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Proposed 2020 Financial Capability Assessment Guidance

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I. Summary

The proposed 2020 Financial Capability Assessment (2020 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 Clean Water Act (CWA) obligations. The 2020 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). Once finalized, EPA intends to use the 2020 FCA to evaluate the affordability of CWA control measures applicable to municipalities in both the permitting and enforcement context, including upgrades to publicly owned treatment works; control measures to address combined sewer overflows (CSOs), sanitary sewer overflow (SSO), stormwater, and total maximum daily loads; and integrated planning.

> **Question for Public Comment #1**: **Should EPA's previous FCA documents be consolidated into the 2020 FCA, as proposed, or should EPA continue to use the 1997 FCA Guidance as the controlling guidance with the 2020 revisions serving as a supplement?**

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 proposed 2020 FCA sets forth two alternatives for assessing financial capability that a community may choose to employ. The first alternative adopts the residential indicator and the financial capability indicator from the 1997 FCA Guidance and adds two new metrics to address how the lowest household incomes and poverty prevalence in a service area can be considered. 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 municipality's CWA obligations. The second alternative utilizes dynamic financial and rate models that evaluate the impacts of debt service on customer bills. 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 Residential Indicator (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 Financial Capability Indicator (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 the affordability of CSO controls, EPA has also used the 1997 FCA Guidance when negotiating schedules to implement SSO controls.

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[1] as identified in the Combined Sewer Overflow (CSO) Policy, 59 Fed. Reg. 18688, 18894.[2] 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 encouraged to be considered pursuant to the 2014 Framework has been used to justify implementation schedules 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.

[1] 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.

[2] CWA §402(q) requires that each permit, order and decree shall conform with the CSO Policy.

EPA does not view or use the 1997 FCA 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.[3] 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 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 calculation done 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 Proposed 2020 Financial Capability Assessment

a. Purpose of the Proposed 2020 FCA

The proposed 2020 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. With the proposed 2020 FCA, EPA intends to allow communities to easily submit information that may indicate the entire community's capability to fund CWA projects/programs. Specifically, the proposed 2020 FCA includes templates and calculations that communities can use when submitting information for consideration regarding LQI, drinking water costs, financial models or studies, and other relevant areas. The templates and calculations include references that direct the community to the applicable publicly available data sources.

The proposed 2020 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.

[3] 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 under 40 C.F.R. Part 131.

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 affordability over time. However, if a community chooses the second alternative, it must conduct the analysis itself as it involves information known only to the community.

For use in the first alternative, relevant portions of the 1997 FCA Guidance and the 2014 FCA Framework are included as Appendices to the proposed 2020 FCA. While the structure of the included 1997 FCA Guidance worksheets remains for the first alternative, the 2020 FCA also includes standardized instructions for how to define and submit 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 not only consider MHI when calculating the impact of costs on a community's households but is also proposing to consider impacts to households in the lowest quintile. MHI is considered a critical metric because it 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 many customers that represent 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 Lowest Quintile Income (LQI) along with its MHI. As such, EPA proposes to incorporate LQI as a recommended critical metric when calculating the impact of costs on a community's households.

Based on stakeholder feedback, EPA is basing its LQI metric 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). Use of LQI as an FCA metric meets the following criteria proposed by NAPA:

- 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.

Question for Public Comment #2: In addition to the data sets that are discussed in this Notice, what other data sets are you aware of that meet NAPA's criteria as identified in the October 2017 report, "Developing a New Framework for Community Affordability of Clean Water Services"?

Question for Public Comment #3: What additional resources are publicly available that can be used to assess financial capability (e.g., the ALICE Essentials Index[4])?

The proposed 2020 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 2020 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.

Question for Public Comment #4: What additional examples, calculations, or templates would you like EPA to develop to assist with assessing financial capability?

b. Overview of the 2020 FCA

Consideration of affordability requires certain information. Alternative 1 of the proposed 2020 FCA recommends 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 metrics would be calculated by the community or the EPA and would be considered equally. The proposed 2020 FCA includes implementation schedule benchmarks applicable to Alternative 1 (Exhibit 6). It should be emphasized that these four recommended 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

[4] Asset Limited, Income Constrained, Employed (ALICE) is measure of poverty that examines a subset of households that earn above the Federal Poverty Level, but not enough to afford a minimal household budget. See https://www.unitedforalice.org/.

(other metrics) for consideration that would create a more accurate and complete picture of their financial capability.

Question for Public Comment #5: EPA invites comment on the appropriateness of using the four recommended critical metrics to assess financial capability and what their relative importance in considering financial capability should be.

Alternative 2 of the proposed 2020 FCA recommends analyzing financial and rate models in addition to calculating the Poverty Indicator Score. The proposed 2020 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 implementation schedule that goes beyond the schedule benchmarks applicable to Alternative 1 (Exhibit 6). However, EPA does not anticipate establishing implementation schedules that would exceed the useful life of the community's water infrastructure assets.[5]

Question for Public Comment #6: What supplemental information is relevant to support implementation schedules that go beyond the proposed benchmarks in Exhibit 6?

