United States Environmental Protection Agency | Office of Water Washington, DC 20460 | 800B21001 January 2021

# 2021 Financial Capability Assessment Guidance

**January 2021**

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## I. Summary

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] When developing schedules to implement control measures needed to meet CWA obligations (implementation schedules), EPA considers public health and environmental considerations as well as a community's financial capability. The public health and environmental considerations that EPA assesses when developing CWA implementation schedules is discussed in Section III.g, below, including environmental justice and ways to mitigate environmental and public health impacts in low-income and minority communities. EPA also 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.

The 2021 Financial Capability Assessment Guidance (2021 FCA) is intended to provide options and flexibilities to communities and offer templates and calculations that local authorities can use when assessing their financial capability to implement control measures needed to meet CWA obligations. The 2021 FCA incorporates aspects of EPA's 1997 Combined Sewer Overflows - Guidance for Financial Capability Assessment and Schedule Development (1997 FCA Guidance) and EPA's 2014 Financial Capability Assessment Framework for Municipal Clean Water Act Requirements (2014 FCA Framework). Going forward, the 2021 FCA replaces the 1997 FCA Guidance and will be used to evaluate a community's capability to fund CWA control measures in both the permitting and enforcement context, including upgrades to publicly owned treatment works; control measures to address combined sewer overflows (CSOs), sanitary

[1] 33 U.S.C. § 1251.

[2] The CSO Control Policy explains that NPDES authorities "should determine the appropriate vehicle (i.e., permit reissuance, information request under CWA section 308 or State equivalent or enforcement action) to ensure that compliance with the CWA is achieved as soon as practicable." 59 Fed. Reg. at 18690. The CSO Policy also requires "each long-term CSO control plan to utilize appropriate information to address the following minimum [long-term CSO control plan] elements. The plan should also 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.

[3] Focusing on each CWA requirement individually may constrain a municipality from addressing its most serious water quality issues first. Recognizing the limits of this approach, 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 population and rainfall patterns, and competing priorities for funding. On January 14, 2019, the Water Infrastructure and Improvement Act (WIIA) (H.R. 7279) became law. WIIA added a new Section 402(s) to the CWA to amend the CWA to include the 2012 Integrated Planning Framework.

[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."

sewer overflows (SSOs), stormwater, and total maximum daily loads; and integrated planning. Additionally, EPA intends to apply the options and flexibilities from Appendix D of the final 2021 FCA to the consideration of economic impacts to public entities for supporting revisions to designated uses, water quality standard (WQS) variances, and antidegradation reviews for WQS.

EPA is committed to working with state, tribal, local, and non-government partners to assist communities in meeting CWA obligations in a manner that recognizes unique local financial challenges. The 2021 FCA sets forth two alternatives for assessing financial capability that a community may choose to employ. The first alternative adopts the Residential Indicator (RI) and the Financial Capability Indicator (FCI) from the 1997 FCA Guidance and adds two new critical metrics to address how the low-income households and poverty prevalence within a service area can be considered. The second alternative 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 will be considered when negotiating the length of an implementation schedule for a community's CWA obligations. These new tools should help standardize and advance the progress made in understanding and considering a community's financial capability.

## II. Background on the Financial Capability Assessment Guidance and Framework

### a. EPA's FCA Guidance and Framework

EPA's 1997 FCA Guidance sets forth a two-phased approach for evaluating a National Pollutant Discharge Elimination System (NPDES) permittee's financial capability to implement CWA NPDES projects. In the first phase, the RI calculates the cost per household as a percentage of median household income (MHI) for the service area of the permittee using data collected by the U.S. Census Bureau. In the second phase, the FCI evaluates the municipality or wastewater utility's overall fiscal health and local demographics relative to national norms. The RI and FCI results are brought together in a matrix that evaluates the burden (high, medium, or low) a proposed CWA program imposes on the municipality or utility. This two-phased approach is referred to as the Financial Capability Assessment (FCA). While developed for use in assessing a community's capability to fund CSO controls, EPA has also used the 1997 FCA Guidance when negotiating schedules to implement SSO and other CWA control measures.

The 2014 FCA Framework was developed 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 and are based on factors for consideration of financial

capability[5] as identified in the CSO Policy, 59 Fed. Reg. 18688, 18894.[6] As emphasized in both the 1997 FCA Guidance and the 2014 FCA Framework, the primary financial indicators found in the 1997 FCA Guidance are a snapshot in time that might not present the most complete picture of a community's financial capability to fund its CWA obligations. However, the indicators did provide common benchmarks for financial burden discussions among the community, EPA, and state or tribal NPDES authorities. Communities were encouraged to submit any additional documentation that would create a more accurate and complete picture of their financial capability, whether as part of the first or second phase of the FCA calculation. Additional information that the community provided on its unique financial circumstances was considered so that schedules could take local considerations into account. Where appropriate, additional information has been considered and used to justify implementation schedules that are longer than the schedules suggested by the 1997 FCA Guidance baseline analysis.

### b. EPA's Use of the 1997 FCA Guidance and the 2014 FCA Framework

Communities, in consultation with regulators and the public, are responsible for evaluating and selecting controls that will meet CWA requirements. After controls have been selected, an 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. 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. 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 does not view or use the 1997 FCA Guidance as a rigid metric that points to a given schedule length or threshold over which the costs are unaffordable. It is a common misconception that the FCA can be used to cap spending on CWA programs or projects at a percentage of MHI. The FCA does not remove obligations to comply with the CWA nor does it reduce regulatory requirements.[7] Rather, EPA uses the FCA to assess a community's financial capability for the purpose of developing a reasonable implementation schedule that will not overly burden the community. In practice, EPA considers each community's financial capability on a holistic case-by-case basis, and MHI is only one of the metrics that EPA evaluates. EPA has approved implementation schedules for CWA municipal consent decrees that go beyond the

[5] 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.

[6] CWA §402(q) requires that each permit, order, or decree for a discharge from a municipal combined storm and sanitary sewer shall conform with the CSO Policy.

[7] If a permittee cannot meet water quality-based requirements of the CWA, the permittee should work with its state or authorized tribe to evaluate other tools, such as a revision to designated uses or a WQS variance under 40 C.F.R. Part 131.

general scheduling boundaries in the 1997 FCA Guidance to ensure CWA requirements are met while also taking the financial capability of the community into consideration. In these cases, the implementation schedules were determined to be reasonable based upon the baseline FCA calculated in accordance with EPA's 1997 FCA Guidance and consideration of supplemental information that was submitted by the community, as encouraged by the 2014 FCA Framework.

## III. EPA's 2021 Financial Capability Assessment Guidance

### a. Purpose of the 2021 FCA Guidance

The 2021 FCA advances the ability of communities to more accurately demonstrate the financial burdens they face and increases the transparency of EPA's considerations as it endeavors to consistently apply FCA methodologies across the country. The 2021 FCA will allow communities to easily submit information that may indicate the entire community's capability to fund CWA control measures/programs. Specifically, the 2021 FCA includes templates and calculations that communities can use when submitting information for consideration regarding lowest quintile income (LQI), drinking water costs, financial models or studies, and other relevant information. The templates and calculations include references that direct the community to the applicable publicly available data sources.

The 2021 FCA sets forth two alternative approaches for assessing a community's financial capability to carry out CWA control measures. The first alternative is the existing 1997 FCA methodology with expanded consideration of costs, poverty, and impacts on the population in the service area with incomes in the lowest quintile. The first alternative may be employed by the community or by EPA for the community, as it involves use of publicly available information. Communities with lower cost control measures or an ability to self-finance the cost of CWA controls may wish to employ the first alternative due to its simplicity.

The second alternative is the development of a dynamic financial and rate model that looks at the impacts of rate increases over time on utility customers, including those with incomes in the lowest quintile. Communities with more expensive CWA obligations may choose to employ the second alternative, given its more sophisticated evaluation of financial capability over time. However, if a community chooses the second alternative, it must conduct the analysis itself as it requires information known only to the community.

For use in the first alternative, relevant portions of the 1997 FCA Guidance are included as Appendices to the 2021 FCA. While the structure of the included 1997 FCA Guidance worksheets remains for the first alternative, the 2021 FCA also includes standardized instructions and practice tips for how to define and incorporate certain additional costs into the portion of the RI calculation that looks at total CWA costs per household as a percent of MHI. EPA intends to consider not only MHI when calculating the impact of costs on a community's households but also will consider impacts to households in the lowest quintile. MHI represents the mid-point of income in a geographical area determined by the American Community Survey

(ACS). Median is used to express a "middle" value in a set of data. This "middle" value is also known as the central tendency. Median is determined by ranking the data from largest to smallest, and then identifying the middle so that there are an equal number of data values larger and smaller than the middle point. The median is generally used for skewed distributions and is typically used to derive at central tendency since it is not largely affected by outlier values. However, EPA recognizes that many communities have customers at either end of the income spectrum. Some communities have a range of incomes but also have contiguous areas of population that have difficulty paying for their water services. For some communities, these challenges can be shown by looking at the community's LQI along with its MHI. As such, EPA has incorporated LQI into the LQRI, a critical metric for calculating the impact of costs on a community's households.

