

How the WIFIA Loan Program is Succeeding

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Introduction

US EPA's Water Infrastructure Finance and Innovation Act Loan Program (WIFIA or the Program) was enacted in 2014 and became operational in 2017. The Program has now completed three rounds of loan application solicitations, each of which was fully subscribed with selected applications. Publicly available information on these applications provides a significant data set on WIFIA results to date.

On the surface, the Program appears to have had a successful start. But is it working as intended to improve US water infrastructure? What do WIFIA results indicate about its future trajectory, and whether the initial success is substantive and sustainable? And – most immediately – should the Program be considered in connection with federal policy responses to the Covid-19 crisis?

This opinion paper examines these questions and offers preliminary conclusions on what the WIFIA Loan Program actually appears to be doing, why that is likely to be both useful and sustainable, and its possible role in post-pandemic policy. We cover these topics in four parts:

Part 1: WIFIA's Surprising Start: The vast majority of Program loans selected in the 2017-2019 period are to highly rated public water agencies that are financing basic water infrastructure assets. This was unexpected in light of WIFIA's design and objectives, since these agencies have excellent alternatives to finance this type of project using tax-exempt revenue bonds. Although the surprising application pool enabled WIFIA's smooth start and apparent success, the results raise important questions about borrower motivation and the Program's actual impact on US water infrastructure.

Part 2: Explaining WIFIA Borrower Motivation: In this part, we describe two subtle features of WIFIA loans that were intrinsically attractive even to highly rated public agencies during 2017-2019 debt market conditions. The nature and approximate value of these features during the period appear to provide an explanation for WIFIA borrower motivation. The features also provide a framework for examining the Program's impact on infrastructure and possible alternative uses.

Part 3: Where WIFIA Loan Value Goes: The nature and scale of WIFIA loan value may explain borrower motivation, but in terms of US water infrastructure, *how* that value is used is the actual determinant of Program success. In Part 3, we show that in the short-term, specific outcomes are very uncertain, other than the likelihood that the value remains within the public sector. In a

long-term context, however, if the Program is perceived to be a permanent resource and included in water project planning, a gradual but real impact on improving the quality of US water infrastructure is a likely outcome.

Part 4: WIFIA’s Dual-Use Potential and Covid-19 Policy Responses: In the preceding parts of this paper, discussion is focused on WIFIA results in the 2017-2019 period and their likely future trajectory in normal conditions. However, the far-from-normal conditions caused by the Covid-19 pandemic require an examination of a very different question, whether the Program can be part of near-term federal policy response. In Part 4, we consider how the value of a WIFIA loan could be immediately deployed to provide short-term relief for qualified public water agencies. We conclude that the nature and scale of WIFIA loan benefits are in fact intrinsically well-suited to efficiently support such a policy response without any fundamental changes in Program design, operation or future trajectory – WIFIA appears to have inherent ‘dual-use’ potential. Finally, we outline several immediate policy initiatives that can enhance this potential and the effectiveness of federal policy response, all of which can be placed in the context of recent federal Covid-19 initiatives for the municipal bond market.

Part 1: WIFIA’s Surprising Start

Most public infrastructure projects in the US are undertaken by state & local authorities or agencies that have investment-grade credit ratings and efficient access to the tax-exempt municipal bond market. Over the past few years, this market has been characterized by a growing supply of investor capital and historically low interest rates. For the most highly rated issuers, rates on infrastructure-related financing are typically below or near those of US Treasuries all along the 30-year curve. In particular, revenue bonds for essential ratepayer-funded water systems can be placed with a substantial investor base that forms a significant segment of this market. Recently, sudden liquidity issues resulting from the Covid-19 crisis caused muni rates to briefly spike far above recent trends, but the market seems to be normalizing quickly, especially for highly rated issuers.

