in a household drinking water bill in excess of 2.5% of the national average MHI in such communities. To date, EPA has never made this finding. If EPA were to make such a finding, it would be required to identify technologies for small systems that might not result in meeting particular drinking water standards but are found to protect public health. Then, on a case-by-case basis, states may approve the use of such affordable small system technologies (called a variance) or approve an extended deadline for compliance (called an exemption). States cannot approve both a variance and an exemption for the same standard in the same community. Variances are subject to review and approval by EPA. States have allowed very few variances and exemptions because they can be difficult and expensive to issue.

EPA's stated view on potable water—that it is affordable if it costs less than 2.5% of small community MHI—influences the perceived affordability of combined water and wastewater bills. Specifically, it is inferred that EPA would consider a combined annual water and wastewater bill of less than 4.5% of MHI to be affordable (2.5% for water, plus 2% for wastewater services and CSO controls).

Limitations of EPA's Preliminary Screening Approach

A central issue in assessing affordability of federal water mandates is the reasonableness of community-wide MHI as a primary yardstick. MHI can be a highly misleading indicator of a community's ability to pay for several reasons.

- ***MHI is a poor indicator of economic distress and bears little relationship to poverty or other measures of economic need within a community.*** For example, consider an analysis of MHI and poverty data for the 100 largest cities in the United States. It shows that for 21 cities identified as having an MHI within $3,000 of the 2010 national MHI ($50,046), there is no discernible relationship between MHI and the incidence of poverty. Statistical analysis confirms that the correlation between MHI and poverty among these cities is not meaningful, with a correlation coefficient (r) of 0.024. Indeed, within these 21 cities, the poverty rate ranges from a low of 14.1% to a high of 23.3%.

- ***MHI does not capture impacts across diverse populations.*** In many cities, income levels are not clustered around the median, but are spread over a wide income range or concentrated at either end of the income spectrum. This tendency for the income distribution to spread away from the middle has been increasing and may well continue to increase in the future, making MHI an even less meaningful metric. In addition, income distribution and other economic measures can vary widely across different districts and neighborhoods within a city. Thus, the economic hardship associated with increasing water and wastewater bills can be concentrated in a few lower-income neighborhoods. This will compound the economic hardship within the community and may raise issues of environmental justice (EJ). These impacts are not captured with the use of service area MHI as a sole indicator.

- ***MHI provides a "snapshot" that does not account for the historical and future trends of a community's economic, demographic, and/or social conditions.*** This is particularly relevant in areas that may be experiencing economic declines or population losses (which will result in the costs of water and wastewater programs being spread across fewer residents). Without consideration of these and other economic and demographic trends, the affordability determination will overestimate the ability of residents to tolerate rate increases over time.

- ***MHI does not capture impacts to landlords and public housing agencies.*** Many renters do not receive water bills because water and wastewater service is included in the cost of rent. The same is true of many residents in public housing. In cities with a high percentage of renters and/or public housing residents, use of MHI and RI does not capture impacts to landlords and public housing agencies, which must often absorb the cost of increased water and wastewater bills. In many cases, higher water bills mean that public housing authorities will be required to reduce the number of needy renters they serve, unless there can be offsetting increases in public housing budgets.

- ***The RI does not fully capture household economic burdens.*** Economic burdens are commonly measured by comparing the costs of particular necessities to available household income. The RI is such a measure in that it is used to evaluate the economic burden from water bills by comparing those bills to MHI. However, there can be situations where the economic burdens in a community are substantially different from those typically associated with its RI. For example, a community may experience unusually high costs of basic necessities or may have a distribution of household income that differs significantly from that in most communities. In these cases, the standard application of EPA's RI would be insufficient on its own to distinguish between higher and lower levels of economic impact.

Alternative Household Affordability Metrics: Moving Beyond EPA's Criteria

Given the limitations of the RI, and in particular the use of MHI as a primary indicator of household affordability, it is important to consider the use of alternative metrics to gauge the affordability of federal water mandates. For example, impacts on customer bills can be assessed as follows:

- ***Across the income distribution.*** Given the relatively large percentage of households in the lower portions of the income distribution in many cities, it is important to examine the effect of rising water bills across the entire income distribution—and especially at the lower end—rather than simply at the median. For example, a key indicator could include the analysis of average water and wastewater bills borne by each income quintile as a percentage of the average income for that quintile. The percentage of households below specific income thresholds can also be used to examine household impacts. Figure 1 illustrates this point.

  EPA's "Guidance for Preparing Economic Analyses" (240-R-00-003) recognizes the legitimacy of assessing impacts to all households across the income distribution, though EPA has not provided information on how such analyses have been conducted in the past or used in enforcement actions.

- ***Across household types.*** Average water and wastewater bills can be examined as a percentage of income for potentially vulnerable populations (e.g., renters and elderly households).