Based on stakeholder feedback, EPA is basing its Alternative 1 critical metrics on data that is available in the ACS. The ACS is conducted every year by the U.S. Census Bureau to provide up-to-date information about the social and economic conditions of communities. The annual updates include key socio-demographic information and can be provided to a fine level of geographic granularity with historic continuity. The ACS can produce data showing the quintiles of household income (each quintile defines the household income range for 20% of a community's households). The Alternative 1 critical metrics meet the following criteria proposed by the National Academy of Public Administration:[8]

- Readily available from publicly available data sources;
- Clearly defined and understood;
- Simple, direct, and consistent;
- Valid and reliable measures, according to conventional research standards; and
- Applicable for comparative analyses among permittees.

The 2021 FCA can help to ensure that local challenges related to low-income households are better reflected in CWA implementation schedules. The types of data provided in Alternative 1 of the 2021 FCA are not exhaustive; and consistent with previous policy, EPA will consider any relevant financial or demographic information presented that illustrates the unique or atypical circumstances faced by a community.

### b. Overview of the 2021 FCA

Consideration of financial capability requires certain information. Alternative 1 of the 2021 FCA involves analyzing both the first phase (RI) and the second phase (FCI) of the two-phased approach in the 1997 FCA Guidance as critical metrics and adds two new critical metrics: the Lowest Quintile Residential Indicator (LQRI) and the Poverty Indicator (PI). These four critical

[8] NAPA issued a report titled ''Developing a New Framework for Community Affordability of Clean Water Services'' in October 2017.

metrics would be calculated by the community or EPA and would be considered equally. The 2021 FCA includes recommended implementation schedule benchmarks applicable to Alternative 1 (Exhibit 6). It should be emphasized that these four critical metrics 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 burden discussions among the community, the state or tribe, and EPA. Since flexibility is an important aspect of the CWA, 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.

Alternative 2 of the 2021 FCA involves analyzing financial and rate models in addition to calculating the Poverty Indicator Score. The 2021 FCA also includes Other Metrics with Standardized Instructions, as well as Other Metrics with Submission of Information to be Determined by the Community. Significant consideration should be given to drinking water costs as well as the cost of meeting CWA obligations. Consideration of other metrics is permitted under either Alternative 1 or 2 and may support an extended implementation schedule. However, EPA does not anticipate establishing implementation schedules that would exceed the useful life of the selected CWA control measures.[9]

<u>Alternative 1: Critical Metrics with Established Thresholds and Instructions</u>

- Residential Indicator – cost per household as a percentage of MHI
- Financial Capability Indicator – six socioeconomic, debt, and financial indicators used to benchmark a community's financial strength
- Lowest Quintile Residential Indicator – cost per low-income household as a percentage of the LQI
- Poverty Indicator – five poverty indicators used to benchmark the prevalence of poverty within the service area

<u>Alternative 2: Critical Metrics</u>

- Financial and Rate Models
- Poverty Indicator

<u>Other Metrics with Standardized Instructions</u>

- Drinking Water Costs
- Potential Bill Impact Relative to Household Size

[9] A community should submit all supporting data and documentation regarding the useful life of the selected CWA control measures. Based on EPA's experience with Clean Water Act programs, the projected useful life of wastewater infrastructure assets for the purpose of financing is typically 30-40 years. Additionally, Clean Water State Revolving Loan Funds terms are typically limited to the "lesser of 30 years and the projected useful life (as determined by the State) of the project to be financed with the proceeds of the loan." See 33 U.S.C. § 1383(d)(1)(A).

- Customer Assistance Programs
- Asset Management Costs
- Stormwater Management Costs

Examples of Other Metrics with Submission Information Determined by the Community

- Unemployment Rates
- Debt Service Coverage Ratio
- Debt to Income Ratio
- Percent Population Decline, or Other Population Trends
- Locality Specific Information on Household Size, Including the Size of Households with Incomes in The Lowest Quintile
- State or Local Legal Restrictions or Limitations on Property Taxes, Other Revenue Streams, or Debt Levels
- Other Metrics as Determined by the Community

### c. Alternative 1: Critical Metrics with Established Thresholds and Instructions

#### *1. Residential Indicator*

The community or EPA can calculate the Residential Indicator impact level (low, mid-range, or high) by following the worksheets in Appendix A.[10]

#### *2. Financial Capability Indicator*

The community or EPA can calculate the Financial Capability Indicator impact level (weak, mid-range, or strong) by following the worksheets in Appendix B.

#### *3. Lowest Quintile Residential Indicator*

The community or EPA can evaluate the financial burden of CWA costs for LQI households in its service area by preparing a table to determine the Cost Per Lowest Quintile Household as a Percent of the Upper Boundary of the LQI. The steps for performing this calculation are described below. This analysis, based on easily acquired Census data, is consistent with and builds off the structure of the Residential Indicator analysis. Exhibit 1 provides a template and a sample calculation that computes the Cost per Household (CPH) and as a percentage of LQI.

[10] 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 the 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.

**Exhibit 1: Template (with Sample Numbers) for Calculation of Lowest Quintile Residential Indicator**

| **Calculation of Lowest Quintile Residential Indicator** | | | |
|---|---|---|---|
| 1 | Ratio of Lowest Quintile HH Size to Median HH Size | 70.2% (unless superseded by local information) | 2018 value for United States based on U.S. Census Bureau Current Population Survey data |
| 2 | Cost for Median Household | $860 | Line 109 from FCA Residential Indicator Analysis |
| 3 | Cost for Lowest Quintile Household | $604 | Line 1 * Line 2 |
| 4 | Upper Limit of Lowest Income Quintile for Service Area | $28,500 | 5-Yr ACS value for upper boundary of lowest quintile of household income in service area |
| 5 | Cost as Percentage of Low-Income Household | 2.1% | (Line 3 / Line 4) * 100 |
| 6 | LQRI Impact Rating | High Impact | Based on Line 5 result, select from below impacts. |
| *Lowest Quintile Residential Indicator Benchmarks* | | | |
| | Low Impact | Less than 1.0% | |
| | Mid-Range Impact | 1.0% to 2.0% | |
| | High Impact | Above 2.0% | |

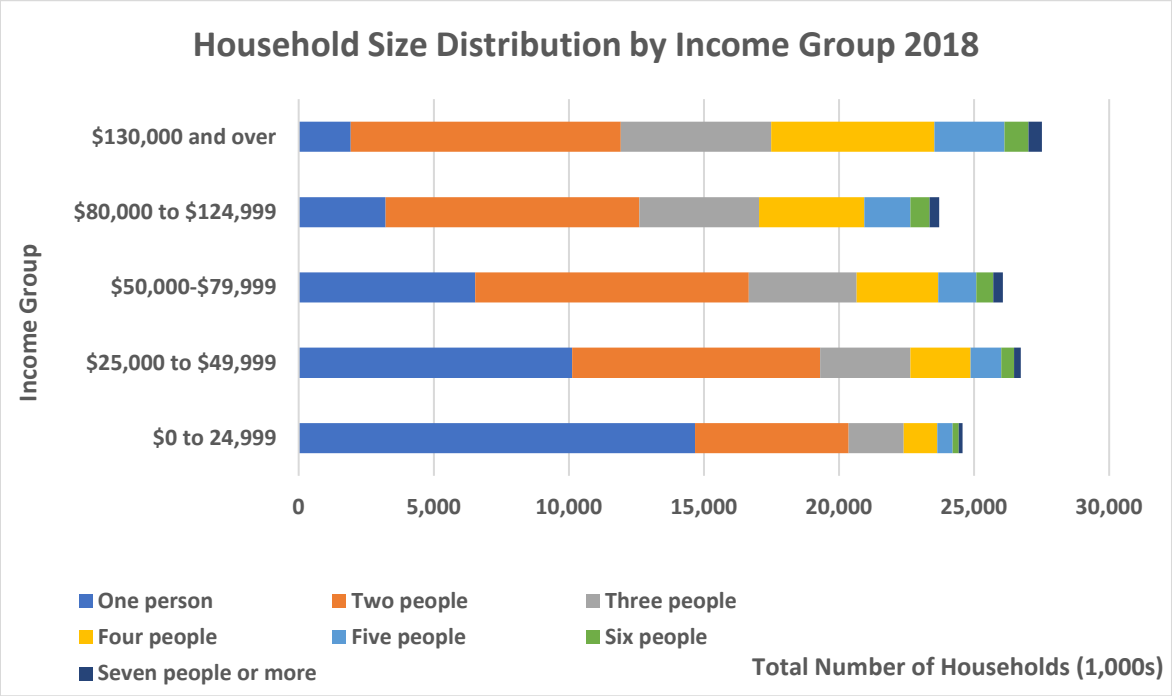
Ratio of Lowest Quintile HH Size to Median HH Size

While not always accurate, in general, water use is correlated with household size, and water use dictates the amount of sewage service billed.[11] National data indicates that lowest quintile households are smaller than the middle or higher quintiles, largely because the lowest quintile contains a disproportionate number of single person households with a single income. Table 1 below shows household size relative to income groups. The income groups approximate quintiles, as the Census data used is from a different source that arrays the information by

[11] 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.

$5,000 increments.[12] Table 1 shows that the lowest income group (up to $24,999) has the highest proportion of single-person households, and the highest proportion of single and two person households. Six or more person households are the smallest proportion for the lowest income group. Conversely, highest income households have the largest proportion of five or more person households and the lowest proportion of single person households.

