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Clean Water Act Financial Capability Assessment Guidance

March 2024 Revision*

*This document revises the version of the Clean Water Act Financial Capability Assessment Guidance published in February 2023 to make an editorial correction in Section III.d.5, second paragraph on page 41.

EPA United States Environmental Protection Agency

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I. Introduction

a. Background

The objective of the Clean Water Act (CWA) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[1] Municipal discharges that violate the CWA can pose significant threats to public health and the environment. When a community is out of compliance with the CWA, the Agency's expectation is that the community will achieve compliance with the CWA as soon as practicable.[2] Financial capability is one of many factors EPA considers when evaluating schedules for implementation of long-term CWA control plans; the Agency also considers the need to expeditiously restore water quality in communities that may have suffered from years of CWA violations. The public health and environmental considerations that EPA assesses when developing CWA implementation schedules include environmental justice and mitigation of environmental and public health impacts in low-income and overburdened communities.

Communities, in consultation with regulators and the public, are responsible for evaluating and selecting pollution controls that will meet CWA requirements. EPA encourages communities to utilize integrated planning[3] and innovative technologies, such as green infrastructure,[4] to achieve CWA compliance in a timely, flexible, and cost-effective manner. After controls have been selected, a financial capability assessment (FCA) is used to aid in assessing a community's financial capability as a part of negotiating implementation schedules under both permits and enforcement agreements. Elements of the same methodology can also be used to understand the economic impacts of installing the pollution controls needed to meet CWA requirements to determine if a variance can be granted, if degradation of high-quality water is warranted, or, in some cases, if a designated use cannot be attained. The updated Financial Capability Assessment Guidance (FCA Guidance) is intended to: 1) standardize what EPA will generally consider when determining a community's financial capability to implement control measures needed to meet CWA requirements and 2) assist states and authorized tribes in assessing the degree of economic and social impact of potential water quality standards (WQS) decisions. It is not a methodology for defining water affordability.

The FCA Guidance sets forth two alternatives that communities can choose to employ to assess financial capability when negotiating compliance schedules. Alternative 1 considers metrics that measure the financial

[1] 33 U.S.C. § 1251.

[2] Compliance schedules included in NPDES permits must "require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA." 40 C.F.R. § 122.47(a)(1). The CSO Control Policy requires that "each long-term CSO control plan . . . should [] include both fixed-date project implementation schedules (which may be phased) and a financing plan to design and construct the project as soon as practicable." 59 Fed. Reg. 18688, 18691 (April 19, 1994).

[3] For more information about integrated planning for municipal stormwater and wastewater, see https://www.epa.gov/npdes/integrated-planning-municipal-stormwater-and-wastewater.

[4] Section 502 of the CWA defines green infrastructure as "...the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters."

impact of the current and proposed CWA controls on residential users, the financial capability of the community, and the lowest quintile income and poverty prevalence within the community's service area. Alternative 2 utilizes dynamic financial and rate models that evaluate the impacts of debt service on customer bills. Additional information such as a community's total water costs (i.e., costs for wastewater, stormwater, and drinking water infrastructure investment) may also be submitted and considered when negotiating the length of an implementation schedule for a community's CWA requirements.

Additionally, EPA recommends the application of the methodologies from Alternative 1 of the FCA Guidance for the consideration of economic impacts to public entities when making decisions on WQS variances and antidegradation reviews. In appropriate cases, these methodologies also inform decisions about revisions to designated uses, subject to additional analyses.

EPA is committed to working with state, tribal, local, and non-government partners to assist communities in meeting CWA requirements in a manner that recognizes unique local financial challenges. We strongly encourage additional subsidy or grant consideration from governmental funding sources for entities that are seeking extended schedules because of financial capability constraints. Federal funding initiatives and programs such as the Bipartisan Infrastructure Law (BIL), American Rescue Plan Act (ARPA), State Revolving Fund (SRF) loans, Water Infrastructure Finance and Innovation Act (WIFIA), and others provide billions of dollars for state, local, territorial, and tribal governments. The BIL has provided $11.7 billion in additional funds to the Clean Water State Revolving Fund (CWSRF). The state match requirement has been reduced to 10% for the first two years and 49% of the money will be provided as grants or principal forgiveness loans to communities. These resources create a historic opportunity for communities to address long-standing clean water needs.

EPA plans to work with communities to identify funding sources and financing strategies that can be used to reduce costs to complete necessary projects. In addition, state, local, and tribal governments' equitable support of communities with limited resources can help those communities meet the challenges of funding necessary water infrastructure improvements, especially where there are disadvantaged and lower income communities with environmental justice, compliance, enforcement, and other concerns. EPA's review of our SRFs and WIFIA, for example, indicate that disadvantaged community funding can substantially improve compliance and mitigate pollution by getting needed projects underway while maintaining affordable water service. EPA, in accordance with Executive Order 14008, is working towards a goal to direct 40 percent of the overall benefits of federal investments in the development of critical clean water infrastructure to disadvantaged communities.

EPA has a responsibility to ensure that recipients and subrecipients of federal financial assistance from EPA—including states, municipalities, and other public and private entities—comply with federal civil rights laws that prohibit discrimination on the basis of race, color, national origin (including limited English proficiency), disability, sex, and age,[5] including Title VI of the Civil Rights Act of 1964. Whenever a community receives

[5] Title VI of the Civil Rights Act of 1964, 42 U.S.C. §§ 2000(d) et seq. (Title VI); Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C., 29 U.S.C. § 794, Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. §§ 1681 et seq.; Age Discrimination Act of 1975, 42 U.S.C. §§ 6101 et seq.; Federal Water Pollution Control Act Amendments of 1972, Pub. L. 92 500 § 13, 86 Stat. 903 (codified as amended at 33 U.S.C. § 1251 (1972)); 40 C.F.R. Parts 5 and 7.

funding from EPA, including through the CWSRF and the Drinking Water State Revolving Fund, EPA intends to ensure compliance with civil rights laws by recipients of such funding. It is EPA's obligation to ensure no community is excluded from receiving or denied benefit of EPA funding based on race, color, national origin (including limited English proficiency), age, disability, or sex.[6]

b. History of Relevant Guidance

1. FCA Guidance and FCA Framework

EPA's 1997 *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development* (1997 FCA Guidance) sets forth a two-phased approach for evaluating a National Pollutant Discharge Elimination System (NPDES) permittee's financial capability to fund combined sewer overflow (CSO) controls in accordance with the CSO Control Policy.[7] In the first phase, the Residential Indicator (RI) calculates the cost per household as a percentage of median household income (MHI) for the service area of the permittee. In the second phase, the Financial Capability Indicators (FCI) evaluates the municipality or wastewater utility's overall fiscal health and local demographics relative to national norms. The Residential Indicator and Financial Capability Indicators results are brought together in a matrix that evaluates the impact a proposed CWA program imposes on the municipality or utility ("high," "medium," or "low"). This two-phased approach is referred to as the FCA. While developed for use in assessing a community's capability to fund CSO controls, EPA has also used the 1997 FCA Guidance to inform schedules to implement sanitary sewer overflow (SSO) and other CWA control measures.

EPA developed the 2014 *Financial Capability Assessment Framework for Municipal Clean Water Act Requirements* (2014 FCA Framework) to encourage the use of the flexibility available under the 1997 FCA Guidance. Both the 1997 FCA Guidance and the 2014 FCA Framework were developed with extensive public input. The results of the FCA analyses provide an important benchmark for EPA decision-makers to consider in CWA permitting and enforcement actions to support consistency across the country. EPA has used both the 1997 FCA Guidance and the 2014 FCA Framework to support consent decree negotiations with over 100 wastewater utilities throughout the United States and U.S. territories.

2. Integrated Planning Framework

In 2012, EPA developed the *Integrated Municipal Stormwater and Wastewater Planning Approach Framework* (Integrated Planning Framework) that offers a voluntary opportunity for a municipality to develop an integrated plan to meet multiple CWA requirements. Integrated planning is a process that municipalities can use to achieve clean water and human health goals while addressing aging infrastructure, changing

[6] For more information about the federal civil rights laws enforced by EPA, including Title VI, please visit https://www.epa.gov/ocr/title-vi-laws-and-regulations and https://www.epa.gov/ogc/external-civil-rights-compliance-office-title-vi.

[7] Through the NPDES program, EPA established a national framework for controlling CSOs, called the CSO Control Policy. 59 Fed. Reg. 18688 (April 19, 1994). CWA § 402(q) requires that each permit, order, or decree for a discharge from a municipal combined storm and sanitary sewer conform to the CSO Control Policy. Communities with CSOs must comply with the CSO Control Policy and have a permit to discharge. See https://www.epa.gov/npdes/combined-sewer-overflows-csos.

population and precipitation patterns, and competing priorities for funding. With the release of the Integrated Planning Framework, the Agency clarified that an FCA could include the following costs: stormwater and wastewater; ongoing asset management or system rehabilitation programs; existing CWA related capital improvement programs; collection systems and treatment facilities; and other CWA obligations required by state or other regulators. On January 14, 2019, the Water Infrastructure Improvement Act (WIIA) (H.R. 7279) added a new section 402(s) to the CWA to include the 2012 Integrated Planning Framework.

3. Interim Economic Guidance for Water Quality Standards

The 1995 *Interim Economic Guidance for Water Quality Standards* (1995 WQS Guidance) is used for developing supporting analyses for revisions to designated uses, justifications for WQS variances, and antidegradation reviews to allow lowering of water quality. The public sector portion of the 1995 WQS Guidance uses a substantively identical two-phased approach, data, and metrics as the 1997 FCA Guidance. However, the terminology used in the two guidance documents is different.

The first step of the public sector analysis of the 1995 WQS Guidance involves determining a Municipal Preliminary Screener Score (MPS) to assess the impact of the cost to households of the pollution control technology needed to meet water quality-based requirements. The MPS is the cost as a percentage of the median household income (i.e., the ratio of the total per-household costs and the median household income). In the 1997 FCA Guidance, this same ratio is called the Residential Indicator.

The second step of the public sector analysis of the 1995 WQS Guidance involves determining the Secondary Score to evaluate the community's financial capability, using six measures of a community's financial health - bond rating, net debt as a percent of the full market property value, unemployment rate, median household income, property tax revenues as a percent of full market property value, and property tax collection rate. In the 1997 FCA Guidance, these same six measures are used to calculate the Financial Capability Indicators.[8]

In the 1995 WQS Guidance, the MPS and the Secondary Score are brought together into a matrix to determine the degree of economic and social impact to support a binary (i.e., yes/no) WQS decision, whereas the matrix in the 1997 FCA Guidance is used to determine a community's financial capability to support schedule negotiations.

Because the 1995 WQS Guidance and the 1997 Guidance are substantially aligned, the FCA Guidance supplements the public sector sections of the 1995 WQS Guidance to assist states and authorized tribes in assessing the degree of economic and social impact of potential WQS decisions. The FCA Guidance does not revise the recommended methodology in the private sector sections of the 1995 WQS Guidance. Section III of the FCA Guidance applies to the consideration of economic impacts to public entities when evaluating WQS variances and antidegradation reviews. In appropriate cases, these methodologies also inform decisions about revisions to designated uses, subject to the additional analyses described in Section III.

[8] One difference is that the 1995 Economic Guidance's Secondary Score compares the community's median household income to the state median household income, whereas the 1997 FCA Guidance's Financial Capability Indicator compares the community's median household income to the national median household income.

c. Use of the Updated FCA Guidance

The FCA Guidance advances the ability of communities to demonstrate financial impacts, increases the transparency of EPA's consideration of these impacts, and will improve the agency's ability to consistently apply FCA methodologies across the country. The FCA Guidance helps communities submit consistent and comprehensive information relevant to the entire community's capability to fund CWA control measures and programs. Specifically, the FCA Guidance includes templates and calculations that communities can use to submit information regarding lowest quintile income (LQI), drinking water costs, financial models or studies, and other relevant information. The templates and calculations include references to applicable publicly available data sources that can be used in compiling this information. The Residential Indicator and Financial Capability Indicators are based on factors for consideration of financial capability as identified in the CSO Control Policy.[9] The development of the Lowest Quintile Poverty Indicator was guided by the following criteria:

1. Readily available from publicly available data sources;
2. Clearly defined and understood;
3. Simple, direct, and consistent;
4. Valid and reliable measures, according to conventional research standards; and
5. Applicable for comparative analyses among permittees.[10]

EPA also encourages communities to submit any additional documentation that would create a more accurate and complete picture of their financial capability that may affect the conclusion of the analyses described in this guidance.

When used for schedule development, EPA does not view or use the FCA Guidance as a rigid metric that points to a given schedule length or threshold over which the costs are deemed unaffordable. It is a common misconception that the FCA Guidance can be used to cap spending on CWA programs or projects at a percentage of MHI. The FCA Guidance does not remove obligations to comply with the CWA nor does it reduce regulatory requirements. Rather, EPA uses the FCA Guidance to assess a community's financial capability for the purpose of developing a reasonable implementation schedule for necessary improvements that will not burden the community. In practice, EPA considers each community's financial capability on a holistic case-by-case basis. Where appropriate, EPA has and will continue to consider supplemental information submitted by the community (as encouraged by the 2014 FCA Framework) and may agree to

[9] These factors are: i) Median household income; ii) Total annual wastewater and CSO control costs per household as a percent of median household income; iii) Overall net debt as a percent of full market property value; iv) Property tax revenues as a percent of full market property value; v) Property tax collection rate; vi) Unemployment; and vii) Bond rating. 59 Fed. Reg. at 18894. While allowing for consideration of these listed factors in developing implementation schedules, the CSO Policy also explains that NPDES authorities should ensure that "CWA requirements are complied with as soon as practicable." Id. at 18690.

[10] See National Academy of Public Administration, *Developing a New Framework for Community Affordability of Clean Water Services* (2017).

implementation schedules that are different than the schedules suggested by the FCA Guidance's baseline analysis.

The updated FCA Guidance incorporates aspects of EPA's 1997 FCA Guidance and EPA's 2014 FCA Framework. Going forward, the FCA Guidance replaces the 1997 FCA Guidance to evaluate a community's capability to fund CWA control measures in both the permitting and enforcement context.

In addition, as described in Section I.b of this guidance, the 1997 FCA Guidance is substantively identical to the public sector sections of the 1995 WQS Guidance, which is used for evaluating WQS decisions, including revisions to designated uses, WQS variances, and antidegradation reviews for high-quality waters. Going forward, the FCA Guidance (particularly Section III) supplements, and should be used in conjunction with, the public sector sections of the 1995 WQS Guidance to assist states and authorized tribes in assessing the degree of economic impact of potential WQS decisions. The FCA Guidance does not revise the recommended methodology in the private sector sections of the 1995 WQS Guidance.

Worksheets for calculation of the Residential Indicator and Financial Capability Indicators are included as Appendices A and B. These Appendices include standardized instructions and practice tips, such as costs that can be included when considering CWA costs per household as a percent of MHI. MHI represents the mid-point of income in a geographical area determined by the American Community Survey (ACS). The median is generally used to derive a central tendency since it is not largely affected by outlier values. However, EPA recognizes that there can also be significant impacts on customers at the low end of the income spectrum. For communities with households that have difficulty paying for their water services, these challenges can be indicated by looking at the community's LQI and other poverty indicators along with its MHI.

When considering an extended schedule for addressing sewer overflows, Section II.8 of EPA's longstanding CSO Control Policy states that implementation schedules should incorporate consideration of grant and loan availability, user fees and rate structures, and other viable funding mechanisms and sources of funding. 59 Fed. Reg. 18688, 18694 (April 19, 1994). As outlined in Section II.a.4 of this guidance, the Financial Alternatives Analysis walks communities through these considerations and how certain steps may mitigate financial impacts. This step should inform EPA's consideration of an extended CWA schedule or WQS revision related to economic impacts, particularly those that may be driven by lowest quintile income and/or poverty considerations. For example, a community's Residential Indicator and Financial Capability Indicators may show that the community as a whole has the resources to invest in water infrastructure, but those investments could potentially impose a significant burden on lower-income households unless steps are taken to avoid that result. In such cases, Appendix C of this guidance describes measures communities can implement to reduce that burden. To the extent that financial burdens remain for the community and its low-income households, EPA will work with the community and/or utility to develop an appropriate schedule length as suggested by the recommended implementation schedule benchmarks in Exhibit 9.

Appendices C and D provide information related to accessing federal funding as well as other sources of water infrastructure financing. These types of programs can help a community come into compliance more quickly and reduce the financial impacts on ratepayers. As described below, the assessment of availability of such funding should be part of a community's FCA, and a community should consider available subsidized funding and other financing arrangements as part of a financing plan to achieve compliance as soon as

practicable.[11] EPA's Water Finance Clearinghouse (https://clearinghouse.epa.gov/wfc) can also be used to identify federal, state, and non-governmental sources of funding and financing that may help communities access capital to meet their water infrastructure needs. The Water Finance Clearinghouse can provide information on rate structures, financial plans, and customer assistance programs. In addition, EPA's Municipal Ombudsman (https://www.epa.gov/ocir/municipal-ombudsman) serves as a resource for communities seeking to comply with the Clean Water Act and will coordinate with the appropriate EPA offices to assist communities with information on federal financial assistance, technical assistance, and integrated planning.

II. Updated FCA Guidance for Schedule Development

The FCA Guidance encourages communities to provide information under either Alternative 1 or Alternative 2 to evaluate financial capability for CWA implementation schedules. Alternative 1 of the FCA Guidance involves evaluating a NPDES permittee's financial capability to fund CWA controls by calculating the Residential Indicator and the Financial Capability Indicators. The Residential Indicator considers the cost per household as a percentage of MHI for the service area of the permittee using data collected by the U.S. Census Bureau. The Financial Capability Indicators evaluate the municipality or wastewater utility's overall fiscal health and local demographics relative to national norms. The FCA Guidance adds a new critical metric: the Lowest Quintile Poverty Indicator (LQPI) Score. These critical metrics are considered in accordance with the Expanded FCA Matrix (Exhibit 5) and supplemented by a Financial Alternatives Analysis. The FCA Guidance includes recommended implementation schedule benchmarks applicable to Alternative 1 (Exhibit 9). Alternative 2 of the FCA Guidance involves analyzing financial and rate models in addition to calculating the LQPI Score and performing a Financial Alternatives Analysis.

It should be emphasized that these alternatives might not present the most complete picture of a community's financial capability to fund its CWA requirements. However, these metrics do provide a common basis for financial impact discussions among the community, the state or tribe, and EPA. Communities are encouraged to submit any additional documentation (Other Metrics) for consideration that would create a more accurate and complete picture of their financial capability. The FCA Guidance includes Other Metrics with Standardized Instructions and Other Metrics with Submission of Information to be Determined by the Community. Both alternatives permit consideration of Other Metrics and may support an extended implementation schedule as suggested by Exhibit 9's recommended implementation schedule benchmarks. See Sections II.c and II.d for more information on additional metrics.

[11] The CSO Control Policy requires that "each long-term CSO control plan . . . should [] include both fixed-date project implementation schedules (which may be phased) and a financing plan to design and construct the project as soon as practicable." 59 Fed. Reg. at 18691.

Alternative 1: Critical Metrics

- Residential Indicator – cost per household as a percentage of MHI
- Financial Capability Indicators – six socioeconomic, debt, and financial indicators used to benchmark a community's financial strength
- Lowest Quintile Poverty Indicator – one lowest quintile income element (weighted at 50%) and five poverty elements (weighted at 10% each) used to benchmark the severity and prevalence of poverty within the community's service area
- Financial Alternatives Assessment – consideration of feasible alternatives to reduce costs and address impacts to low-income households

Alternative 2: Critical Metrics

- Financial and Rate Models
- Lowest Quintile Poverty Indicator
- Financial Alternatives Analysis

Other Metrics with Standardized Instructions

- Drinking Water Costs
- Water Affordability Programs
- Asset Management Costs
- Stormwater Management Costs
- Comparisons to County, State, and National Data

Other Metrics with Submission Information Determined by the Community (see Appendix E for examples)

a. Alternative 1: Critical Metrics and Instructions

1. Residential Indicator

The first step of Alternative 1 is to calculate the Residential Indicator by following the instructions for Worksheets 1 and 2 in Appendix A. This indicator is the community's average cost per household (CPH) for wastewater treatment (WWT) and CWA controls as a percentage of the local MHI. It reflects the residential share of current and planned controls needed to meet the requirements of the CWA. The value range for this indicator characterizes whether the costs impose a "low," "mid-range," or "high" financial impact on residential users.

Exhibit 1. Residential Indicator Score

RESIDENTIAL INDICATOR FINANCIAL IMPACT	RESIDENTIAL INDICATOR (CPH AS % MHI)[12]
Low	Less than 1.0 Percent of MHI
Mid-Range	1.0 to 2.0 Percent of MHI
High	Greater than 2.0 Percent of MHI

2. Financial Capability Indicators

The second step of Alternative 1 is to calculate the Financial Capability Indicators by following the instructions for Worksheets 3 to 9 in Appendix B. The six Financial Capability Indicators are used to evaluate the debt, socioeconomic, and financial conditions that affect a community's financial capability to implement the CWA controls. These indicators help characterize the community's financial capability as "weak," "mid-range," or "strong."

Exhibit 2. Financial Capability Indicators Score

FINANCIAL CAPABILITY INDICATORS SCORE	SOCIOECONOMIC, DEBT, AND FINANCIAL INDICATORS
Weak	Below 1.5
Mid-Range	1.5 to 2.5
Strong	Above 2.5

3. Lowest Quintile Poverty Indicator Score

The third step of Alternative 1 is to calculate the Lowest Quintile Poverty Indicator Score. EPA recognizes that considering lowest quintile income is an important measure to supplement the Residential Indicator and Financial Capability Indicators, as MHI does not account for the variability of income distribution from community to community. The calculation of the Lowest Quintile Poverty Indicator aids in assessing the severity and prevalence of poverty in a community's service area.

A Lowest Quintile Poverty Indicator Score can be calculated by using the list of indicators in Exhibit 3 to benchmark the severity and prevalence of poverty within the community's service area. These indicators (other than "Trend in Household Growth") are evaluated using a ±25% benchmark to national values, like the

[12] In the mid-1990s EPA developed the 1% and 2% Residential Indicator benchmarks after conducting an analysis of the costs of wastewater services as a percentage of household income using EPA's Municipality's Ability to Pay Model (MABEL) database. The analysis also examined the National Wastewater User Fee Study of the Construction Grants program database, which captured annual residential expenditures as a percentage of median household income. The 2% benchmark was calculated to be two standard deviations above the average expenditure per household.

methodology used to calculate the FCI. For instance, if the national Percentage of Population with Income Below 200% of Federal Poverty Level is 32%, then a community with a value less than 24% would equal a "strong" score for this indicator, a value of 24% to 40% would equal a "mid-range" score, and a value above 40% would equal a "weak" score. Using a ±25% benchmark closely aligns with the middle quintile of data for the parameter, which can characterize the "middle class" of Americans. This bracketing of the middle 50% is a commonly used methodology to characterize outliers on either end of the data distribution.

"Trend in Household Growth," the fifth indicator, is evaluated using >1%, 0-1%, and <0% benchmarks.[13] To calculate "Trend in Household Growth":

- Collect total number of occupied housing units (i.e., households) data, based on the 5-year ACS, for the most recent year and five years earlier from Census Table B25002.
    - Refer to https://data.census.gov/cedsci/all?q=B25002.
- Enter historical household data into the Geometric Average Growth Rate formula below to calculate the five-year trend.

$$5-Year\ Geometric\ Average\ Growth\ Rate = (1 + (HH_n - HH_{n-5})/HH_{n-5})^{1/5} - 1$$

$$HH = Number\ of\ Occupied\ Housing\ Units$$

$$n = Most\ Recent\ Census\ Data\ Year$$

For example, if a community had 15,500 occupied housing units in the most recent census data year and had 15,000 occupied units five census data years prior, the 5-year average geometric growth rate would be 0.66%.

$$5-Year\ Geometric\ Average\ Growth\ Rate = (1 + (15{,}500 - 15{,}000)/15{,}000)^{\frac{1}{5}} - 1 = 0.66\%$$

If the community's service area includes more than one jurisdiction, the LQPI indicators should be weighted based the number of households in each jurisdiction throughout the community's entire service area. For an example of how to calculate a weighted average, see Appendix A.