- ***Across neighborhoods*** or similar geographic units, such as Census tracts, or Public Use Microdata Areas. Poverty rates and households located in poverty areas can be considered to identify portions of communities that are economically at risk. Alternative measures of poverty, such as the Supplemental Poverty Measure (SPM) recently developed by the U.S. Census Bureau, can be especially useful in this respect. The analysis could capture affordability issues in particular parts of a community or service area that may be masked when looking at the area as a whole.

- ***Other indicators*** of economic need and widespread impacts can also be considered for the community or parts of the community2. These might include:
  - The unemployment rate.
  - The percentage of households receiving public assistance such as food stamps or living below the poverty level.
  - The percentage of households meeting Home Energy Assistance Program requirements.
  - The percentage of customers eligible for water affordability programs.
  - *The percentage of households paying high housing costs*—for example the percentage of households with housing costs in excess of 35% of income.
  - *Other household cost burdens such* as nondiscretionary spending as a percentage of household income for households within each income quintile (Rubin 2003).

Figure 1: Household Income Quintile Upper Limits in Atlanta, Georgia and the United States (2011$)

	Atlanta, Georgia	United States
Lowest quintile	12,294	20,585
Second quintile	31,873	39,466
Third quintile	59,043	63,001
Fourth quintile	104,233	101,685
Lower limit of top 5%	246,335	187,087

Source: U.S. Census Bureau ACS, 2012.

1. The SPM includes changes in the measure of available household resources (e.g., using after-tax income instead of pre-tax income and taking into account income received through food stamps and other forms of public assistance) and also recognizes some nondiscretionary expenses that such households bear. The SPM also adjusts for different housing status (e.g., renters versus owners). Additional details can be found in the U.S. Census Bureau (2011).

2. EPA's 1995 Interim Economic Guidance for Water Quality Standards provides a good list of these indicators, also including economic losses, impacts on property values, decreases in tax revenues, and potential for future job losses, among others.

EPA's Secondary Screening Analysis: Limitations and Alternative Indicators

Just as the RI falls short of its intended purpose, so too does the Financial Capability Indicator (FCI). The FCI that makes up EPA's secondary screening analysis does not adequately reflect a community's ability to finance investments associated with federal water mandates. This measure fails to fully capture financial capability because:

- EPA uses property tax revenues as a percentage of full market property value (FMPV) as its sole measure of local tax effort. Focusing solely on property taxes—while ignoring income, sales, business taxes, and user fees typically charged for city services—inevitably understates the tax effort in cities that rely on multiple forms of taxation. As an alternative, EPA should allow municipalities to use *total local tax and fee revenues as a percentage of gross taxable resources.* This would provide a better measure of the extent to which a municipality is already using the full range of its taxable resources.

- The secondary screening analysis includes measures of local MHI and unemployment levels compared to the national average. By focusing on how these measures compare with national levels, EPA fails to acknowledge the profound impact of the absolute levels themselves. For example, if the national unemployment rate is 9%, a community with an unemployment rate of 10% is considered by EPA as having only a "mid-range" unemployment problem. In fact, a community with a 10% unemployment rate is all-but-certain to be experiencing significant distress, regardless of the national average.

  In addition to supplemental measures for MHI (as previously described), EPA should consider a metric that compares a municipality's *current* unemployment rate with the long-term state and national average (the national average was 5.8% between 1991 and 2010). Use of the l*ong-term* state and national averages as a benchmark would provide a more insightful socioeconomic indicator than a single current number. A community's long-term unemployment rate (for example, the share of the labor force continuously unemployed for one-half year or more) could also be evaluated.

- The FCI does not take into account any deterioration of a local government's ability to finance major capital improvements, as evidenced in municipal capital markets. EPA should consider adding a measure of local government revenue growth or decline to the FCI matrix, with a decline in real revenues over some period taken as a sign of weakened financial capacity.

- EPA's methodology for assessing municipalities' financial capabilities takes into account formal debt burden, but it does not consider what for many cities is an even greater liability: unfunded pension and health care commitments to retirees. These are generally not reflected in formal debt.

- Community or utility revenues are not considered in the secondary screening analysis. This creates a significant weakness, especially in areas that are experiencing economic difficulties, delinquency in water and wastewater payments, declining water usage, shrinking revenues, or a growing number of older customers on fixed or declining incomes. EPA should consider the addition of more appropriate measures of revenue collection, such as current delinquency rates, the agency's ability to enforce collection, and its likelihood of recovering these costs.

- EPA's secondary screening analysis does not take into account the fact that many communities have a legal debt ceiling. Debt limitations have the potential to severely limit a community's ability to finance unfunded mandates absent an extended schedule.