What Might Have Been Expected: WIFIA Would Follow TIFIA’s Path

In light of the attractive features of the muni bond market for highly rated water agencies, it may have seemed safe to predict that when the WIFIA Program became operational in 2017, these agencies would *not* be among the Program’s applicants. A WIFIA loan does offer a rate equal to Treasuries, but it also requires a customized investment-grade rating, compliance with Federal environmental and economic policies, and a multi-step application, approval, and execution process. For highly rated public water agencies that could do an off-the-shelf tax-exempt bond issue at much the same rates (or lower) with far less hassle, what would be the net benefit of a WIFIA loan? And since these agencies have plenty of access to a large, fully functioning debt capital market that is already federally subsidized by a tax-exemption, what would be the policy purpose of that anyway?

Instead, it may have seemed more likely that WIFIA would follow an analogous path to its predecessor program, the US DOT's Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan Program, on which the water program was closely modeled. Since it began operations in 1999, TIFIA has primarily provided minimally investment-grade loans to greenfield project financings with some element of user-fee revenue risk. This type of loan can be expensive and difficult to place in the muni or other debt markets, so the relative benefits of a TIFIA application to the borrower are clear and significant. In addition, new greenfield projects relying on uncertain revenues are often contingent on the availability of subsidized financing. A project of this type might not proceed at all without a TIFIA loan, an arguable circumstance that amply demonstrates the loan's 'additionality' with respect to US infrastructure investment and substantiates the program's classic policy rationale.

A policy objective based on critical additionality can be difficult to implement, however. TIFIA has completed a significant number of financings, but revenue-risk project finance is a tough asset class even for the specialized departments of private-sector institutions. Complex revenue risk evaluation and transaction execution are not obvious federal government strengths, and TIFIA has experienced a number of difficulties over its history, including several large loan defaults, disappointing deal volume and frequent criticism of its laborious and unpredictable transaction processes. Still, it clearly is the case that TIFIA increased US transportation infrastructure assets in ways that likely wouldn't have otherwise occurred.

WIFIA might reasonably have been expected to follow this part of the path, too. Although greenfield revenue-risk water projects are rare, the Program's applications presumably would come from similarly difficult, minimally investment-grade financings, where debt placement isn't easy, and WIFIA's loan terms would appear most attractive. Even with the benefit of TIFIA's experience, such innovative, complex or risky deals are intrinsically hard to execute for any lender, much less a new federal loan program. Some additional water infrastructure would eventually be the outcome, but expectations for the Program's start may justifiably have been muted.

What Actually Happened: An Unexpected Applicant Pool

WIFIA has now completed three application rounds over the period 2017-2019, generating 90 selected applications totaling \$13.6 billion of loan volume, of which more than \$5 billion has been closed. This volume in itself indicates that the Program has had an unexpectedly good start. It also appears that WIFIA has avoided some of TIFIA's process-oriented pitfalls, so far anyway. But since a selected application involves considerable input and processing from both the applicant and the Program, this list also constitutes a significant data set about Program performance and trends. What does it show?

The results are surprising. Notwithstanding the very favorable conditions in the muni market during the 2017-2019 period, *the vast majority of WIFIA selected applicants are in fact highly rated public water agencies*. Over 85% had long-term bond credit ratings of Aa3 (Moody's) and AA- (S&P) or better, with a significant portion having the highest ratings available, Aa1/AA+ (22%) and Aaa/AAA (6%). In the last category were even applications from two State Revolving Funds (SRFs). SRFs are frequent issuers in the municipal market and can typically place tax-exempt bonds on the best available terms.