[13] This indicator is "strong" if the five-year average household growth is greater than 1 percent. The indicator is "weak" if the five-year average household growth is negative (less than 0 percent). The indicator is "mid-range" if the five-year average household growth is 0 percent to 1 percent.

Exhibit 3. Instructions for Calculation of the Lowest Quintile Poverty Indicator Score

Determine Lowest Quintile Poverty Indicator Score using the template below.

INDICATOR (CENSUS DATA CODE)	STRONG (SCORE = 3)	MID-RANGE (SCORE = 2)	WEAK (SCORE = 1)	WEIGHT	ACTUAL VALUE	SCORE
LQPI #1 Upper Limit of Lowest Quintile Income (B19080)	More than **25%** above national LQI	**±25%** of national LQI	More than **25%** below national LQI	50%		
LQPI #2 Percentage of Population with Income Below 200% of Federal Poverty Level (S1701)	More than **25%** below national value	**±25%** of national value	More than **25%** above national value	10%		
LQPI #3 Percentage of Households Receiving Food Stamps/SNAP Benefits (S2201)	More than **25%** below national value	**±25%** of national value	More than **25%** above national value	10%		
LQPI #4 Percentage of Vacant Housing Units (B25002)	More than **25%** below national value	**±25%** of national value	More than **25%** above national value	10%		
LQPI #5 Trend in Household Growth (B25002)	>1%	0%-1%	<0%	10%		
LQPI #6 Percentage of Unemployed Population 16 and Over in Civilian Labor Force[14] (DP03)	More than **25%** below national value	**±25%** of national value	More than **25%** above national value	10%		
Score for LQPI #1						
Average Score for LQPI #2 to #6 (Sum of 2 through 6 divided by 5)						
Lowest Quintile Poverty Indicator Score (Sum of two lines above divided by 2)						
Lowest Quintile Poverty Indicator Benchmarks Low Impact (Above 2.5) Medium Impact (1.5 to 2.5) High Impact (Below 1.5)						

EPA strongly encourages additional subsidy or grant consideration from governmental funding sources for entities that show a "medium" or "high" impact LQPI Score.

[14] The Financial Capability Indicators and Poverty Indicators both evaluate unemployment rate for the population in the civilian labor force, although using two different standards for evaluation. The Financial Capability Indicators bounds for unemployment rate are +/- 1 percentage point of the national average (e.g., for a national average of 4 percent, the lower bound would be 3 percent and the higher bound would be 5 percent). The Poverty Indicators bounds for unemployment rate are +/- 25% of the national average. It can be useful to evaluate the same variable with different bounding methods, especially for years when unemployment rates spike across the country. On the other hand, when unemployment rates are low, the two should have a similar result. As part of the Financial Capability Indicators assessment, the unemployment rate is relevant to the general economic well-being of residential users in the permittee's service area. The unemployment rate is also relevant as a Poverty Indicator for benchmarking the prevalence of poverty within the service area.

4. Financial Alternatives Analysis: Grant and Loan Availability; Previous and Current Residential, Commercial, and Industrial Sewer User Fees and Rate Structures; and Other Viable Funding Mechanisms and Sources of Financing

Another step of Alternative 1 is to perform a Financial Alternatives Analysis.[15] The goal of this step is to seek ways to minimize financial impacts while ensuring residents also enjoy the benefits of infrastructure investments and improved water quality. Where CWA compliance costs impact residents, particularly low-income households, a longer schedule may not always be the best solution to address impacts to those residents. In particular, if a community shows strong economic indicators in other categories, there may be better options for the community to address the potential financial burden faced by its residents or take other steps to reduce the costs of needed CWA controls. If the intended goal is to help impacts to residents, an extended CWA schedule may, in fact, have the opposite effect if it delays addressing pollution in the neighborhoods where they live. Nonetheless, EPA understands the significant impacts that additional costs can pose to communities, especially underserved and lower-income communities.

A Financial Alternatives Analysis should document whether the community has considered feasible steps to reduce costs and address impacts to low-income households, including use of variable rate structures, customer assistance programs (CAPs), and applications for grants or subsidies from the CWSRF. This demonstration should provide the results of the "checklist" of financing and funding considerations in Appendix C and describe the specific programs being implemented. The community should provide a list of the programs or steps considered, the actions that would be necessary to put such measures into place, and the plan for taking those actions. Where available tools are not included in the community's plans, the requester should provide a written explanation of why those approaches are not being pursued. EPA has provided an Example Financial Alternatives Worksheet in Appendix C that can help document this information.

Financial Alternatives Already Implemented

Most communities will have already considered or implemented some or many of the financial alternatives as general good practices of utility management. Performing the Financial Alternatives Analysis at the beginning of an FCA may help provide the community with a clearer understanding of all costs associated with the implementation of CWA controls, such as reduced costs associated with low-interest loans, increased revenue from utility fees, or the costs associated with programs that assist low-income households. Where a community has implemented certain financial alternatives, the associated costs or cost savings from those alternatives can be accounted for in the Residential Indicator under Alternative 1 and as part of a Financial and Rate Model analysis under Alternative 2. Communities should demonstrate how the CWA work

[15] The Financial Alternatives Analysis expands on the Secondary Financial Considerations in EPA's 1997 FCA Guidance and provides a template for the CSO Control Policy's additional construction and financing schedule considerations of: grant and loan availability; previous and current residential, commercial, and industrial sewer user fees and rate structures; and other viable funding mechanisms and sources of financing. See 59 Fed. Reg. at 18694. This analysis is also consistent with the Integrated Planning Framework, which states that integrated plans should include a financial strategy and capability assessment that ensures investments are sufficiently funded, operated, maintained and replaced over time and include consideration of current and planned rates and fees.

included as costs in an FCA will be implemented, including appropriate assurances that those expenditures will be made.

Consideration of Additional Feasible Financial Alternatives[16]

Extended CWA compliance schedules or WQS revisions that lower the goals for a water body potentially widen water quality and health disparities among communities, creating environmental justice concerns. On one hand, low-income households may be paying a higher percentage of their total income for basic services and clean water, but on the other hand, if the community is out of compliance with the CWA, overburdened and/or low-income neighborhoods will likely continue to suffer impacts to human health and the environment from raw sewage overflows and inadequately controlled stormwater discharges. Residents in low-income communities also may be more dependent on nearby waters for recreation, fishing, and drinking water. The first-line responsibility for balancing financial impacts while achieving clean water improvements rests with the local community. However, EPA is committed to carefully reviewing financial impacts and using the tools and technical assistance at the Agency's disposal to help local communities mitigate environmental—and related financial and societal—impacts of CWA noncompliance for communities.

Use of variable rate structures, CAPs, and applications for grants or subsidies from the CWSRF are all potential tools to enable shorter compliance schedules by allowing increased total spending on compliance without burdening low-income customers. Shorter compliance schedules provide water quality and public health improvements that deliver important social, environmental, and economic benefits to the community. Communities can demonstrate through the Financial Alternatives Analysis that it has taken or is pursuing feasible steps included in Appendix C to lower costs of compliance, reduce or mitigate the financial impact of water service costs on the community's low-income households, and to achieve compliance as expeditiously as possible.[17]

In evaluating this demonstration, EPA expects to look comprehensively at the community's financial strategy, including, but not limited to, an analysis of the community's approach to covering costs through rate structure and design as well as its other initiatives to assist low-income customers while assuring necessary and timely compliance with environmental requirements. As described in Exhibit 9, this analysis can support longer compliance schedules where there is a holistic financial strategy to balance the financial and environmental impacts of extended CWA compliance schedules. Without the types of information developed in a Financial Alternatives Analysis, it will likely be more difficult for EPA to assess possible financial impacts and whether those impacts might outweigh the environmental impacts of extended noncompliance, so the recommendations for compliance schedules for communities that have not performed a Financial

[16] A financial or funding consideration listed in Appendix C may be prohibited by state law. Other mechanisms to achieve the same goals may be feasible alternatives. There are examples, which can be found in Appendix C, of communities that have implemented similar or analogous mechanisms to reduce financial impacts within the limits of the relevant legal boundaries. Note that for municipalities subject to federal civil actions, CWA Section 309(e) provides that to the extent that the laws of a State prevent the municipality from raising revenues needed to comply with any resulting judgement, then the State "shall be liable for payment of any judgment, or any expenses incurred as a result of complying with any judgment."

[17] In particular, NPDES permittees with long-term CSO control plans are "ultimately responsible for aggressively pursuing financial arrangements" for the implementation of such plans. 59 Fed. Reg. at 18690.

Alternatives Analysis are shorter than for those communities that have developed a comprehensive Financial Alternatives Analysis.

Considerations for Sanitary Districts and Sewer Authorities

Whether a particular financial alternative is feasible may be different for entities such as a sanitary district or sewer authority. For instance, a utility may not be the rate setting authority for its entire service area if it serves wholesale customers. Certain utilities may need to work with the municipality or municipalities it serves to obtain the information to complete the Financial Alternatives Analysis. Users of this guidance should document any relevant differences in feasibility or practicality (see, e.g., Column B of the Example Financial Alternatives Worksheet) for consideration by EPA. Understanding such differences allows for development of schedules that are responsive to circumstances unique to each community while advancing the mutual goal to protect clean water.

Considerations for Resource Constraints, In Particular for Small Communities

Not all communities have the capability to fully evaluate the tools identified in Appendix C. If there are resource concerns with completing a Financial Alternatives Analysis, the community should seek support through EPA's Water Finance Center by sending an email to WaterTA@epa.gov. If resource constraints remain, the community should provide information on current and planned efforts to reduce costs and relieve impacts on low-income residential households in a format that represents a good-faith effort relative to the size of the community's service area. EPA understands that for small communities, particularly those serving less than 3,000 persons, it may not be feasible to make a good faith effort to document the financial alternatives in Appendix C. The agency will be mindful of those resource constraints when developing compliance schedules.

5. Expanded Financial Capability Assessment Matrix

The final step of Alternative 1 uses the Expanded FCA Matrix to incorporate the critical metrics described above to provide a framework for understanding the overall financial impact to the community's service area. First, combine the Residential Indicator Score and Financial Capability Indicators Score in the Financial Capability Matrix (Exhibit 4) to determine an FCA Score, then combine FCA Score and Lowest Quintile Poverty Indicator Score in the Expanded FCA Matrix (Exhibit 5). As explained above, a "high" impact or "medium" impact Expanded FCA Matrix result does not mean that CWA compliance is unaffordable; rather, it means that it may be appropriate for the community's CWA compliance schedule to be extended beyond a normal engineering/construction schedule, as suggested by the recommended implementation schedule benchmarks in Exhibit 9.

Financial Capability Matrix

The Financial Capability Matrix determines the FCA Score by combining the Residential Indicator Score and Financial Capability Indicators Score. The matrix is included below as Exhibit 4.

Exhibit 4. Financial Capability Matrix

FINANCIAL CAPABILITY INDICATORS SCORE	RESIDENTIAL INDICATOR SCORE		
	LOW IMPACT (BELOW 1.0%)	MID-RANGE (1.0% TO 2.0%)	HIGH IMPACT (ABOVE 2.0%)
Strong (Above 2.5)	Low Impact	Low Impact	Medium Impact
Mid-Range (1.5 to 2.5)	Low Impact	Medium Impact	High Impact
Weak (Below 1.5)	Medium Impact	High Impact	High Impact

Expanded FCA Matrix

The Expanded FCA Matrix determines the community's overall impact level when combining the FCA Score (from Exhibit 4) and the LQPI Score (from Section II.a.3). The Expanded FCA Matrix is included below as Exhibit 5.

Exhibit 5. Expanded Financial Capability Assessment Matrix

FCA SCORE (RI AND FCI)	LOWEST QUINTILE POVERTY INDICATOR SCORE		
	LOW IMPACT	MEDIUM IMPACT	HIGH IMPACT
Low Impact	Low Impact	Low Impact	Medium Impact
Medium Impact	Low Impact	Medium Impact	High Impact
High Impact	Medium Impact	High Impact	High Impact

The results of the Expanded FCA Matrix correspond to the recommended implementation schedules in Exhibit 9. Showing a "medium" or "high" impact in the Expanded FCA Matrix does not mean that capital investments in critical infrastructure projects should stop. Communities should continue to make capital investments to meet water quality standards even where the Expanded FCA Matrix results indicate a "medium" or "high" impact, though extensions of schedules as suggested by Exhibit 9's recommended implementation schedule benchmarks may offer flexibility for communities. While EPA is committed to taking financial capability into consideration, it is also critically important that all communities—including low-income communities—are ensured the protections of the CWA and the benefits of safe, clean water. To achieve both goals, communities may sequence projects beyond a normal engineering/construction schedule where the community shows these impacts cannot be addressed through measures such as alternative rate structures, assistance programs, or other sources of funding.[18] EPA's Integrated Planning Framework might

[18] The length of financing can be just as important as the length of a construction implementation schedule when trying to keep rates low for a community's low-income households. For instance, a community could fund a 20-year implementation schedule with a 30-year or more loan, and in some cases, with low interest or negative interest loans and debt forgiveness from state revolving funds.

be instructive in these circumstances. As noted above, an FCA should not be used to cap spending on CWA programs or projects at a percentage of MHI or LQI.

See Section II.e (Schedule Development) to see how the Expanded FCA Matrix score may be used in the CWA compliance schedule development process. See Section III for equivalent tables for evaluating economic impacts of WQS decisions for the public sector.

b. Alternative 2: Critical Metrics and Instructions

1. Financial and Rate Models

Alternative 2 provides an opportunity for communities that wish to use financial and rate model analyses to submit this more detailed information to assist in developing an appropriate schedule for implementing CWA control measures.

Cash flow forecasting is a useful tool that allows communities to determine, on an annual basis, the revenue necessary to cover costs (including the costs of compliance projects) and to meet debt covenants over the implementation period. The community should plan and allow for uncertainty when deciding how to adjust water and sewer rates to finance its major capital improvements. Communities should decide how much should be financed through debt and how much should be directly paid for by sewer rates as costs are incurred. In evaluating potential rate increases, communities should also balance revenue requirements against the likelihood that users will reduce usage or cease paying utility bills, causing the yield of the revenues from the rate increase to be less than expected or desired, potentially causing the community to experience "rate shock."[19] In addition, within limits, communities have significant discretion regarding the timing of sewer rate increases. For example, communities may elect to raise rates more than the absolute minimum necessary in early years, thereby creating a cushion against economic uncertainties in later years and providing a strong financial base for bond financing. These model calculations inform the annual rate increases and can help a community evaluate a suite of potential compliance schedules. EPA has provided a list of resources related to water infrastructure financing and rate setting in Appendix D.

While useful, financial and rate models may be complicated or costly to develop, particularly for mid-size or small communities, and may be difficult for a regulator to evaluate. For this reason, submission of this information is at the discretion of a community. This type of information can be used as an analytic tool to assist in developing schedules for implementing CWA control measures in lieu of the critical metrics and schedule benchmarks set forth under Alternative 1. Alternative 2 may be particularly useful in situations where the community already uses such modeling for its internal financial planning or where multiple constraints affect the community's ability to achieve compliance with the CWA (in terms of costs or timing). However, EPA does not recommend the use of financial and rate model analysis under Alternative 2 in lieu of Alternative 1 for WQS decisions. Instead, for evaluating economic impacts of WQS decisions for the public sector, the use of financial and rate models could be used in a manner similar to the Other Metrics in

[19] Rate shock can increase the difficulty of managing program implementation schedules, because financing is contingent on an adequate revenue stream to support the debt service and additional coverage.

Sections II.c and II.d of the FCA Guidance, i.e., as additional information for consideration in conjunction with the use of the Alternative 1 critical metrics.

Communities can provide forward-looking, year-by-year financial modeling of capital expenditures to support a proposed schedule for completing projects necessary to come into compliance with the CWA. Such modeling is commonly used to determine the revenues and rate increases necessary to support the financing of operations and major projects. The typical steps in this process include:

- Determining revenue requirements based on operating costs, debt service payments, asset management, and necessary capital expenditures;
- Allocating the costs of service to customer classes; and
- Developing a schedule of rates and charges necessary to meet revenue requirements.

Financial and rate models provided in the context of CWA compliance are normally in spreadsheet form with multiple tabs, including inputs and assumptions, debt service schedules, operations and maintenance costs, and schedule of necessary capital improvements. The model then determines the "revenue requirements" necessary to support the proposed or alternative compliance plans, including financing and rate increases. The models are set up so that it is possible to evaluate alternative scenarios in terms of cost, length of time to complete a program, or assumptions related to financing strategies. Simpler modeling for smaller communities is possible based on the same concepts, if percentage revenue increases will be passed through to a typical residential customer bill at the same rate of increase.

To assist EPA's review of modeling analyses, EPA recommends that communities using Alternative 2 submit the following supporting data and documentation:

- The last three years of financial reports for the wastewater system.
- A summary of historical rate increases for the past five years.
- The most recent approved Budget and Capital Improvement Plan for the wastewater system.
- Model documentation (e.g., creator, peer review status, version).
- A summary of all model input assumptions and their bases, for example: bond rating, ability to borrow, legislative caps on ability to borrow, selected funding mechanism, access to CWSRF financing, ability to pay back debt, the current operating cost and debt service baseline, current revenue, growth in customers, and inflation in costs and household income.
- An identification of dollar values as either constant (year) or nominal dollars.
- A summary of the model results, explaining the community's view of the conclusions relevant to its financial capability to implement the necessary work to achieve compliance.
- A fully functional model of the scenarios presented, with all formulas and interactions among separate worksheets intact. The model should include a tab that clearly describes the input assumptions used.

- A clear description of the baseline financial status and data in terms of year and source documents that the modeling is built from. This should include the basis for the current residential bill that is used to evaluate impacts on households with median income levels. In general, this will be similar to the results in the Residential Indicator analysis but analyzes only current costs.[20]
- All source and supporting documentation that was relied upon when developing the model, including certified financial statements.
- Evaluation of multiple scenarios in terms of program length or other key assumptions and uncertainties.

Communities and EPA have found a summary of scenarios such as the example shown below in Exhibit 6 to be useful. Other examples would yield different results. To develop year-by-year forward-looking rate model scenarios, such as those shown in Exhibit 6, a community should:

1. Include calculation of the service area Residential Indicator based on the percentage of residential flow and households (not the number of accounts). Current costs (operations and maintenance expenses, debt service at present time, and other recurring asset management costs) should be included and consistent with the model inputs for the current year. Future costs should include the total capital expenditures and changes in operations and maintenance costs as a result of the required work, and also reflect the community's financing plan, again consistent with model assumptions.
2. Determine whether the modeling will be in current dollars or inflated dollars. If inflated, the modeled costs, including proposed capital expenditures, should be adjusted over time. In addition, MHI values should be escalated using the historic rate of increase of MHI or the Consumer Price Index (CPI). The community should provide the basis for all escalation factor assumptions applied in the model.
3. Define a proposed end year for the completion of investments needed to meet CWA requirements. Examining several alternative scenarios is preferred to better understand the impact of various program lengths.
4. Incorporate existing debt service schedules as well as the assumed financing approach for the proposed program costs. This would likely include a mix of already available reserves, cash from incoming revenues, and new debt financing from either the municipal bond market or state-subsidized funding sources.
5. Iterate through proposed capital investment schedules to develop model scenarios and related revenue requirements.

[20] In general, EPA is finding that per household billed usage is in the range of 5 to 6 CCF (centum cubic feet, or one hundred cubic feet). If the community serves a significant number of households in multi-family structures, then the usage will likely be lower. EPA may accept the community's current "typical bill" usage assumption, if consistent with nationwide averages, or real information on usage from actual billing. A community's inability to obtain per household usage information for families living in multi-family structures that are not billed separately for utilities does not preclude consideration of usage information from actual billing.

6. Translate the revenue requirements into annual increases in rates and bills for customers. Apply the annual percentage increases to the baseline or current average household bill.

Where local data are available, communities are encouraged to implement Alternative 2 using local data. For EPA to consider this information, a community should submit all supporting data and documentation, as described above.

Exhibit 6. Examples of Rate Increase Scenarios and Median Household Impacts for Each Scenario

SCENARIO:	COMMUNITY PROPOSED SCENARIO				OTHER SCENARIOS							
END YEAR:	2047				2036				2041			
MEASURE:	RATE INC.	CPH ($)	MHI ($)	RI	RATE INC.	CPH ($)	MHI ($)	RI	RATE INC.	CPH ($)	MHI ($)	RI
2018	7.5%	647	67,753	1.0%	8.4%	639	67,753	0.9%	6.5%	629	67,753	0.9%
2019	7.5%	588	69,272	0.8%	8.4%	584	69,272	0.8%	6.5%	566	69,272	0.8%
2020	7.5%	629	70,825	0.9%	8.4%	630	70,825	0.9%	6.5%	601	70,825	0.8%
2021	7.5%	672	72,413	0.9%	8.4%	678	72,413	0.9%	6.5%	637	72,413	0.9%
2022	7.5%	719	74,037	1.0%	8.4%	731	74,037	1.0%	6.5%	675	74,037	0.9%
2023	7.5%	770	75,697	1.0%	8.4%	789	75,697	1.0%	6.5%	716	75,697	0.9%
2024	7.5%	824	77,394	1.1%	8.4%	850	77,394	1.1%	6.5%	760	77,394	1.0%
2025	7.5%	882	79,129	1.1%	8.4%	917	79,129	1.2%	6.5%	806	79,129	1.0%
2026	7.5%	944	80,903	1.2%	8.4%	990	80,903	1.2%	6.5%	856	80,903	1.1%
2027	5%	989	82,717	1.2%	8.4%	1,069	82,717	1.3%	6.4%	907	82,717	1.1%
2028	5%	1,037	84,572	1.2%	8.4%	1,154	84,572	1.4%	6.4%	962	84,572	1.1%
2029	5%	1,086	86,468	1.3%	8.4%	1,246	86,468	1.4%	6.4%	1,020	86,468	1.2%
2030	5%	1,138	88,407	1.3%	8.4%	1,345	88,407	1.5%	6.4%	1,082	88,407	1.2%
2031	5%	1,193	90,389	1.3%	8.4%	1,453	90,389	1.6%	6.4%	1,148	90,389	1.3%
2032	5%	1,251	92,416	1.4%	8.4%	1,570	92,416	1.7%	6.4%	1,218	92,416	1.3%
2033	5%	1,311	94,488	1.4%	8.4%	1,697	94,488	1.8%	6.4%	1,292	94,488	1.4%
2034	5%	1,374	96,607	1.4%	8.4%	1,834	96,607	1.9%	6.4%	1,372	96,607	1.4%
2035	5%	1,440	98,773	1.5%	8.3%	1,980	98,773	2.0%	6.4%	1,456	98,773	1.5%
2036	5%	1,510	100,988	1.5%	8.3%	2,139	100,988	2.1%	6.4%	1,545	100,988	1.5%
2037	5%	1,582	103,252	1.5%	0%	2,141	103,252	2.1%	6.4%	1,640	103,252	1.6%
2038	5%	1,659	105,567	1.6%	0%	2,144	105,567	2.0%	6.4%	1,741	105,567	1.6%
2039	5%	1,739	107,934	1.6%	0%	2,146	107,934	2.0%	6.4%	1,848	107,934	1.7%
2040	1.39%	1,764	110,354	1.6%	0%	2,148	110,354	2.0%	6.4%	1,962	110,354	1.8%
2041	1.39%	1,790	112,828	1.6%	0%	2,151	112,828	1.9%	6.4%	2,084	112,828	1.8%
2042	1.39%	1,816	115,358	1.6%	0%	2,153	115,358	1.9%	0%	2,086	115,358	1.8%
2043	1.39%	1,842	117,944	1.6%	0%	2,156	117,944	1.8%	0%	2,089	117,944	1.8%
2044	1.39%	1,869	120,588	1.5%	0%	2,158	120,588	1.8%	0%	2,091	120,588	1.7%
2045	1.39%	1,896	123,292	1.5%	0%	2,161	123,292	1.8%	0%	2,094	123,292	1.7%
2046	1.39%	1,923	126,056	1.5%	0%	2,164	126,056	1.7%	0%	2,097	126,056	1.7%
2047	0%	1,926	128,882	1.5%	0%	2,166	128,882	1.7%	0%	2,099	128,882	1.6%

Key:
Rate Inc. = Annual Rate Increase for Wastewater
CPH = Annual Cost per Household for Wastewater and Stormwater Combined
MHI = Median Household Income
RI = Residential Indicator (i.e., CPH as a percent of MHI)

Key:
2018-2022 Actual (Historical) Data
Scenario End Year 2047
Scenario End Year 2036
Scenario End Year 2041

EPA intends to use this information, along with the LQPI Score and information from the Financial Alternatives Analysis, when developing schedules for implementing control measures. The goal is to work with communities to reduce rate shock and to avoid wastewater utility rates that represent an overly burdensome percentage of household income. In addition, a community should consider the public health and environmental impacts described in Section II.e.1 when determining the sequencing and priority of projects. Unlike Alternative 1, EPA has not recommended benchmark percentages of household income for Alternative 2. However, EPA intends to keep the percentage of household income spent on wastewater utility bills within reasonable bounds when establishing compliance schedules. Where drinking water costs are substantial and impacting households, a community may submit information on those costs as part of its financial and rate model. See Section II.c.1 for more direction. Schedules developed using Alternative 2 should be generally consistent with the recommended scheduling boundaries in Exhibit 9. Communities are encouraged to provide local information to EPA to support any predictions of a likely occurrence of rate shock. Other Metrics, such as drinking water costs, may also impact rate shock.