*Table 1. Census Data on Household Size Distribution by Income Group*




*Source: U.S. Census Bureau, Current Population Survey, 2019 Annual Social and Economic Supplement.*

Additionally, the U.S. Department of Housing and Urban Development (HUD) collects data on the characteristics of housing units that are part of HUD's subsidized housing programs. Table 2 summarizes the data for 2018. About 4.6 million housing units are subsidized, serving 9.5 million people (an average of 2.1 people per housing unit). According to the 2018 5-Year ACS data, there are about 119.7 million total occupied housing units (i.e., households) in the United States, or 23.9 million households in each income quintile. The two largest programs show between 1.7 people per unit (Section 8) and 2.3 people per unit (Housing Choice Vouchers). HUD's 2018 subsidized housing program benefits are provided to households based on federal poverty levels, tiered by household size. The limits for larger households are above the national lowest quintile upper limit, but as shown above, some larger households do fall within the lowest quintile.

[12] The 2018 quintiles have been approximated based on the Census national 2018 quintile data for household income.

*Table 2. HUD Data for Subsidized Housing Household Size*

**HUD SUPPORTED HOUSING UNITS 2018**

| Program Label | People per Unit | Number of Units Reported | Number of People |
|---|---|---|---|
| Public Housing | 2.1 | 944,463 | 1,985,172 |
| Housing Choice Vouchers | 2.3 | 2,276,722 | 5,259,207 |
| Mod Rehab | 1.5 | 27,042 | 39,586 |
| Project Based Section 8 | 1.7 | 1,214,021 | 2,063,641 |
| RentSup/RAP | 1.7 | 738 | 1,242 |
| S236/BMIR | 1.9 | 9,833 | 18,423 |
| 202/PRAC | 1.1 | 123,134 | 132,933 |
| 811/PRAC | 1.1 | 32,294 | 35,156 |
| **Summary of All HUD Programs** | **2.1** | **4,628,247** | **9,535,360** |

*Source: U.S. Department of Housing and Urban Development, Office of Policy Development and Research (PD&R). Assisted Housing: National and Local, 2018 U.S. Total - Based on Census 2010 Geographies. Data accessed at: https://www.huduser.gov/portal/datasets/assthsg.html#2009-2019_data*

For the U.S. overall, in 2018 the middle quintile household averaged 2.52 persons while the lowest quintile averaged 1.77 persons, which equals 70.2% of the median sized household. In Exhibit 1, above, the ratio of the size of a lowest quintile household[13] relative to the middle quintile of households is calculated using data from the U.S. Census Bureau Current Population Survey (CPS). Once calculated, this ratio can be applied to the Cost Per Household from the RI calculation to estimate the Cost Per Lowest Quintile Household. The ACS does not have data defining lowest quintile household size at local levels – thus making it difficult to differentiate and calculate local ratios. EPA recognizes that some factors, such as age of infrastructure, housing types (residential one family versus multi-family), and leaky pipes, may impact usage and result in a different ratio. To the extent that a community provides EPA with additional information on circumstances that are impacting usage in certain low-income communities, we intend to use that information. Where local data is available, communities are encouraged to calculate the local ratio using that data, and EPA will consider that ratio in lieu of the 70.2% ratio based on national data. For EPA to consider this information, a community should submit the ratio calculation and all supporting data.

[13] Households include all occupied housing units regardless of whether they are owned or rented.

The Bureau of Labor Statistics of the U.S. Department of Labor collects data on the details of consumer spending, including for "water and other public services."[14] This data can be used to illustrate current differences in how a median household versus a household in the lowest quintile are impacted by the cost of utilities. A compilation of this 2018 data by Michigan State University[15] shows:

- Lowest quintile income households spend $344 annually on all public utility services (about 1.3 percent of income) while the middle quintile household spends $596 (about 1.15 percent of income).[16]
- For the lowest quintile, water and related services costs are about 14.2 percent of total utility costs, while 15 percent for the middle quintile.[17]
- Rural consumer expenditures on utilities have consistently been a higher percentage over time in comparison to urban consumer expenditures, and owners spend more than renters.
- Since about 2009, water and sewer expenditures have increased less than the rate of increase for the water and sewer consumer price index, indicating a decline in volume used.

Although these numbers are a composite of more than just water and sewer bills, there is a clear trend that shows that generally, lower quintile households spend more as a percentage of their income than higher income households on utility services such as wastewater. EPA intends to account for this difference by adjusting the LQRI based on the differences in household size as a proxy for differences in water usage between the median and lowest quintile households. An example of this adjustment is provided in Exhibit 1. EPA recognizes that this adjustment may not be appropriate in all instances. For example, if low volume households receive the same bill as high-volume households, then the adjustment provided in step 1 of Exhibit 1 should be omitted from the calculation.

LQRI Benchmark Ranges

The benchmark ranges in Exhibit 1 are the same as are used for the RI (see Appendix A – Residential Indicator Worksheets). Including LQRI as a critical metric represents a change from current practice of looking only at median income to evaluate residential impacts, even though a median number means that 50% of the population will face higher impacts.

[14] BLS's "water and other public services" category includes expenditures such as garbage and trash collection, sewerage maintenance, and septic tank cleaning.
[15] Janice A. Beecher, "Trends in consumer expenditures and prices for public utilities," Institute of Public Utilities/MSU, Revised February 25, 2020. Accessed on June 9, 2020 at http://ipu.msu.edu/wp-content/uploads/2020/02/IPU-MSU-CPI-CES-2020-1.pdf; [Beecher IPU/MSU Study].
[16] Beecher IPU/MSU Study at Page 5. Data shown in the two graphics, based on the light blue blocks for lowest quintile and 3rd quintile.
[17] Id.

### *4. Poverty Indicator*

The community or EPA can calculate a Poverty Indicator Score by using the list of poverty indicators in Exhibit 2 to benchmark the prevalence of poverty within its service area. These poverty indicators are evaluated using a ±25% benchmark to national values, like the methodology used to calculate the FCI. Using a ±25% MHI 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 common methodology of identifying outliers on either end of the data distribution.

*[space intentionally left blank]*

**Exhibit 2: Template for Calculation of the Poverty Indicator Score**

| Indicator | Strong (3) | Mid-Range (2) | Weak (1) | Census Data Code | Rating |
|---|---|---|---|---|---|
| PI #1<br>Percentage of Population with Income Below 200% of Federal Poverty Level | More than **25%** below National value | **±25%** of National value | More than **25%** above National value | **S1701** | |
| PI #2<br>Percentage of Population with Income Below Federal Poverty Level | More than **25%** below National value | **±25%** of National value | More than **25%** above National value | **S1701** | |
| PI #3<br>Upper Limit of Lowest Income Quintile | More than **25%** above National LQI | **±25%** of National LQI | More than **25%** below National LQI | **B19080** | |
| PI #4<br>Lowest Quintile Income as a Percentage of Aggregate Income | More than **25%** below National value | **±25%** of National value | More than **25%** above National value | **B19082** | |
| PI #5<br>Percentage of Population Receiving Food Stamps/SNAP Benefits | More than **25%** below National value | **±25%** of National value | More than **25%** above National value | **S2201** | |
| | | | **Sum of ratings** | | |
| | | | **Poverty Indicator Score** (Sum divided by 5) | | |
| | | | **Poverty Indicator Benchmarks**<br>Low Impact (Above 2.5)<br>Mid-Range Impact (2.5 to 1.5)<br>High Impact (Below 1.5) | | |

*5. Expanded Financial Capability Assessment Matrix for Alternative 1*

The Expanded FCA Matrix for Alternative 1, which incorporates the four critical metrics described above, determines the overall burden level of the community's service area. The

Expanded FCA Matrix gives equal consideration to the RI, FCI, LQRI, and PI, first by combining RI and FCI to determine an FCA Burden, then by combining LQRI and PI to determine a Lowest Quintile Burden, and finally by combining the FCA Burden and Lowest Quintile Burden to determine the overall burden level for the community's service area.

### Financial Capability Matrix

The Financial Capability Matrix determines the FCA Burden by combining RI and FCI. The matrix is included below as Exhibit 3.

**Exhibit 3: Financial Capability Matrix**

| Financial Capability Indicator | Residential Indicator | | |
|---|---|---|---|
| | Low Impact (Below 1.0%) | Mid-Range (1.0% to 2.0%) | High Impact (Above 2.0%) |
| Strong (Above 2.5) | Low Burden | Low Burden | Medium Burden |
| Mid-Range (1.5 to 2.5) | Low Burden | Medium Burden | High Burden |
| Weak (Below 1.5) | Medium Burden | High Burden | High Burden |

### Lowest Quintile Burden Matrix

The Lowest Quintile Burden Matrix determines the Lowest Quintile Burden by combining LQRI and PI. The Lowest Quintile Burden Matrix is included below as Exhibit 4.

**Exhibit 4: Lowest Quintile Burden Matrix**

| Poverty Indicator | Lowest Quintile Residential Indicator | | |
|---|---|---|---|
| | Low Impact (Below 1.0%) | Mid-Range (1.0% to 2.0%) | High Impact (Above 2.0%) |
| Low Impact (Above 2.5) | Low Burden | Low Burden | Medium Burden |
| Mid-Range (1.5 to 2.5) | Low Burden | Medium Burden | High Burden |
| High Impact (Below 1.5) | Medium Burden | High Burden | High Burden |

**Expanded FCA Matrix and Associated Schedule Recommendations**

The Expanded FCA Matrix determines the overall burden level when combining all four critical metrics (RI, FCI, LQRI, and PI). The Expanded FCA Matrix is included below as Exhibit 5.