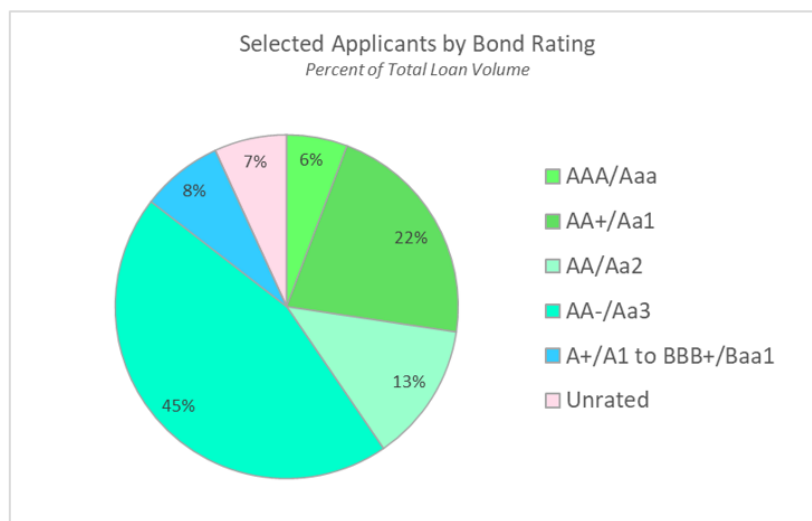


Figure 1: WIFIA Selected Applicants 2017-2019 Bond Rating

At this level of credit quality, tax-exempt bond rates are generally below Treasuries for maturities within 15 years and at or near Treasuries for the balance of the 30-year curve. Whatever motivated the majority of these applicants, it was clearly not the expectation of any significant interest rate savings on a 30-year financing.

Selected Projects: Essential but Unexceptional

Perhaps some characteristics of the water projects themselves might have made placement of their financing difficult among the water revenue bond investor base and easier at the WIFIA Program? There is no indication that this was a factor in the application decision. The list of projects is dominated by run-of-the-mill pipe replacement programs, water treatment plant upgrades, stormwater system reconstructions mandated by consent decrees, etc. – all basic water infrastructure assets, funded by ratepayers and standard fare for revenue bond buyers. Further, in almost all cases, the 51% balance of the project's capitalization (a WIFIA loan is limited to 49% of capital cost at completion) was expected to be sourced, often wholly, from muni revenue bonds. The overall picture is that WIFIA loans are financing essential components of existing water infrastructure systems, a much-needed investment but one that is thoroughly acceptable (indeed attractive) to a large and established investor base.

The unexceptional nature of the applicants' water infrastructure projects needs to be considered with respect to the Program's policy rationale. If a project is essential to keeping a water system running (e.g. pipe replacement), required for regulatory compliance (e.g. stormwater system upgrades subject to consent decrees) or effectively non-optional for some other reason, what is the 'additionality' to US water infrastructure investment of a WIFIA loan for a highly rated public water agency? It is clear that these agencies have both the inescapable obligation and the financial wherewithal to proceed with non-optional investments with or without a WIFIA loan. What proportion of selected projects might possibly be optional enough to be influenced, even if only marginally, by a WIFIA loan?

The public data is intrinsically more ambiguous about project optionality than applicants' formal public bond ratings, but a preliminary assessment suggests that about 70% of selected projects are clearly non-optional, based on keywords in project descriptions (e.g. 'consent decree', 'outdated', 'failing' etc.). SRF borrowing is assumed to be non-optional in sense they must fulfill their own loan obligations and waiting lists. Another 18% appear to be quasi-optional based on keywords that are related to basic engineering factors (e.g. 'improve', 'efficiency' etc.) and may or may not be influenced by financing. Only 11% of selected projects look optional enough (e.g. 'alternative', 'pilot', 'innovative' etc.) that capitalization may be a critical factor in their proceeding.