Another analysis that EPA and communities have found helpful, shown below by example in Exhibit 7, evaluates the maximum potential bill impact relative to household size. Typically, as household size increases, monthly water usage increases.[21] One-person households generally use significantly less water than three- or four-person households, but also have on average fewer financial resources. Displaying data in this manner (i.e., by household size) provides a more nuanced view of the impact of costs based on likely usage.

The data in Exhibit 7 is an example of how a community can evaluate the feasibility of a capital improvement program relative to various household sizes, using the results of a modeling program. This can provide information about the specific impact of program costs relative to household size by comparing a table that shows the impacts of current rates on various household sizes to a table that shows the impacts of future rates (incorporating required program costs) on various household sizes. Tables like the ones shown in Exhibit 7 can be created by following the below steps:

- To develop a table showing current rate impacts (see example in Exhibit 7.a):
    - Obtain current data for Percent of Service Area per household size (column 2) and MHI by household size (column 3), available in the ACS database.
    - Using current rates, calculate the monthly household bill for each centum cubic feet (CCF) usage column (top portion of each row).
    - Calculate impact for each CCF usage column (bottom portion of each row) by multiplying the household bill by 12 to arrive at an annual bill, then dividing the annual bill by the MHI for each household size.

[21] A Water Research Foundation study found that as of 2016 the average household (2.65 people) daily water use was 138 gallons, while the average per capita usage was 58.6 gallons. The report notes that there is considerable range in usage across the United States due to the influence of climate and weather patterns. See, Water Research Foundation, *Residential End Uses of Water, Version 2: Executive Report*, April 2016. Accessed at https://www.waterrf.org/research/projects/residential-end-uses-water-version-2.

Exhibit 7. Example Showing Projected Impact of Program Costs by Household Size[22]

7.a – Table Showing Impacts of Current Wastewater Rates on MHI

			CCF							
Household Size	% of SA HHs	MHI (current) per HH Size	2	3	4	5	6	7	8	9
1	**26.83%**	$30,540	$19.08	$26.10	$33.12	$40.14	$47.16	$54.18	$61.20	$68.22
			0.75%	**1.03%**	**1.30%**	**1.58%**	**1.85%**	**2.13%**	**2.40%**	**2.68%**
2	**33.76%**	$64,063	$19.08	$26.10	$33.12	$40.14	$47.16	$54.18	$61.20	$68.22
			0.36%	**0.49%**	**0.62%**	**0.75%**	**0.88%**	**1.01%**	**1.15%**	**1.28%**
3	**16.33%**	$72,063	$19.08	$26.10	$33.12	$40.14	$47.16	$54.18	$61.20	$63.18
			0.32%	**0.43%**	**0.55%**	**0.67%**	**0.79%**	**0.90%**	**1.02%**	**1.05%**
4	**13.37%**	$87,972	$19.08	$26.10	$33.12	$40.14	$47.16	$54.18	$61.20	$68.22
			0.26%	**0.36%**	**0.45%**	**0.55%**	**0.64%**	**0.74%**	**0.83%**	**0.93%**
5	**6.37%**	$88,630	$19.08	$26.10	$33.12	$40.14	$47.16	$54.18	$61.20	$68.22
			0.26%	**0.35%**	**0.45%**	**0.54%**	**0.64%**	**0.73%**	**0.83%**	**0.92%**
6	**2.22%**	$63,028	$19.08	$26.10	$33.12	$40.14	$47.16	$54.18	$61.20	$68.22
			0.36%	**0.50%**	**0.63%**	**0.76%**	**0.90%**	**1.03%**	**1.17%**	**1.30%**
7	**1.11%**	$48,621	$19.08	$26.10	$33.12	$40.14	$47.16	$54.18	$61.20	$68.22
			0.47%	**0.64%**	**0.82%**	**0.99%**	**1.16%**	**1.34%**	**1.51%**	**1.68%**

Low Impact	Mid-Range Impact	High Impact

[22] SA = Service Area; MHI = Median Household Income; CCF = Centum Cubic Feet.

7.b – Table Showing Modeled Impacts of 2047 Wastewater Rates on MHI

			CCF							
Household Size	% of SA HHs	MHI (escalated to 2047) per HH Size	2	3	4	5	6	7	8	9
1	**26.83%**	$51,188	$70.33	$100.38	$130.43	$160.48	$190.53	$220.58	$250.63	$280.68
			1.65%	**2.35%**	**3.06%**	**3.76%**	**4.47%**	**5.17%**	**5.88%**	**6.58%**
2	**33.76%**	$107,376	$70.33	$100.38	$130.43	$160.48	$190.53	$220.58	$250.63	$280.68
			0.79%	**1.12%**	**1.46%**	**1.79%**	**2.13%**	**2.47%**	**2.80%**	**3.14%**
3	**16.33%**	$120,786	$70.33	$100.38	$130.43	$160.48	$190.53	$220.58	$250.63	$280.68
			0.70%	**1.00%**	**1.30%**	**1.59%**	**1.89%**	**2.19%**	**2.49%**	**2.79%**
4	**13.37%**	$147,450	$70.33	$100.38	$130.43	$160.48	$190.53	$220.58	$250.63	$280.68
			0.57%	**0.82%**	**1.06%**	**1.31%**	**1.55%**	**1.80%**	**2.04%**	**2.28%**
5	**6.37%**	$148,553	$70.33	$100.38	$130.43	$160.48	$190.53	$220.58	$250.63	$280.68
			0.57%	**0.81%**	**1.05%**	**1.30%**	**1.54%**	**1.78%**	**2.02%**	**2.27%**
6	**2.22%**	$105,642	$70.33	$100.38	$130.43	$160.48	$190.53	$220.58	$250.63	$280.68
			0.80%	**1.14%**	**1.48%**	**1.82%**	**2.16%**	**2.51%**	**2.85%**	**3.19%**
7	**1.11%**	$81,494	$70.33	$100.38	$130.43	$160.48	$190.53	$220.58	$250.63	$280.68
			1.04%	**1.48%**	**1.92%**	**2.36%**	**2.81%**	**3.25%**	**3.69%**	**4.13%**

Low Impact	Mid-Range Impact	High Impact

- To develop a table showing modeled future rate impacts (see example in Exhibit 7.b):
    - As part of the community's modeling, escalate MHI based on an inflationary adjustment to the year at the end or highest point of the model (in the example in Exhibit 7.b, this is 2047).
    - Calculate the monthly household bill for each CCF usage column based on the rates at the end or highest cost point in the community's model (in the example in Exhibit 7.b, this is the example community's 2047 modeled rates).
    - Calculate impact for each CCF usage column by multiplying the household bill by 12 to arrive at an annual bill, then dividing the annual bill by the MHI for each household size.

EPA views these data as additional ways for communities to understand the impacts of program costs on various sizes of households. The results can be informative to the rate setting and design process. It can also help identify the segments of customers likely to require customer assistance support.

As mentioned above, EPA does not recommend the use of financial and rate model analysis under Alternative 2 in lieu of Alternative 1 in WQS decisions. Instead, for evaluating economic impacts of WQS decisions for the public sector, the use of financial and rate models could be used in a manner similar to the Other Metrics in Sections II.c and II.d of the FCA Guidance, i.e., as additional information for consideration in conjunction with the use of the Alternative 1 critical metrics.

2. Lowest Quintile Poverty Indicator and Financial Alternatives Analysis

In addition to the Financial and Rate Model analysis, a community or EPA should calculate an LQPI Score to benchmark the severity and prevalence of poverty within the service area. The community should also perform a Financial Alternatives Analysis to document whether the community has considered feasible steps to reduce costs and address impacts to low-income households (as identified in Appendix C), including use of variable rate structures, CAPs, and applications for grants or subsidies from the CWSRF. Without the information provided by a Financial Alternatives Analysis, it will likely be more difficult for EPA to assess possible financial impacts and whether those impacts might outweigh the environmental impacts of extended noncompliance, so the recommendations for compliance schedules for communities that have not performed a Financial Alternatives Analysis are shorter than for those communities that have developed a comprehensive Financial Alternatives Analysis.

c. Other Metrics with Standardized Instructions

The FCA Guidance provides standardized instructions to increase transparency and clarity regarding how EPA considers the following factors, discussed in detail below: drinking water costs, a community's water affordability programs, asset management costs, stormwater management costs, and comparisons to county, state, and national data.[23] As noted above, Other Metrics may be considered under Alternative 1 or Alternative 2 and may support an extended implementation schedule generally consistent with Exhibit 9's

[23] Where the costs of multiple CWA obligations are included in an FCA, each of those costs should be enumerated separately to provide an understanding of how each contributes to the overall analysis.

recommended implementation schedule benchmarks. Additionally, use of these Other Metrics may be considered in evaluating economic impacts of WQS decisions for the public sector.

1. Drinking Water Costs

EPA recognizes that both clean water and drinking water costs are often paid for through charges on a single bill. For this reason, the FCA Guidance more explicitly provides guidance on incorporating a community's drinking water requirements into an FCA evaluation. Given the widespread, increasing costs of delivering reliable drinking water in communities, EPA is providing standardized instructions along with an explanation of how it intends to develop implementation schedules that will account for impacts of drinking water requirements, when significant.

Consideration of Drinking Water Costs under Alternative 1

Drinking water information can be used in Alternative 1 to supplement the critical metrics and the results of the Expanded FCA Matrix. If information on significant drinking water costs is submitted and supported by the documentation detailed below, under Alternative 1, EPA in its discretion may permit a community to move from a "low" impact to a "medium" impact, or from a "medium" impact to a "high" impact in the FCA Guidance Implementation Schedule Benchmarks (Exhibit 9). Or, if a community is already experiencing a "high" impact, EPA may use this additional information to support an extended schedule as suggested by the recommended schedule benchmarks in Exhibit 9. Similarly, significant drinking water costs may be taken into account in evaluating economic impacts of WQS decisions for the public sector.

If a community submits information on drinking water costs under Alternative 1, EPA requests that the community provide detailed descriptions and cost estimates for the drinking water requirements. The community should submit the following supporting documentation:

1. Describe the specific improvements and costs required.
2. Describe the underlying requirements for the drinking water improvements (for example, whether the drinking water improvements are required by a state or federal permit, regulation, or enforcement action).
3. Describe the relationship of the wastewater system service area to the drinking water system service area(s) geographically and in terms of households served, specifically the overlap of drinking water system service area relative to wastewater system service area.
4. If the drinking water system and wastewater system are operated by the same utility, identify and explain any issues related to future financing and financial capability expected.
5. Provide the last three years of financial reports for the drinking water system.
6. Provide the current and approved future rate schedules for the drinking water system.
7. In addition to the Residential Indicator for wastewater costs, provide a cost per household analysis for drinking water costs following the Residential Indicator worksheets in Appendix A.
8. Propose an implementation schedule that integrates the CWA improvements and drinking water improvements, including a detailed description of the proposed sequencing of the improvements.

Consideration of Drinking Water Costs under Alternative 2

Drinking water information can be used in Alternative 2 to evaluate the impacts of rates for both wastewater and drinking water on household bills. Schedules developed using Alternative 2 should be generally consistent with the recommended scheduling boundaries in Exhibit 9. If a community submits information on drinking water costs as part of its financial and rate model, EPA requests that the community provide detailed descriptions and cost estimates for the drinking water requirements. The community should submit the following supporting documentation:

1. Describe the specific improvements and costs required.
2. Describe the underlying requirements for the drinking water improvements (for example, whether the drinking water improvements are required by a state or federal permit, regulation, or enforcement action).
3. Describe the relationship of the wastewater system service area to the drinking water system service area(s) geographically and in terms of households served, specifically the overlap of drinking water system service area relative to wastewater system service area.
4. If the drinking water system and wastewater system are operated by the same utility, identify and explain any issues related to future financing and financial capability expected.
5. Provide the last three years of financial reports for the drinking water system, the current approved budget, and the most recent approved Capital Improvement Program budget.
6. Provide the current and approved future rate schedules for the drinking water system.
7. Provide a drinking water rate model analysis.
8. Provide all source and supporting documentation that was relied upon when developing the drinking water rate model, including certified financial statements.
9. Propose an implementation schedule that integrates the CWA improvements and drinking water improvements, including a detailed description of the proposed sequencing of the improvements.

2. Water Affordability Programs

Households on fixed or lower incomes, as well as households that face a temporary crisis such as a job loss or illness, may have difficulty paying water and sewer bills. Many communities are implementing a variety of tools to assist low-income customers. These programs can include bill discount programs, arrearage forgiveness, and emergency assistance. Additionally, some utilities seek to distribute revenue responsibilities equitably within customer classes. Some of those programs include nontraditional rate structures that are designed to send a more precise pricing signal or to approach the economics of water service differently. EPA encourages the establishment of these innovative programs that help households address issues with affordability and help protect public health throughout the community. At the same time, these programs help ensure the utility can sustainably provide its core services, price services appropriately, and preserve a broad customer base. See Appendix C for a more detailed description of these types of programs. EPA's Compendium of Drinking Water and Wastewater Customer Assistance Programs (https://www.epa.gov/waterfinancecenter/compendium-drinking-water-and-wastewater-customer-

assistance-programs) describes the benefits, implementation, and examples of water affordability programs throughout the country.

Water affordability programs can allow utilities to meet specific customer needs while also meeting the utility's financial needs and obligations. These programs can improve on-time-payment rates and reduce debt collection costs, as well as the administrative and legal costs associated with disconnection and reconnection of water services. However, these programs can sometimes result in increased costs and decreased revenues for wastewater utilities.

If a community has developed a rate structure or assistance program to assist individual households, the community may provide information on costs needed to administer the program as well as the revenue lost from the assistance provided. If affordability program costs are included in an FCA as CWA costs, the community should provide appropriate assurances that the program has been and will continue to be implemented (e.g., applicable board certification, local ordinance, or other appropriate documentation). EPA also recommends that the following information should be submitted to assist in documenting costs and benefits:

- Type of program;
- Program eligibilities;
- Number of customers participating in the program;
- Number of customers eligible for the program (if known);
- Program costs;[24]
- Revenue lost (e.g., discounted rates, collection fees foregone);
- How the program is funded;
- Program benefits; and
- Number of disconnections prevented (if known).

Submission of the above information should allow EPA to confirm that the appropriate program costs are being included as part of a community's FCA. Such costs can be included in the calculation of the Residential Indicator[25] under Alternative 1 and as part of a Financial and Rate Model analysis under Alternative 2. To be considered, EPA requests that the community clearly identify if water affordability program costs have been included in these sections of the FCA, the line items in which these costs appear, and the amounts. Additionally, use of this additional analysis in the same manner may be considered in evaluating economic impacts of WQS decisions for the public sector.

[24] The University of North Carolina Environmental Finance Center's Water Utility Customer Assistance Program Cost Estimation Tool is designed to help water utilities estimate the costs of implementing a water affordability program. See https://efc.sog.unc.edu/resource/bill-payment-assistance-program-cost-estimation-water-utilities.

[25] As current and projected CWA related expenses. See Appendix A, Worksheet 1, Lines Number 100 and 103.

3. Asset Management Costs

Asset management is a critical foundation for understanding near- and long-term operational and capital needs. This information forms the basis for capital planning and a capital funding strategy. Asset management is the practice of managing infrastructure capital assets to minimize the total cost of owning and operating them, while delivering the service level required. It helps answer the following three core questions for long-term infrastructure planning:

1. What assets do you have and where are they located?
2. When do your assets need to be repaired or replaced?
3. How much is each asset going to cost you in the near-term and the long-term?

By implementing asset management practices, a community should have a clearer picture of infrastructure-related expenses and future investment needs, which should inform the financial planning process.

A community may provide the following information on its asset management costs if the community can verify that asset management practices are being implemented. These include:

- Implementing projects in the community's Capital Improvement Program;
- Inventorying assets;
- Linking maintenance schedules to the asset inventory;
- Assessing the condition and remaining useful life of the assets in the inventory;
- Determining the capital expenditures needed to replace assets; and
- Planning a funding and financing strategy for operation and maintenance and capital expenditures.

Submission of information verifying the above practices should allow EPA to confirm that the appropriate asset management costs are being included as part of a community's FCA. Such costs may be reflected in the Residential Indicator under Alternative 1 and as part of a Financial and Rate Model analysis under Alternative 2. To be considered, EPA requests that the community clearly identify when asset management costs have been included in these sections of the FCA, the line items in which these costs appear, and the amounts. Additionally, use of this additional analysis in the same manner may be considered in evaluating economic impacts of WQS decisions for the public sector.

4. Stormwater Management Costs

EPA's continued commitment to integrated planning recognizes that many local governments and authorities have increased investments in their stormwater infrastructure through capital projects to rehabilitate existing systems, improve operation and maintenance, reduce impermeable surfaces, make use of green infrastructure, and address additional regulatory requirements. As programs are implemented to improve water quality and attain CWA objectives, many state and local government partners find themselves facing difficult economic challenges with limited resources and financial capability.

For inclusion as part of an FCA, EPA recommends that municipalities explicitly separate stormwater costs from wastewater costs. The following information should be submitted to verify that submitted stormwater costs are not within a community's wastewater-related funds:

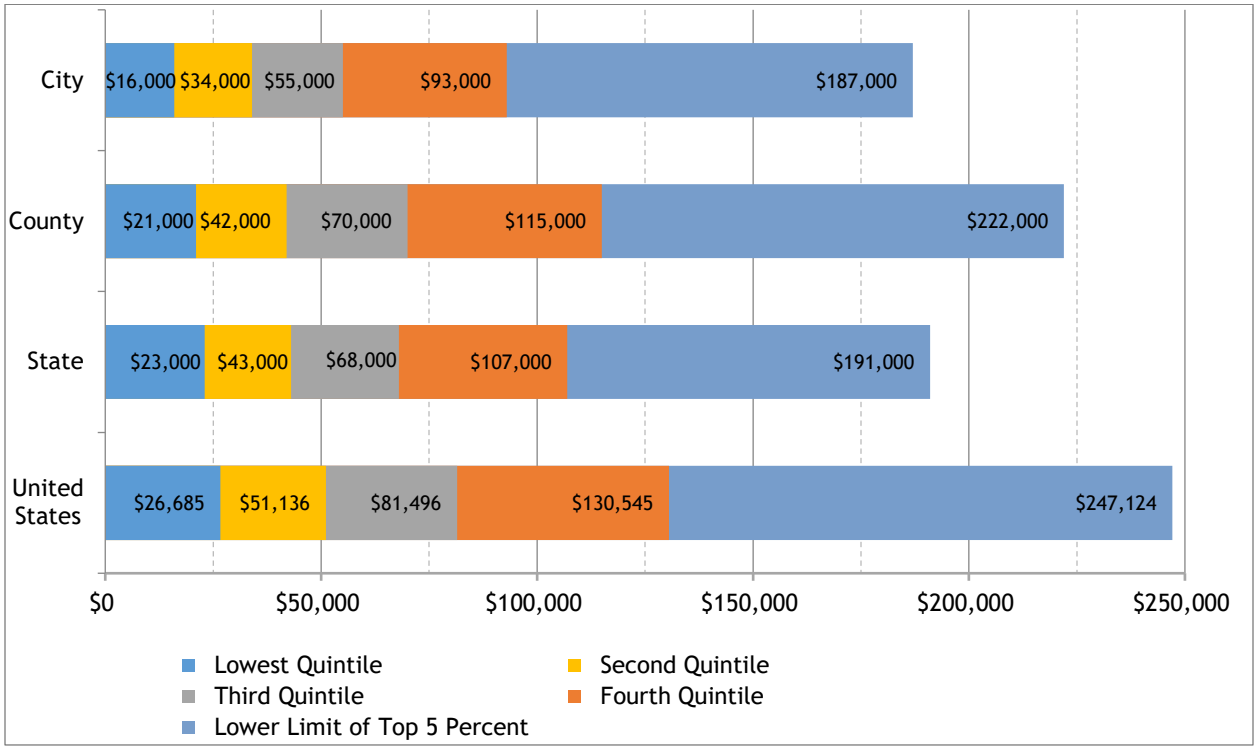
- Identify the municipal fund that the stormwater activity is conducted within (for example, identify whether stormwater management is in a separate stormwater enterprise fund, incorporated into the wastewater enterprise fund, or conducted within the general fund).
- Describe the specific stormwater activities and associated costs (for example, provide costs for stormwater program development, implementation, and enforcement as well as costs for designing, building, and maintaining stormwater infrastructure).
- Include supporting documentation for cost estimates.
- Describe the underlying requirement for the stormwater activities and costs (for example, whether it is required by a state or federal permit, regulation, or enforcement action).
- Identify projected, current, and historical stormwater fees.

Submission of the above information should allow EPA to confirm that the appropriate stormwater costs are included as part of a community's FCA and provide EPA with the appropriate assurances that those expenditures will be made. Such costs may be incorporated in the Residential Indicator under Alternative 1 and as part of a Financial and Rate Model analysis under Alternative 2. EPA requests that the community clearly identify when stormwater management costs have been included in these sections of the FCA, the line items in which these costs appear, and the amounts. Additionally, use of this additional analysis in the same manner may be considered in evaluating economic impacts of WQS decisions for the public sector.

5. Comparisons to County, State, and National Data

For any of the Other Metrics submitted by a community, the community can provide a graphic or chart that shows the community's data compared with county, state, and national data. An example is shown below in Exhibit 8. This information could be used to assist EPA in assessing a community's circumstances in relation to national averages and as compared to other benchmark communities. Such a comparison can be used to highlight a community's unique or atypical circumstances. Additionally, use of such comparisons in the same manner may be considered in evaluating economic impacts of WQS decisions for the public sector.