**Exhibit 5: Expanded Financial Capability Assessment Matrix**

| **FCA Burden (RI and FCI)** | **LQ Burden (LQRI and PI)** | | |
|---|---|---|---|
| | Low Burden | Medium Burden | High Burden |
| Low Burden | Low Burden | Low Burden | Medium Burden |
| Medium Burden | Low Burden | Medium Burden | High Burden |
| High Burden | Medium Burden | High Burden | High Burden |

The results of the Expanded FCA Matrix correspond to the recommended implementation schedule benchmarks in Exhibit 6, below. EPA has developed these schedule benchmarks to account for the consideration of two new critical metrics, the LQRI and the PI. The schedule benchmarks are based on EPA's experience negotiating over 100 CWA consent decrees with communities of various sizes, including negotiations with communities that voluntarily submitted additional financial and demographic information for consideration, consistent with the 2014 FCA Framework, regarding lowest quintile income and poverty within their service area. It is important to note that EPA evaluates financial capability on a continuum. Although the Expanded FCA Matrix categorizes a community's overall burden level as "high, medium, or low," this does not necessarily mean that schedules would be rigidly set according to the break points between the categories. This is discussed in Section III.g. (Schedule Development), below.

**Exhibit 6: 2021 FCA Recommended Implementation Schedule Benchmarks for Alternative 1**

| **Expanded FCA Matrix Results** | **Recommended Implementation Schedule Benchmarks** |
|---|---|
| Low Burden | Normal Engineering/Construction Schedule |
| Medium Burden | Up to 15 years |
| High Burden | Up to 25 years (absent consideration of additional information) |

In addition, the 1997 FCA Guidance is substantively identical to the public sector sections of the 1995 Interim Economic Guidance for Water Quality Standards (1995 WQS Guidance)[18] which is used for supporting revisions to designated uses, WQS variances, and antidegradation reviews for WQS. EPA recommends the application of the options and flexibilities from Alternative 1 of the 2021 FCA to the consideration of economic impacts to public entities when making such WQS decisions. See Appendix D for more information on the application of Alternative 1 to support such WQS decisions.

### d. Alternative 2: Critical Metrics and Instructions

#### *1. Financial and Rate Models*

According to the CSO Policy, construction phasing for CSO controls should consider previous and current residential, commercial, and industrial sewer user fees and rate structures.[19] In Alternative 2, EPA is providing an opportunity for those 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.

Communities use financial and rate models to determine how to finance capital costs. Smaller capital programs may be feasibly handled through the additional revenues generated by rate increases (sometimes referred to as "pay-as-you-go" or "pay-go"), but large programs are normally financed through a combination of pay-go and various forms of debt, such as bonds or loans. Customers then pay for the additional costs of servicing the debt or pay-go financing through increased rates. Lenders may impose conditions on the community, such as coverage ratios, that may require additional increases in revenues and rates.

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 in deciding how to adjust water and sewer rates to finance the major capital improvements. As mentioned above, communities may decide how much should be financed through debt and how much should be directly paid for by sewer rates as the 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."[20] In addition, within limits,

[18] The 1995 WQS Guidance uses a substantively identical two-phased approach and data as the 1997 FCA Guidance, although the terminology of the two guidances is different. The 1997 FCA Guidance's terms *Residential Indicator* and *Financial Capability Indicator* are based on the same data and metrics as the 1995 WQS Guidance's terms *Muncipal Preliminary Screener* and *Secondary Score*, respectively. In the 1995 WQS Guidance, these indicators are brought together into a matrix to determine the degree of economic impact for a WQS decision whereas, the matrix in the 1997 FCA Guidance is used to determine a community's financial capability to support negotiations of implementation schedules.

[19] CSO Policy, 59 Fed. Reg. 18688, 18694 (April 19, 1994).

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

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 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 Section IV (Resources), below.

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, EPA proposes that 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 in WQS decisions. Instead, for WQS decisions, the use of financial and rate models could be used in a manner similar to the other metrics in Sections III.e and III.f of the 2021 FCA, i.e., as additional information for consideration in conjunction with the use of the critical metrics set forth under Alternative 1.

Communities can provide forward looking, year-by-year financial modeling of capital expenditures necessary to meet CWA obligations to support a proposed schedule for completing projects to bring the system into compliance. 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.

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 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 submit the following supporting data and documentation:

- Provide the last three years of financial reports for the wastewater water system.
- A summary of historical rate increases for the past five years.
- 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 Clean Water State Revolving Fund 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 lays out 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 residential bill that is used to evaluate impacts on households with median income levels and households with incomes in the lowest quintile. In general, this will be similar to the results in the RI analysis but assumes only current costs.[21]
- 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 7 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 7, a community should:

1. Include RI and LQRI.
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 and LQI values should be escalated using the historic rate of increase of MHI

[21] 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 intends to 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.

and LQI 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 obligations. 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.
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 is 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.

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## Exhibit 7: Examples of Rate Increase Scenarios and Household Impacts for Each Scenario

*7.a. Example of Rate Increase Scenarios and Median Household Impacts for Each Scenario*

| Scenario: | Utility 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 |
| 2016 | 0% | 566 | 64,814 | 0.9% | 0% | 566 | 64,814 | 0.9% | 0% | 566 | 64,814 | 0.9% |
| 2017 | 7.5% | 605 | 66,267 | 0.9% | 5% | 593 | 66,267 | 0.9% | 5% | 593 | 66,267 | 0.9% |
| 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 Median Household for Wastewater and Storm Water Combined
MHI = Median Household Income
RI = Residential Indicator (i.e., CPH as a percent of MHI)

*7.b. Example of Rate Increase Scenarios and Lowest Quintile Household Impacts for Each Scenario*

| Scenario: | Utility Proposed Scenario | | | | Other Scenarios | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Year: | 2047 | | | | 2036 | | | | 2041 | | | |
| Measure: | Rate Inc. | CPLQH ($) | LQI ($) | LQRI | Rate Inc. | CPLQH ($) | LQI ($) | LQRI | Rate Inc. | CPLQH ($) | LQI ($) | LQRI |
| 2016 | 0% | 397 | 32,197 | 1.2% | 0% | 397 | 32,197 | 1.2% | 0% | 397 | 32,197 | 1.2% |
| 2017 | 7.5% | 425 | 32,919 | 1.3% | 5% | 416 | 32,919 | 1.3% | 5% | 416 | 32,919 | 1.3% |
| 2018 | 7.5% | 454 | 33,657 | 1.4% | 8.4% | 448 | 33,657 | 1.3% | 6.5% | 441 | 33,657 | 1.3% |
| 2019 | 7.5% | 413 | 34,412 | 1.2% | 8.4% | 410 | 34,412 | 1.2% | 6.5% | 398 | 34,412 | 1.2% |
| 2020 | 7.5% | 441 | 35,184 | 1.3% | 8.4% | 442 | 35,184 | 1.3% | 6.5% | 422 | 35,184 | 1.2% |
| 2021 | 7.5% | 472 | 35,973 | 1.3% | 8.4% | 476 | 35,973 | 1.3% | 6.5% | 447 | 35,973 | 1.2% |
| 2022 | 7.5% | 505 | 36,780 | 1.4% | 8.4% | 513 | 36,780 | 1.4% | 6.5% | 474 | 36,780 | 1.3% |
| 2023 | 7.5% | 540 | 37,605 | 1.4% | 8.4% | 554 | 37,605 | 1.5% | 6.5% | 503 | 37,605 | 1.3% |
| 2024 | 7.5% | 578 | 38,448 | 1.5% | 8.4% | 597 | 38,448 | 1.6% | 6.5% | 533 | 38,448 | 1.4% |
| 2025 | 7.5% | 619 | 39,310 | 1.6% | 8.4% | 644 | 39,310 | 1.6% | 6.5% | 566 | 39,310 | 1.4% |
| 2026 | 7.5% | 663 | 40,191 | 1.6% | 8.4% | 695 | 40,191 | 1.7% | 6.5% | 601 | 40,191 | 1.5% |
| 2027 | 5% | 694 | 41,092 | 1.7% | 8.4% | 750 | 41,092 | 1.8% | 6.4% | 637 | 41,092 | 1.5% |
| 2028 | 5% | 728 | 42,013 | 1.7% | 8.4% | 810 | 42,013 | 1.9% | 6.4% | 675 | 42,013 | 1.6% |
| 2029 | 5% | 763 | 42,955 | 1.8% | 8.4% | 874 | 42,955 | 2.0% | 6.4% | 716 | 42,955 | 1.7% |
| 2030 | 5% | 799 | 43,918 | 1.8% | 8.4% | 944 | 43,918 | 2.2% | 6.4% | 760 | 43,918 | 1.7% |
| 2031 | 5% | 838 | 44,903 | 1.9% | 8.4% | 1,020 | 44,903 | 2.3% | 6.4% | 806 | 44,903 | 1.8% |
| 2032 | 5% | 878 | 45,910 | 1.9% | 8.4% | 1,102 | 45,910 | 2.4% | 6.4% | 855 | 45,910 | 1.9% |
| 2033 | 5% | 920 | 46,939 | 2.0% | 8.4% | 1,191 | 46,939 | 2.5% | 6.4% | 907 | 46,939 | 1.9% |
| 2034 | 5% | 964 | 47,991 | 2.0% | 8.4% | 1,287 | 47,991 | 2.7% | 6.4% | 963 | 47,991 | 2.0% |
| 2035 | 5% | 1,011 | 49,067 | 2.1% | 8.3% | 1,390 | 49,067 | 2.8% | 6.4% | 1,022 | 49,067 | 2.1% |
| 2036 | 5% | 1,060 | 50,167 | 2.1% | 8.3% | 1,502 | 50,167 | 3.0% | 6.4% | 1,085 | 50,167 | 2.2% |
| 2037 | 5% | 1,111 | 51,292 | 2.2% | 0% | 1,503 | 51,292 | 2.9% | 6.4% | 1,151 | 51,292 | 2.2% |
| 2038 | 5% | 1,165 | 52,442 | 2.2% | 0% | 1,505 | 52,442 | 2.9% | 6.4% | 1,222 | 52,442 | 2.3% |
| 2039 | 5% | 1,221 | 53,618 | 2.3% | 0% | 1,506 | 53,618 | 2.8% | 6.4% | 1,297 | 53,618 | 2.4% |
| 2040 | 1.39% | 1,239 | 54,820 | 2.3% | 0% | 1,508 | 54,820 | 2.8% | 6.4% | 1,378 | 54,820 | 2.5% |
| 2041 | 1.39% | 1,256 | 56,049 | 2.2% | 0% | 1,510 | 56,049 | 2.7% | 6.4% | 1,463 | 56,049 | 2.6% |
| 2042 | 1.39% | 1,275 | 57,306 | 2.2% | 0% | 1,511 | 57,306 | 2.6% | 0% | 1,464 | 57,306 | 2.6% |
| 2043 | 1.39% | 1,293 | 58,591 | 2.2% | 0% | 1,513 | 58,591 | 2.6% | 0% | 1,466 | 58,591 | 2.5% |
| 2044 | 1.39% | 1,312 | 59,905 | 2.2% | 0% | 1,515 | 59,905 | 2.5% | 0% | 1,468 | 59,905 | 2.5% |
| 2045 | 1.39% | 1,331 | 61,248 | 2.2% | 0% | 1,517 | 61,248 | 2.5% | 0% | 1,470 | 61,248 | 2.4% |
| 2046 | 1.39% | 1,350 | 62,621 | 2.2% | 0% | 1,519 | 62,621 | 2.4% | 0% | 1,472 | 62,621 | 2.4% |
| 2047 | 0% | 1,352 | 64,025 | 2.1% | 0% | 1,521 | 64,025 | 2.4% | 0% | 1,474 | 64,025 | 2.3% |