<u>Alternative 1: Recommended 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 lowest quintile income
- Poverty Indicator – five poverty indicators used to benchmark the prevalence of poverty throughout the service area.

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

- Financial and Rate Models
- Poverty Indicator

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

- Drinking Water Costs

[5] Based on EPA's experience with water programs, the assumed useful life of water infrastructure assets for the purpose of financing is typically 30-40 years.

- Potential Bill Impact Relative to Household Size
- 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

Schedule Development

- Additional Considerations: Discharges to Sensitive Areas; Use Impairment; Public Health; Environmental Justice
- Schedule Development for Alternative 1
- Schedule Development for Alternative 2
- Schedule Development for Hypothetical Communities

Question for Public Comment #7: Is EPA distinguishing appropriately between critical and other metrics?

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

1. Residential Indicator

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

2. Financial Capability Indicator

The community or EPA would 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 would 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 proposed 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 proposed template and a sample calculation that computes the Cost per Household (CPH) and as a percentage of LQI.

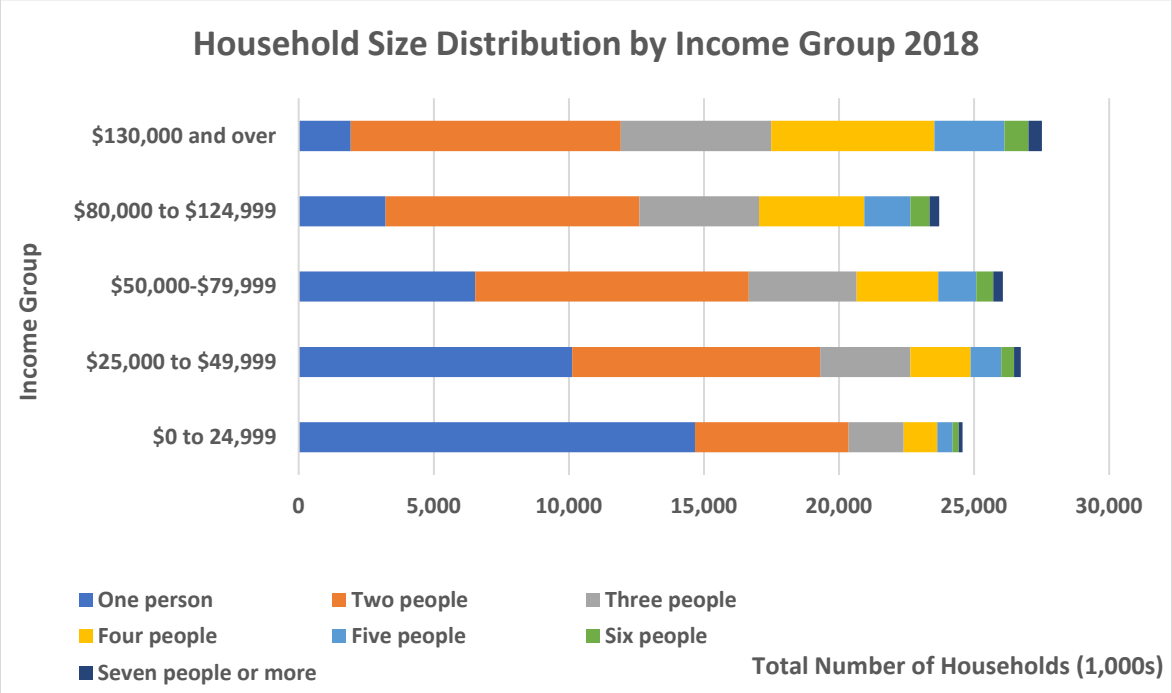
Exhibit 1: Template (with Sample Numbers) for Calculation of Lowest Quintile Residential Indicator

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.[6] 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 $5,000 increments.[7] 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.

[6] 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.

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

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.

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[8] 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

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

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.

Question for Public Comment #8: EPA is seeking comment on the proposed methodology for calculating the ratio for lowest quintile household size to median household size.

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."[9] 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[10] 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).[11]
- 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.[12]
- 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

[9] BLS's "water and other public services" category includes expenditures such as garbage and trash collection, sewerage maintenance, and septic tank cleaning.

[10] 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].

[11] 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.

[12] Id.

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.

Question for Public Comment #9: EPA invites public comment on whether adjusting the LQRI based on household size is appropriate or if there are other ways to calculate a residential indicator for LQI households.

LQRI Benchmark Ranges

The benchmark ranges in Exhibit 1 are the same as are used for the MHI Residential Indicator (RI) under the 1997 FCA Guidance. Including LQRI as a proposed 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. The RI benchmarks of 1% and 2% can be translated into the lowest quintile results using the ratio of lowest quintile household size to median household size. For example, a $1,200 cost per median household is 2% of the 2018 national MHI of $60,293. The comparable LQI household cost per household is $842 ($1,200 * 0.702). $842 is 3.4% of the national upper bound of the LQI ($24,718). A similar process calculates that $603 per household is 1% of the 2018 national MHI. For an LQI household, that translates to $422, or 1.7% of the LQI income. EPA is not proposing to institutionalize disparate impacts on low income households by changing the RI benchmarks for evaluating burdens on LQI households but is seeking comment on whether that would be appropriate. That is, EPA is seeking comment on whether low impact for households in the lowest income should be identified as below 1.7% of LQI and whether high impact should be identified as above 3.4% of LQI.