Exhibit 8. Comparison of Quintile Distribution in City to County, State, and Nation



d. Other Metrics with Submission of Information Determined by the Community

EPA continues to encourage communities to provide additional financial and demographic information regarding the community's financial capability to implement CWA requirements or to evaluate economic impacts of WQS decisions for the public sector. This information would supplement the information provided under either Alternative 1 or Alternative 2.

Additional examples of Other Metrics that may be submitted are listed in Appendix E. The examples described in Appendix E are not intended to be a complete list, nor a list of factors that will be relevant in every community. Rather, they provide an illustration of information that may prove useful in some instances. For such information to illustrate that a community's situation is atypical, EPA encourages communities to compare any additional information on their circumstances to national averages or to that of other communities in their state or geographic area (see example in Exhibit 8).

e. Schedule Development

When developing implementation schedules to construct control measures to meet CWA requirements, a community should consider public health, environmental justice, and environmental impacts as well as financial capability. The community should first develop a tentative implementation schedule based on logical engineering sequencing and normal construction practices. The community should complete a critical

path analysis to identify the shortest implementation schedule that will achieve required control objectives. As a result of negotiations with state NPDES and EPA authorities, it may be appropriate to modify the tentative design and construction schedule based on the environmental and financial considerations listed in the FCA Guidance. In addition to completing an analysis under Alternative 1 or 2, a community should consider the following public health and environmental impacts when determining the sequencing and priority of projects.[26]

1. Environmental and Public Health Considerations

Discharges to Sensitive Areas: The CSO Control Policy states that a community's long-term control plan (LTCP) should give the highest priority to "sensitive areas." Sensitive areas, as determined by NPDES permitting authorities in coordination with state and Federal agencies, as appropriate, include the following: Outstanding National Resource Waters; National Marine Sanctuaries; waters with threatened or endangered species and their habitat; waters with primary contact recreation; public drinking water intakes and their designated protection areas; and shellfish beds. For discharges to sensitive areas, the CSO Control Policy states that LTCPs should: prohibit new or significantly increased overflows; eliminate or relocate overflows; or, where elimination or relocation is not feasible, provide treatment to meet WQS and regularly assess the feasibility of prohibition, relocation, or elimination.[27]

During the LTCP planning process, a community should characterize existing CSO conditions and identify receiving waters that are sensitive areas. The LTCP should give priority to sensitive areas and any implementation schedule should sequence projects to mitigate impacts on sensitive areas as early as possible. Giving highest priority to sensitive areas might mean in some cases that discharges to non-sensitive areas would be addressed later in the implementation schedule than would be the case under a normal engineering and construction schedule.

The identification of an area as "sensitive" is based on the designated use of a water body established by a state or authorized tribe as part of its water quality standards. If a use is not attainable for one of the reasons in 40 CFR 131.10(g) and is not an existing use (as defined in 40 CFR 131.3), a state or authorized tribe may revise the designated use with a supporting use attainability analysis (UAA) and must then adopt the highest attainable use.

Use Impairment: LTCPs should also give priority to receiving waters that experience recurring adverse impacts on aquatic life, human health, or aesthetics. Such waters may be the subject of public concern. As a result of public participation and discussion with the permitting authority, the community should develop an implementation schedule that gives highest priority to waters with impaired uses and addresses them as soon as possible. As is the case with sensitive areas, giving highest priority to certain use-impaired waters might mean that discharges to other waters would be addressed later in the implementation schedule than would be the case under a normal engineering and construction schedule.

[26] In addition, in accordance with the Integrated Planning Framework, integrated plans that are incorporated into permits and enforcement actions should prioritize the most significant human health and environmental needs first.

[27] See 59 Fed. Reg. at 18696.

Public Health: While SSOs cannot be permitted, they can be the subject of CWA enforcement actions. Even where an SSO does not reach a water of the United States, it can be a violation of a permit obligation to properly maintain and operate a sanitary sewer system. Accordingly, where basement backups of raw sewage and the ejection of raw sewage from manholes onto streets are CWA permit violations, reducing exposure to this raw sewage should be a priority in any schedule that is negotiated with the community to protect public health.

Environmental Justice: The guiding principle of environmental justice is the fair treatment and involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies. Communities can use EPA's EJSCREEN tool[28] when assessing whether there may be environmental justice concerns within their service area, such as areas with: people of color and/or low-income households; potential environmental quality issues; and/or existing environmental quality impairments in an area with demographic factors that suggest the community is sensitive to environmental pollution.[29] Any implementation schedule should sequence projects to mitigate public health and environmental impacts to areas with potential environmental justice concerns as early as possible. For WQS decisions, in addition to completing an economic analysis under Section III and considering any other financial metrics, a community or state is strongly encouraged to consider opportunities to mitigate impacts of WQS decisions on areas with potential environmental justice concerns. See Section III for additional discussion. Before seeking an to extend a CWA compliance schedule, EPA also encourages communities to actively involve the affected public by holding public meetings. The affected public includes rate payers, industrial users of the sewer system, persons who reside downstream from the CSOs, persons who use and enjoy these downstream waters, community organizations, and any other interested persons (including low-income communities, people of color, and immigrant populations). For any change to WQS, a public hearing is required per 40 CFR 131.20.

2. Alternative 1 Schedule Development

This guidance does not dictate specific implementation schedules based on financial capability. It does, however, provide recommended implementation schedule benchmarks in Exhibit 9 to aid all parties in negotiating reasonable and effective schedules for implementation of CWA controls. Exhibit 9 should be used after all critical metrics in Alternative 1 have been calculated to determine the community's overall impact level using the Expanded FCA Matrix and a Financial Alternatives Analysis has been performed, where appropriate.

The results of the Expanded FCA Matrix correspond to the recommended implementation schedule benchmarks in Exhibit 9, below. EPA has developed these schedule benchmarks to account for the consideration of the LQPI Score and the Financial Alternatives Analysis. Based on EPA's experience

[28] EPA has developed an environmental justice mapping and screening tool called EJSCREEN. It is based on nationally consistent data and an approach that combines environmental and demographic indicators in maps and reports. Screening results should be supplemented with additional information and local knowledge to get a better understanding of the issues in a selected location. EJSCREEN is available at https://www.epa.gov/ejscreen.

[29] Overview of Demographic Indicators in EJSCREEN is available at https://www.epa.gov/ejscreen/overview-demographic-indicators-ejscreen.

considering financial capability for enforcement-related compliance schedules over the past nearly three decades, EPA has found that, absent the consideration of Other Metrics, it is financially feasible for communities to implement measures for compliance with the CWA that would have a "medium" impact within 15 years and to implement measures that would have a "high" impact within 20 years. In unusually high impact situations, implementation schedules generally up to 25 years have been negotiated with state NPDES and EPA authorities based on consideration of Other Metrics.

CWA compliance schedules should seek to achieve the earliest practicable compliance date considering physical and financial feasibility.[30] Where a community has not completed a comprehensive Financial Alternatives Analysis, the recommendations for compliance schedules are shorter than for those communities that have developed a comprehensive Financial Alternatives Analysis. This is because, without the types of information developed in a Financial Alternatives Analysis, it will likely be more difficult for EPA to assess possible financial impacts and whether those impacts might outweigh the environmental impacts of extended noncompliance. Where communities seek to extend compliance schedules based on an updated FCA, the environmental, public health, environmental justice, and additional financial considerations discussed in Appendix C and throughout this Section II.e (Schedule Development) should be key elements of any such updated analysis. In addition, reopening a previously approved compliance schedule to seek a schedule extension also involves consideration of whether additional control measures may be required for compliance with the CWA.

Exhibit 9. Recommended Implementation Schedule Benchmarks for Alternative 1

EXPANDED FCA MATRIX RESULT	RECOMMENDED IMPLEMENTATION SCHEDULE BENCHMARKS
Low Impact	Normal Engineering/Construction Schedule
Medium Impact	Total schedule generally up to 10 years
Medium Impact with Comprehensive Financial Alternatives Analysis	Total schedule generally up to 15 years
High Impact	Total schedule generally up to 15 years (or 20 years based on further negotiation with EPA and state NPDES authorities)
High Impact with Comprehensive Financial Alternatives Analysis	Total schedule generally up to 20 years (or 25 years based on further negotiation with EPA and state NPDES authorities)

It is important to note that EPA evaluates financial capability on a continuum and that each decision is subject to consideration of unique facts at issue for the community. Although the Expanded FCA Matrix categorizes impact as "high," "medium," or "low," this does not necessarily mean that communities will be given the specified number of years within that category or that schedules will be rigidly set according to the break points between the categories. For example, two communities whose total residential household costs are 1.1% and 1.9% of MHI are both categorized in the FCA Guidance as having a "mid-range" impact for the Residential Indicator. All other things being equal, the appropriate schedules for those communities are likely to be different. Similarly, all other things being equal, two communities whose LQIs are 24% below the

[30] See 59 Fed. Reg. at 18690.

national LQI and 26% below the national LQI would be more likely to have similar overall compliance timeframes, even though one community is ranked as having a "mid-range" score and the other as having a "weak" score. Where schedules of work are phased, the goal should still be to complete the project within the recommended time frames and prioritize the most environmentally important projects as early as possible. In addition, communities should continue to make capital investments to meet water quality standards even if they are "high" impact communities.

Finally, the types of data described in the FCA Guidance are not exhaustive. Other Metrics submitted by the community may affect the length of the schedule regardless of where the community is on the "high," "medium," and "low" continuum. Consistent with previous policy, EPA plans to consider any relevant financial or demographic information presented that illustrates unique or atypical circumstances faced by a community. Where appropriate, this information can result in schedules that are different than the schedules suggested by the baseline analysis in the FCA Guidance.

Exhibit 10 below describes four hypothetical schedule determinations where the critical metrics, Other Metrics, and environmental considerations were assessed together to develop implementation schedules.

Exhibit 10. Example Schedule Development for Hypothetical Communities

SCHEDULING CONSIDERATION	COMMUNITY #1	COMMUNITY #2	COMMUNITY #3	COMMUNITY #4
Engineering/Construction Schedule	9 years	9 years	9 years	9 years
Sensitive Areas	n/a	2 years to remove discharges from sensitive areas	n/a	n/a
Use Impairment	n/a	2 years to remove discharges from waters with impaired uses	n/a	n/a
Environmental Justice	Potential EJ concerns identified	n/a	n/a	Potential EJ concerns identified
Financial Capability	FCA Result = Low Impact	FCA Result = Medium Impact	FCA Result = High Impact	FCA Result = High Impact
Significant Drinking Water Costs	n/a	2 additional years	2 additional years	2 additional years
Comprehensive Financial Alternatives Analysis	No	Yes	No	Yes
Schedule:	9 years (reduction of discharges in areas with EJ concerns within first 3 years)	17 years (removal of discharge from sensitive area and waters with impaired uses within first 2 years)	17 years	22 years (reduction of discharges in areas with EJ concerns within first 5 years)

3. Alternative 2 Schedule Development

Under Alternative 2, EPA plans to consider the impacts on households as well as the LQPI Score and Financial Alternatives Analysis when approving implementation schedules that seek to avoid rates that represent an overly burdensome percentage of household income.

Under Alternative 2, communities are encouraged to submit any additional documentation (Other Metrics) that would create a more accurate and complete picture of their financial capability. Any Other Metrics that have been submitted for consideration should supplement the financial and rate model, LQPI Score, and Financial Alternatives Analysis. In addition, communities should consider the public health and environmental impacts described in Section II.e.1 when determining the sequencing and priority of projects. Schedules developed using Alternative 2 should be generally consistent with Exhibit 9's recommended implementation schedule benchmarks.

III. Updated FCA Guidance for Economic Impact Analysis for WQS Decisions for the Public Sector

In addition to recommending analyses communities can use to assess financial capability when negotiating compliance schedules, the FCA Guidance supplements the public sector sections of the 1995 WQS Guidance to assist states and authorized tribes in assessing the degree of economic and social impact of potential WQS decisions. The FCA Guidance does not revise the recommended methodology in the private sector sections of the 1995 WQS Guidance.

EPA recommends the following expanded multi-step approach to evaluate economic impacts for WQS decisions:

1. Determine the Initial Economic Impact using the Municipal Preliminary Screener (MPS) and Secondary Score (SS) as recommended by the 1995 WQS Guidance.
2. Determine the Lowest Quintile Poverty Indicator (LQPI) score.
3. Perform a Financial Alternatives Analysis.
4. Combine the results of the Initial Economic Impact and the LQPI score in an Expanded Economic Impact Matrix.

EPA intends for the FCA Guidance to supplement the public sector portion of the 1995 WQS Guidance. Specifically, the FCA Guidance supplements the calculations and analyses in the public sector portion of the 1995 WQS Guidance[31] with additional analyses, an Expanded Economic Impact Matrix, and recommendations to consider when making WQS decisions. EPA intends the FCA Guidance, together with the text in the public sector sections of the 1995 WQS Guidance, to guide states and authorized tribes in evaluating the economic

[31] Online spreadsheet tools for the public sector can be found at https://www.epa.gov/wqs-tech/spreadsheet-tools-evaluate-economic-impacts-public-sector. EPA may update these online tools in the future.

impact of potential WQS decisions related to financial capability. EPA is also recommending certain additional analyses or actions when considering revisions to designated uses that are based on economic impacts.

WQS decisions relevant to this document include revisions to designated uses, WQS variances, and antidegradation reviews. The WQS regulations at 40 CFR 131.10(g)(6), commonly referred to as "Factor 6," allow revisions to designated uses or the adoption of WQS variances if a state or authorized tribe can demonstrate that attaining the use is not feasible because controls more stringent than the technology-based requirement would result in both substantial and widespread economic and social impacts.[32] In addition, the WQS regulations at 40 CFR 131.12(a)(2) allow lowering of water quality if it is necessary to accommodate important economic or social development in the area in which the high-quality waters are located.[33] Although the analyses recommended in the 1995 WQS Guidance to support WQS decisions and the 1997 FCA Guidance to determine the length of compliance schedules are essentially the same, as explained in Section I.b, there is an important difference in the way the information from those analyses were applied: the 1997 FCA Guidance was intended for development of implementation schedules to construct control measures to meet CWA requirements, whereas the 1995 WQS Guidance was intended to support binary "yes or no" decisions.

This section is organized as follows:

- Section III.a describes the Agency's rationale and expectations for the use of this guidance as it relates to Factor 6 for WQS variances and revisions to designated uses and why there are additional considerations for changes to designated uses.
- Section III.b discusses the consideration of other opportunities to mitigate the negative impacts of WQS decisions that may affect communities with potential environmental justice concerns.
- Section III.c describes consideration of any additional information and documentation to better understand a community's financial capability.
- Section III.d describes the multi-step approach to evaluate economic impacts of WQS decisions on the public sector. Importantly, Section III.d.5 describes how application of the results from the Financial Alternatives Analysis are combined with the results of the Expanded Economic Impact Matrix.

[32] The analysis in this guidance only serves to determine if impacts are "substantial." A state or authorized tribe would still need to conduct an analysis to demonstrate the substantial impacts are "widespread."

[33] The analysis is this guidance only serves to determine whether the economic or social development in the area in which the waters are located is "important." A state or authorized tribe would still need to conduct an analysis of pollution control alternatives, consistent with 40 CFR 131.12(a)(2)(ii), to determine if such a lowering is "necessary."

a. Rationale and Expectations for the Use of this Guidance as it Relates to Factor 6 for WQS Variances and Revisions to Designated Uses

Unlike the revision of a designated use, a WQS variance is time-limited, is for a specific pollutant from a specific source(s) or a specific water body, and reflects the highest attainable condition for a specified period. A WQS variance provides a transparent mechanism to allow states and authorized tribes to make water quality improvements towards the eventual attainment of the designated use with timeframes that are justified and enforceable in NPDES permits. The metrics and thresholds in the 1997 FCA Guidance, 1995 WQS Guidance, and Alternative 1 of this FCA Guidance are based on an analysis of financial and economic data that reflect conditions during a particular period of time and are dynamic – i.e., a "snapshot" of financial and socio-economic data. As such, the metrics and analyses of the FCA Guidance are well-suited and most appropriate for evaluating requests for WQS variances under 40 CFR 131.10(g)(6) because the time-limited nature of a WQS variance ensures that changes in financial conditions would be considered if and when there is a request for a subsequent variance or at the time of reevaluation for a WQS variance with a duration longer than five years.

EPA has had considerable experience and success negotiating the schedule of water quality improvements under CWA consent decrees using the analytical approach in the 1997 FCA Guidance and evaluating time-limited WQS variances based on 40 CFR 131.10(g)(6) using the analytical approach in the 1995 WQS Guidance; however, the same cannot be said for revisions of designated uses (including revisions to less stringent use subcategories). While the analyses and metrics of Alternative 1 recommended in this FCA Guidance may be considered in evaluating requests for use revisions or a change to a less stringent use subcategory, EPA recommends caution in doing so because the analyses and metrics do not include a temporal component. To that end, EPA recommends states and authorized tribes first explore whether there are other factors under 40 CFR 131.10(g) that preclude attainment of the designated use when considering a revision to a designated use or a change to a less stringent use subcategory. These other factors involve evaluating environmental conditions that are less likely to change over time and are more likely to impact all segments of a community evenly, as opposed to evaluating economic conditions that are dynamic and more likely to be unevenly distributed within in a community.

When states and authorized tribes choose to pursue a use change or a change to a less stringent use subcategory based on 40 CFR 131.10(g)(6), they must first demonstrate the use is not an existing use as defined in 40 CFR 131.3. Additionally, an appropriate demonstration supporting a revision to a use or a change to a less stringent use subcategory must satisfy all the requirements in the WQS regulations at 40 CFR part 131, including those at 40 CFR 131.10, and would include the expanded multi-step approach to evaluate economic impacts as described in Section III.d. Further, there are additional analyses and actions EPA recommends when considering a revision to a designated use or a change to a less stringent use subcategory: 1) a trend analysis of the LQPI Score (see Section II.a.3) over the most recent 10-year period to ensure that the prevalence and severity of poverty is representative of the community's low-income households over time; and 2) an evaluation of up-to-date economic information (including consideration of future debt capacity) when evaluating an initial request or when conducting triennial reviews in accordance with WQS

regulations[34] to determine whether the original designated use or more stringent use subcategory is now attainable.

b. WQS Decisions with Potential Environmental Justice Concerns

In addition to completing an economic analysis that includes the Financial Alternatives Analysis described in Section III.d.3 and the consideration of any other applicable financial metrics, a community, state, or authorized tribe is strongly encouraged to consider other opportunities to mitigate the negative impacts of WQS decisions that may affect areas with potential environmental justice concerns. For example, EPA recommends activities required in a WQS variance be sequenced in a manner that mitigates impacts to areas with potential environmental justice concerns as early as possible. In addition, EPA recommends the state or authorized tribe provide opportunities for public comments on potential environmental justice concerns during the public hearings required by the WQS regulations when proposing changes to designated uses and during subsequent triennial reviews.

c. Consideration of Additional Community-Specific Information

Because the critical metrics and analysis EPA recommends in the FCA Guidance may not always provide a complete picture of a community's financial capability, EPA encourages states and authorized tribes to include any additional information and documentation they deem relevant to understanding the economic impacts of potential WQS decisions on a community. In addition to the recommended critical metrics in Alternative 1, financial and rate models in Alternative 2 (as discussed in Section II.b.1) and Other Metrics (as discussed in Sections II.c and II.d) may provide additional information for consideration in WQS decision-making. However, EPA does not recommend the use of financial and rate models alone for supporting WQS decisions. Although financial and rate models may provide information on the impact of different rate scenarios over time that may be useful for determining a compliance schedule or the appropriate term of a WQS variance, these models alone do not provide sufficient information to determine if required wastewater treatment projects would result in substantial economic and social impacts. Nor do they indicate whether lowering of water quality would be necessary to accommodate important economic or social development. Furthermore, the binary "yes or no" decision-making associated with WQS actions would be difficult using financial and rate models alone because Alternative 2 does not include specific thresholds for determining reasonable rates that would be uniformly applicable across all communities.

[34] 40 CFR 131.20(a): "The State shall from time to time, but at least once every 3 years, hold public hearings for the purpose of reviewing applicable water quality standards adopted pursuant to §§ 131.10 through 131.15 and federally promulgated water quality standards and, as appropriate, modifying and adopting standards. The State shall also re-examine any waterbody segment with water quality standards that do not include the uses specified in section 101(a)(2) of the Clean Water Act every 3 years to determine if any new information has become available. If such new information indicates that the uses specified in section 101(a)(2) of the Act are attainable, the State shall revise its standards accordingly …".

d. Steps to Evaluate Potential Economic Impacts on Public Entities

1. Determine the Initial Economic Impact

Calculate the Municipal Preliminary Screener (MPS) and Secondary Score (SS) for use in this step as recommended in the 1995 Guidance and the online tools at: https://www.epa.gov/wqs-tech/spreadsheet-tools-evaluate-economic-impacts-public-sector. Then, apply the MPS and SS results to Exhibit 11 below to determine the initial economic impact on the public entity. Exhibit 11 below is effectively the same as Table 2-2 in the public sector section of the 1995 WQS Guidance.

Exhibit 11. Initial Economic Impact

SECONDARY SCORE (SS)	MUNICIPAL PRELIMINARY SCREENER (MPS) (COST AS A PERCENT OF MEDIAN HOUSEHOLD INCOME)		
	BELOW 1.0%	1.0% TO 2.0%	ABOVE 2.0%
Below 1.5 (Weak Economy)	Impact Unclear	Substantial Impact	Substantial Impact
1.5 to 2.5 (Mid-Range Economy)	Impact Not Likely to be Substantial	Impact Unclear	Substantial Impact
Above 2.5 (Strong Economy)	Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Unclear

2. Determine the Lowest Quintile Poverty Indicator Score

Calculate the Lowest Quintile Poverty Indicator (LQPI) score as described in Section II.a.3.

3. Perform a Financial Alternatives Analysis

EPA recommends performance of a Financial Alternatives Analysis. The goal of this step is to seek ways to minimize financial impacts while ensuring residents also enjoy the benefits of infrastructure investments and improved water quality. WQS revisions that lower the goals for a water body may create environmental justice concerns by potentially widening water quality and health disparities among communities. On one hand, low-income households may be paying a higher percentage of their total income for basic services and clean water, but on the other hand, if WQS decisions lower the water quality goals of a community, overburdened and/or low-income neighborhoods will likely continue to suffer impacts to human health and the environment from lower water quality.

When CWA compliance costs impact residents (particularly low-income households), WQS variances, designated use changes, or lowering water quality through antidegradation reviews may not be the best solution to address impacts to those residents. In particular, if a community shows strong economic indicators in other categories, there may be better options for the community to address the potential financial burden faced by its residents or take other steps to reduce the costs of needed CWA controls. If the intended goal is to address impacts to residents, allowing lowering of water quality may have the opposite

effect by increasing pollution in the neighborhoods where they live. Nonetheless, EPA understands the significant impacts that additional costs can pose to communities, especially underserved and lower-income communities.

