APPENDIX A:

Potential Revisions to the EPA Financial Capability Assessment Methodology: A Conceptual Example

Purpose

This Appendix outlines potential revisions to EPA procedures for Financial Capability Assessments (FCA) to address methodological limitations encountered through practiced enforcement of the Clean Water Act and identified in the NACWA White Paper*: Financial Capability and Affordability in Wet Weather Negotiations.* In particular, this conceptual example outlines an alternative methodology to assessment of potential economic impacts of water-quality improvement programs that:

- provides a flexible, yet formulaic, methodology for calculation of program impacts relative to costs, thereby providing an analytical framework to support regulatory enforcement and negotiation;
- facilitates recognition of the importance, even primacy, of local and regional factors in assessing economic impact;
- through alternative weighting schemes, enables recognition of differences in the relative importance of various factors depending on economic conditions and potential infrastructure market impacts;
- provides for disciplined recognition of a number of factors previously relegated to passing reference as 'additional considerations' including a number of environmental justice and program delivery considerations about which the current FCA methodology is effectively silent.

Methodological Approach

The proposed methodological enhancement to the prescriptive FCA approach builds upon the recognition that effective assessment of financial capabilities requires consideration of a broad array of (often competing) factors whose relative importance may vary across regions and localities. This 'multi-attribute' decision problem is characteristic of public resource allocation issues*, and lends itself to application of formal prioritization techniques to evaluate relative impacts and costs of alternative water quality program and schedule configurations.

Conceptually, the proposed enhancements are simple, retain a structured performance-based assessment methodology critical for regulatory enforcement, and address many of the limitations of the current FCA methodology. In brief, the approach involves recognition and/or affirmation of a limited number of fundamental (broadly defined) program implementation impacts. These impacts are further defined by specific factors which

* Arguably, public resource allocation is more complicated than that faced by commercial private sector interests focused on profit maximization. While both sectors undoubtedly juggle many competing objectives, the primacy of ensuring acceptable returns has no equal in facilitating prioritization of public resource allocations.

may be measured. Weights are assigned to the defined program impacts to reflect the relative importance that stakeholders place on their avoidance – and well-defined performance scales for each factor helps ensure consistency and accuracy in the 'scoring and ranking' of program alternatives.

An illustrative example is provided in the Table A-1. This example employs four categories of impacts:

- Household Financial Impacts – includes Median Household Income as a factor but also includes actual shelter costs, water utility rates, and the state and local tax structure in recognition of the fact that these factors impact individual households' ability to pay additional program-related costs.

- Community Financial Impacts – includes the community financial indicators in the current FCA but also the community's historical water quality investments and other environmental claims on community financial resources. In addition, this impact category provides for recognition of economic trends, in addition to static indicators of financial performance, as a factor in determining financial capability.

- Environmental Justice Impacts - provide for explicit recognition of impacts on low-income and disadvantaged communities (which is currently relegated to 'additional documentation'). Specific factors include an indicator of the size of the low-income population in the community and the proportion of such ratepayers that are renters/tenants. In addition, factors are included to enable recognition of impacts to disadvantaged communities by virtue of construction or other factors not represented by reference to income.

- Program Delivery Impacts – provides for recognition that determinations of schedule requirements must recognize and accommodate the requirements for effective program delivery, and that factors like market saturation, logistical coordination requirements, and contractor availability are real and have a significant effect on the pace with which construction may be executed.

Notably, for each of these categories of impact and specific factors, weights are assigned to reflect their relative importance to impacted stakeholders. Conceptually, these weights may be negotiated at the state and local level to enable permittees and regulators to tailor their evaluation of program impact in recognition of the prevailing economic and environmental concerns in their regions and communities. Weights assigned in the example are illustrative:

> *Weights assigned to Household Financial Impact (40) and Community Financial Impact (35) are relatively high as compared to those assigned for Environmental Justice (10) and Program Delivery (15) principally in recognition of the fact that the latter two categories of impact are an expansion of the current FCA methodology wherein Median Household Income (MHI) and Community Financial Health indicators alone are evaluated. To the extent that MHI and Community Financial Health Indicators should continue to be viewed as principal considerations, heavier weighting of these factors may accomplish this objective and preserve a measure of continuity with prior FCA methodologies. Similarly, within the Household Financial Impact and Community Financial Impact categories, weights assigned to the prior FCA measures are constrained (as an example) to be weighted at not less than 80 and 75 of the 100 points assigned within each category.*

For each factor assigned a non-zero importance weighting, scores are assigned for the program and community in question using the performance scales provided for each such factor.[†] To the extent practicable, performance scales should enable the unambiguous scoring of program impacts, lending to auditable (yet flexible) evaluation

[†] DRAFT conceptual performance scales are provided for each factor as comments in the applicable cell of the spreadsheet. These comments are revealed by 'passing over' the cell with one's mouse (or selecting View \Comments from the Toolbar)

of program impacts. The draft performance scales shown in Table A – 1 provide some initial concepts for appropriate performance scales and illustrate formulations that facilitate objective scoring.