Question for Public Comment #10: EPA is seeking comment on whether the same benchmarks for assessing the MHI Residential Indicator should be used for assessing the Lowest Quintile Residential Indicator (LQRI), as proposed, or if different benchmarks should be used.

4. Poverty Indicator

EPA intends to ask a community to calculate a Poverty Indicator Score by using the list of poverty indicators in Exhibit 2 to benchmark the prevalence of poverty in 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.

Question for Public Comment #11: EPA is seeking comment on the list of proposed poverty indicators and on whether the bracketing of the middle 50% is an appropriate method to benchmark the proposed poverty indicators.

Exhibit 2: Template for Calculation of the Poverty Indicator Score

Indicator	Strong (3)	Mid-Range (2)	Weak (1)	Census Data Code	Rating
PI #1 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 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 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 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 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 Low Impact (Above 2.5) Mid-Range Impact (2.5 to 1.5) High Impact (Below 1.5)		

5. Expanded Financial Capability Assessment Matrix

The Expanded FCA Matrix, which incorporates the four recommended 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.

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 new schedule benchmarks to account for the consideration of two new critical metrics, the LQRI and the PI. The proposed schedule benchmarks are based on EPA's experience negotiating over 100 CWA consent decrees with communities of various sizes.

Question for Public Comment #12: EPA is seeking public comment on the proposed schedule benchmarks in Exhibit 6.

Exhibit 6: 2020 FCA 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)[13] which is used for supporting revisions to designated uses, water quality standard (WQS) variances, and antidegradation reviews for WQS. EPA proposes to apply the options and flexibilities from Alternative 1 of the proposed 2020 FCA to the consideration of economic impacts to public entities when making such WQS decisions and EPA seeks comment on this in Section VI (Request for Public Comment).

d. Alternative 2: Recommended 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.[14] In Alternative 2, EPA is providing an opportunity for those communities that wish to use Financial and Rate Model Analyses to submit this information to assist in developing an appropriate compliance schedule.

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 creating "rate shock" to

[13] 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 schedules.

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

communities.[15] In addition, within limits, communities have significant discretion regarding the timing of sewer rate increases. For example, communities may elect to raise rates more than the absolute minimum necessary in early years, thereby creating a cushion against economic uncertainties in later years and providing a strong financial base for bond financing. These 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.

Question for Public Comment #13: What other resources, in addition to those listed in Section IV, are available to assist communities related to water infrastructure financing?

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 in lieu of the recommended critical metrics and schedule benchmarks set forth under Alternative 1. This Alternative 2 may be particularly useful in situations where the community already uses it for its internal financial planning or where multiple constraints affect the community's ability to comply (in terms of costs or timing). EPA is not considering the use of financial and rate model analysis under Alternative 2 in lieu of Alternative 1 in WQS decisions. However, 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 proposed 2020 FCA, i.e., as additional information for consideration.

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.[16]

Models provided in the context of CWA program 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

[15] 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.

[16] An exhaustive discussion of these steps can be found in the WEF "Financing and Charges for Wastewater Systems," Manual of Practice No. 27, Fourth Edition most recently updated in 2018.

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:

- A summary of historical rate increases for the past 5 years.
- A summary of all model input assumptions and their bases, for example: bond rating, ability to borrow, legislative caps on ability to borrow, access to SRF funding, 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.
- 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 household with median income levels and households with income in the lowest quintile. In general, this will be similar to the results in the RI analysis but assumes only current costs.[17]
- 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

[17] 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 intends to accept real information on usage from actual billing.

and LQI or the Consumer Price Index (CPI). The community should provide the bases 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.

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

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
Res. Ind. (RI) = Residential Indicator (i.e., CPH as a percent of MHI)

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 = 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 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. 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 community's water infrastructure assets. 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 is not considering the use of financial and rate model analysis under Alternative 2 in lieu of Alternative 1 in WQS decisions. However, for WQS decisions, the use of financial and rate models could be used in a manner similar to the other metrics in Sections III.C and III.D of this notice, i.e., as additional information for consideration.

Question for Public Comment #14: EPA is seeking comment on whether additional detail can be provided to better understand implementation of Alternative 2.

2. Consideration of Drinking Water Costs in the Rate Model Analysis

EPA recognizes that both clean water and drinking water costs are often covered through charges on a single rate base. If a community submits supplemental information on drinking water costs as part of its 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 schedule 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.