A Financial Alternatives Analysis can support lowering of water quality where there is a holistic financial strategy to balance the financial and environmental impacts. The analysis should document whether the community has considered feasible steps to reduce costs and address impacts to low-income households, including use of variable rate structures, CAPs, and applications for grants or subsidies from the CWSRF. Use of variable rate structures, CAPs, and grants or subsidies from the CWSRF are all potential tools to enable meeting water quality standards or avoiding the lowering of water quality associated with antidegradation reviews without burdening low-income customers. The demonstration of a comprehensive Financial Alternatives Analysis should include the results of the "checklist" of financing and funding considerations in Appendix C[35] and describe the specific programs being implemented. The community[36] should provide a list of the programs or steps considered, the actions that would be necessary to put such measures into place, and the plan for taking those actions. Where available tools are not included in the community's plans, it should provide a written explanation of why those approaches are not being pursued. EPA has provided an Example Financial Alternatives Worksheet in Appendix C that can help document this information. A community can demonstrate through the Financial Alternatives Analysis that it has taken or is pursuing feasible steps included in Appendix C to lower costs of compliance and reduce or mitigate the financial impact of water service costs on the community's low-income households. The first-line responsibility for balancing financial impacts while achieving clean water improvements rests with the local community. However, EPA is committed to carefully reviewing financial impacts and using the tools and technical assistance at the Agency's disposal to help local communities mitigate environmental (and related financial and societal) impacts of CWA noncompliance for communities.

EPA recognizes that whether a particular financial alternative is feasible may be different for entities such as a sanitary district or sewer authority. For instance, a utility may not be the rate setting authority for its entire service area if it serves wholesale customers. Certain utilities may need to work with the municipality or municipalities it serves as well as their state or authorized tribe to obtain the information to complete the Financial Alternatives Analysis. Users of this guidance should document any relevant differences in feasibility or practicality (see, e.g., Column B of the Example Financial Alternatives Worksheet) for consideration by EPA. Understanding such differences allows for WQS decisions that are responsive to circumstances unique to each community while advancing the goal of protecting clean water.

Performing the Financial Alternatives Analysis, especially at the beginning of an economic impact analysis for WQS decisions, may help provide the community with a clearer understanding of all costs associated with the

[35] A financial or funding consideration listed in Appendix C may be prohibited by state law. Other mechanisms to achieve the same goals may be feasible alternatives. There are examples, which can be found in Appendix C, of communities that have implemented similar or analogous mechanisms to reduce financial impacts within the limits of the relevant legal boundaries.

[36] For WQS decisions, a community may perform the Financial Alternatives Analysis and provide it to the state or authorized tribe. However, regardless of who performs the Financial Alternatives Analysis, the state or authorized tribe is responsible for evaluating the information and documenting how the information supports the WQS decision. Where required, the state or authorized tribe would also provide this information to EPA.

implementation of CWA controls, such as reduced costs associated with low-interest loans, increased revenue from utility fees, or the costs associated with programs that assist low-income households. Where a community has implemented certain financial alternatives, the associated costs or cost savings from those alternatives could be accounted for in the Municipal Preliminary Screener and Secondary Score. Communities should demonstrate how the CWA-associated costs in the financial capability assessment will be implemented, including appropriate assurances that those expenditures will be made. Without the types of information developed in the Financial Alternatives Analysis, it will likely be more difficult for EPA to assess possible economic impacts and whether those impacts might outweigh the environmental impacts of a WQS variance, the revision of a designated use, or the lowering of water quality through an antidegradation review. Thus, recommendations for WQS decisions, as shown in Exhibit 13, are more conservative without a Financial Alternatives Analysis.

Considerations for Resource Constraints, In Particular for Small Communities

EPA recognizes that not all communities have the capability to fully evaluate the tools identified in Appendix C. If there are resource concerns with completing a Financial Alternatives Analysis, the community should seek support in completing a Financial Alternatives Analysis through EPA's Water Finance Center by sending an email to WaterTA@epa.gov. If resource constraints remain, the community should provide information on current and planned efforts to relieve impacts on low-income residential households in a format that represents a good-faith effort relative to the size of the community's service area. Without the types of information developed in a Financial Alternatives Analysis, it will likely be more difficult for EPA to assess likely impacts to low-income households and determine whether those impacts outweigh the environmental impacts of lower water quality from WQS revisions or antidegradation reviews. EPA understands for small communities, particularly those serving a population less than 3,000, it may not be feasible to make a good faith effort. The Agency will be mindful of those resource constraints when evaluating WQS decisions. In addition, the Agency recommends that the NPDES permitting authority be mindful of such constraints when conducting antidegradation reviews.

4. Combine the Initial Economic Impact and LQPI Score

Use the Expanded Economic Impact Matrix in Exhibit 12 below to combine the results from the Initial Economic Impact (Exhibit 11) and the LQPI score (from Step 2).

Exhibit 12. Expanded Economic Impact Matrix

INITIAL ECONOMIC IMPACT (MPS AND SS)	LOWEST QUINTILE POVERTY INDICATOR (LQPI) SCORE		
	LOW IMPACT	MEDIUM IMPACT	HIGH IMPACT
Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Not Likely to be Substantial	Impact Unclear
Impact Unclear	Impact Not Likely to be Substantial	Impact Unclear	Substantial Impact
Substantial Impact	Impact Unclear	Substantial Impact	Substantial Impact

5. Recommendations for Making WQS Decisions Related to Economic Impacts for the Public Sector

Exhibit 13 shows EPA's recommendations for making WQS decisions after applying the Expanded Economic Impact Matrix from Exhibit 12, including consideration of financial alternatives where appropriate and additional analyses when evaluating changes to designated uses. EPA notes that Exhibit 13 does not indicate that WQS decisions should be rigidly determined according to the break points between the categories. Information on Other Metrics or analysis of financial and rate models may provide additional information that could influence WQS decisions. Further, EPA recommends that in addition to completing the economic analyses recommended in this section and considering any other financial metrics, opportunities to mitigate impacts of WQS decisions to areas with potential environmental justice concerns should be considered (see Section III.b).

The Financial Alternatives Analysis provides especially critical information to facilitate WQS decisions that strive to restore and maintain water quality to the greatest extent possible consistent with the objectives of the CWA. Performance of a Financial Alternatives Analysis in accordance with Section III.d.3 and Appendix C including loans, grants, customer assistance programs, and alternative rate structures may reveal the ability to attain the designated use or avoid the need to lower water quality, and the ability to mitigate impacts to low-income communities. An appropriate economic justification for a WQS variance, revision of a designated use, or lowering of water quality associated with an antidegradation review should demonstrate that implementation of feasible financial alternatives under current or reasonably expected future economic conditions (including consideration of future debt capacity) would still result in substantial economic impact that would preclude the designated use from being attained[37] or would justify lowering water quality to accommodate important economic or social development.

Performance of a Financial Alternatives Analysis provides important information when interpreting the outcome of Exhibit 12. As previously noted, without the types of information developed in a Financial Alternatives Analysis, it will likely be more difficult for EPA to assess possible economic impacts and whether those impacts might outweigh the environmental impacts of a WQS variance, the revision of a designated use, or the lowering of water quality through an antidegradation review. Thus, as shown in Exhibit 13, recommendations for WQS decisions are more conservative without a Financial Alternatives Analysis.

[37] The regulations at 40 CFR 131.10(g) require adoption of the highest attainable use when adopting a new or revised water quality standard based on the required use attainability analysis. A Financial Alternatives Analysis could inform the determination of the highest attainable use.

Exhibit 13. Recommendations for Making WQS Decisions for the Public Sector

RESULTS OF EXPANDED ECONOMIC IMPACT MATRIX	DID NOT PERFORM A FINANCIAL ALTERNATIVES ANALYSIS[38]	PERFORMED A COMPREHENSIVE FINANCIAL ALTERNATIVES ANALYSIS
IMPACT NOT LIKELY TO BE SUBSTANTIAL	**WQS variances and designated use revisions:** Not likely to demonstrate substantial economic impacts (40 CFR 131.10(g)(6)).[39] **Antidegradation reviews:** Not likely that economic or social development in the area in which the waters are located is important (40 CFR 131.12(a)(2)).[40]	
IMPACT UNCLEAR	**WQS variances and designated use revisions:** Not likely to demonstrate substantial impacts (40 CFR 131.10(g)(6)). **Antidegradation reviews:** Not likely that economic or social development in the area in which the waters are located is important (40 CFR 131.12(a)(2)).	**WQS variances:** Substantial impact (40 CFR 131.10(g)(6)) is likely unclear. Consider evaluation of other metrics (described in Sections II.c and II.d) or financial and rate models (Alternative 2 in Section II.b.1). **Designated use revisions:** Consider the Expanded Economic Matrix results in concert with the results of the Financial Alternatives Analysis and additional analyses and actions described in Section III.a for use changes. Also, consider evaluation of other metrics (described in Sections II.c and II.d) or financial and rate models (Alternative 2 in Section II.b.1). If substantial impacts remain unclear, consider whether a use change is appropriate at this time. **Antidegradation reviews:** Unclear that economic or social development in the area in which the waters are located is important (40 CFR 131.12(a)(2)). Consider evaluation of other metrics (described in Sections II.c and II.d) or financial and rate models (Alternative 2 in Section II.b.1).
SUBSTANTIAL IMPACT	**WQS variances:** Substantial impact is unclear (40 CFR 131.10(g)(6)). Consider evaluation of other metrics (described in Sections II.c and II.d) or financial and rate models (Alternative 2 in Section II.b.1). **Designated use revision:** Substantial impact is unclear (40 CFR 131.10(g)(6)). Consider additional analyses and actions described in Section III.a. Consider evaluation of other metrics (described in Sections II.c and II.d) or financial and rate models (Alternative 2 in Section II.b.1). Depending on result of such additional analyses, consider whether a use change is appropriate at this time. **Antidegradation reviews:** Unclear that economic or social development in the area in which the waters are located is important (40 CFR 131.12(a)(2)). Consider evaluation of other metrics (described in Sections II.c and II.d) or financial and rate models (Alternative 2 in Section II.b.1).	**WQS variances:** Substantial impacts likely (40 CFR 131.10(g)(6)). **Designated use revision:** Consider the results of the Expanded Economic Matrix in concert with the results of the Financial Alternatives Analysis and additional analyses and actions described in Section III.a for use changes to determine whether overall results continue to support a demonstration of substantial impact (40 CFR 131.10(g)(6)). **Antidegradation reviews:** Likely that economic or social development in the area in which the waters are located is important (40 CFR 131.12(a)(2)).

[38] EPA understands small communities, particularly those serving a population less than 3,000, may have resource constraints to make a good faith effort to conduct a Financial Alternatives Analysis. The Agency will be mindful of those resource constraints when evaluating WQS decisions. In addition, the Agency recommends that the NPDES permitting authority be mindful of such constraints when conducting antidegradation reviews.

[39] The analysis in this guidance only serves to determine if impacts are "substantial." A state or authorized tribe would still need to conduct an analysis to demonstrate the substantial impacts are "widespread."

[40] The analysis is this guidance only serves to determine whether the economic or social development in the area in which the waters are located is "important." A state or authorized tribe would still need to conduct an analysis of pollution control alternatives, consistent with 40 CFR 131.12(a)(2)(ii), to determine if such a lowering is "necessary."

IV. List of Appendices

Appendix A. Residential Indicator Worksheets

Residential Indicator Worksheets UPDATED (2023)

This appendix contains an updated version of the steps necessary to prepare the Residential Indicator. The worksheets and instructions are largely identical to EPA's 1997 *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development*. Since data sources have evolved, this update recognizes the inputs that can be found today. In addition, "Practice Tips" in text boxes are incorporated to provide additional guidance on aspects of the Residential Indicator calculation that EPA has found are common questions and can benefit from additional direction.

CRITICAL METRIC: THE RESIDENTIAL INDICATOR

The Residential Indicator measures the financial impact of the current and proposed Clean Water Act (CWA) controls on residential users. Development of this indicator starts with the determination of the current and proposed wastewater system control costs per household (CPH). Second, the service area's CPH estimate and the median household income (MHI) are used to calculate the Residential Indicator. Finally, the Residential Indicator is compared to established financial impact ranges to determine whether required CWA controls will produce a possible "high," "mid-range," or "low" financial impact on the permittee's residential users. Worksheets are provided to aid in developing the Residential Indicator.

Developing CPH Estimate

The first step in developing the CPH is to determine the permittee's total wastewater treatment (WWT) and collection system costs by adding together the current costs for existing wastewater treatment operations and the projected costs for any proposed CWA controls. The next step is to calculate the residential share of the total system costs. The final step is to calculate the CPH by dividing the residential share of total costs by the number of households in the permittee's total wastewater service area.

PRACTICE TIP: The total wastewater service area should include all retail and wholesale areas served.

Current wastewater system costs are defined as current annual wastewater operating and maintenance expenses (excluding depreciation) plus current annual debt service (principal and interest). This fairly represents cash expenses for current wastewater treatment operations. (Expenses for funded depreciation, capital replacement funds, or other types of capital reserve funds are not included in current WWT costs, because they represent a type of savings account rather than an actual operation and maintenance expense.)

PRACTICE TIPS:

For a service area with wholesale customers, current costs should also include the wholesale customers' operations and maintenance (O&M) and debt service incurred to provide retail service and delivery of wastewater to the primary community. This information can be inserted as an explicit line item so that the calculation is transparent.

The community may provide more detailed breakout of O&M costs as sub-parts. These may include historical average asset management and payment-in-lieu of taxes (PILOT). Note that the community should perform a sensitivity analysis on the addition of PILOT to determine the overall impact on residential households with and without PILOT.

Estimates of total projected costs are made for any proposed CWA controls. Any concerns about including specific proposed WWT projects, combined sewer overflow (CSO) or other CWA controls in the projected costs, or the length of the planning period, should be discussed with the appropriate NPDES permitting and enforcement authorities. These costs should be provided in consistent year dollars and include projected increased operation and maintenance expenses plus projected debt service costs for any proposed WWT and CWA controls. The information and calculations used to develop the CPH and the Residential Indicator are presented in Worksheets 1 and 2 and their instructions.

Worksheet 1 Instructions

Current Costs: Enter the requested data on lines 100 through 109 of Worksheet 1. The operation and maintenance costs on lines 100 and 103 should include all significant cost categories, such as labor, chemicals, utilities, administration, and equipment replacement. Do not include depreciation on line 100 or line 103.

PRACTICE TIP: Divide lines 100 and 103 into sub-lines to further break out costs (e.g., 100a: O&M Expenses for Core Service Area City; 100b: O&M Expenses for Wholesale Community). An additional line item can be provided for asset management, along with an explanation of the basis for the value.

Projected Costs: Projected costs for compliance are identified on Lines 103 and 104. Costs should be provided in current dollars, preferably consistent with the year of the most recent demographic and current financial data. Adjust the projected annual WWT and CWA costs to current dollars using the appropriate cost indices, preferably for the geographical region of permittee.

PRACTICE TIP: Future capital costs should be in the same year dollars as the current cost data. Use the appropriate engineering construction cost index to adjust projected capital costs or related increased operations costs as necessary.

The annualized debt service cost information for the projected WWT facilities and projected CWA controls (Line 104) can be calculated using an annualization factor, which reflects the local borrowing interest rate and

borrowing term of the permittee. For example, if the adjusted projected debt costs (current dollars) are $25,000,000 and typical borrowing terms include an interest rate of eight percent over 20 years, then costs can be annualized with the following calculation:

$$Annual\ Debt\ Service\ Costs = Adjusted\ Debt\ Costs\ \times Annualization\ Factor$$

$$Annual\ Debt\ Service\ Costs = \$25{,}000{,}000\ \times\ .1019 = \$2{,}547{,}500$$

The annualization factor for the example is calculated using the following formula:

$$Annualization\ Factor = \frac{Interest\ Rate}{(1\ +\ Interest\ Rate)^{years}\ -\ 1} + Interest\ Rate$$

$$Annualization\ Factor = \frac{.08}{(1 + .08)^{20} - 1} + .08 = .1019$$

Alternatively, annual debt service costs can be calculated in Excel spreadsheets using the following formula:

$$= -PMT(Interest\ Rate, Term\ of\ Loan\ in\ Years, Present\ Value\ of\ Projected\ Costs)$$

The annualized debt service cost for the projected CWA controls is entered on line 104. Line 104 should include future cash-financed capital. Divide lines 101 and 104 into sub-lines to further categorize debt service costs (e.g., 104a: Annual Revenue Bond Debt Service; 104b: Annual Pay-Go Costs). Add the current and projected wastewater treatment and projected CWA control costs to estimate the total WWT and CWA costs (line 102 + line 105).

PRACTICE TIP: The debt service should be estimated based on the source and type of debt or other financing expected to be used to pay for necessary capital expenditures, including state clean water revolving and pooled funds.

Residential Share: Calculate the residential share of the total cost (line 106) and enter on line 107. The residential share of total costs (line 107) is computed by multiplying the percent of total wastewater flow including infiltration and inflow attributable to residential users by the total costs (line 106).

For example, for a permittee with the following characteristics:

Total Costs:	$12,000,000
Residential Flow:	10.5 Million Gallons per Day
Total Flow:	13.1 Million Gallons per Day

PRACTICE TIPS:

The residential share represents costs for all households, whether in single-family homes or in multi-unit condominiums or apartment buildings. Residential costs exclude the portion of expenses attributable to commercial, governmental, and industrial customers. Permittees that treat multi-unit household as commercial accounts within the billing system need to estimate the flows attributable to those households.

In general, the residential share is based on billed flow for residential households. If supported by documentation, the residential share may be adjusted for infiltration and inflow (I&I) based on how the permittee addresses I&I in its bills.

The residential share of the total cost is:

$$Residential\ Share\ of\ Costs = Total\ Costs\ \ x\ \frac{Residential\ Wastewater\ Flow}{Total\ Wastewater\ Flow}$$

$$Residential\ Share\ of\ Costs = \$12{,}000{,}000\ \times \frac{10.5\ Million\ Gallons\ per\ Day}{13.1\ Million\ Gallons\ per\ Day}\ = \$9{,}600{,}000$$

Calculate the CPH (line 109) by dividing total residential share costs (line 107) by the total number of households (line 108) in the permittee's total wastewater service area. The Residential Share percentage in this example is 80.2 percent.

Data Sources

The permittee's latest audited Annual Comprehensive Financial Report should be available to develop the current wastewater treatment costs.[1] In order to comply with accounting requirements, most permittees develop a combined statement of revenues, expenses, and changes in fund balance. These Annual Comprehensive Financial Reports should be available directly from the permittee, or, in some states, from central records kept by the state auditor or other state offices. The permittee may have a separate financial report, or its financial data may be incorporated into a municipality's report.

[1] For many communities, this Financial Report was previously characterized as a Comprehensive Annual Financial Report (CAFR), but the Governmental Accounting Standards Board has since indicated that the CAFR should now be referred to as the "Annual Comprehensive Financial Report."

Projected costs in the wastewater service area should be available through the permittee's planning documents. Wastewater service area boundaries also should be available from the permittee, frequently in electronic format. The Census Bureau annually collects American Community Survey (ACS) data on the number of households by Census-designated place. If the permittee's service area is relatively contiguous with political boundaries, then do a search for "Census QuickFacts" with the name of the town or county. Alternatively, Census Table B25002 (refer to https://data.census.gov/cedsci/all?q=B25002) is a resource if a more nuanced estimate is required. Note that "occupied housing units" equals households. The permittee should use the most recent 5-Year ACS Household data in its FCA calculations.

PRACTICE TIPS:

Note that the volume of residential usage may not only include volume for residential customer accounts, but residential households may also be served through multi-unit structures in commercial accounts, such as apartment buildings. Census data can provide information on the number of households in multi-family structures, providing a basis for adjusting the residential usage. The residential share tends to be lower for communities with more commercial or industrial customers, and generally higher in suburban, predominately residential areas.

Particularly for more complex service areas, electronic Geographic Information System (GIS) shapefiles can be analyzed with census electronic files to better characterize the service area households. Many utilities already have GIS mappings of the service area to assist in management of the system. In addition, note that in Census terminology, a "household" is equal to an "occupied housing unit," so data characterizing occupied housing units may be helpful to understanding the nature of the permittee's service area. In addition, the permittee should not use "residential customer" counts to estimate households, as more than one household may occupy a residential customer site, and households may live in commercial multi-unit customer properties.

COST PER HOUSEHOLD: Worksheet 1

		LINE NUMBER
Current WWT Costs		
Annual Operations and Maintenance Expenses (Excluding Depreciation)		100
Annual Debt Service (Principal and Interest)		101
Subtotal of Current Costs (Line 100 + Line 101)		102
Projected WWT and CWA Costs (Current Dollars)		
Estimated Annual Operations and Maintenance Expenses (Excluding Depreciation)		103
Annual Debt Service (Principal and Interest)		104
Subtotal of Projected Costs (Line 103 + Line 104)		105
Total Current and Projected WWT and CWA Costs (Line 102 + Line 105)		106
Residential Share of Total WWT and CWA Costs		107
Total Number of Households in Service Area		108
Cost per Household (Line 107 ÷ Line 108)		109

Developing the MHI Estimate

The second step in developing the Residential Indicator is to determine the median household income (MHI) for the permittee's entire wastewater service area. Information and calculations used to develop the MHI value are presented in Worksheet 2 and its instructions.

Worksheet 2 Instructions

Enter the requested information on Worksheet 2, lines 201 through 203. If the permittee's service area is relatively contiguous with political boundaries, then do a search for "Census QuickFacts" with the name of the town or county. Alternatively, Census Table B19013 (refer to https://data.census.gov/cedsci/all?q=B19013) is a resource if a more nuanced estimate is required. The permittee should use the most recent 5-Year Average MHI data in its FCA calculations.

PRACTICE TIP: For more complex service areas, electronic Geographic Information System (GIS) shapefiles can be analyzed with census electronic shapefiles, allowing a more precise characterization of the MHI for service area households. Many permittees already have GIS mappings of the service area to assist in management of the system.

On Worksheet 2, calculate the adjusted MHI by entering the most recent 5-Year census MHI value on line 201. Then enter the MHI Adjustment Factor, if any, on line 202. Finally, multiply the MHI (line 201) by the Adjustment Factor (line 202) and enter the Adjusted MHI on line 203.

PRACTICE TIP: In general, an adjustment factor is not required given that the Census data is the most up-to-date information available. Identify the year of the Census data, and if an adjustment is made, provide an explanation.

If the permittee's service area includes more than one jurisdiction, it may be necessary to develop a weighted MHI for the entire service area. The Bureau of Census's designated MHI areas generally encompass most permittee's service areas. For this reason, the calculation of a weighted MHI usually will not be necessary to reasonably represent the permittee's MHI. When a weighted MHI must be calculated, a weight would be assigned to each jurisdiction to reflect its share of the total households.

The following example illustrates how to develop a weighted MHI value. If a permittee is a regional authority that serves three local jurisdictions, the weighted average MHI would be calculated as follows:

JURISDICTION	MHI	NUMBER OF HOUSEHOLDS (HH)
A	$30,000	100,000
B	$45,000	25,000
C	$25,000	50,000
		175,000

$$Weighted\ MHI = MHI_A \left(\frac{HH_A}{Total\ HH}\right) + MHI_B \left(\frac{HH_B}{Total\ HH}\right) + MHI_C \left(\frac{HH_C}{Total\ HH}\right)$$

$$\$30{,}000\left(\frac{100{,}000}{175{,}000}\right) + \$45{,}000\left(\frac{25{,}000}{175{,}000}\right) + \$25{,}000\left(\frac{50{,}000}{175{,}000}\right)$$

$$\$17{,}143 + \$6{,}429 + \$7{,}143 = \$\mathbf{30{,}715}$$

Data Sources

Median household income is available for most communities from the latest annual Census ACS data collection. In the few cases where a local jurisdiction's MHI is not available, the surrounding county's MHI may be sufficient. The Census Bureau provides annual 5-Year Average Median Household Income data in Table B19013.

Developing the Residential Indicator

Worksheet 2 Instructions

To calculate the Residential indicator (line 205 of Worksheet 2), divide the total annual control cost per household (line 109 transferred to line 204) by the Adjusted MHI (line 203) and multiply by 100.

Analyzing the Residential Indicator

The Residential Indicator will be used in the Expanded Financial Capability Matrix to help permittees, and EPA and state NPDES authorities determine reasonable and workable long-term wastewater system control schedules.