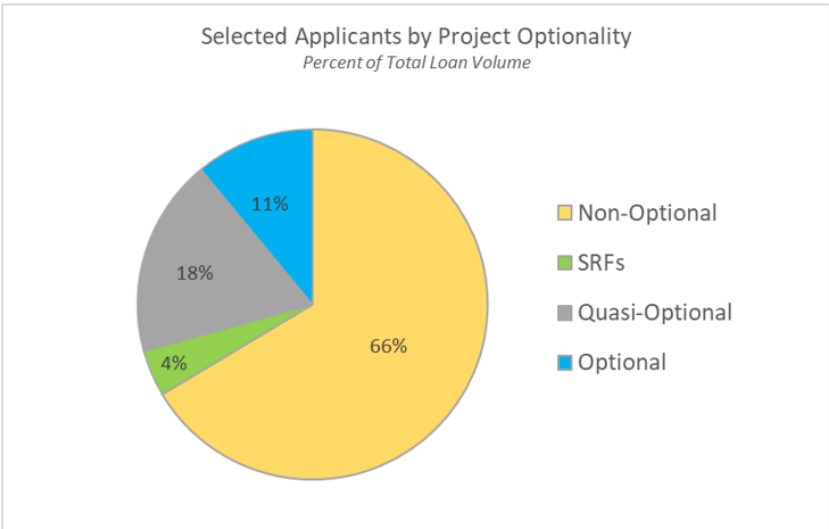


Figure 2: WIFIA Selected Applicants 2017-2019 Project Optionality

Two Important Questions

The high credit quality and low project risk of WIFIA's selected applications over the past three years go a long way towards explaining why the Program's transaction processes have operated smoothly from the start. By all reports, the Program is very well-managed and staffed. But more fundamentally, WIFIA simply attracted a sufficient volume of the kind of applications that fit well into institutional lending processes. For a highly rated water agency looking to finance a standard water asset, a WIFIA application is not fundamentally different than a bond prospectus in terms of detailed project description and risk disclosure. Plenty of thoroughly processed, review-ready information can be provided. Likewise, a financing that's attractive to conservative revenue bond buyers will not be concerning to EPA and OMB reviewers tasked to protect federal taxpayers. WIFIA's bureaucratic processes are similar to those of TIFIA, both by design and from their shared federal lending statutory context. But the high-quality, low-risk raw material WIFIA could work with from the start was far better suited to these processes than TIFIA's idiosyncratic revenue-risk projects. With the addition of good management and staffing, the WIFIA Program was in retrospect well-positioned for a smooth launch, given the applications they actually received.

A smooth launch, however, does not mean that WIFIA is accomplishing its mission or explain how it might be doing so. Two questions must be addressed:

1. **Why is the Program attracting applications from highly rated public water agencies?** These agencies are clearly making a rational assessment that the net benefits of a WIFIA loan for 49% of a planned debt financing are relatively better than their excellent alternatives in the muni bond market and elsewhere. The fact that such agencies have submitted the vast majority of WIFIA's applications to date indicates that the assessment is widespread. But the basis of the assessment is not obvious from interest rates (about the same for 30-year financings), project characteristics (basic ratepayer-funded water assets) or transaction costs and frictions (a WIFIA loan clearly has higher upfront transactional and compliance costs than an off-the-shelf revenue bond issue). Something more subtle, but still significant, is driving this trend.
2. **What is the Program accomplishing in terms of US water infrastructure investment that would not have otherwise happened?** As noted above, almost all of WIFIA's selected projects to date look like they either must proceed or are optional for reasons unrelated to financing. This observation does not in itself establish that the Program is failing to impact investment in US water infrastructure. The data does suggest, however, that a WIFIA loan's additionality, if it exists, will be found in realized or expected outcomes that aren't defined simply in terms of whether a project proceeded or not. Those outcomes are likely to be as subtle as, and closely related to, the reasons why highly rated water agencies are applying to WIFIA in the first place. Unlike a Program loan that singularly enables the ribbon-cutting on a new project, they probably will be difficult to express in a soundbite. But some measurable impact on real world investment is critical in determining whether the WIFIA Program, regardless of number of selected applications, loan volume or avoidance of defaults, is in fact successfully completing its mission to improve US water infrastructure.

Full answers to these questions will require an in-depth assessment and analysis of WIFIA selected applications that is far beyond the scope of this article. But a preliminary assessment of the selected applications and other publicly available information is sufficient to develop hypotheses that are consistent with the data and useful to guide further work. We outline these in the next two parts.

Part 2: Explaining WIFIA Borrower Motivation

This Part 2 will outline an analysis that seems to provide answers to the first question posed above. It appears that specific structural features of a WIFIA loan, *in combination with a standard muni revenue bond issue*, can provide marginally better overall capitalization for large, long-lived capital assets than even highly rated water agencies could achieve using revenue bonds alone. The combined aspect is important – the market parameters of the revenue bond portion still drive the fundamental economics and form of the asset's capitalization. These parameters define the context in which the WIFIA loan can

deliver precisely measurable value to a sophisticated borrower seeking to fine-tune a large debt financing. In that sense, a WIFIA loan is simply an add-on enhancement to a planned revenue bond issue, and the Program is serving as a useful 'adjunct' to the muni market.