3. *Poverty Indicator*

In addition to the Financial and Rate Model Analysis, EPA also intends to ask a community to calculate a Poverty Indicator Score by using the list of poverty indicators in Exhibit 2, above, to benchmark the prevalence of poverty throughout 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 implementation schedule that goes beyond the Implementation Schedule Benchmarks applicable to Alternative 1 (Exhibit 6), not to exceed the useful life of the community's water infrastructure assets. EPA is also considering the use of these other metrics 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 rate base. For this reason, the proposed 2020 FCA lays out a new way to incorporate a community's drinking water obligations. Previously, Safe Drinking Water Act (SDWA) obligations were considered primarily as additional information about a community's financial capability. 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.

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 2020 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 community's water infrastructure assets. EPA is also considering the use of drinking water costs in the same manner in WQS decisions.

Question for Public Comment #15: Should drinking water costs be considered as part of scheduling considerations and are there appropriate benchmarks for considering the contribution of drinking water costs to household burdens, such as a specific percentage of income?

If a community submits additional 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 schedule 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.

The submitted drinking water information including drinking water rate increase scenarios are intended to be used in Alternative 1 to supplement the four recommended critical metrics and the results of the Expanded FCA Matrix and in Alternative 2 to evaluate the impacts of rates for both wastewater and drinking water on household bills.

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.[18] 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

[18] 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.

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:
    - Obtain current data for Percent of Service Area per household size (column 2) and MHI by household size (column 3), available in the ACS database.
    - Using current rates, calculate the monthly household bill for each 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:
    - 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.

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Exhibit 8: Example Showing Projected Impact of Program Costs by Household Size[19]

Exhibit 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

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

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

Low Burden	Medium Burden	High Burden

EPA intends to view this data as an additional way for communities to demonstrate the impacts of program costs on various 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 under Alternative 1 to allow an implementation

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

schedule to go beyond the schedule recommendations in Exhibit 6, or under Alternative 2. However, EPA does not intend such schedule to exceed the useful life of the community's water infrastructure assets. EPA is also considering the use of this additional analysis in WQS decisions.

3. Customer Assistance Programs (CAPs)

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 water affordability programs typically determine eligibility of individual households through a percentage of the Federal Poverty Level (FPL). 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,[20]
- 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 Residential Indicator[21] and LQRI[22] under Alternative 1, and as part of a

[20] 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/.

[21] As current and projected Clean Water Act related expenses. See 1997 FCA Guidance, Worksheet 1, Lines Number 100 and 103.

[22] The proposed LQRI Worksheet calculation uses the same costs from the Residential Indicator.

Financial and Rate Model Analysis under Alternative 2. EPA requests that the community should clearly identify if CAP costs have been included in these sections of the FCA and the line items in which these costs appear. EPA is also considering the use of this additional analysis in the same manner 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.

EPA intends to consider a community's asset management planning if the community can verify that asset management practices are being implemented. These include:

- Acting on the projects in the Capital Improvement Program,
- Inventorying assets,
- Linking maintenance schedules to the 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 the above information should allow EPA to confirm that the appropriate asset management costs are being included as part of a community's FCA. Such costs may be reflected in the Residential Indicator and LQRI under Alternative 1 and as part of a Rate Model Analysis under Alternative 2. To be considered, EPA requests that the community should clearly identify when asset management costs have been included in these sections of the FCA and the line items in which these costs appear. EPA is also considering the use of this additional analysis in the same manner 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,[23] 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 or incorporated into the wastewater enterprise 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 Residential Indicator and LQRI under Alternative 1, and, if a community proceeds under Alternative 2, as part of a Rate Model Analysis. To be considered, EPA requests that the community should clearly identify when stormwater management costs have been included in these sections of the FCA and the line items in which these costs appear. EPA is also considering the use of this additional analysis in the same manner in WQS decisions.