To assess the financial impact CWA controls may have on the permittee's residential users, the Residential Indicator is compared to the financial impact ranges that reflect EPA's previous experience with water pollution control programs. These ranges are as follows:

FINANCIAL IMPACT	RESIDENTIAL INDICATOR (CPH AS % MHI)
Low	Less than 1.0 Percent of MHI
Mid-Range	1.0 to 2.0 Percent of MHI
High	Greater than 2.0 Percent of MHI

When the Residential Indicator is less than 1.0 percent, 1.0 to 2.0 percent, and greater than 2.0 percent, the financial impact on residential users to implement the CWA controls will be characterized as "low," "mid-range," and "high," respectively. Unless there are significant weaknesses in a permittee's financial and socioeconomic conditions, second phase reviews for permittees that have a low residential indicator score (less than 1.0) are unlikely to result in longer implementation schedules. Permittees with low residential indicators may wish to forego the second phase analysis and proceed with the normal engineering and construction implementation schedule developed as part of the planning process.

In situations where a permittee believes that there are unique circumstances that would affect the conclusion of the first phase, the permittee may submit documentation of its unique financial conditions to the appropriate state NPDES and EPA authorities for consideration.

RESIDENTIAL INDICATOR: Worksheet 2

		LINE NUMBER
Median Household Income (MHI)		
Census Year MHI		201
MHI Adjustment Factor		202
Adjusted MHI (Line 201 x Line 202)		203
Annual WWT and CWA Control Cost per Household (CPH) (Line 109)		204
Residential Indicator		
Annual Wastewater and CWA Control Costs per Household as a percent of Adjusted Median Household Income (CPH as % MHI) (Line 204 ÷ Line 203 × 100)		205

FINANCIAL IMPACT	RESIDENTIAL INDICATOR (CPH AS % MHI)
Low	Less than 1.0 Percent of MHI
Mid-Range	1.0 to 2.0 Percent of MHI
High	Greater than 2.0 Percent of MHI

Appendix B. Financial Capability Indicators Worksheets

Financial Capability Indicator Worksheets UPDATED (2023)

This appendix contains an updated version of the steps necessary to prepare the Financial Capability Indicators. The worksheets and instructions are largely identical to EPA's 1997 *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development*. Since data sources have evolved, this update recognizes the inputs that can be found today. In addition, "Practice Tips" in text boxes are incorporated to provide additional guidance on aspects of the Financial Capability Indicators that EPA has found are common questions and can benefit from additional direction.

CRITICAL METRIC: PERMITTEE FINANCIAL CAPABILITY INDICATORS

Selected indicators are assessed to evaluate the financial capability of the permittee. These indicators will examine the permittee's debt burden, socioeconomic conditions, and financial operations. The second-phase review examines three general categories of financial capability indicators for the permittee:

- **Debt Indicators.** Assess current debt burden of the permittee or the communities within the permittee's service area and their ability to issue additional debt to finance the CWA controls. The indicators selected for this purpose are:
    - Bond Ratings (General Obligation and/or Revenue Bond Fund)
    - Overall Net Debt as a Percent of Full Market Property Value
- **Socioeconomic Indicators.** Assess the general economic well-being of residential users in the permittee's service area. The indicators selected for this purpose are:
    - Unemployment Rate
    - Median Household Income
- **Financial Management Indicators.** Evaluate the permittee's overall ability to manage financial operations. The indicators selected for this purpose are:
    - Property Tax Revenue Collection Rate
    - Property Tax Revenues as a Percent of Full Market Property Value

Even though the financial capability analysis reflects current conditions, pending changes in the service area should be considered in development of the second phase indicators. For example, if the current unemployment rate is high, but there is a new plant opening that will stimulate economic growth, the unemployment indicators for the service area would need to be modified to reflect the projected impact of

the new plant. The permittee should submit documentation of such conditions to the appropriate EPA and state NPDES authorities for consideration. When the permittee is a sanitary district, sewer authority or similar entity, the second phase indicators related to property values and tax revenues may not be applicable. In those circumstances, the permittee may simply use the remaining indicators or submit other related documentation that will help assess its financial capability to implement the necessary wastewater system controls.

DEBT INDICATORS

The debt indicators described below were selected to assess the current debt burden conditions and the ability to issue new debt. These indicators are the bond rating and overall net debt as a percent of full market property value. When these indicators are not available for the permittee, other financial data which illustrates debt burden and debt issuing capacity may be used to assess the permittee's financial capability in this area.

Bond Rating (Worksheet 3)

The information needed to evaluate the bond ratings is presented in Worksheet 3. Recent bond ratings for the permittee and service area communities summarize a bond rating agency's assessment of a permittee's or community's credit capacity. General obligation (G.O.) bonds are bonds issued by a local government and repaid with taxes (usually property taxes). They are the primary long-term debt funding mechanism in use by local governments. General obligation bond ratings reflect financial and socioeconomic conditions experienced by the community as a whole.

"Revenue bond" ratings, by comparison, reflect the financial conditions and management capability of the wastewater utility. They are repaid with revenues generated from user fees. Revenue bonds are sometimes referred to as water or sewer bonds. In some cases, these bonds may have been issued by the state on behalf of local communities.

Bond ratings normally incorporate an analysis of a wide variety of quantitative and qualitative financial capability indicators. These analyses evaluate the long-term trends and current conditions for the indicators. The ultimate bond ratings reflect a general assessment of the permittee's current financial conditions. However, if security enhancements like bond insurance have been used for a revenue bond issue, the bond rating may be higher than justified by the local conditions.

PRACTICE TIP: If the permittee's or community's rating was enhanced through bond insurance, the uninsured rating should be stated in the bond prospectus, and that value should be provided in the FCA analysis.

Many small and medium-sized communities have not used debt financing for projects and, as a result, have no bond rating. The absence of bond rating does not indicate strong or weak financial health. When a bond rating is not available, this indicator may be excluded from the financial analysis.

Worksheet 3 Instructions

Enter the most recent bond ratings on Worksheet 3, lines 301 and 302. Note that ratings are requested for general obligation bonds and revenue bonds. When there are several different bond ratings, enter the most recent bond rating on Line 303 as the summary bond rating.

Data Sources

Municipal bond reports from rating agencies (e.g., Moody's Bond Record, Standard & Poor's Corporation, and Fitch) provide recent ratings. Municipal bond prospectuses typically list the bond rating in the upper-right corner of the cover page and within the “Ratings” section of the report. General Obligation and Revenue Bond prospectuses are available at: https://emma.msrb.org/. Municipalities also may have reports from rating agencies summarizing updates of the rating status.

BOND RATING: Worksheet 3

		LINE NUMBER
Most Recent General Obligation Bond Rating		
Date		
Rating Agency		
Rating		301
Most Recent Revenue (Water/Sewer or Sewer) Bond		
Date		
Rating Agency		
Bond Insurance (Yes/No)		
Rating		302
Summary Bond Rating		303

Benchmarks

Moody's Investor Services

"Baa" is the minimum investment grade rating. See *Moody's on Municipals – an Introduction to Issuing Debt* for a description of bond ratings.

Moody's Investor Services' Rating

- Weak: Ba, B, Caa, Ca, C
- Mid-Range: Baa
- Strong: Aaa, AA, A

Standard & Poor's; Fitch

"BBB" is the minimum investment grade rating. See Standard & Poor's *Municipal Finance Criteria* and Fitch's *Rating Definitions* for a description of bond ratings.

Standard & Poor's and Fitch Ratings

- Weak: BB, B, CCC, CC, C, D
- Mid-Range: BBB
- Strong: AAA, AA, A

Overall Net Debt as a Percent of Full Market Property Value

Description

Overall net debt is debt repaid by property taxes in the permittee's service area. It excludes debt which is repaid by special user fees (e.g., revenue debt). This indicator provides a measure of the debt burden on residents within the permittee's service area and measures the ability of local governmental jurisdictions to issue additional debt. It includes the debt issued directly by the local jurisdiction and debt of overlapping entities, such as school districts. This indicator compares the level of debt owed by the service area population with the full market value of real property used to support that debt and serves as a measure of financial wealth in the permittee's service area. Information needed to develop overall net debt as a percent of full market value is identified on Worksheet 4.

Worksheet 4 Instructions

Enter requested data on Worksheet 4, lines 401 - 405.

- Line 401 - Direct Net Debt - Enter the amount of each jurisdiction's general obligation debt outstanding that is supported by the property in the permittee's service area. General obligation bonds are secured by the “full faith and credit” of the community and are payable from general tax revenues. This debt amount excludes general obligation bonds that are payable from some dedicated user fees or specific revenue source other than the general tax revenues. These general obligation bonds are called “double-barreled bonds.”
- Line 402 - Debt of Overlapping Entities - The Statistical Section of the permittee’s Annual Comprehensive Financial Report (ACFR) generally lists the outstanding debt attributable to the permittee’s service area. If not, calculate the permittee's service area's share of any debt from overlapping entities using the process illustrated below:
    - Identify in Column A below each overlapping entity that has incurred debt that must be partially supported by the permittee's service area. (Check the Statistical Section of the permittee’s ACFR or State assessor's office for this information).
    - Identify the total amount of tax-supported outstanding debt for each overlapping entity in Column B. Money in a sinking fund is not included in the outstanding debt since it represents periodic deposits into an account to ensure the availability of sufficient monies to make timely debt service payments.
    - Identify the percentage of each overlapping entity's outstanding debt charged to persons or property in the permittee's service area in Column C. The percentage is based on the estimated full market value of real property of the respective jurisdictions.
    - Multiply the total outstanding debt of each overlapping entity by the percentage identified for the permittee’s service area (Column B x C).
    - Add the figures in Column D to arrive at total overlapping debt for permittee's service area.

(A) OVERLAPPING ENTITIES	(B) OUTSTANDING DEBT (LESS SINKING FUND)	(C) PERCENT CHARGEABLE TO PERMITTEE'S SERVICE AREA	(D) OUTSTANDING DEBT ATTRIBUTABLE TO PERMITTEE'S SERVICE AREA
County	$10,500,000	25%	$2,625,000
School District	$16,800,000	95%	$15,960,000
Total Overlapping Debt			$18,585,000

- Line 403 - Overall Net Debt - Add lines 401 and 402.
- Line 404 - Market Value of Property - The property value should reflect the full market value of real property excluding personal property within the permittee's service area. It is possible that the tax assessed property value will not reflect full market value. This occurs when the tax assessment ratio is less than one. In such cases the full market value of property is computed by dividing the total tax assessment value by the assessment ratio (the assessment ratio represents the percentage of the full market value that is taxed at the established tax rate). For example, if the assessed value is $1,000,000 and the assessment ratio is 50 percent then the full market value of real property is $1,000,000/.50 = $2,000,000.
- Line 405 - Overall Net Debt as a Percent of Full Market Property Value - Divide line 403 by line 404 and multiply by 100.

Data Sources

Debt information is generally available in the Statistical Section of the community's Annual Comprehensive Financial Report. In most cases the most recent Annual Comprehensive Financial Report is on file in the finance department of the community's website. Overlapping debt is also generally provided in a community's Annual Comprehensive Financial Report. Market value of real property is available in the Statistical Section of the community's Annual Comprehensive Financial Report. If not, the property assessment data should be readily available through the community, county, or State's assessor office. The boundary of most permittee's service areas generally conforms to one or more community boundaries. Therefore, prorating community data to reflect specific service area boundaries is not normally necessary for evaluating the general financial capability of the permittee.

OVERALL NET DEBT AS A PERCENT OF FULL MARKET PROPERTY VALUE: Worksheet 4

		LINE NUMBER
Direct Net Debt (G.O. Bond Excluding Double-Barreled Bonds)		401
Debt of Overlapping Entities (Proportionate Share of Multijurisdictional Debt)		402
Overall Net Debt (Lines 401 + 402)		403
Full Market Value of Property		404
Overall Net Debt as a Percent of Full Market Property Value (Line 403 divided by Line 404 x 100)		405

Benchmarks

- Weak: Above 5%
- Mid-range: 2-5%
- Strong: Below 2%

SOCIOECONOMIC INDICATORS

The socioeconomic indicators are used to assess the general economic well-being of residential users in the permittee's service area. The indicators used to assess economic conditions are unemployment rate and median household income. When the permittee has additional socioeconomic data, it may want to submit the data to the appropriate EPA and state NPDES authorities to facilitate a better understanding of the permittee's unique economic conditions. Several examples of this type of socioeconomic data could be poverty rate, population growth, and employment projections.

Unemployment Rate

Unemployment information is entered on Worksheet 5. The unemployment rate is defined as the percent of a permittee's service area residents on the unemployment rolls.

Worksheet 5 Instructions

Unemployment values are entered on lines 501 - 503 on Worksheet 5. If the unemployment rate for a permittee's service area is not available, the unemployment rate for the county in which the service area is located may be used as a substitute. On line 503, enter the average national unemployment rate.

Data Sources

The Bureau of Labor Statistics (BLS) maintains current unemployment rate figures for municipalities and counties with a population over 25,000. National and state unemployment data are also available for comparison purposes. This information can be obtained from the BLS Data Tools webpage at https://www.bls.gov/data. The most recent year of unemployment data should be used.

UNEMPLOYMENT RATE: Worksheet 5

		LINE NUMBER
Unemployment Rate – Permittee		501
Source		
Unemployment Rate – County (use if permittee's rate is unavailable)		502
Source		
Benchmark		
Average National Unemployment Rate:		503
Source		

Benchmarks

Compare the permittee's unemployment values with the national average values. National averages are readily available through the Bureau of Labor Statistics.

- Weak: More than 1 percentage point above the National Average
- Mid-range: ± 1 percentage point of the National Average
- Strong: More than 1 percentage point below National Average

For example, if the national average unemployment rate is 6 percent, an unemployment rate greater than 7 percent would be considered weak, while an unemployment rate less than 5 percent would be considered strong.

Median Household Income

Median household income (MHI) is defined as the median amount of total income dollars received per household during a calendar year in a given area. It serves as an overall indicator of community earning capacity. Worksheet 6 is used to present information for this indicator.

Worksheet 6 Instructions

Median household income was discussed during the first phase assessment and is presented on Worksheet 2. On line 601 of Worksheet 6, enter the adjusted MHI from Worksheet 2 (line 203). Enter the national MHI value for the same year on Line 602.

Data Sources

Median household income is available through Census Bureau ACS data at the following website: https://data.census.gov/. Refer to Table B19013: "Median Household Income in the Past 12 Months (in [Current Year] Inflation-Adjusted Dollars)."

MEDIAN HOUSEHOLD INCOME: Worksheet 6

		LINE NUMBER
Median Household Income – Permittee (Line 203, Worksheet 2)		601
Source		
Benchmark		
National MHI		602
Source		
Relationship to Benchmark		
Permittee MHI Relationship to National MHI ((Line 601-Line 602)/Line 602)		603

Benchmarks

Compare the permittee's MHI to the adjusted national MHI:

- Weak: More than 25% below National MHI
- Mid-Range: ± 25% of the National MHI
- Strong: More than 25% above National MHI

FINANCIAL MANAGEMENT INDICATORS

The financial management indicators used to evaluate a permittee's financial management ability are property tax revenue as a percent of full market value of real property and property tax revenue collection rate.

Property Tax Revenues as a Percent of Full Market Property Value

This indicator can be referred to as the "property tax burden" since it indicates the funding capacity available to support debt based on the wealth of the community. It also reflects the effectiveness of management in providing community services.

Worksheet 7 Instructions

Property tax burden is computed on Worksheet 7. The full market value of real property was calculated in Worksheet 4, line 404. Enter the full market value on line 701. Enter the most recent year's property tax revenue on line 702. General fund revenues are primarily property tax receipts.

PRACTICE TIP: Property tax revenues should include both current year collections and collections of payments in arrears from prior year assessments.

Data Sources

Property tax revenue collection data and market value of real property are generally available in the Statistical Section of the community's Annual Comprehensive Financial Report. If not, property assessment and tax revenue collection data should be readily available through the community, county, or state assessor's office. Occasionally, the assessment and tax revenue data of communities partially serviced by the permittee may have to be prorated to provide a clearer picture of the permittee's property tax burden.

PROPERTY TAX REVENUES AS A PERCENT OF FULL MARKET PROPERTY VALUE: Worksheet 7

		LINE NUMBER
Full Market Value of Real Property (Line 404)		701
Total Property Tax Revenues		702
Property Tax Revenue as a Percent of Full Market Property Value (702 ÷ 701 × 100)		703

Benchmarks

- Weak: Above 4%
- Mid-range: 2-4%
- Strong: Below 2%

Property Tax Revenue Collection Rate

The property tax revenue collection rate is an indicator of the efficiency of the tax collection system and the acceptability of tax levels to residents.

Worksheet 8 Instructions

The property tax revenue collection rate is calculated on Worksheet 8. Total property tax revenues collected was listed in Worksheet 7, Line 702. Enter this value on line 801. Enter the property taxes levied on line 802. Divide the property tax revenue collected by the property taxes levied and multiply by 100 to present the collection rate as a percentage on line 803.

Data Sources

Property taxes levied and property tax revenues are available in a community's Annual Comprehensive Financial Report. Property taxes levied can also be computed by multiplying the assessed value of real property (see Worksheet 4, Line 404) by the property tax rate, both of which are available from a community's financial statements or the state assessor's office. Occasionally, the assessment and tax revenue data of communities partially serviced by the permittee may have to be prorated to provide a clearer picture of the permittee's property tax revenue collection rate.

PROPERTY TAX REVENUE COLLECTION RATE: Worksheet 8

		LINE NUMBER
Property Tax Revenue Collected (Line 702)		801
Property Taxes Levied		802
Property Tax Revenue Collection Rate (Line 801 ÷ Line 802 × 100)		803

Benchmarks

- Weak: Below 94%
- Mid-range: 94-98%
- Strong: Above 98%

Analyzing Permittee Financial Capability Indicators

This section describes how the indicators in the second phase may be used to generate an overall score of a permittee's financial capability. The indicators are compared to national benchmarks to form an overall assessment of the permittee's financial capability and its effect on implementation schedules in the long-term CWA control plan.

In situations where a permittee believes that there are unique circumstances that would affect the conclusion of the second phase, the permittee may submit documentation of its unique financial conditions to the appropriate EPA and state NPDES authorities for consideration. The purpose of additional information is to clarify unique circumstances which are not fairly represented by the overall scores of the selected indicators. An example could be where a state or community imposes restrictions on property taxes.

Worksheet 9 Instructions

The indicators generated from the worksheets are compared to the state, national, or industry benchmarks presented in Table B-1. Information compiled from Worksheets 3 through 8 is summarized in Column A on Worksheet 9. Score each of these values using the rating standards in Table B-1 and the following score benchmarks and enter the appropriate number in Column B. The score definitions are:

Benchmarks	**Score**
• Weak:	1
• Mid-Range:	2
• Strong:	3

To calculate an average score for the indicators, total the values in Column B and divide by the number of entries. Enter the average score on Line 907.

If it is not possible to develop one or more of the six indicators, the permittee should explain why the indicator is inappropriate or unavailable. Since the point of the analysis is to measure the overall financial impact of the wastewater system controls, the debt and socioeconomic indicators are generally better measures of this impact than the financial management indicators. Consequently, if one of the debt or socioeconomic indicators is not available, the two financial management indicators should be averaged and used as a single indicator to average with the available debt and socioeconomic indicators. This averaging is necessary so that undue weight is not given to the financial management indicators.

Table B-1. Summary of Financial Capability Indicators Benchmarks

INDICATOR	STRONG	MID-RANGE	WEAK
Bond Rating	AAA – A (S&P) or Aaa – A (Moody's) or AAA – A (Fitch Ratings)	BBB (S&P) or BAA (Moody's) or BBB (Fitch Ratings)	BB - D (S&P) or Ba – C (Moody's) or BB - D (Fitch Ratings)
Overall Net Debt as a Percent of Full Market Property Value	Below 2%	2% - 5%	Above 5%
Unemployment Rate	More than 1 Percentage Point Below the National Average	± 1 Percentage Point of National Average	More than 1 Percentage Point Above the National Average
Median Household Income	More than 25% Above National MHI	± 25% of National MHI	More than 25% Below National MHI
Property Tax Revenues as a Percent of Full Market Property Value	Below 2%	2% - 4%	Above 4%
Property Tax Collection Rate	Above 98%	94% - 98%	Below 94%

SUMMARY OF PERMITTEE FINANCIAL CAPABILITY INDICATORS: Worksheet 9

INDICATOR	COLUMN A: ACTUAL VALUE	COLUMN B: SCORE	LINE NUMBER
Bond Rating (Line 303)			901
Overall Net Debt as a Percent of Full Market Property Value (Line 405)			902
Unemployment Rate (Line 501)			903
Median Household Income (Line 601)			904
Property Tax Revenues as a Percent of Full Market Property Value (Line 703)			905
Property Tax Revenue Collection Rate (Line 803)			906
Permittee Indicators Score (Sum of Column B ÷ Number of Entries)			907
Financial Capability Indicators Rating			

FINANCIAL CAPABILITY INDICATORS RATING	SOCIOECONOMIC, DEBT, AND FINANCIAL INDICATORS
Weak	Below 1.5
Mid-Range	1.5 to 2.5
Strong	Above 2.5

Appendix C. Financial Alternatives Analysis Checklist and Example Worksheet

Water infrastructure projects are a major undertaking for communities of all sizes and economic status. The Financial Capability Assessment (FCA) Guidance can serve as a planning tool for evaluating the financial resources a community has available to implement Clean Water Act (CWA) controls. It has been developed to assist in negotiating implementation schedules for CWA controls and in making certain water quality standards (WQS) decisions for public entities. Navigating the complex process of investing in water infrastructure is challenging, especially if financial resources are limited or if customers have difficulty paying their bills. This guidance is intended to help facilitate that process.

CWA compliance schedules should consider available subsidized funding and other financing arrangements as part of a financing plan to achieve compliance as soon as practicable.[1] Determining the costs and thoroughly planning how to fund and finance a project will help a community manage this process. Communities should also consider approaches that can be used to reduce or mitigate the financial impact of water services on low-income households, while still allowing the community to complete critical infrastructure improvements within a reasonable schedule. When developing an FCA, communities should complete a Financial Alternatives Analysis documenting whether the community has considered feasible steps to reduce costs and address impacts to low-income households. These steps include use of variable rate structures, customer assistance programs (CAPs), and applications for grants or subsidies from the Clean Water State Revolving Fund (CWSRF).

A Financial Alternatives Analysis demonstration should provide the results of the "checklist" of financing and funding considerations below and describe the specific programs being implemented to reduce financial burdens. The community should provide a list of the programs or steps already implemented or being considered, the actions that would be necessary to put such measures into place, and the plan for taking those actions. Where available tools are not included in the community's plans to mitigate financial impacts, the requester should provide a written explanation of why those approaches are not being pursued. Attached is an Example Financial Alternatives Worksheet that can help document this information. Finally, Appendix D: Resource Reference Guide provides useful links, explanations, and descriptions of alternative funding and financing approaches.

[1] Compliance schedules included in National Pollutant Discharge Elimination System (NPDES) permits must "require compliance as soon as possible, but not later than the applicable statutory deadline under the CWA." 40 C.F.R. § 122.47(a)(1). The CSO Control Policy requires that "each long-term CSO control plan . . . should [] include both fixed-date project implementation schedules (which may be phased) and a financing plan to design and construct the project as soon as practicable." 59 Fed. Reg. 18688, 18691 (April 19, 1994). In addition, EPA's Integrated Planning Framework states that integrated plans should include a financial strategy and capability assessment that ensures investments are sufficiently funded, operated, maintained and replaced over time and include consideration of current and planned rates and fees. See *Integrated Municipal Stormwater and Wastewater Planning Approach Framework*.