As can be seen, the specific factors incorporate most, but not all, of the local considerations and concerns identified in the NACWA White Paper*: Financial Capability and Affordability in Wet Weather Negotiations.* Their inclusion has been carefully structured to comply with formal prioritization system requirements - thereby ensuring the validity of a 'scoring and ranking process.' Specifically, impact categories must be fundamental, independent and non-redundant to insure mathematical validity of calculations.[‡]

Several, if not all, of these factors (and their associated weights and performance scales) undoubtedly warrant discussion and negotiation between interested stakeholders. As such, they provide a framework to tailor capability assessments to recognize the *primacy* of local factors, as noted in NACWA's guiding principles, yet maintain a *performance-based framework* for assessment to facilitate regulatory enforcement. The four categories of impact enumerated in Table A-1 conceptually address the following issues relegated to 'additional documentation' in the current FCA methodological framework

- Household Financial Impacts – the Median Household Income factor employed in the current FCA (with scale preserved) is supplemented by factors to recognize the impacts of other claims on available resources. In particular, shelter costs provide acknowledgement that local ratepayers in communities like Boston and Honolulu face significantly higher claims against available MHI to pay mortgage (and associated property tax) costs. These claims impinge upon these residents ability to pay ever increasing wastewater service costs. Similarly, utility rate and tax factors are enumerated to enable consideration of other factors limiting ratepayers' ability to increase spending on wastewater service costs. The associated scales generally reference national averages to ensure that these factors substantively affect household impact scores only when individual households face relatively acute challenges as compared to households in other communities.

- Community Financial Impacts – in addition to the Financial Indicators from the current FCA methodology (with performance scales preserved and which are heavily weighted in this example), this category of impact incorporates several local factors. The historical water quality investments and non-water quality environmental investment factors attempt to address the imperative for communities to establish a well-balanced environmental investment portfolio. Arguably, a community's ability to (appropriately) invest in further water quality enhancements is dictated, to some extent, by the availability and return of other environmental investment options (and the community's existing and past[§] water quality investments).

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‡ Fundamental in that the impacts fully define what is important to consider in evaluating the program in discrete, measurable terms. Non-redundancy requires that impact categories not address effectively the same or overlapping aspects of program impact. Independence of categories insures that impacts relative to one category are not, in effect, dictated by the occurrence of impacts in another category. These requirements insure that the impacts assigned to program implementations are not double-counted and are additive.

§ Alternative schools of thought with respect to the relevance of past water quality investments serves to illustrate the potential for this methodological approach to bring forward, in a structured framework, prevailing public policy issues. One school of thought would suggest that past investments are only relevant to the extent that a community continues to pay debt service on these investments, thereby limiting capability for future investment. Alternatively, to the extent that one may view past, fully financed, water quality investments as limiting the prospective environmental return of future water quality investments, it may be argued that prior water quality investment is a relevant factor, even in the absence of debt service obligations. More generally, it may be argued that significant prior water quality investment suggests the merit of environmental investments elsewhere (e.g., air quality) as an equity or fairness issue of now allocating resources toward a different but no less important environmental issue. .

- Environmental Justice Impacts – the designation of environmental justice as *fundamental* elevates the prospective consideration of these factors (while its low weighting, by example, retains focus on the first two impact categories). While it may be argued that addressing distributional inequities in a community is a 'local problem' and is not indicative of a community's overall financial capability, this impact category enables recognition that there are constraints on wastewater service cost redistributions, especially for rental properties, and expands the narrow view that that environmental justice issues are more related to construction disruptions and other non-monetary impacts.

- Program Delivery Impacts – the designation of program delivery as *fundamental* to the assessment of communities' ability to complete projects and realize water quality benefits also elevates factors which have been largely dismissed in the context of consideration of 'additional documentation'. This dismissal may reflect an argument that most of these factors can, and perhaps should, be translated to changes in program cost estimates. However, these factors are incorporated herein to highlight the importance of being able to effectively manage major program implementations, and the fiduciary responsibilities of all key decision-makers to ensure cost-effective program delivery.

Arithmetically, the weighting and scoring process provides for an accumulation of a 'Total Impact Score' simply by multiplying factor weights against scores, applying the impact category weights to the weighted factor score, and adding weighted impact scores across categories – as illustrated at the bottom of Table A-1. Conceptually, total impact scores may be compared to indices of *environmental benefit* associated with alternative program configurations and schedules to prioritize options that offer the best tradeoffs of program impact vs. environmental benefit.