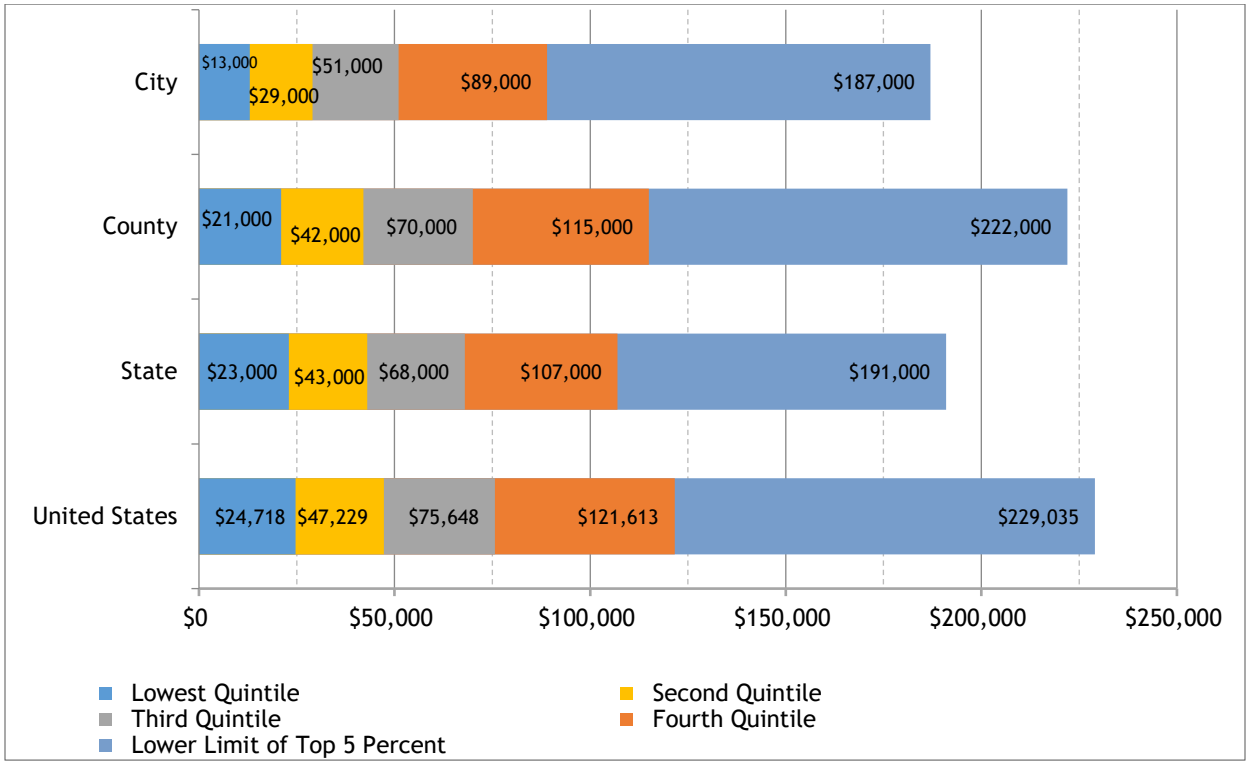
6. Comparisons to National Data

For any of the other metrics submitted by a community, the community can provide a graphic or chart that shows the community's data as compared with county, state, and national data. An example is shown below in Exhibit 9. This information would be used to assist EPA in

[23] The term 'green infrastructure' means 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.'' Clean Water Act Section 502(27), 33 U.S.C. 1362(27).

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.

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. 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

1. Additional 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 Control Policy states that LTCPs should: prohibit new or significantly increased overflows; eliminate or relocate overflows; or, where elimination or relocation is not feasible, provide treatment to meet WQS and regularly assess the feasibility of prohibition, relocation, or elimination.[24]

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 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

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

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 sanitary sewer overflows (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 principal of environmental justice is the fair treatment and involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies. Communities can use EPA's EJSCREEN tool[25] 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 impacts to areas with potential environmental justice concerns as early as possible.

2. Alternative 1 Schedule Development

This guidance does not dictate specific implementation schedules based on financial capability. It does, however, provide 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 recommended critical metrics in Alternative 1 have been calculated, and the community's burden level has been determined using the Expanded FCA Matrix.

It is important to note that financial capability is on a continuum. Although the Expanded FCA Matrix categorizes burden as "high, medium, or low," this does not necessarily mean that

[25] EPA has developed an environmental justice (EJ) 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.

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 "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 recommended 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 proposed 2020 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 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 community's water infrastructure assets. EPA is also considering the use of these additional metrics in the same manner in WQS decisions.

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

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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	n/a	15 years	15 years
Environmental Justice	EJ concerns identified	n/a	n/a	EJ concerns identified
Financial Capability	2020 FCA Result = Low Burden (engineering schedule)	2020 FCA Result = Medium Burden (up to 15 years)	2020 FCA Result = High Burden (up to 25 years unless justified by additional information)	2020 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 a 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 water utility rates that represent an overly burdensome percentage of household income.

IV. Resources

EPA understands the importance of accounting for a community's ability to pay for 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. EPA is seeking feedback on whether there are other resources that may be missing or not covered by this list.

- Compendiums and documents on rate setting and CAPs
  - Water Environment Federation (WEF): https://www.e-wef.org/Default.aspx?TabID=251&productId=62500667
  - 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
- 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 do 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 affordability 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, and related links:
  - Asset Management http://southwestefc.unm.edu/asset-management-overview/
  - Small Systems Project http://southwestefc.unm.edu/small-systems-projects-overview/
  - Water System Finance http://southwestefc.unm.edu/water-system-finance-overview/
- EPA Region 7 – Wichita State University https://www.wichita.edu/academics/fairmount_college_of_liberal_arts_and_sciences/hugowall/efc/
  - 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.

- Develop and deliver 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 – Example Expanded Matrices and Recommendations for WQS

VI. Request for Public Comment

EPA requests public comment on the proposed 2020 FCA. Specifically, EPA is requesting comments on the following:

Requests for Comment on Overarching Matters:

1. Should EPA's previous FCA documents be consolidated into the 2020 FCA, as proposed, or should EPA continue to use the 1997 FCA Guidance as the controlling guidance with the 2020 revisions serving as a supplement?
2. In addition to the data sets that are discussed in this Notice, what other data sets are you aware of that meet NAPA's criteria as identified in the October 2017 report, "Developing a New Framework for Community Affordability of Clean Water Services"?
3. What additional resources are publicly available that can be used to assess financial capability (e.g., the ALICE Essentials Index[26])?
4. What additional examples, calculations, or templates would you like EPA to develop to assist with assessing financial capability?