Whether a particular financial alternative is feasible may be different for entities such as a sanitary district or sewer authority. For instance, a utility may not be the rate setting authority for its entire service area if it serves wholesale customers. Certain utilities may need to work with the municipality or municipalities it serves to obtain the information to complete the Financial Alternatives Analysis. Users of this guidance should document any relevant differences in feasibility or practicality (see, e.g., Column B of the Example Financial Alternatives Worksheet) for consideration by EPA. Understanding such differences allows for development of schedules that are responsive to circumstances unique to each community while advancing the mutual goal to protect clean water. Communities are also expected to work within the boundaries of applicable legal requirements or restrictions, including state regulations, when pursuing alternative funding approaches for their infrastructure projects.[2] In the event that a financial or funding consideration listed below is prohibited by state law or simply not possible, some version of the financial alternative may still be feasible if there are other avenues of reducing financial impacts that can be implemented within the limits of the relevant legal boundaries or state authorities. A summary of state regulatory policies related to customer assistance programs and innovative ways such programs have been funded in communities is available at https://efc.sog.unc.edu/resource/navigating-legal-pathways-rate-funded-customer-assistance-programs-guide-water-and/.

If a community needs assistance evaluating feasible options for funding and financing, EPA can provide technical assistance upon request to help complete the Financial Alternatives Analysis. Through the Water Infrastructure and Resiliency Finance Center (https://www.epa.gov/waterfinancecenter) and support from the Environmental Finance Centers (EFCs) and other EPA contractors and partners, EPA can provide technical assistance. This technical assistance is funded, in part, through the Bipartisan Infrastructure Law (BIL) and other EPA infrastructure assistance programs. It can include support to complete the Financial Alternatives Analysis and other more specific requests, such as completing State Revolving Fund applications, identifying funding options, assisting with rate design and analysis, and helping with asset management planning. Communities can request assistance with the Financial Alternatives Analysis and BIL-related funding by emailing WaterTA@epa.gov. States that need assistance with the review of completed Financial Alternatives Analysis may also contact the Water Finance Center by sending an email to WaterTA@epa.gov.

[2] For municipalities that are subject to federal civil actions, CWA Section 309(e) provides that "the State in which such municipality is located shall be joined as a party." To the extent that the laws of that State prevent the municipality from raising revenues needed to comply with any resulting judgement, then the State "shall be liable for payment of any judgment, or any expenses incurred as a result of complying with any judgment."

Financial Alternatives "Checklist"

1. Financing Options for Capital Costs

Reducing overall capital costs through low interest rate loans, flexible loan terms, grants, etc. can help lessen the burden on low-income residents in a water utility's service area. The below questions can help identify potential lower cost alternatives to a community's current financing approach while still allowing for progress on capital improvement projects.

a) Has the community discussed financing options, including timing, terms, and potential grants or forgiveness, with the responsible State Revolving Fund?

More information on CWSRF projects and accessing these funds can be found in Appendix D: Resources Reference Guide.

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *The Clean Water State Revolving Fund (CWSRF) is a federal-state partnership that provides communities low-cost financing for a wide range of water quality infrastructure projects. These loans, which could be offered as grants or principal forgiveness loans, can help bring down the overall financing needs of an infrastructure project. Information about the CWSRF is available at https://www.epa.gov/cwsrf.*
- *Contacts for the State CWSRF programs are available at https://www.epa.gov/cwsrf/state-cwsrf-program-contacts.*
- *The Subsidized Loan Calculator Tool allows a utility to compare a loan through a State Revolving Fund program to a commercial loan at the market rate. The tool offers 3 different ways to look at savings: the interest savings in nominal dollars; the total cost of each option in nominal dollars; and the total cost of each option in real dollars. The tool is available at https://efc.sog.unc.edu/resource/what-value-srf-loan-subsidized-loan-calculator/.*
- *The Financing Alternatives Comparison Tool (FACT) is a financial analysis tool that helps municipalities, utilities, and environmental organizations identify the most cost-effective method to fund a wastewater or drinking water management project. FACT produces a comprehensive analysis that compares financing options for these projects by incorporating financing, regulatory, and other important costs. FACT is available at https://www.epa.gov/cwsrf/financing-alternatives-comparison-tool.*

b) What additional funding sources beyond the SRF including non-SRF grants from states, EPA, and other federal agencies, grants, low-cost loans, or extended term loans has the community considered?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *By looking at all possible grants or low-cost loans, communities can obtain additional funding to cover their capital costs without increasing the burden on their customers. Many states have dedicated funds for wastewater projects. Check your state's environmental and/or public health agency website to find state specific loan and grant information to fund wastewater infrastructure projects.*
- *Numerous potential funding sources can be found in Appendix D: Resources Reference Guide. This section explains the types of funding available (including grants, loans, private sector funding, etc.) and includes links. Additionally, funding sources can be searched for in the Water Finance Clearinghouse database by state, eligible borrower, and funding type at https://www.epa.gov/waterdata/water-finance-clearinghouse.*

c) Has the community considered special assessment districts to finance geographically defined project work?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Special assessments are used to provide and fund projects for a specific geographic area. Special assessment districts provide the legal arrangement to charge those receiving the service for capital and/or operating costs of the project. CWA projects may be funded with special assessments. For example, in Michigan, neighborhoods with significant basement flooding problems have approved the use of special assessments to fund corrections to their wastewater collection system that include correction of combined sewer overflow problems.*

d) Has the community considered other revenue sources to reduce the direct burden on ratepayers such as sales or property taxes, rental income from water tower leases, or other potential sources of support?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Many utilities have created additional revenue streams to pay for new infrastructure investments to reduce rate increases for their customers. Non-rate-based revenue can help to improve the organization's overall financial health by creating new sources of income for unexpected expenses and diversifying the utility's income in communities with decreasing volumes of water sold and collected (e.g., due to declining populations or water conservation programs). Examples of approaches communities have used to successfully bring in additional revenue can be found in Appendix D: Resources Reference Guide. Review this section and explore if any of these, or other approaches, could be used by your community to generate additional revenue.*

e) Has the community evaluated how it can reduce overall operating and program costs?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *A case study of a community that successfully reduced operating costs to free up revenue for capital improvements is available at https://efc.sog.unc.edu/resource/small-town-financial-viability-case-study-town-of-ahoskie-north-carolina/.*
- *Examples of strategies used by utilities with resource constraints to reduce costs, increase municipal capacity, and capture cost efficiencies by exploiting economies of scale can be found at https://graham.umich.edu/water/cs-managing-public-water.*

2. Rate Design

Management of water systems is often sustained by customer revenues. Developing a rate structure that best supports the system's priorities and objectives will help systems meet their CWA obligations and reduce the burden on its customers. In completing this Financial Alternatives Analysis, communities should review how they currently set rates and review ways, within the boundaries of any applicable legal requirements or restrictions, including their state regulations, that rate design could be adjusted to offset costs to their most vulnerable residents while still making progress on their capital infrastructure projects. Options might include percentage of income plans, lifeline rates, payment restructuring programs, and customer charge waivers. Communities that need assistance with rate review and alternative approaches can contact EPA's Water Infrastructure and Resiliency Finance Center for technical assistance. Communities may also consult the Utility Financial Sustainability Tools and Rates Dashboards available at https://efc.sog.unc.edu/dashboards/ developed by the Environmental Finance Center at the University of North Carolina Chapel Hill. Communities can also use the Affordability Tool that is based in Tableau to provide a user-friendly experience of assessing a utility's water and wastewater rates. This tool is available at https://efcnetwork.org/tools-publications/water-and-wastewater-residential-rates-affordability-assessment-tool-tableau/.

For some communities, there may be legal restrictions related to rate-setting. When exploring alternative rate design approaches, communities should cite any legislative barriers, for example, in the "Challenges" section of the Example Financial Alternatives Worksheet. Even where there are legal barriers to certain types of financial alternatives, there may be other pathways to help low-income customers. Case studies of innovative approaches used by some communities to assist low-income residents beyond rate design can be found at https://efc.sog.unc.edu/wp-content/uploads/sites/1172/2021/06/Navigating-Pathways-to-Rate-Funded-CAPs.pdf, along with state specific regulations related to establishing customer assistance programs.

a) Describe the rate structure currently being used in the community. In what ways has the community evaluated modifications to its rate structure that could increase revenue and/or reduce burden on the lowest income residents?

Answers to this question serve to provide baseline information on rate approaches currently used by the community and highlight where alternative approaches could be used, if practical, to increase revenue or reduce burdens on lowest income residents.

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *EPA has information on rate designs available at https://www.epa.gov/waterfinancecenter/financial-technical-assistance-and-tools-water-infrastructure. Additionally, the EFC's Rate Dashboard available at https://efc.sog.unc.edu/dashboards/ is a tool that can be used to compare rate approaches.*
- *Communities can use the Affordability Tool developed by the EFC to assess a utility's water and wastewater rates. See https://efcnetwork.org/tools-publications/water-and-wastewater-residential-rates-affordability-assessment-tool-tableau/.*

b) Has the community prepared a forward-looking financial plan and rate analysis within the last five years? If so, was the plan implemented?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Forward looking financial planning and rate reviews should be part of every utility's best management practices. There are several online tools available including the EFC's online tools:*
  - *https://efc.sog.unc.edu/resource/plan-pay-scenarios-fund-your-capital-improvement-plan/*
  - *https://efcnetwork.org/tools-publications/water-and-wastewater-residential-rates-affordability-assessment-tool-tableau/*
- *Communities who need additional assistance in conducting a rate review or financial plan can contact the EPA's Water Infrastructure and Resiliency Finance Center for technical assistance (WaterTA@epa.gov).*

c) Has the community assessed the water use across its industrial, commercial, and residential customer base? If so, has the community/utility allocated wastewater costs to reflect the demands of each user group on the collection and treatment system? For example, does the community have separate rate structures for commercial, industrial, and wholesale customers reflecting their particular demands on the collection and treatment system? Has the community considered established tiered or conservation rates?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Multiple rate structures allow the utility to recover the costs of various types of commercial and industrial customers. For some communities, there may be legal restrictions related to rate-setting. If these exist for your community, cite any legislative barriers in the "Challenges" section of the Example Financial Alternatives Worksheet (or other form of documentation you are providing for the Financial Alternatives Analysis).*

d) Does the community use inclining block rates for residential customers that charge higher per gallon rates for higher increments of use?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Utilities should seek to understand who their high-water users are and what the household structure and income-level of these customers are. Utilities can learn more about rate setting at https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=901U1200.TXT.*
- *Communities can also assess their rates and compare two rate structures side-by-side, enabling the utility to assess the affordability of its current rates alongside alternative rates using this tool developed by the EFCs: https://efcnetwork.org/tools-publications/water-and-wastewater-residential-rates-affordability-assessment-tool-tableau/.*

e) If charging a flat fee, has the community considered switching to a volumetric fee so that high-output customers pay for the wastewater they generate?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *While simple to implement, a flat fee charge for sanitary sewer service does not create any incentive for users to manage their water use, which is usually the basis for a wastewater bill. There are situations, especially with smaller utilities, where a flat charge is used because there is no water meter, or because of the costs of implementing a more sophisticated rate structure.*
- *Communities can use the rate analysis model available at https://efc.sog.unc.edu/resource/water-and-wastewater-rates-analysis-model to help evaluate water and/or wastewater rates for the next year by projecting the utility's expenses, revenues from rates, and fund balance.*

3. Ratepayer Support Options for Lower Income Residential Customers

Utilities have adopted a variety of strategies to help residential customers with low or fixed incomes pay water or wastewater bills they cannot afford. Rate design, discussed above, can provide a sustainable approach for utilities that can allow lower income customers to consistently pay bills in full and on time. Some utilities have set up CAPs to help lower bills. CAPs can vary from utility to utility and can be particularly useful for households with a temporary need for assistance. Any utility that is concerned about the affordability of its rates on their low-income residential customers and is considering starting a CAP to provide financial assistance to these households can help determine costs by using the tool available at https://efc.sog.unc.edu/resource/bill-payment-assistance-program-cost-estimation-water-utilities/. Detailed summaries of regulatory policies on the design and funding of CAPs in each of the 50 states, the District of Columbia, and Puerto Rico can be found at https://efc.sog.unc.edu/wp-content/uploads/sites/1172/2021/06/Navigating-Pathways-to-Rate-Funded-CAPs.pdf. This document also includes case studies that demonstrate what can be done under a supportive regulatory environment or when a utility would like to create a robust, high-impact CAP within the limits of a more restrictive regulatory framework.

a) Has the community implemented, or considered implementing, a CAP?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Households with low and/or fixed incomes, or households facing a temporary crisis such as job loss or illness may have difficulty paying water and sewer bills. Local not-for-profit or governmental organizations also may have short- or longer-term assistance for utility bills. Many wastewater and drinking water utilities use CAPs to meet specific customer needs and the financial needs of their drinking water delivery and/or wastewater management services.*
- *EPA produced a document of current CAP programs at water utilities. This document is designed to help drinking water and wastewater utilities build on their existing CAPs or adopt new CAPs by learning from the experiences of other utilities. Compendium of Drinking Water and Wastewater Customer Assistance Programs (EPA) is available at https://www.epa.gov/sites/production/files/2016-04/documents/dw-ww_utilities_cap_combined_508.pdf.*
- *Navigating Legal Pathways to CAPs (Environmental Finance Center at UNC Chapel Hill) is available at https://efc.sog.unc.edu/project/navigating-legal-pathways-rate-funded-customer-assistance-programs.*
- *Low Income Household Water Assistance Program (LIHWAP) provides funds to assist low-income households with water and wastewater bills. LIHWAP grants are available to states, the District of Columbia, the Commonwealth of Puerto Rico, U.S. Territories, and federally and state-recognized Indian tribes and tribal organizations that received fiscal year 2021 Low Income Household Energy Assistance Program (LIHEAP) grants. More information about LIHWAP is available at https://www.acf.hhs.gov/ocs/programs/lihwap.*

b) If you have a CAP, what is the enrollment rate? What efforts have been made to ensure low-income households are informed about the program and enroll? Are there ways to make the application process easier for customers to enroll, e.g., by providing for enrollment in-person, online, and mail, in multiple languages, if appropriate; partnering with local organizations to help with outreach and enrollment; allowing for automatic enrollment or using proof of eligibility for other income-qualified benefits?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Guidance on Developing CAPs (Water Research Foundation) is available at https://www.waterrf.org/research/projects/customer-assistance-programs-multi-family-residential-and-other-hard-reach.*
- *Best Practices in Customer Payment Assessment Programs (Water Research Foundation), is a review of best practices in utility programs to assist payment-troubled customers, assembled into a reference guide for use by utility management teams in developing and improving such programs. It is available at https://aquadoc.typepad.com/files/water_affordability_4004.pdf.*

c) Has the community considered other types of customer support beyond a CAP for lower income residential customers? Has the utility considered methods to include renters with water bill assistance?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Utilities have implemented a variety of programs to provide households with short-term or long-term reductions through a Bill Discount, Flexible Terms, Lifeline Rate, Temporary Assistance, Income-based rates, and water conservation assistance. Example customer support approaches are found below. In the Example Financial Alternatives Worksheet or other form of documentation, identify if these examples or other types of programs are being used or explored. These might be feasible in your community or there might be legal or regulatory constraints to their implementation. Examples and case studies of these approaches are available at https://www.epa.gov/sites/default/files/2016-04/documents/dw-ww_utilities_cap_combined_508-front2.pdf.*
- *Example Customer Assistance Approaches:*
  - ***Lifeline Rate**—A low flat rate for an initial amount of usage to cover most or all of a household's basic needs such as drinking, cooking, and sanitation. Water consumption above the lifeline amount could be charged at a higher rate. May be applied to all customers or just low-income customers. For example, a community could charge a low flat rate for the first 50 gallons per person per day and a higher for usage beyond 50 gallons per person per day. Communities could evaluate household size of their low-income customers using Census data or use a default household size of between 1 and 2 people and consumption allowance between 1.5 and 3 kgal for fixed income households.*
  - ***Percentage-of-Income Payment Plan**—Rate design that prevents water bills from exceeding a certain percentage of the customer's income. Case studies of how this has been done in other communities can be found at https://waterassistanceprograms.org/.*

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- ***Bill Discount***—*Reduces an eligible low-income customer's bills by a flat dollar amount or a percent discount. This approach can be used to reduce the fixed service charge, the volumetric consumption charge, or both. Additionally, discounts can be tiered by income. Review barriers for your state at https://efc.sog.unc.edu/wp-content/uploads/sites/1172/2021/06/Navigating-Pathways-to-Rate-Funded-CAPs.pdf*
- ***Water Conservation Programs***—*Programs that reduce water use can lower utility operating costs and reduce customer bills. More information about these programs is available at https://www.epa.gov/system/files/documents/2021-07/ws-assistance-that-saves-efficiency-and-affordability.pdf. An analysis of the impact of these approaches in California is available at https://www.calwater.com/docs/conservation/Economic-Value-of-Water-Efficiency-Lower-Water-Bills.pdf.*

d) Are there policies in place to protect customers, including vulnerable populations, from shutoffs?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Some utilities have developed programs and policies to prevent shutoffs. Examples of these programs include:*
  - *Chicago Utility Billing Relief Program. https://chicago.docugateway.com/main/quest/billing_relief/.*
  - *Philadelphia's Assistance Programs to ensure that residents who cannot pay bills will still have water services. https://www.phila.gov/2022-05-31-avoid-a-water-shutoff-new-protection-policies-and-expanded-assistance/.*

e) Does the community have reduced rates for vulnerable populations, such as seniors on fixed incomes?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Some utilities have developed programs and policies to provide lower rates for seniors and/or low-income customers. Examples of these programs include:*
  - *Ayer, MA. https://www.ayer.ma.us/department-public-works/pages/sr-citizen-water-sewer-bill-discount-policy.*
  - *Acton, MA. https://www.actonwater.com/customer-service/senior-citizen-water-bill-discount-policy.*
  - *Revere, MA. https://www.revere.org/departments/water-and-sewer-billing#discount.*
  - *Examples from WA State. https://mrsc.org/Home/Explore-Topics/Public-Works/General-Utility-Topics/Senior-and-Low-Income-Utility-Rate-Discounts.aspx.*

4. Financial and Utility Management

Effective utility management practices are the foundation for building and sustaining the financial capacity of water infrastructure systems. Management practices should address all aspects of a system's operations and maintenance. EPA's Effective Utility Management (EUM) Initiative takes a broad look at all aspects of water sector system sustainability from product quality to customer satisfaction. It is supported through the collaboration of EPA and professional associations across the water sector. The case studies, webinars, and frameworks developed under EUM can help inform communities on overall utility and financial management and assist in completing this section. EPA's Effective Water Utility Management Practices website is available at https://www.epa.gov/sustainable-water-infrastructure/effective-water-utility-management-practices.

a) Is the utility accounted for as a proprietary/enterprise fund or a separate independent utility?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *It is important that the utility is operated as a separate financial and business entity either within a broader governmental entity (i.e., city or county), or as an independent utility district. The wastewater utility may be effectively combined with the water utility, sharing administrative costs of billing, management, and staff. However, the financial results of the wastewater operation should be separable from the water operation.*

b) Are all rate revenues or other user charges used to fund the utility's operations? Do the rates charged recover the full cost of providing wastewater services (taking into consideration capital costs, operation and maintenance expenses, and environmental costs)?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *It is important that the utility's revenues are dedicated to the functions of the utility. If revenues are being transferred to other purposes, the utility is likely to be unable to meet its mission efficiently because of financial constraints.*

c) Does the utility have programs to optimize maintenance and asset management to reduce life cycle costs?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Systems implementing asset management develop detailed asset inventories, perform operation and maintenance tasks, conduct long-range financial planning, and undertake other activities that build system capacity. Asset management is a key element of long-term sustainability. EPA has a guide for state staff and technical assistance providers to assist small- and medium-sized drinking water or wastewater systems in identifying resources to implement asset management practices. This guide can assist in establishing an asset management plan in your community. The* Reference Guide for Asset Management Tools *is available at https://www.epa.gov/dwcapacity/reference-guide-asset-management-tools.*
- *The EFCs have also produced several tools and documents related to asset management in the water sector (https://www.efc.csus.edu/asset-management/).*
- *Technical Assistance is available for asset management plans from the EPA Water Technical Assistance page (*https://www.epa.gov/water-infrastructure/water-technical-assistance-waterta).

d) Are partnerships with other utilities, including joint procurement, or shared management and staffing arrangements, regionalization, or consolidations options to provide economies of scale and reduce per customer costs feasible in this community?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Water system partnerships address common challenges that water systems face, leading to reduced overall operating costs through economies of scale and leveraging of existing resources. EPA has a website to find cooperative tools to address their drinking water challenges available at https://www.epa.gov/dwcapacity/learn-about-water-system-partnerships. It explores the different types of partnerships to consider, and outlines examples of successful partnerships across the country*
- *Case studies and analysis of strategies used by utilities with resource constraints to partner to reduce costs, increase municipal capacity, and capture cost efficiencies by exploiting economies of scale can be found at https://graham.umich.edu/water/cs-managing-public-water.*
- *Agricultural-municipal partnerships offer another innovative approach to reduce nutrients in a watershed at a potentially lower cost than traditional infrastructure upgrades. The Water Finance Center hosted a webinar on the potential benefits of these types of partnerships and will release a learning module highlighting the financing approaches used in the case studies available at https://www.epa.gov/system/files/documents/2021-07/ag-muni-partnerships-webinar-slides.pdf.*

e) Has the utility or related municipality instituted a stormwater management program when evaluating long-term control plan schedules? If so, are impervious area-based stormwater fees used to fund the stormwater compliance costs?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- *Many communities around the country are establishing separate stormwater enterprise funds through utility fees or other separate funding mechanisms to create sustainable funding revenues for stormwater costs. The Western Kentucky University Stormwater Utility Survey provides a summary of these utilities at https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1003&context=seas_faculty_pubs.*
- *There are different approaches to establishing more equitable stormwater rates. An overview of these approaches can be found at https://efc.sog.unc.edu/stormwater-fee-structure-design-is-one-fee-structure-more-equitable/ and can provide context of approaches that might be used in your community.*
- *EPA's Sewer Overflow and Stormwater Reuse Grant Program is available at https://www.epa.gov/cwsrf/sewer-overflow-and-stormwater-reuse-municipal-grants-program.*
- *Section 319 Grant Program for Nonpoint Source Pollution Control Efforts is available at https://www.epa.gov/nps/319-grant-program-states-and-territories.*

f) Does the utility provide direct financial assistance (through rebates, upfront subsidies, or direct replacement of fixtures) for efficiency improvements including leak repairs or replacement of inefficient fixtures or appliances?

KEY RESOURCES, TOOLS, AND INFORMATION SOURCES

- ***Water Conservation Programs** -Programs that reduce water use can lower utility operating costs and reduce customer bills. More information about these programs is available at https://www.epa.gov/system/files/documents/2021-07/ws-assistance-that-saves-efficiency-and-affordability.pdf. Analysis of the impact of these approach in California is available at https://www.calwater.com/docs/conservation/Economic-Value-of-Water-Efficiency-Lower-Water-Bills.pdf.*

g) Does the wastewater collection system and adjoined publicly owned treatment works pay a property tax to the city? Paying property taxes (i.e., a payment in lieu of taxes or PILOT) should be examined as it can erode the utility's financial capability to implement necessary improvements.

EXAMPLE FINANCIAL ALTERNATIVES WORKSHEET: This worksheet can be used to help document completion of a Financial Alternatives Analysis to support developing implementation schedules for CWA controls and making certain water quality standards (WQS) decisions for public entities. Communities can list actions that they have taken and planned commitments for each alternative. Descriptions of resources and case studies related to financial alternatives are described in Appendix C.