**Key**: Rate Inc. = Annual Rate Increase for Wastewater
CPLQH = Annual Cost per Lowest Quintile Household for Wastewater and Storm Water Combined
LQI = Upper Boundary of the Lowest Quintile Household Income
LQRI = Residential Indicator for Lowest Quintile Household (i.e., CPLQH as a percent of LQI)

EPA intends to use this information when developing schedules for implementing control measures to work with communities to avoid rate shock and to avoid water utility rates that represent an overly burdensome percentage of household income. Unlike Alternative 1, EPA has not established benchmark percentages of household income for Alternative 2. However, EPA intends to keep the percentage of household income spent on wastewater utility bills (and

if added to the model, drinking water utility bills) within reasonable bounds when establishing compliance schedules. EPA does not intend for such a schedule to exceed the useful life of the selected CWA control measures. Communities are encouraged to provide local information to EPA to support the prediction of a likely occurrence of rate shock. It is important to note that other metrics, such as drinking water costs, may also impact rate shock. 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 WQS decisions, the use of financial and rate models could be used in a manner similar to the other metrics in Sections III.e and III.f of the 2021 FCA, i.e., as additional information for consideration in conjunction with the use of the critical metrics set forth under Alternative 1.

2. *Poverty Indicator*

In addition to the Financial and Rate Model analysis, a community or EPA can calculate a Poverty Indicator Score by using the list of poverty indicators in Exhibit 2, above, to benchmark the prevalence of poverty within the service area.

### e. Other Metrics with Standardized Instructions

Based on stakeholder feedback and EPA's experience, providing standardized instructions for incorporating drinking water costs, potential bill impacts relative to household size, a community's customer assistance program, asset management costs, and stormwater management costs should increase transparency and clarity regarding how EPA considers these factors. As noted above, other metrics may be considered under Alternative 1 and Alternative 2 and may support an extended implementation schedule, not to exceed the useful life of the selected CWA control measures. Additionally, use of these other metrics under Alternative 1 and Alternative 2 may be considered in WQS decisions.

*1. Drinking Water Costs*

EPA recognizes that both clean water and drinking water costs are often covered through charges on a single bill. For this reason, the 2021 FCA lays out a new way to incorporate a community's drinking water obligations. Given the widespread, increasing costs of producing 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 the significant impacts of drinking water obligations. Consideration of drinking water information may result in an extended implementation schedule. However, EPA does not anticipate establishing implementation schedules that would exceed the useful life of the selected CWA control measures.

*Consideration of Drinking Water Costs under Alternative 1*

Drinking water information is intended to be used in Alternative 1 to supplement the four critical metrics and the results of the Expanded FCA Matrix. If information on drinking water costs is submitted and supported by the documentation detailed below, under Alternative 1 EPA may permit a community to move from a "low burden" to a "medium burden" or from a "medium burden" to a "high burden" in the 2021 FCA Implementation Schedule Benchmarks (Exhibit 6). Or, if a community is already experiencing a high burden, EPA may use this additional information to support a schedule beyond the schedule benchmarks in Exhibit 6, not to exceed the useful life of the selected CWA control measures. Additionally, use of drinking water costs in the same manner may be considered in WQS decisions.

If a community submits information on drinking water costs, EPA requests that the community provide detailed descriptions and cost estimates for the drinking water requirements. The community may also prepare and submit information on current drinking water rates and/or a cost per household analysis for drinking water costs that is like the RI calculation in Appendix A. The community should also 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, are the drinking water improvements 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.
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. 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 is intended to be used in Alternative 2 to evaluate the impacts of rates for both wastewater and drinking water on household bills. 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 also 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, are the drinking water improvements 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.
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. 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. Potential Bill Impact Relative to Household Size*

Another analysis that EPA and communities have found helpful, shown below by example in Exhibit 8, evaluates the maximum potential bill impact relative to household size. Typically, as household size increases, monthly water usage increases.[22] One person households use significantly less water than a three- or four-person household, 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 8 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 information allows EPA to understand 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 8 can be created by following the below steps:

- To develop a table showing current rate impacts (see example in Exhibit 8.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.

[22] 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.

- Using current rates, calculate the monthly household bill for each 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.

- To develop a table showing modeled future rate impacts (see example in Exhibit 8.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 8.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 8.b, this is the example community's 2047 modeled rates).
  - Calculate impact for each CCH 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.

## Exhibit 8: Example Showing Projected Impact of Program Costs by Household Size[23]

*8.a – Table Showing Impacts of Current 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 Burden | Medium Burden | High Burden |
|---|---|---|

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

*8.b – Table Showing Modeled Impacts of 2047 Rates on MHI*

| Household Size | % of SA HHs | MHI (escalated to 2047) per HH Size | CCF 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 Burden | Medium Burden | High Burden |
|---|---|---|

EPA views this data as an additional way for communities to demonstrate the impacts of program costs on various sizes of households. If the table with modeled future rates in aggregate shows most cells in the low burden CPH category, then the program is relatively affordable, as opposed to having most cells in the high burden CPH category. Based on the extent of "high burden" cells, EPA may use this information to justify an extended implementation schedule under Alternative 1 or Alternative 2. However, EPA does not intend such schedule to exceed the useful life of the selected CWA control measures. Additionally, use of this additional analysis may be considered in WQS decisions.

### *3. Customer Assistance Programs*

Numerous drinking water and wastewater utilities have developed Customer Assistance Programs (CAPs) that use bill discounts, special rate structures, and other means as an approach to help financially constrained customers maintain access to drinking water and wastewater services. These programs typically determine eligibility of individual households relative to a percentage of the Federal Poverty Level. These programs help households address issues with affordability and help protect public health throughout the community. They also help ensure the utility can sustainably provide its core services, price services appropriately, and preserve a broad customer base. However, these programs have costs for the community.

If a community has developed a CAP to assist individual households, EPA intends to consider both the costs needed to administer the program as well as the revenue lost from the assistance provided (discounted rates, collection fees foregone, improved water efficiency, etc.).

EPA intends to consider the following information if provided:

- 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,
- How the program is funded,
- Program benefits, and
- Number of disconnections prevented (if known).

Submission of the above information would allow EPA to confirm that the appropriate CAP costs are being included as part of a community's FCA. Such costs can be included in the calculation of the RI[25] and LQRI 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 CAP costs have been included in these sections of the FCA and the line items in which these costs appear. Additionally, use of this additional analysis in the same manner may be considered in WQS decisions.

#### *4. 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 customers desire. 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 clear picture of infrastructure related expenses and future investment needs, which should inform the financial planning process.