[26] Asset Limited, Income Constrained, Employed (ALICE) is measure of poverty that examines a subset of households that earn above the Federal Poverty Level, but not enough to afford a minimal household budget. See https://www.unitedforalice.org/.

Requests for Comment on the Proposed FY2020 FCA Supplement:

5. EPA invites comment on the appropriateness of using the four recommended critical metrics to assess financial capability and what their relative importance in considering financial capability should be.
6. What supplemental information is relevant to support implementation schedules that go beyond the proposed benchmarks in Exhibit 6?
7. Is EPA distinguishing appropriately between critical and other metrics?
8. EPA is seeking comment on the proposed methodology for calculating the ratio for lowest quintile household size to median household size.
9. EPA invites public comment on whether adjusting the LQRI based on household size is appropriate or if there are other ways to calculate a residential indicator for LQI households.
10. EPA is seeking comment on whether the same benchmarks for assessing the MHI Residential Indicator should be used for assessing the Lowest Quintile Residential Indicator (LQRI), as proposed, or if different benchmarks should be used.
11. EPA is seeking comment on the list of proposed poverty indicators and on whether the bracketing of the middle 50% is an appropriate method to benchmark the proposed poverty indicators.
12. EPA is seeking public comment on the proposed schedule benchmarks in Exhibit 6.
13. What other resources, in addition to those listed in Section IV, are available to assist communities related to water infrastructure financing?
14. EPA is seeking comment on whether additional detail can be provided to better understand implementation of Alternative 2.
15. Should drinking water costs be considered as part of scheduling considerations and are there appropriate benchmarks for considering the contribution of drinking water costs to household burdens, such as a specific percentage of income?

Requests for Comment Related to Water Quality Standard Decisions

16. EPA is also considering how the LQRI, PI, and other metrics and thresholds discussed in this Federal Register Notice could be used to support WQS decisions. EPA seeks comment on the use of these same metrics and thresholds under Alternative 1 for use in WQS decisions using the proposed expanded matrix in Appendix D. This proposed matrix provides guidance on how to apply the options and flexibilities of Alternative 1 in the proposed 2020 FCA to the consideration of economic impacts to support WQS decisions related to public entities. EPA intends that the proposed expanded matrix for WQS decisions, along with the electronic spreadsheet tools for the public sector at https://www.epa.gov/wqs-tech/spreadsheet-tools-evaluate-economic-impacts-public-sector, would replace the worksheets and calculations for the public sector sections of the 1995 WQS Guidance. This replacement would be used for determining the degree of economic impact for use in WQS decisions for the public sector. The proposed 2020 FCA does not revise the recommended methodology in the private sector sections of the 1995 WQS Guidance. EPA is separately exploring whether there are practical methodologies available to increase the objectivity of the analyses recommended to determine the degree of economic impact on private sector entities when evaluating these same WQS decisions.

Appendix A

III. PHASE ONE: THE RESIDENTIAL INDICATOR

The Residential Indicator measures the financial impact of the current and proposed WWT and CSO controls on residential users. Development of this indicator starts with the determination of the current and proposed WWT and CSO 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 CSO controls will produce a possible high, mid-range or low financial impact on the permittee's residential users. Worksheets are provided to aid in developing the Residential Indicator.

Developing CPH Estimate

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

Current WWT 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.)

Estimates of projected costs are made for any proposed WWT projects and the CSO controls. Any concerns about including specific proposed WWT projects or CSO 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 are adjusted to current dollars (i.e., deflated). These include projected operation and maintenance expenses plus projected debt service costs for any proposed WWT and the CSO controls. The residential or household costs exclude the portion of expenses attributable to commercial, governmental and industrial wastewater discharges. 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

Enter the requested data on lines 100 through 109. 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. Adjust the projected annual WWT and CSO costs to current dollars using the average annual national Consumer Price Index (CPI) inflation rate for the past five years available from the Bureau of Labor Statistics. The CPI is used as a simple and reliable method of indexing projected WWT costs and household income. For example, if the most recent five year average CPI is 4 percent, and the projected annual O& M and debt service costs will begin in 2 years, adjust the projected costs with the following formula:

$$Adjusted\ Projected\ Costs\ (Current\ Dollars) = Projected\ Costs \times Adjustment\ Factor$$

The adjustment factor can be calculated using the following formula or the present value factor from the table on page 55:

$$Adjustment\ Factor = \frac{1}{(1+CPI)^{years}} = \frac{1}{(1+.04)^2} = .925$$

The annualized debt service cost information for the projected WWT facilities and projected CSO controls (Line 104) can be calculated using an annualization factor obtained from the table on page 56, 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:

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

$$Annual\ Debt\ Service\ Cost = \$25,000,000 \times .1019 = \$2,547,500$$

The annualization factor can be calculated using the following formula:

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

The annualized debt service cost for the projected WWT facilities and projected CSO controls is entered on line 104. Add the current and projected wastewater treatment and projected CSO control costs to estimate the total WWT and CSO costs (line 102 + line 105).