The Value is in the Difference

As discussed above, a WIFIA loan is similar to a water revenue bond in most fundamental ways. But it is also sufficiently different in form and specific terms that it can have a different value to borrowers. Some of these differences will decrease perceived value to certain borrowers. For example, the cost of complying with federal cross cutters may be high in some cases, less so in others. Other differences will increase value. The value of WIFIA loan's private placement loan form instead of a public bond is generally positive, but not necessarily, and likewise this will vary in specific cases.

To explain a consistent trend of WIFIA applications from a wide range of highly rated issuers, however, we need to look for intrinsically positive (and ideally measurable) differences for the type of project that these highly rated issuers are seeking to finance. What features of a WIFIA loan were *always* better than a highly rated, tax-exempt water revenue bond, even in muni market conditions during 2017-2019?

There are two WIFIA loan features that appear to fulfill our search criteria: (1) the rate-lock on loan drawdowns during construction and (2) the commitment to offer the Treasury rate on a 'flat forward' basis beyond the 30-year market yield curve. As expected, these features are subtle and involve technical aspects of finance. But both features were utilized in all WIFIA loans sought by highly rated water agencies, usually to the full extent of their statutory or Programmatic limits. The value of these features is also relatively measurable in the context of muni and Treasury market data. As outlined in the next three sections, preliminary analysis of publicly available data for WIFIA application and market rates during 2017-2019 strongly indicates that these two features are in fact the primary drivers of WIFIA results for the period.

Rate Lock: Costless Interest Rate Risk Management

The Treasury rate on a WIFIA loan is based on the loan's weighted average life and fixed at loan commitment. This single rate applies to all drawdowns during the project's construction period, which may span many years. The drawdown schedule is not fixed, however, and draws are effectively optional since there is no penalty for prepaying or simply not drawing a loan. It is possible (and in fact frequently done by larger agencies) to elect to draw the full WIFIA loan at the latest permitted date (one year after construction completion) and finance actual construction payments with shorter term debt. In effect, WIFIA offers a locked rate on an *optional* future term financing, with *optional* draws for direct construction payments and repayment of construction debt at the same rate. Since the federal government is a riskless counterparty, interest rate risk on the WIFIA part of the full-term financing is effectively eliminated on the day the loan is committed.

Highly rated borrowers can source similar rate lock arrangements from the debt capital markets, but *always* at a cost, either as upfront payment for an interest rate option or (more usually) as at-market swap breakage or make-whole penalties if the borrower does not draw as scheduled. For tax-exempt water revenue bonds in particular, there is no direct equivalent. Instead, the standard practice to eliminate rate risk during an extended construction period is for the full amount of permanent financing bonds to be sold at the outset with proceeds deposited in escrow for future draws. Escrow investments are usually restricted to risk-free Treasuries (the US Treasury offers ‘State and Local Government Securities’ or SLGS specifically for this purpose) and escrow earnings are in any case limited by tax arbitrage rules. Inevitably, there is some amount of cost from incurring ‘negative arbitrage’ between the rate paid to the bondholders and the rate earned by the escrow.

WIFIA’s costless rate lock is clearly intrinsically valuable in terms of the avoided cost of a construction escrow for revenue bonds. How valuable will depend on a number of factors, including the borrower’s perception of interest rate risk. For a relatively small project with a short construction period, a borrower might be willing to take the risk or manage it in some dynamic way. But for large projects with long construction periods, it is reasonable to assume that a highly rated public agency will seek to eliminate most or all rate risk at the outset of construction. Hence, for our purposes, the estimated avoided cost of negative arbitrage (as determinable from market data for a given set of assumptions) is effectively the value of a WIFIA loan’s costless rate lock.