[24] The New England Environmental Finance Center's Water Utility Customer Assistance Program Cost Estimation Tool is designed to help water utilities estimate the costs of implementing a customer assistance program. See https://neefc.org/.

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

EPA intends to consider a community's 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 RI and LQRI 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 and the line items in which these costs appear. Additionally, use of this additional analysis in the same manner may be considered in WQS decisions.

*5. 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.

To be considered by EPA, the following information should be submitted for verification of stormwater costs that are not within a community's wastewater-related funds:

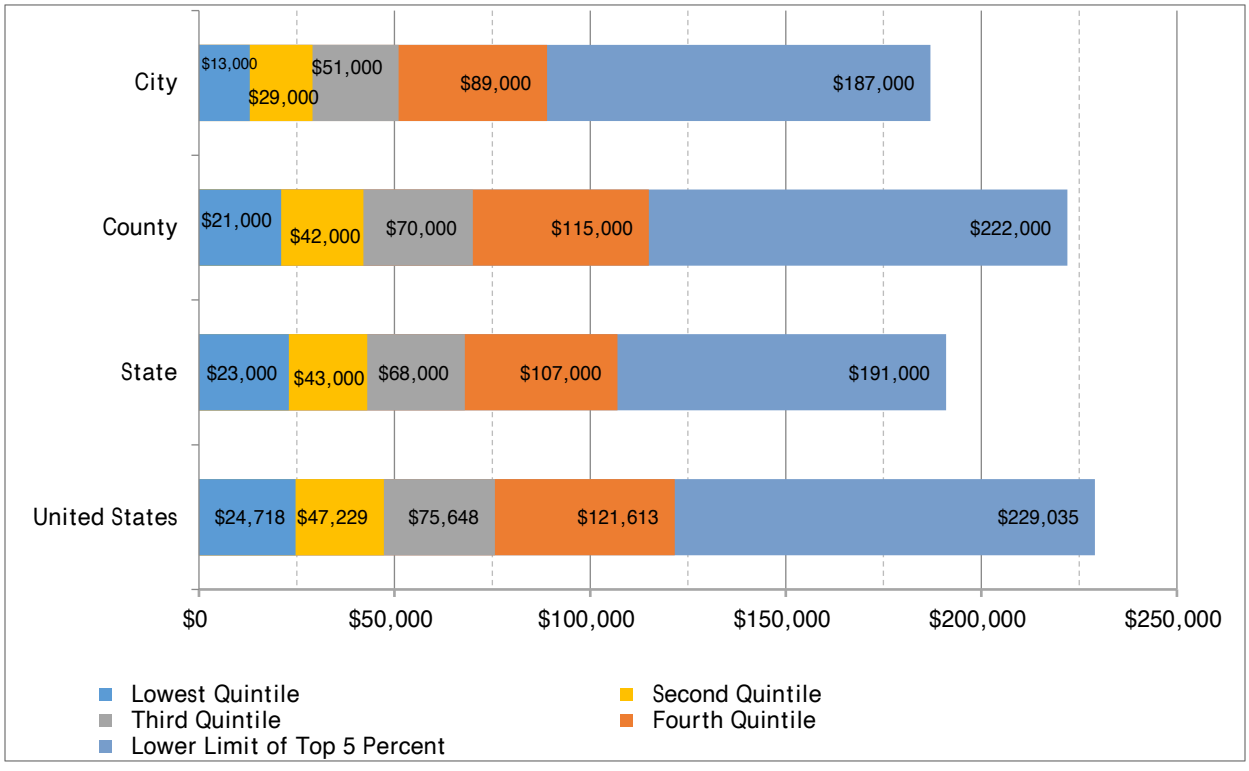
- Identify the municipal fund that the stormwater activity is conducted within (for example, identify whether stormwater management is in a separate stormwater enterprise fund, incorporated into the wastewater enterprise fund, or conducted within the general fund).
- Describe the specific stormwater 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, is this 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 will provide EPA with the appropriate assurances that those expenditures will be made. Such costs may be reflected in the RI and LQRI 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 stormwater management costs have been included in these sections of the FCA and the line items in which these costs appear. Additionally, use of this additional analysis in the same manner may be considered in WQS decisions.

*6. Comparisons to 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 9. This information would be used to assist EPA in assessing a community's circumstances in relation to national averages and as compared to other 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 WQS decisions.

**Exhibit 9: Graph comparing quintile distribution in city, county, state, and nationally**



### f. Other Metrics with Submission 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 obligations or to support WQS decisions. This information would supplement the information provided under either Alternative 1 or Alternative 2. Examples of other metrics include:

- Unemployment Rates
- Debt Service Coverage Ratio
- Debt to Income Ratio
- Percent Population Decline, or Other Population Trends
- State or Local Legal Restrictions or Limitations on Property Taxes, Other Revenue Streams, or Debt Levels
- Other Metrics as Determined by the Community

Additional examples of other metrics that may be submitted are listed in Appendix C. The examples in Appendix C are not intended to be a complete list, nor a list of factors that will be relevant in every community. Rather, it provides an illustration of information that may prove useful in some instances. For such information to adequately 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.

### g. Schedule Development

When developing implementation schedules to construct control measures needed to meet CWA obligations, a community should consider public health and environmental considerations as well as financial capability. In addition to completing an analysis under Alternative 1 or 2 and taking into account any other financial and demographic metrics, a community should consider the following public health and environmental impacts when determining the sequencing and priority of projects.

#### *1. Public Health and Environmental Considerations*

Discharges to Sensitive Areas: The CSO Policy states that a permittee's long-term control plan (LTCP) should give the highest priority to "sensitive areas." Sensitive areas are identified by NPDES permitting authorities. They 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 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.[26]

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 a water quality standard. 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 from the permittee 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.

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 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

[26] See 59 Fed. Reg. 18688, 18696 (April 19, 1994).

protective environmental laws, regulations, and policies. Communities can use EPA's EJSCREEN tool[27] when assessing whether there may be environmental justice concerns within their service area, such as areas with: minority and/or low-income populations; potential environmental quality issues; and/or a combination of environmental and demographic indicators that is greater than usual. 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 Appendix D and considering any other financial metrics, a community or state is strongly encouraged to consider opportunities to mitigate impacts of WQS decisions to areas with potential environmental justice concerns. For example, EPA recommends communities to sequence projects included in WQS variance requirements to mitigate impacts to areas with potential environmental justice concerns as early as possible, to fully explore grants and loans from all relevant sources (see Section IV Resources), or to consider Customer Assistance Programs to help financially constrained customers.

### *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 6 to aid all parties in negotiating reasonable and effective schedules for implementation of CWA controls. Exhibit 6 should be used after all four critical metrics in Alternative 1 have been calculated, and the community's overall burden level has been determined using the Expanded FCA Matrix.

It is important to note that EPA evaluates financial capability on a continuum. Although the Expanded FCA Matrix categorizes burden as "high, medium, or low," this does not necessarily mean that schedules would be rigidly set according to the break points between the categories. For example, two communities whose total residential share of costs are 1.1% and 1.9% of MHI are both categorized in the FCA Guidance as having a "medium" burden for the RI. 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 residential share of costs are 1.9% and 2.1% of MHI would be more likely to have similar overall compliance timeframes, even though one community is ranked as having a "medium" burden and the other as having a

[27] 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.

"high" burden. Finally, 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.

As noted above, the four critical metrics under Alternative 1 might not present the most complete picture of a community's financial capability to fund its CWA controls. Therefore, communities are encouraged to submit any additional documentation (other metrics) that would create a more accurate and complete picture of their financial capability. The 2021 FCA includes Other Metrics with Standardized Instructions and Other Metrics with Submission of Information to be Determined by the Community. Any other metrics that have been submitted for consideration would supplement the four critical metrics and the Expanded FCA Matrix results, and consideration of these metrics may result in implementation schedules that go beyond the schedule benchmarks in Exhibit 6, not to exceed the useful life of the selected CWA control measures. Additionally, the use of these additional metrics in the same manner may be considered in WQS decisions.

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

*[space intentionally left blank]*

**Exhibit 10: Scheduling 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 | 15 years | n/a | 15 years |
| **Environmental Justice** | EJ concerns identified | n/a | n/a | EJ concerns identified |
| **Financial Capability** | 2021 FCA Result = Low Burden (engineering schedule) | 2021 FCA Result = Medium Burden (up to 15 years) | 2021 FCA Result = High Burden (up to 25 years unless justified by additional information) | 2021 FCA Result = High Burden (up to 25 years unless justified by additional information) |
| **Drinking Water Costs** | n/a | 2 additional years | n/a | 2 additional years |
| **Schedule:** | **9 years** **(reduction of discharges in EJ areas within first 3 years)** | **17 years** **(removal of discharge from sensitive area within first 2 years)** | **20 years** | **27 years** **(reduction of discharges in EJ areas within first 5 years)** |

*3. Alternative 2 Schedule Development*

Unlike Alternative 1, EPA has not established benchmarks for the development of an implementation schedule under Alternative 2. Instead, EPA will consider the impacts on both households with a median household income and households with income in the lowest quintile and plans to approve 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. The 2021 FCA includes Other Metrics with Standardized Instructions and Other

Metrics with Submission of Information to be Determined by the Community. Any other metrics that have been submitted for consideration would supplement the financial and rate model and poverty indicator score and may result in an extended implementation schedule. However, EPA does not anticipate establishing implementation schedules that would exceed the useful life of the selected CWA control measures.