Calculate the residential share of the total cost (line 106) and enter on line 107. The residential share of total costs (line 107) is computed by multiplying the percent of total wastewater flow including infiltration and inflow attributable to residential users by the total costs (line 106). For example, for a permittee with the following characteristics:

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

The residential share of the total cost is:

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

$$\textit{Residential Share of Costs} = \$12{,}000{,}000 \times \frac{10.5\ \textit{Million Gallons Per Day}}{13.1\ \textit{Million Gallons Per Day}}$$

$$\$9{,}600{,}000$$

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.

Data Sources

The permittee's latest financial reports should be available to develop the current wastewater treatment costs. In order to comply with accounting requirements, most permittees develop a combined statement of revenues, expenses, and changes in fund balance. These reports should be available directly from the permittee, or, in some states, from central records kept by the state auditor or other state offices. (Many states conduct audits and generate financial reports - i.e., balance sheet, statement of revenues, expenses, and changes in fund balance, and statement of cash flows, for each permittee.) Projected costs and households in the wastewater service area should be available through planning documents. The Bureau of Labor Statistics frequently has data on the number of households in the service area.

The Consumer Price Index rate (CPI) should be the average rate for the previous five years. The CPI is available through the Bureau of Labor Statistics.

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

Developing the MHI Estimate

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

Worksheet 2 Instructions

Enter the requested information on Worksheet 2, lines 201 through 203. MHI from the latest census year should be adjusted to current year dollars with the average CPI inflation rate from the latest census year to the current year using the following formula.

$$Adjusted\ MHI = MHI \times Adjustment\ Factor$$

The MHI adjustment factor can be calculated using the following formula or the inflation adjustment factor from the table on page 58:

$$MHI\ Adjustment\ Factor = (1+CPI)^{Current\ Year-Census\ Year}$$

For example, if a permittee's MHI was $30,000 in the 1990 census year, the average annual CPI since 1990 was 4 percent and the current year is 1992, the following calculation would be made to adjust the MHI to current dollars:

$$Adjustment\ Factor = (1+.04)^{1992-1990} = 1.0816$$

$$Adjusted\ MHI = \$30,000 \times 1.0816 = \$32,448$$

On Worksheet 2, calculate the adjusted MHI by entering the latest census MHI value on line 201. Then enter the MHI Adjustment Factor on line 202. Finally, multiply the MHI (line 201) by the Adjustment Factor (line 202) and enter the Adjusted MHI on line 203.

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 CSO Control Cost Per Household (CPH) (Line 109)	_____	204
Residential Indicator:		
Annual Wastewater and CSO Control Costs per Household as a percent of Adjusted Median Household Income (CPH as % MHI) (Line 204 ÷ Line 203 x 100)	_____	205

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 acquired, 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 before adjusting it to current year dollars. 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

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

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

$$\$17{,}143 + \$6{,}429 + \$7{,}143$$

$$\$30{,}715$$

Data Sources

Median household income is available for most communities from the latest census. In the few cases where a local jurisdiction's MHI is not available, the surrounding county's MHI may be sufficient. Each state has a state data center that serves as a local source of census data for public use. This center may be contacted to obtain the information available from the Bureau of Census for use during this assessment (see Appendix B).

Developing the Residential Indicator

Worksheet 2 Instructions

To calculate the Residential Indicator (line 205 of Worksheet 2), divide the annual WWT and CSO 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 Financial Capability Matrix in Section IV to help permittees, and EPA and state NPDES authorities determine reasonable and workable long-term CSO control schedules. (The Residential Indicator does not provide special recognition for low income groups since their influence is automatically reflected in the median household income component of the indicators.)

To assess the financial impact CSO 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 CSO 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 CSO 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.

Appendix B

IV. PHASE TWO: PERMITTEE FINANCIAL CAPABILITY INDICATORS

In the second phase, 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 CSO controls.

DEBT INDICATORS

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

Bond Rating

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. (Additional information on bonds is contained in EPA's Combined Sewer Overflows—Guidance For Funding Options (EPA 832-B-95-007).

Bond ratings normally incorporate an analysis of many 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 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.

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) provide recent ratings.

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' Ratings

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

Standard & Poor's

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

Standard and Poor's 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

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 - Calculate the permittee's service area's share of any debt from overlapping entities using the process illustrated below.

1. 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 State assessor's office for this information).
2. 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.
3. 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.

4. Multiply the total outstanding debt of each overlapping entity by the percentage identified for the permittee's service area (Column B x C).
5. Add the figures in Column D to arrive at total overlapping debt for permittee's service area.