Treasury Flat-Forward Rate Commitment: An Alternative for Long-Lived Assets

The value of the second important feature, WIFIA’s ability to commit to a “flat-forward” (i.e. no increase regardless of term) Treasury rate beyond 30-year market yield curves, is not as intrinsic as that of the rate-lock. In global institutional debt markets, which include large investors like insurance companies and pension funds with very long-term investment horizons, a Treasury flat-forward rate is often used as the base rate (on which a spread is added) for loans with maturities well beyond 30 years. The US Treasury itself publishes flat SLGS rates for years 31 to 40 on a daily basis. Highly rated public water agencies can and do access these very long-term markets occasionally, even including placement of loans with a 100-year term.

But there is a trade-off. The global institutional debt market does not offer tax-exempt rates since the vast majority of its investors cannot monetize a US income tax exemption. Market clearing rates therefore reflect these investors’ fully taxable interest income. In contrast, the muni market is dominated by US high-income individual investors. Market clearing rates in this market will reflect their unique ability to fully realize the tax exemption. Tax-exempt bond rates will also reflect the investment preferences of this specialized investor base. In many ways, that works to the advantage of water revenue bonds, especially with regard to individual investor preference for risk aversion, which adds to the stability of demand for this product. But such retail investors will also naturally have preferences for liquidity and time horizon that reflect their status as individuals (e.g. personal life-cycle planning, expectation of future taxable income, need for fast liquidation in case of emergency, etc.). These are very different than the preferences of long-term institutional investors, especially with respect to the liquidity and time horizon of loans traded outside the 30-year public bond market. Regardless of credit

quality, a tax-exempt revenue bond with a term longer than 30 years will require a higher rate to attract a more limited investor base. As the term is lengthened even further, this base becomes increasingly smaller and required rates correspondingly higher, possibly significantly so. Placement also becomes far more unpredictable in such a thin market.

Highly rated public issuers therefore face a theoretical choice in financing a long-lived infrastructure asset that ideally would be capitalized with some debt maturities beyond 30 years: Either do (1) a taxable issue with a full spread over the flat-forward Treasury curve or (2) a tax-exempt issue where a thin market will likely result in unpredictably higher cost. In practice, the usual decision is simply to forego an ideal capital structure for the asset and finance it in the 30-year muni market, regardless of its useful life.

WIFIA's Treasury flat-forward feature adds a less procrustean alternative to these limited choices. At the 30-year point on the yield curve, rates for the highest-rated tax-exempt muni bonds and US Treasury securities are typically close to equal. Although the muni bonds are not riskless like Treasuries, the value of the tax-exemption provides the risk return an investor would otherwise require. Similarly, a WIFIA loan commitment including maturities up to 40 or 45 years will forego a risk return and provide a *spread-less* Treasury flat-forward rate for policy reasons. In effect, from the borrower's perspective WIFIA is acting like a long-term institutional investor whose risk return requirement is fully subsidized, not by a federal tax-exemption mechanism, but by another federal policy that results in much the same thing.

Most importantly, for a WIFIA applicant, *there is now no sharp discontinuity at the 30-year point, higher or lower*, with respect to the typical tax-exempt muni yield curve. Since the Program allows the 51% muni bond portion of a debt capitalization to amortize more quickly (and be sold within the 30-year market) than the 49% WIFIA loan balance (which can provide the longer tenors), it becomes possible to structure a financing for a long-lived asset with tenors that more optimally reflect its actual useful life, not the time horizon preferences of a specialized retail investor base. The relatively smooth continuation of the muni yield curve provided by a Wifia loan is an important aspect of avoiding distortion – too high a benefit would result in an unnatural lengthening of a financing term. As it is, a Treasury flat-forward rate would seem to encourage neutrality, allowing project planning to be based primarily on real-world efficiency objectives.

Estimating the Value of Both Features 2017-2019

WIFIA's rate-lock and Treasury flat-forward features add value to an infrastructure financing in completely different ways and at opposite ends of the transaction timeline. Their actual value in a specific financing will of course vary in accordance with the characteristics of that financing. But the fundamental source of that value as a primary driver to seek WIFIA loans – the relationship between interest rate yield curves in the tax-exempt muni bond and US Treasury market – is basically the same for all highly rated applicants. Using market data and a few key assumptions about project

characteristics that appear to be common across selected applications, it’s possible to estimate the approximate value of a WIFIA loan to highly rated water agencies during the 2017-2019 period.