FINANCIAL ALTERNATIVES ANALYSIS	DESCRIBE HOW FINANCIAL ALTERNATIVE HAS BEEN IMPLEMENTED OR CONSIDERED. WHERE CONSIDERED, INCLUDE ANY PLANS FROM COMMUNITY TO PURSUE ALTERNATIVE	WHERE TOOLS NOT PURSUED, DESCRIBE ANY ASSOCIATED CHALLENGES WITH THE ALTERNATIVE (E.G., IMPACT TO BOND RATING, INTEREST RATE NOT FAVORABLE)	DESCRIBE OUTCOMES OF ALTERNATIVE (E.G., GRANT APPLIED FOR, LOAN NOT PURSUED)
1. Financing Options for Capital Costs:			
a) Has the community discussed financing options, including timing, terms, and potential grants or forgiveness, with the responsible State Revolving Fund?			
b) What additional funding sources beyond the SRF such as grants, low-cost loans, or extended term loans has the community considered?			
c) Has the community considered special assessment districts to finance geographically defined project work?			
d) Has the community considered other revenue sources such as sales or property taxes, rental income from water tower leases, or other potential sources of support?			
e) Has the community evaluated how it can reduce overall operating and program costs?			
Other Considerations:			

FINANCIAL ALTERNATIVES ANALYSIS	DESCRIBE HOW FINANCIAL ALTERNATIVE HAS BEEN IMPLEMENTED OR CONSIDERED. WHERE CONSIDERED, INCLUDE ANY PLANS FROM COMMUNITY TO PURSUE ALTERNATIVE	WHERE TOOLS NOT PURSUED, DESCRIBE ANY ASSOCIATED CHALLENGES WITH THE ALTERNATIVE (E.G., IMPACT TO BOND RATING, INTEREST RATE NOT FAVORABLE)	DESCRIBE OUTCOMES OF ALTERNATIVE (E.G., GRANT APPLIED FOR, LOAN NOT PURSUED)
2. Rate Design:			
a) In what ways has the community evaluated modifications to its rate structure that could increase revenue and/or reduce burden on the lowest income residents?			
b) Has the community prepared a forward-looking financial plan and rate analysis within the last five years? If so, was the plan implemented?			
c) Does the community have identified separate rate structures for commercial, industrial, and wholesale customers reflecting their particular demands on the collection and treatment system? Has the utility considered tiered based rates?			
d) Does the community use inclining block rates that charge higher per gallon rates for higher increments of use?			
e) If charging a flat fee, has the community considered switching to a volumetric fee so that high-output customers pay for the wastewater they generate?			
Other Considerations:			

FINANCIAL ALTERNATIVES ANALYSIS	DESCRIBE HOW FINANCIAL ALTERNATIVE HAS BEEN IMPLEMENTED OR CONSIDERED. WHERE CONSIDERED, INCLUDE ANY PLANS FROM COMMUNITY TO PURSUE ALTERNATIVE	WHERE TOOLS NOT PURSUED, DESCRIBE ANY ASSOCIATED CHALLENGES WITH THE ALTERNATIVE (E.G., IMPACT TO BOND RATING, INTEREST RATE NOT FAVORABLE)	DESCRIBE OUTCOMES OF ALTERNATIVE (E.G., GRANT APPLIED FOR, LOAN NOT PURSUED)
3. Ratepayer Support Options for Lower Income Residential Customers:			
a) Does the community currently have, or looked into, setting up a CAP?			
b) If you have a CAP, what is the enrollment rate? What efforts have been made to ensure low-income households are informed about the program and enroll? Are there ways to make the application process easier for customers to enroll, e.g., by providing for enrollment in-person, online, and mail, in multiple languages, if appropriate; partnering with local organizations to help with outreach and enrollment; allowing for automatic enrollment or using proof of eligibility for other income-qualified benefits?			
c) Has the community considered other types of customer support beyond a CAP for lower income residential customers?			
d) Are there policies in place to protect customers, including vulnerable populations, from shutoffs?			
e) Does the community have reduced rates for vulnerable populations, such as seniors on fixed incomes?			
Other Considerations:			

FINANCIAL ALTERNATIVES ANALYSIS	DESCRIBE HOW FINANCIAL ALTERNATIVE HAS BEEN IMPLEMENTED OR CONSIDERED. WHERE CONSIDERED, INCLUDE ANY PLANS FROM COMMUNITY TO PURSUE ALTERNATIVE	WHERE TOOLS NOT PURSUED, DESCRIBE ANY ASSOCIATED CHALLENGES WITH THE ALTERNATIVE (E.G., IMPACT TO BOND RATING, INTEREST RATE NOT FAVORABLE)	DESCRIBE OUTCOMES OF ALTERNATIVE (E.G., GRANT APPLIED FOR, LOAN NOT PURSUED)
4. Financial and Utility Management:			
a) Is the utility accounted for as a proprietary/enterprise fund or a separate independent utility?			
b) Are all rate revenues or other user charges used to fund the utility's operations? Do the rates charged recover the full cost of providing wastewater services (taking into consideration capital costs, operation and maintenance expenses, and environmental costs)?			
c) Does the utility have programs to optimize maintenance and asset management to reduce life cycle costs?			
d) Are partnerships with other utilities, including joint procurement, or shared management and staffing arrangements, regionalization or consolidations options to provide economies of scale and reduce per customer costs feasible in this community?			
e) Has the utility or related municipality instituted a stormwater management program when evaluating long-term control plan schedules? If so, are impervious area-based stormwater fees used to fund the stormwater compliance costs?			
f) Does the utility provide direct financial assistance (through rebates, upfront subsidies, or direct replacement of fixtures) for efficiency improvements including leak repairs or replacement of inefficient fixtures or appliances?			
Other Considerations:			

Appendix D. Resource Reference Guide for Utility / Community Financial Assistance

Resource Topic Areas

1. EPA Provided Technical Assistance
2. Public Funding and Financing Sources
3. Regional Specific Funding Sources
4. Community Funding and Financing Sources

Summary of Funding and Financing Resources

1. EPA Provided Technical Assistance

I. Environmental Finance Centers

Grants; https://www.epa.gov/waterfinancecenter/efcn

The Environmental Finance Centers (EFCs) deliver targeted technical assistance to local governments, states, tribes, and non-governmental organizations to protect public health, safeguard the environment, and mitigate environmental justice concerns. The EFCs serve an important role in helping to ensure that communities that have difficulty in securing public funding receive the help they need to access resources to support infrastructure improvements. The most up-to-date information on each EFC and areas of specialization can be found at: https://www.epa.gov/waterfinancecenter/efcn. Requests for technical assistance can be made by emailing WaterTA@epa.gov.

II. EPA - Training and Technical Assistance for Small Systems Funding

Grants; https://www.epa.gov/dwcapacity/training-and-technical-assistance-small-systems-funding

EPA provides technical assistance through national providers via grant funding to support small drinking water and wastewater systems that serve small and rural communities. EPA is committed to helping communities across America upgrade and maintain water infrastructure that is essential to public health and environmental protection.

III. EPA - Environmental Justice Small Grants Program

Grants; https://www.epa.gov/environmentaljustice/environmental-justice-small-grants-program

EPA's Environmental Justice Small Grants Program supports and empowers communities working on solutions to local environmental and public health issues. The program is designed to help communities understand and address exposure to multiple environmental harms and risks.

2. Public Funding and Financing Sources

I. EPA/State Clean Water State Revolving Fund (CWSRF)

Loans; Grants; https://www.epa.gov/cwsrf

Many communities explore national- and state-level sources when seeking financial support for infrastructure projects. The most common sources considered are the CWSRF and Drinking Water State Revolving Fund (DWSRF), which are federal funds distributed to the states for distribution. These federal-state partnerships provide low-cost financing to help communities address water infrastructure needs. Communities can restructure existing SRF loans and take out multiple SRF loans. SRFs can offer: below market interest rates, in some cases as low as 0%; possible "additional subsidization" (i.e., money that does not need to be repaid); possible negative interest rates; possible principal forgiveness or grants; up to 30-year repayment for clean water projects and 40-year repayment for drinking water projects; possible loans for planning and design of infrastructure projects. States develop CWSRF priority lists as part of their Intended Use Plans, but do not have to fund in priority order.

II. EPA Water Infrastructure Finance and Innovation Act (WIFIA)

Loans; https://www.epa.gov/wifia

The WIFIA program provides long-term, low-cost supplemental financing for the planning, design, and implementation of water infrastructure projects of national or regional significance. Eligible public, private, and public-private borrowers can utilize WIFIA loans to finance a wide variety of wastewater, drinking water, water reuse, stormwater, nonpoint source pollution prevention, and other water quality improvement capital projects. The anticipated total eligible project costs must be at least $20 million, or $5 million for small communities (population of 25,000 or less). WIFIA loans are designed to provide supplemental financing for water infrastructure projects. The WIFIA loan can finance up to 49 percent of eligible project costs, or 80 percent for small communities. WIFIA loans can be paired with a variety of other funding sources, including State Revolving Fund loans and municipal bonds, and offer distinct benefits that are not readily available in the capital markets. The WIFIA program is borrower-focused, with flexible terms for credit assistance to stimulate investment while minimizing costs for ratepayers. It offers credit assistance with terms of up to 35 years after completion of project construction. It also offers borrowers the advantage of developing customized terms, including sculpted repayment terms to match the specific needs of a project, payment deferment for up to 5 years after completion of project construction, and interest-only payment periods. Additionally, the WIFIA program lends at a low, fixed interest rate equal to the Treasury rate for a comparable maturity.

III. EPA – Environmental Justice Collaborative Problem-Solving (CPS) Cooperative Agreement Program

Grants; https://www.epa.gov/environmental-justice/environmental-justice-collaborative-problem-solving-cooperative-agreement-0

EPA's Environmental Justice CPS Cooperative Agreement Program provides funding for eligible applicants for projects that address local environmental and public health issues within an affected community. The CPS Program assists recipients in building collaborative partnerships to help them understand and address environmental and public health concerns in their communities.

IV. U.S. Department of Agriculture (USDA) – Rural Utility Services (RUS) Water and Environment Program (WEP)

Loans; Grants; https://www.rd.usda.gov/programs-services/all-programs/water-environmental-programs

WEP provides funding for the construction of water and waste facilities in rural communities and is the only Federal program exclusively focused on rural water and waste infrastructure needs of rural communities with populations of 10,000 or less. WEP also provides funding to organizations that provide technical assistance and training to rural communities in relation to their water and waste activities.

V. U.S. Housing and Urban Development (HUD) – Community Development Block Grant (CDBG) State Program

Grants; https://www.hudexchange.info/programs/cdbg-state/

Under the State CDBG Program, states award grants to smaller units of general local government that do not receive CDBG funds directly from HUD. These are called non-entitlement areas. Eligible activities include construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes. Not less than 70 percent of CDBG funds must be used for activities that benefit low- and moderate-income persons. Eligible grantees are as follows: non-entitlement areas are cities with populations of less than 50,000 people (except cities that are designated principal cities of Metropolitan Statistical Areas); counties with populations of less than 200,000 people.

VI. HUD – Community Development Block Grant (CDBG) Entitlement Program

Grants; https://www.hudexchange.info/programs/cdbg-entitlement/cdbg-entitlement-program-eligibility-requirements/

The CDBG Entitlement Program awards grants to entitlement community grantees to carry out a wide range of community development activities directed toward revitalizing neighborhoods, economic development, and providing improved community facilities and services. Eligible activities include construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes. Not less than 70 percent of CDBG funds must be used for activities that benefit low- and moderate-income persons. Eligible grantees include: principal cities of Metropolitan Statistical Areas (MSAs); other metropolitan

cities with populations of at least 50,000; qualified urban counties with populations of at least 200,000 (excluding the population of entitled cities).

VII. U.S. Department of Commerce – Economic Development Administration (EDA)- Investments for Public Works and Economic Adjustment Assistance Programs

Grants; https://www.eda.gov/funding/programs

The role of wastewater service providers working with their local economic development office has grown in recent years. Increasing a community's rate base through community economic development can improve the ability to attract capital for utility infrastructure projects. Most communities have an economic development office or a representative whose specific mission is to attract new businesses to the area. EDA invests in traditional public works projects, including water and sewer systems improvements, industrial parks, business incubator facilities, expansion of port and harbor facilities, skill-training facilities, and brownfields redevelopment. This empowers distressed communities to revitalize, expand, and upgrade their physical infrastructure, and generate or retain long-term, private sector jobs and investment.

VIII. U.S. Department of Commerce – Economic Development Administration (EDA)- Planning Program and Local Technical Assistance Program

Grants; https://www.eda.gov/funding/funding-opportunities

EDA assists eligible recipients in developing economic development plans and studies designed to build capacity and guide the economic prosperity and resiliency of an area or region. The Local Technical Assistance program strengthens the capacity of local or State organizations, institutions of higher education, and other eligible recipients to undertake and promote effective economic development programs through projects such as feasibility studies and impact analyses.

3. Regional Specific Funding Sources

I. Appalachian Regional Commission (ARC) Grants

Grants; https://www.arc.gov/funding/ARCGrantsandContracts.asp

ARC awards grants and contracts from funds appropriated to the Commission annually by Congress. Program grants are awarded to state and local agencies and governmental entities (such as economic development authorities), local governing boards (such as county councils), and nonprofit organizations (such as schools and organizations that build low-cost housing). ARC provides funds for basic infrastructure services, including water and sewer facilities, that enhance economic development opportunities or address serious health issues for residential customers.

II. Federal Emergency Management Agency (FEMA) – Building Resilient Infrastructure and Communities (BRIC)

Grants; https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities

BRIC will support states, local communities, tribes, and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards. BRIC is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation program.

4. Community Funding Sources

I. Municipal Bonds

A bond is a debt obligation issued by a nonprofit organization (state, city, county, or other) to finance its capital expenditures. It is a debt investment in which an investor loans money to an entity (state, city, county, or other), which borrows the funds for a defined period at a variable or fixed interest rate. The interest paid on municipal bonds is tax-exempt, making them an attractive low-cost way to obtain capital.

II. Utility Revenue Streams

Utilities fund most their infrastructure investments through local revenue-generating mechanisms (e.g., customer rates and other fees for water, wastewater, and stormwater services). See the *Progressive Rate Structures* section below.

Many utilities have also created additional revenue streams to pay for new infrastructure investments to reduce rate increases for their customers. Non-rate-based revenue can help to improve the organization's overall financial health by creating new sources of income for unexpected expenses and diversifying the utility's income in communities with decreasing volumes of water sold and collected (e.g., due to declining populations or water conservation programs). Some examples of how utilities have approached this include:

- ***Leasing space on water towers****:* Water towers are valuable real estate because they are often located in or near towns. Because of their proximity to population centers, water utilities have been able to sell space on their towers for cellphone antennas and advertising.
- ***Selling grid service to a local electric utility:*** Grid service refers to an arrangement where a local electric utility pays the water utility for agreeing to temporarily curtail some of its electric load when needed to help the electric utility match supply to demand. The water utility is still paid for agreeing to this arrangement even if it is never asked to shed load.
- ***Selling water and wastewater line protection:*** Homeowners own the lateral service lines that connect the main distribution lines to their home. Replacement cost is generally $2,500–$3,500, and is the responsibility of the homeowner. Some utilities have sold a service that acts as an "insurance" for customers, guaranteeing the utility will fix their lateral service lines when

necessary. This can make use of the utility's existing expertise and resources to provide a sought-after service to the customer.

- ***Other sources of revenue generated from taxes*:** Other sources of local revenue can include general revenues appropriated to support wastewater services and portions of payroll taxes, property taxes, sales taxes, and toll severance taxes devoted to support wastewater services.
- ***Your elected officials:*** Consider talking to your elected officials about your infrastructure needs.

Additional examples of how communities have implemented these revenue building strategies is available in EPA's *Water Infrastructure Financial Leadership Successful Financial Tools for Local Decision Makers* document, available at https://www.epa.gov/sites/production/files/2017-09/documents/financial_leadership_practices_document_final_draft_9-25-17_0.pdf.

III. Taxes (Income Taxes, Sales Taxes, Property Taxes)

Taxes may be used as a limited funding source for annual wastewater system costs. Options include income taxes, sales taxes, and property taxes. Taxes may not be used to pay operating costs for some projects funded through the SRFs. However, user charge regulations do not require that capital outlays or debt service be covered in the user charge system. As a result, taxes can be used to repay bonds or loans for CWA projects that are subject to CWA Title II requirements. Projects funded with other sources such as local bonds, state loans, etc. do not have these restrictions.

- **Income taxes:** Individual or corporate income taxes have historically had less applicability to environmental program funding than other taxes such as property taxes, and targeted sales taxes. Income taxes are used to fund environmental programs, but their use is largely at the state level.
- **Sales taxes**: Many local jurisdictions raise funds through sales taxes. Communities may dedicate a portion of local option sales tax revenues to water pollution control, or may impose a local option sales tax on a specific product or service.
- **Property taxes**: Local governments use ad valorem property taxes as the primary source of funding for general government operations. Ad valorem property taxes are based on the value of property. As a result, residents with larger and/or more expensive homes pay more in properly taxes than residents with less expensive homes.

Summary of Resources Related to Water Infrastructure Financing

Funding Sources

- Water Finance Clearinghouse: https://clearinghouse.epa.gov/wfc
- Clean Water State Revolving Fund: https://www.epa.gov/cwsrf
- Drinking Water State Revolving Fund: https://www.epa.gov/dwsrf
- Water Infrastructure Finance and Innovation Act (WIFIA): https://www.epa.gov/wifia
- The Environmental Justice Collaborative Problem-Solving (CPS) Cooperative Agreement Program: https://www.epa.gov/environmental-justice/environmental-justice-collaborative-problem-solving-cooperative-agreement
- Environmental Justice Small Grants Program: https://www.epa.gov/environmentaljustice/environmental-justice-small-grants-program
- Source Reduction Assistance (SRA) Grant Program: https://www.epa.gov/p2/grant-programs-pollution-prevention
- CoBank's Rural Water and Wastewater Lending: https://www.cobank.com/corporate/industry/water
- National Rural Water Association (NRWA)'s Rural Water Loan Fund: https://nrwa.org/members/products-services-portfolio/rural-water-loan-fund/
- Pisces Foundation Water Grant: https://piscesfoundation.org/what-we-do/water/
- U.S. Army Corps of Engineers' Emergency Streambank and Shoreline Protection: https://www.mvr.usace.army.mil/Business-With-Us/Outreach-Customer-Service/Flood-Risk-Management/Section-14/
- U.S. Department of Agriculture (USDA)'s Water and Waste Disposal Guaranteed Loan Program: https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-guarantees
- USDA's Water & Environmental Programs (WEP): https://www.rd.usda.gov/programs-services/all-programs/water-environmental-programs
- USDA's Water & Wastewater Projects Revolving Fund Program: https://www.rd.usda.gov/programs-services/revolving-funds-for-financing-water-and-wastewater-projects
- USDA's Water & Waste Disposal Loan & Grant Program: https://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program
- USDA's Water & Waste Disposal Predevelopment Planning Grants: https://www.rd.usda.gov/programs-services/water-waste-disposal-predevelopment-planning-grants
- U.S. Department of Commerce – Economic Development Administration (EDA)'s Investments for Public Works and Economic Adjustment Assistance Programs: https://www.eda.gov/funding/programs
- EDA's Planning Program and Local Technical Assistance Program: https://www.eda.gov/funding/funding-opportunities
- U.S. Department of Health and Human Services – Indian Health Service (IHS)'s Sanitation Facilities Construction (SFC) Program: https://www.ihs.gov/dsfc/

- U.S. Department of Housing and Urban Development (HUD)'s Community Development Block Grant (CDBG) Program: https://www.hud.gov/program_offices/comm_planning/communitydevelopment
- HUD's CDBG – Disaster Recovery Program: https://www.hudexchange.info/programs/cdbg-dr/
- HUD's Section 108 Loan Guarantee Program: https://www.hudexchange.info/programs/section-108/
- U.S. Federal Emergency Management Agency (FEMA)'s Hazard Mitigation Grant Program (HMGP): https://www.fema.gov/grants/mitigation
- FEMA's Public Assistance (PA) Grant Program: https://www.fema.gov/assistance/public
- FEMA's Pre-Disaster Mitigation (PDM) Grant: https://www.fema.gov/grants/mitigation/pre-disaster
- FEMA's Flood Mitigation Assistance Program (FMA): https://www.fema.gov/grants/mitigation/floods
- U.S. Small Business Administration (SBA)'s Business Physical Disaster Loans: https://www.sba.gov/funding-programs/disaster-assistance

Bipartisan Infrastructure Law (BIL) Resources

- Overview BIL https://www.epa.gov/infrastructure
- Closing America's Wastewater Access Gap Community Initiative https://www.epa.gov/water-infrastructure/closing-americas-wastewater-access-gap-community-initiative
- Bipartisan Infrastructure Law SRF Memorandum https://www.epa.gov/dwsrf/bipartisan-infrastructure-law-srf-memorandum
- Frequent Questions about BIL State Revolving Funds https://www.epa.gov/dwsrf/frequent-questions-about-bil-state-revolving-funds
- 2022 Bipartisan Infrastructure Law Clean Water and Drinking Water State Revolving Funds (SRFs) https://www.epa.gov/infrastructure/water-infrastructure-investments

Compendiums and Documents on Rating Setting and CAPs

- Drinking Water and Wastewater Utility Customer Assistance Programs: https://www.epa.gov/waterfinancecenter/compendium-drinking-water-and-wastewater-customer-assistance-programs
- Water Infrastructure Financial Leadership: https://www.epa.gov/waterfinancecenter/water-infrastructure-financial-leadership

Appendix E. Examples of Other Metrics Relevant to Consideration of Financial Capability

Examples of Information Related to Residential Impacts:

1. Income distribution by quintile, geography, or other breakdown, illustrating how income distribution in the service area differs from comparable data on the national level or for similar cities.
2. Where cities have adopted differential rates for low-income customers, the income distribution that led to that rate structure.
3. Information about service area poverty rates and trends.
4. Projected, current, and historical sewer and stormwater fees as a percentage of household income, quintile, geography or other breakdown.
5. Information on sewer and water usage for various classes of ratepayers or by type of dwelling unit.
6. Information on the percent of households who own versus rent.

Examples of Information Related to Financial Strength:

1. Historical population trends or population projections.
2. Service area unemployment data and trends, or other labor market indicators, including unemployment on an absolute basis.
3. Rate or revenue models, including dynamic financial planning models showing the projections of impacts over the program period. All revenue sources tied to CWA obligations may be included as appropriate.
4. Rate determination studies used to develop and support recent rate increases.
5. Data and trends on late payments, disconnection notices, service terminations, uncollectable accounts, or revenue collection rates.
6. Historical increases in rates or other dedicated revenue streams.
7. State or local legal restrictions or limitations on property taxes, other revenue streams or debt levels.
8. Other costs or financial obligations, such as those that relate to drinking water or other infrastructure, that significantly affect a permittee's ability to raise revenue.
9. Circumstances that may affect a permittee's bond rating. For instance, incurring debt beyond certain thresholds may negatively impact the permittee's bond rating, thus reducing the ability to raise capital.
10. Financial plans that show the implications of incurring additional debt for a permittee's ability to secure financing, including projections of metrics such as debt ratios, debt service coverage, debt per

customer, days of cash on hand, days of working capital, and other metrics used by rating agencies. Such data should be benchmarked to metrics such as rating agency medians and relative to similar entities. This will be especially relevant where the permittee does not have a bond rating.

11. Extraordinary stressors such as those from natural disasters, municipal bankruptcies, unusual capital market conditions, or other situations which impact a permittee's ability to raise revenue or acquire needed financing. When such stressors occur, they may also provide support for making changes to existing schedules.