(A) Overlapping Entities	(B) Outstanding Debt (less Sinking Fund)	(C) Percent Chargeable to Permittee's Service Area	(D) Outstanding Debt Attributable to Permittee's Service Area
County	$10,500,000	25%	$2,625,000
School District	16,800,000	95%	15,960,000
Total Overlapping Debt			$18,585,000

Line 403 - Overall Net Debt - Add lines 401 and 402.

Line 404 - Market Value of Property - The property value should reflect the full market value of property within the permittee's service area. It is possible that the tax assessed property value will not reflect full market value. This occurs when the tax assessment ratio is less than one. In such cases the full market value of property is computed by dividing the total tax assessment value by the assessment ratio (the assessment ratio represents the percentage of the full market value that is taxed at the established tax rate). For example, if the assessed value is $1,000,000 and the assessment ratio is 50 percent then the full market value of real property is $1,000,000/.50= $2,000,000.

Line 405 - Overall Net Debt as a Percent of Full Market Property Value - Divide line 403 by line 404 and multiply by 100.

Data Sources

Debt information is available from the financial statements of each community. In most cases the most recent financial statements are on file with the state (e.g., State Auditor's Office). Overlapping debt may or may not be provided in a community's financial statements. The property assessment data should be readily available through the community or the 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. Bonds Excluding Double-Barreled Bonds)	_____	401
• Debt of Overlapping Entities (Proportionate Share of Multijurisdictional Debt)	_____	402
• Overall Net Debt (Lines 401+402)	_____	403
• 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

SOCIOECONOMIC INDICATORS

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

Unemployment Rate

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

Worksheet 5 Instructions

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

Data Sources

The Bureau of Labor Statistics (BLS) maintains current unemployment rate figures for municipalities and counties over 25,000 population. National and state unemployment data are also available for comparison purposes. This information can be obtained from the BLS by request at (202) 606-6392.

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:	_____	

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). Use the MHI adjustment factor from Worksheet 2 (line 202) to calculate the adjusted national MHI from the latest census, national MHI value (line 602) and enter the value on Line 604.

Data Sources

Median household income is available through state data centers. Refer to Worksheet 2 for MHI of the permittee's service area. Refer to Appendix B for the address and telephone number of the state's data center to acquire the latest census national MHI value.

Benchmarks

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

- Weak: More than 25% below Adjusted National MHI
- Mid-Range: ± 25% 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)	_____	601
• Source:	_____	

Benchmark:

• Census Year National MHI	_____	602
• MHI Adjustment Factor (line 202)	_____	603
• Adjusted National MHI: (line 602 x line 603)	_____	604
• Source:	_____	

FINANCIAL MANAGEMENT INDICATORS

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

Property Tax Revenues as a Percent of Full Market Property Value

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

Worksheet 7 Instructions

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

Data Sources

The property assessment data should be readily available through the community or the State's assessor office (see Worksheet 4, Line 404). Property tax revenues are available in communities' annual financial statements. 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
• Property Tax Revenues	_____	702
• Property Tax Revenue as a Percent of Full Market Property Value (702 ÷ 701 x 100)	_____	703

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. The 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 can be computed by multiplying the assessed value of real property by the property tax rate, both of which are available from a community's financial statements or the state assessor's office (see Worksheet 4, Line 404). Property tax revenues are available in communities' annual financial statements. 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 x 100)	_____	803

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 implemention 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 CSO 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.

PERMITTEE FINANCIAL CAPABILITY INDICATOR BENCHMARKS

Table 2

Indicator	Strong	Mid-Range	Weak
Bond Rating	AAA-A (S&P) or Aaa-A (Moody's)	BBB (S&P) Baa (Moody's)	BB-D (S&P) Ba-C (Moody's)
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

Appendix C

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.

Appendix D

Appendix D

Proposed Expanded Economic Impact Matrix and corresponding Recommendations for WQS Decisions

EPA intends that the proposed expanded matrix for 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 Muncipal 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. EPA is separately exploring whether there are practical methodologies available to increase the objectivity of the analyses recommended to determine the degree of economic impact on private sector entities when evaluating these same WQS decisions.

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

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 Muncipal 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

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

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 proposed 2020 FCA in Section III.A.

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

Proposed Recommendations for WQS Decisions based on the 2020 Expanded Economic Matrix

The following are recommended WQS Decisions after applying the Expanded Economic Impact Matrix For WQS Decisions from Table 3:

Expanded Economic Impact Matrix For WQS Decisions	**Recommended WQS Decisions**
Impact Not Likely to be Substantial	Does not support revisions to designated uses, water quality standard (WQS) variances, or antidegradation reviews leading to downgrading of high quality water
Impact Unclear	Unclear support for revisions to designated uses, water quality standard (WQS) variances, or antidegradation reviews leading to downgrading of high quality water; Recommend evaluation of other metrics (described in Sections III.C and III.D of the 2020 FCA) or the financial and rate models (described in Alternative 2 in Section III.B)
Substantial Impact	Supports revisions to designated uses, water quality standard (WQS) variances, or antidegradation reviews leading to downgrading of high quality water