Figure 3 shows average yield curves of US Treasuries and the AAA municipal bond markets for 2017-2019. The positively sloped curves are typical and the primary cause of negative arbitrage in a construction escrow account. The data for Treasuries in years 31-40 simply reflects the flat-forward SLGS rates. Muni rates beyond the 30-year market are linearly extrapolated (actual public trading data is very scarce) using the most conservative anecdotal evidence. Added uncertainty for a specific placement would likely make the perception of cost even worse on average.

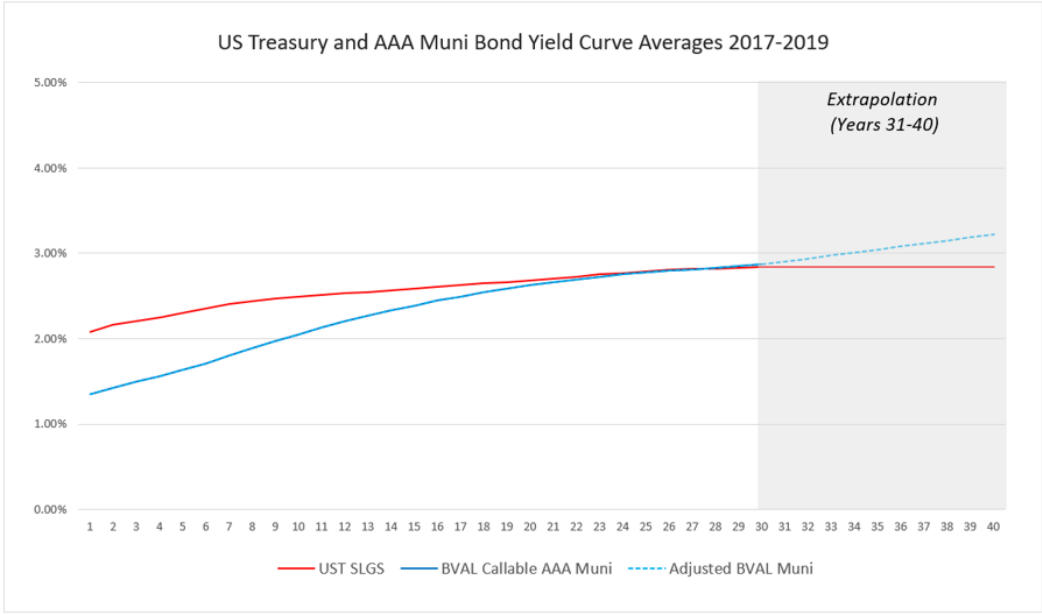


Figure 3: US Treasury and AAA Tax-Exempt Muni Yields 2017-2019 Averages (Market and Extrapolated)

Common project assumptions start with the fact that most WIFIA projects are relatively big (\$150 million on average) and related to basic public water infrastructure. Such assets are usually long-lived and have long construction periods, so both the rate-lock and Treasury flat-forward features will be valuable components in a financing plan that seeks to minimize interest rate risk and reflect the asset’s useful life. A typical construction period among WIFIA applications is five years. Since the Program is statutorily limited to final maturities of up to 35 years after construction completion, a 40-year debt financing with level-payment amortization (typical in public sector debt) is used for the estimation base case. This profile is consistent with publicly available information about WIFIA’s currently pending and closed loans.

Figure 4 shows an optimized capitalization structure for such a project. Municipal revenue series bonds are used for the shorter tenors and can be placed well within their natural 30-year market. A WIFIA loan is used for the longer maturities, as is explicitly permitted (indeed encouraged) by the Program. The bonds are sold at transaction outset and proceeds escrowed; the WIFIA loan is drawn periodically.