- Finally, EPA does not consider the longer-term needs facing many municipalities for reinvestment and renewal of water and wastewater infrastructure due to the current system's age and condition. As documented by the American Water Works Association's 2012 *Buried No Longer: Confronting America's Water Infrastructure Challenge* report (covering buried drinking water infrastructure only), these needs add up to at least $1 trillion over the next 25 years. Wastewater needs are at least as great, not counting CSO costs. The need for this investment is real and urgent.

Weighing the Benefits of Additional Mandate-Driven Expenditures

Federal Clean Water Act and Safe Drinking Water Act mandates are intended to provide better public health protection, water quality enhancements, and other benefits. However, not all drinking water and wastewater mandates are the same. Some provide greater benefits than others, or provide benefits sooner than others, or generate benefits to different groups of people or ecosystems than others.

When communities face expensive water mandates and associated deadlines, the impact of the required expenditures can be extremely difficult for all who pay water bills, but particularly for those with lower incomes. In such communities, the expected benefits of the mandate should be carefully weighed against:

- Compliance deadlines (which might be amended).
- Permit limits (which might be adjusted).
- Required compliance technologies and strategies (some of which are more expensive than others).
- Other factors that influence the magnitude and timing of required investments.

When the costs of meeting a regulatory mandate are high, the affordability implications and the benefit of the activity should each be evaluated in concert with one another. The most important questions include:

1. Are the added benefits of more rapid and/or stringent mandates warranted given the added costs and adverse impacts on affordability, when compared to less stringent, perhaps less expensive alternatives?
2. Are projects with lower public health or environmental benefits driving out projects that might be of greater value to the community or the nation?
3. Will those who will realize most of the benefits be different than those who bear most of the costs?
4. Are those bearing the greatest burden economically disadvantaged and thus worthy of environmental justice consideration?

EPA's proposed Integrated Planning and Permit Policy (IPPP) provides one potential avenue by which the costs and benefits of all federal water mandates could be addressed. The IPPP process could be used to set priorities, make adjustments in requirements, and set reasonable timetables. Such adjustments would help ensure that local resources are used to secure the greatest public health and environmental benefits at an affordable cost. Moving the IPPP process forward as suggested offers important potential advantages:

- Comparing the environmental, social, and financial benefits of all water-related obligations would allow municipalities to develop priorities that reflect the totality of trade-offs and commitments facing the community.
- Considering all water-related obligations together, and assessing financial capability in light of total water-related obligations, would focus local resources where the community will get the greatest total environmental, public health, and other benefits.

It should be noted that EPA does not include drinking water mandates in the Integrated Municipal Stormwater and Wastewater Planning process, even though drinking water investments must be carried on the same customer bill as investments needed to comply with wastewater and CSO mandates. The USCM, AWWA, and WEF have recommended that EPA include consideration of drinking water investments in the Integrated Planning and Permit Program. The program should also consider necessary but nonmandatory investments in the on-going rehabilitation of water and wastewater infrastructure.

Conclusion

EPA is to be commended for addressing affordability concerns. However, the continued application of EPA's current approach is inadequate. With respect to considering the impact of rising water bills on households, a basic problem is over-reliance on median household income (MHI). Rather than focusing on MHI alone, EPA should focus on households at the lower end of the income spectrum. This examination could include households with incomes below a certain threshold; households with the lowest income levels (such as the lowest quintile or decile); households with housing costs above a certain threshold (such as 35% of income); or households experiencing other types of financial distress (such as households living in areas of high poverty or unemployment). Moreover, the trend in changing household incomes, water and wastewater consumption, employment and demographics (such as population changes) should be taken into account in evaluating how household economic burdens are likely to change over time.

With respect to assessing a community's financial capability, EPA does not consider a number of important realities facing many communities today. Alternative metrics need to be considered as part of the financial capability assessment to better account for several highly relevant factors. These include the liabilities associated with unfunded municipal pension obligations and other long-term contractual commitments. Finally, the long-term need to reinvest in aging water and wastewater infrastructure to ensure systems are sound and resilient also should be considered.

Including in EPA's analysis a number of additional and alternative measures as described in this paper would significantly improve the Agency's understanding of the affordability of federal water mandates in American communities.

Finally, although this paper focuses on EPA's analysis of residential affordability, it has to be noted that affordability impacts on other customer classes—such as commercial and industrial customers—can be dramatic. In turn, those impacts can significantly affect the economic health and vitality of a community now and into the future.

Affordability Assessment Tool

The United States Conference of Mayors, the American Water Works Association, and the Water Environment Federation have collaborated in the development of an Affordability Assessment Tool that allows our members to consider many of the alternative factors discussed in this paper and better understand the full range of affordability implications for the federal water mandates they face. To access this tool, visit usmayors.org, awwa.org, or wef.org.

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