## IV. Resources

EPA understands the importance of accounting for a community's capability to fund CWA controls. EPA plans to work with communities during the negotiation process to identify funding sources and financing strategies that can be used to reduce costs over time. Below is a list of resources to assist communities related to water infrastructure financing.

- Compendiums and documents on rate 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
- Funding sources
    - Water Finance Clearinghouse: www.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#sra
    - CoBank's Rural Water and Wastewater Lending: https://www.cobank.com/corporate/industry/water
    - National Rural Water Association (NRWA)'s NRWA 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/
    - Rural Water Loan Fund (RWLF): https://nrwa.org/members/products-services-portfolio/rural-water-loan-fund/

- U.S. Army Corps of Engineers (USACE)'s Project Modifications for Improvement of the Environment (CAP Section 1135): https://www.sas.usace.army.mil/Missions/CAP/Section-1135-Project-Modifications-for-Improvements-to-the-Environment/
- USACE's 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/programs/eda-programs/
- EDA's Planning Program and Local Technical Assistance Program: https://www.eda.gov/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://disasterloan.sba.gov/ela/Information/BusinessPhysicalLoans
- Environmental Finance Centers
  - EPA Region 1 – University of Southern Maine https://neefc.org/
    - Water and Wastewater Rates Analysis Model: The model can set water and/or wastewater rates for the following year by projecting the utility's expenses, revenues from rates, and fund balance. Data inputs are minimal.
    - Water Utility Customer Assistance Program Cost Estimation Tool: Tool is designed to help water utilities estimate the costs of implementing a customer assistance program.
  - EPA Region 2 – Syracuse University https://efc.syr.edu/
    - In the About Us→Environmental Finance Center Network tab, there is information about trainings and webinars to encourage smarter management of municipal finances and assets, and to help operators conduct day-to-day operations more efficiently.
    - In the Projects→Drinking Water and Wastewater Infrastructure→EFCN Smart Management for Small Water Systems" tab, there are free workshops, webinars and technical assistance on topics such as asset management, financial management, and others for small water system operators, owners, and municipal representatives.
    - In the Projects→Municipal Development→Public Management and Finance Program" tab, the website discusses how the Environmental Finance Center delivers technical assistance to rural communities that are developing water or wastewater infrastructure projects and other environmental improvement projects. The EFC offers individualized technical assistance in funding and financing advice, asset management guidance, and other topics.
  - EPA Region 3 – University of Maryland https://www.efc.umd.edu/
    - Municipal Online Stormwater Training (MOST) Center: The MOST Center is meant to help communities bridge the gap in needed technical and financial resources through a comprehensive training program to help municipalities within the Chesapeake Bay Watershed access and implement innovative stormwater management techniques to improve water quality in the Bay. Formed based on the expressed need from many in the Chesapeake Bay that are faced with limited capacity and resources for meeting stormwater management obligations.
    - Community Stormwater Projects: EFC works each year with several communities in the region to revitalize their stormwater management and

financing programs. Projects span across Maryland, Virginia, Pennsylvania, and West Virginia.

- Small Public Water Systems: EFC is working to build managerial and financial capacity of small public drinking water systems.
- Applying Asset Management to Stormwater: EFC is working with the City of Scranton and the Scranton Sewer Authority to assess the City's current asset management framework in addressing both combined sewer system and separate storm sewer system.

- EPA Region 4 – University of North Carolina, Chapel Hill https://efc.sog.unc.edu/
  - The main feature of this website is the Utility Financial Sustainability & Rates Dashboards, which can be found within the Resources tab at the top of the homepage. Within this dashboard for selected states, you can perform the following:
    - *Rate Comparison*: Compare a selected utility's median water and/or sewer bill to all utilities in the state (or a host of other comparison groups), as well as see the median financial capability of annual water and/or sewer bills as a percentage of MHI. You can also raise rates to see how metrics change.
    - *Characteristics*: See selected demographic data for the town in which the water and/or sewer utility operates, compared to total/median demographic data for all utilities in the survey (or a host of other comparison groups) as well as statewide. Demographic data includes: number of systems, estimated number of connections, estimated service population, average household size, median household income; and poverty rate.
  - In the homepage, scroll down and select either "Drinking Water" or "Stormwater." From there, you can also see the most recent rate sheet associated with your utility, as well as tables of rate structures and rates.
  - There is also a simple template for utility financial planning, and several presentations related to ratemaking and utility financial management.
- EPA Region 5 – Michigan Technical University http://gleic.org/
  - In the Resources→Publications & Tools tab, the website list has a link to EPA Water Finance Clearinghouse tool. EPA produced this tool for communities to find funding for drinking-water, wastewater, and stormwater infrastructure projects. It includes grant and loan opportunities searchable by state. Communities can also access reports and guides, case studies, webinars, and other useful information.
- EPA Region 6 – University of New Mexico http://southwestefc.unm.edu/

- An "Asset Management Switchboard," which is a repository of documentation and tools related to asset management: https://swefcamswitchboard.unm.edu/am/
- Finance-related services the EFC provides:
  - Asset Management
  - Small Systems Project
  - Water System Finance

- EPA Region 7 – Wichita State University https://www.wichita.edu/academics/fairmount_college_of_liberal_arts_and_sciences/hugowall/efc/
  - The Kansas City Development Project is a training program designed to teach Kansas municipal officials and utility staff about the managerial and financial aspects of running a water system. The Kansas Capacity Development project seeks to build capacity for municipal officials and utility staff that make financial decisions regarding their community's water utility. The project includes conducting interactive trainings across Kansas, on topics such as utility asset management, financial planning, and promotion of inter-local cooperation.
  - Professional development for water and wastewater professionals to further the implementation of asset management concepts through networking with other systems and content experts.
  - Detailed guidance document on how to successfully form a sewer district in Missouri in a way the average citizen can understand.
  - Training to provide an overview of the importance of capital planning and review the elements necessary to develop and implement a Capital Improvement Program. Participants learn the details of putting together a capital plan through checklist and matrix tools. Financial research information is also provided on traditional and non-traditional funding sources in order to provide options available for funding capital assets.
  - EFC has curated all funding opportunities for watershed projects in one place, organized by tags in a searchable database: https://www.wichita.edu/academics/fairmount_college_of_liberal_arts_and_sciences/hugowall/efc/news/meramec-funding-sources-landing-page.php
- EPA Region 8 – National Rural Water Association https://efc.nrwa.org/
  - Rural Water Loan Fund: Low-cost loans for short-term repair costs, small capital projects or replacement costs, or pre-development costs associated with proposed water and wastewater projects. Systems must be public entities serving up to 10,000 persons, or in rural areas with no population limits.

- National Rural Water Association has webinars, workshops and guidebooks on sustainability utility management for small and rural water and wastewater systems.

- EPA Region 9 – California State University, Sacramento https://www.efc.csus.edu
  - The EFC provides asset management, stormwater funding and financing, direct technical assistance, grant application assistance, and other services.
  - Asset management: Tools for collecting, recording, and uploading asset data in your municipal stormwater system. Additionally, there are training and workshops on asset management and utility performance, as well as indicators of financial and technical performance.
  - Stormwater funding and financing: Toolkit to support asset management and funding for municipal stormwater programs. Toolkit includes guidance report and worksheets to help record data on system assets, as well as maintenance needs and long-term costs. Additionally, there are guidance and tools for evaluating benefits and costs in stormwater management, as well as forums/workshops on topics of technical, managerial, and financial aspects of stormwater management.
- EPA Region 10 – Rural Community Assistance Corporation https://www.rcac.org/environmental/environmental-finance-center/
  - The EFC provides the following services:
    - Develops and provides financial modules and tools including a very small system asset management plan.
    - Collects and shares infrastructure finance resources that communities can review or adapt and use to move forward with innovative financial solutions.
    - Develops and delivers hands-on, adult learner centered financial and environmental training on topics that include source water protection, tribal infrastructure financing and asset management.
    - Provides direct technical assistance to small rural communities and tribes as they plan for and work toward financial sustainability for their environmental and public health utilities and facilities.
    - Assists rural communities to build, improve, manage, operate, or finance drinking water and wastewater systems. They help rural communities access millions of dollars in grants and loans, and trained thousands of individuals through customized on-site technical assistance and workshops.

## V. Appendices

a. Appendix A – Residential Indicator Worksheets
b. Appendix B – Financial Capability Indicator Worksheets
c. Appendix C – Examples of Other Metrics
d. Appendix D – Recommended Expanded Matrices and Recommendations for WQS

## Residential Indicator Worksheets UPDATED (2021)

This appendix contains an updated version of the steps necessary to prepare the Residential Indicator. The worksheets and instructions are largely identical to the 1997 version. Since then, however, data sources have evolved, and 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 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 Clean Water Act 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.

#### a. 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 Clean Water Act 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 utility service area with wholesale customers, current costs should also include the wholesale customers' O&M and debt service incurred to provide retail service and delivery of wastewater to the primary utility. This information can be inserted as an explicit line item so that the calculation is transparent.

The permittee 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 permittee should perform 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 Clean Water Act controls. Any concerns about including specific proposed WWT projects, CSO or other Clean Water Act 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 the Clean Water Act 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 breakout utility 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 Clean Water Act 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 Clean Water Act 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:

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

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

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

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

The annualized debt service cost for the projected Clean Water Act 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).

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. Utilities 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 utility addresses I&I in its bills.

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 |

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 financial reports (Comprehensive Annual Financial Report or "CAFR") should be available to develop the current wastewater treatment costs. ln order to comply with accounting requirements, most permittees develop a combined statement of revenues, expenses, and changes in fund balance. These 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.

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 utility, frequently in electronic format. The Census Bureau annually collects American Community Survey 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 utility 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 utilities 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 utility'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** |

### b. 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.

1. Worksheet 2 Instructions

Enter the requested information on Worksheet 2, lines 201 through 203. MHI from the latest Census data for households in the utility's service area. 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 utilities 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 permittees' 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 |

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

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

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

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 produces annual 5-Year Average Median Household Income in Table B19013.

## 2. 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 Clean Water Act 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 - 2.0 Percent of MHI |
| High | Greater than 2.0 Percent of MHI |

When the Residential Indicator is less than 1.0 percent, between 1.0 and 2.0 percent, and greater than 2.0 percent, the financial impact on residential users to implement the Clean Water Act 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

| Median Household Income (MHI) | | Line Number |
|---|---|---|
| • 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 |
| **Residential Indicator Rating** | _____ | |

## Financial Capability Indicator Worksheets UPDATED (2021)

This appendix contains an updated version of the steps necessary to prepare the Financial Capability Indicator. The worksheets and instructions are largely identical to the 1997 version. Since then, however, data sources have evolved, and 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 Indicator that EPA has found are common questions and can benefit from additional direction.

**CRITICAL METRIC: PERMIITTEE 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 CSO 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.

## A. 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.

### 1. 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 utility'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 and permittees 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/. Permittees also may have reports from rating agencies summarizing updates of the rating status.

## 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

## 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 |

## 2. 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 community's Comprehensive Financial Annual Report (CAFR) generally lists the outstanding debt attributable to 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 community's Comprehensive Annual Financial Report 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)<br>Overlapping Entities | (B)<br>Outstanding Debt<br>(less Sinking Fund) | (C)<br>Percent Chargeable to Permittee's Service Area | (D)<br>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. ln 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 permittee's CAFR. In most cases the most recent CAFR is on file in the finance department of the municipality's website. Overlapping debt is also generally provided in a community's financial reports. Market value of real property is available in the Statistical Section of the permittee's CAFR. If not, the property assessment data should be readily available through the community, county or State's assessor office. The boundary of most permittees' 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.

Benchmarks

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

## 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 |

## B. 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.

### 1. 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 can be used.

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.

## 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: | _____ | |

## 2. 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 (line 602) and enter the value on Line 604.

### Data Sources

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

### Benchmarks

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

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

**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) | _____ | 603 |
| • Rating (See table above) | _____ | |

## C. 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.

### 1. 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 permittee's CAFR. 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.

Benchmarks

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

## 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 |

## 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 financial report (CAFR). 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 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.

Benchmarks

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

## 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 |

## D. 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 CSO 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 2. 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 2 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 burden of the wastewater system controls, the debt and socioeconomic indicators are generally better measures of this burden 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 2 Summary of Financial Capability Indicator Ratings**

| Indicator | Strong | Mid-Range | Weak |
|---|---|---|---|
| Bond Rating | AAA – A (S&P) or<br>Aaa – A (Moody's) or<br>AAA – A (Fitch Ratings) | BBB (S&P) or<br>BAA (Moody's) or<br>BBB (Fitch Ratings) | BB - D (S&P) or<br>Ba – C (Moody's) or<br>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 Adjusted National MHI | ± 25% of Adjusted National MHI | More than 25% Below Adjusted 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 |

**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.

# Recommended Expanded Economic Impact Matrix and Corresponding Recommendations for WQS Decisions

EPA intends that the recommended expanded matrix for water quality standards (WQS) decisions in this Appendix, along with the electronic spreadsheet tools for the public sector at https://www.epa.gov/wqs-tech/spreadsheet-tools-evaluate-economic-impacts-public-sector,[1] would replace the worksheets and calculations for the public sector sections of the 1995 WQS Guidance. This replacement would then guide states and authorized tribes in determining the degree of economic impact for use in WQS decisions including revisions to designated uses, WQS variances, and antidegradation reviews. This Appendix includes the expanded economic impact matrix for WQS that incorporates the Municipal Preliminary Screener (MPS), Secondary Score (SS), Lowest Quintile Residential Indicator (LQRI), and Poverty Indicator (PI) in a multi-step approach. This Appendix does not revise the recommended methodology in the private sector sections of the 1995 WQS Guidance.

Because the four recommended critical metrics set forth below might not present the most complete picture of a community's financial capability, communities are encouraged to submit any additional documentation that would create a more accurate and complete picture of their financial capability. Financial and rate models in Alternative 2 (as discussed in Section III.d) or other metrics (as discussed in Sections III.e and III.f) could provide additional information for consideration in conjunction with the use of recommended critical metrics in Alternative 1 to support WQS decisions. However, EPA notes that it does not recommend the use of financial and rate model analysis under Alternative 2 alone or in lieu of Alternative 1, in WQS decisions.

In addition to completing an economic analysis using this Appendix and considering any other financial metrics, a community or state is strongly encouraged to consider opportunities to mitigate impacts of WQS decisions to areas with potential environmental justice concerns. For example, EPA recommends communities to sequence projects included in WQS variance requirements to mitigate impacts to areas with potential environmental justice concerns as early as possible, to fully explore grants and loans from all relevant sources (see Section IV Resources), or to consider Customer Assistance Programs (CAPs) to help financially constrained customers.

[1] These electronic spreadsheet tools for the public sector encompass the data inputs and calculations of the 1995 WQS Guidance.

**Step 1: Determine the Initial Economic Impact by Using Table 1**

Table 1 used to determine the initial economic impact for the public sector is same as the matrix for the public sector in the 1995 WQS guidance. To calculate the Municipal Preliminary Screener (MPS) and Secondary Score (SS) for use in this step,), please see the electronic spreadsheet tools for the public sector at https://www.epa.gov/wqs-tech/spreadsheet-tools-evaluate-economic-impacts-public-sector.

Table 1:

| **Secondary Score (SS)** | **Municipal Preliminary Screener (Cost Based on Median Household Income) (MPS)** | | |
|---|---|---|---|
| | Below 1.0% | Between 1.0% to 2.0% | Above 2.0% |
| Below 1.5 (Weak Economy)) | Impact Unclear | Substantial Impact | Substantial Impact |
| Between 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 |

**Step 2: Determine the Lowest Quintile Impact by Using Table 2**

For more information on how to calculate the Lowest Quintile Residential Indicator and Poverty Indicator, please see Alternative 1 in the 2021 FCA in Section III.c.

Table 2:

| **Poverty Indicator** | **Lowest Quintile Residential Indicator** | | |
|---|---|---|---|
| | Low Impact (Below 1.0%) | Mid-Range (1.0% to 2.0%) | High Impact (Above 2.0%) |
| Low Impact (Above 2.5) | Impact Not Likely to be Substantial | Impact Not Likely to be Substantial | Impact Unclear |
| Mid-Range (1.5 to 2.5) | Impact Not Likely to be Substantial | Impact Unclear | Substantial Impact |
| High Impact (Below 1.5) | Impact Unclear | Substantial Impact | Substantial Impact |

**Step 3: Use the Expanded Economic Impact Matrix for WQS Decisions in Table 3 to combine the results from the Initial Economic Impact (Table 1) and the Lowest Quintile Impact (Table 2)**

Table 3:

| **Initial Economic Impact (MPS and SS)** | **Lowest Quintile Impact (LQRI and PI)** | | |
|---|---|---|---|
| | Impact Not Likely to be Substantial | Impact Unclear | Substantial 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 |

**Recommendations for WQS Decisions based on the 2021 Expanded Economic Matrix**

The following are recommended WQS Decisions after applying the Expanded Economic Impact Matrix for WQS Decisions from Table 3. EPA notes that while the Expanded Economic Matrix below categorizes the recommended WQS decisions as "does not support, unclear support, or supports," this does not necessarily mean that WQS decisions would be rigidly set according to the break points between the categories. Information on other metrics or from financial and rate models analysis could provide additional information for consideration for supporting WQS decisions. Further, EPA recommends that in addition to completing an economic analysis set forth in this Appendix D and considering any other financial metrics, opportunities to mitigate impacts of WQS decisions to areas with potential environmental justice concerns should be considered (see discussion in the introduction of this Appendix).

| **Expanded Economic Impact Matrix for WQS Decisions** | **Recommended WQS Decisions** |
|---|---|
| Impact Not Likely to be Substantial | Does not support revisions to designated uses, WQS variances, or antidegradation reviews leading to downgrading of high quality water |
| Impact Unclear | Unclear support for revisions to designated uses, WQS variances, or antidegradation reviews leading to downgrading of high quality water; Recommend evaluation of other metrics (described in Sections III.e and III.f of the 2021 FCA) or the financial and rate models (described in Alternative 2 in Section III.d) |
| Substantial Impact | Supports revisions to designated uses, WQS variances, or antidegradation reviews leading to downgrading of high quality water |