A water agency trying to achieve this capitalization profile using tax-exempt water revenue series bonds alone would need to plan for (1) a construction escrow that covered the full cost of the project and (2) higher rates and more unpredictable bond placement for the series due in years 31 to 40. By utilizing a WIFIA loan for 49% of the financing, (1) 49% of the escrow and its negative arbitrage cost can be eliminated and (2) loan maturities in years 31 to 40 can now be placed with certainty at Treasuries flat-forward.

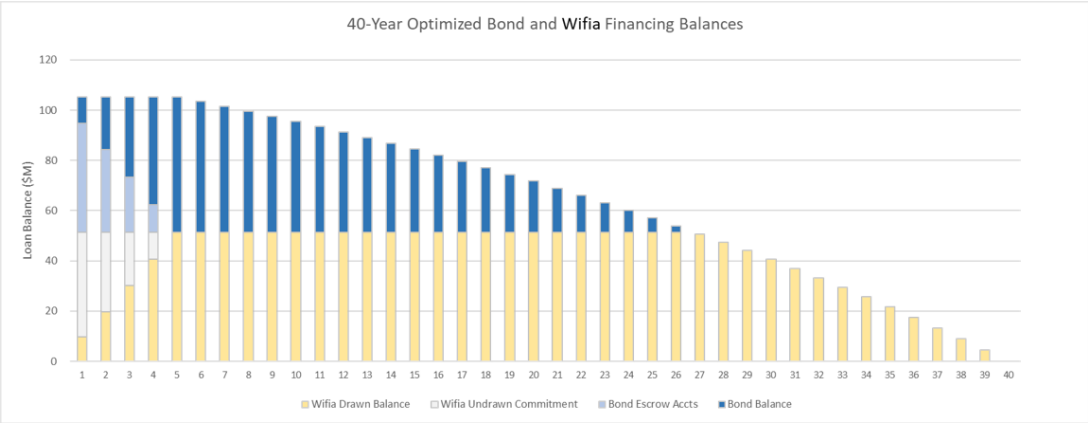


Figure 4: Use of WIFIA Loan as 49% Long-Tenor Tranche in Project Capitalization

The methodology to estimate the value of the WIFIA loan alternative is a straightforward ‘Value for Money’ or VfM analysis widely used in the public sector. In our scenario, the traditional approach is the 100% bond case; the alternative case is based on the 51% bond and 49% WIFIA loan profile above.

The primary comparison metric in a typical VfM analysis is the present value (PV) of the different cost of the two cases. In our scenario, the primary effect of both features is to lower the cost of debt service (principal repayment plus interest cost) over the full term of the financing. Hence, the PV of the debt service difference between the traditional and the WIFIA cases is the relevant measure. Importantly, the PV of debt service is also the primary metric that public sector agencies typically use in very precise decisions regarding municipal bond issuance alternatives (e.g. advance refundings of callable bonds) so it also the most appropriate measure to assess WIFIA borrower motivation.

Analysis for the period 2017-2019 shows that a WIFIA loan financing resulted in PV of debt service **approximately 7% lower** than the pure bond alternative for a highly rated (about Aa3/AA-) public water agency, with the rate lock and flat forward features contributing roughly equal shares. Obviously, other factors would be relevant in any specific financing. Perception of WIFIA transaction and compliance costs, the value of the private placement form, the applicability of other case-specific WIFIA features (e.g. debt service deferral, subordination) and other aspects would all serve to increase or decrease this 7% estimate in any individual deal. But 7% of project cost – more than \$10 million on an average-sized project – is a significant baseline for borrowers to start with, especially for highly rated public water agencies who have the size and financial sophistication for fine-tuning their debt capitalization as a standard procedure.

It is worth noting that *both features together* are likely required to create the widespread borrower motivation that WIFIA experienced. Individually, at about 3.5% of project cost, motivation would likely have been much more limited as other deal-specific factors of a similar magnitude could have dominated decisions. Together, at 7% of project cost, they become predominant. The important real-world implication of this is that WIFIA loans appear to favor long-lived assets with long construction periods by slightly reducing the cost of long-term debt service. These characteristics will be relevant to what impact a WIFIA loan has on US water infrastructure, discussed further in the next part.

Overall, although the assessment and analysis in this Part 2 is preliminary and based on limited public information, the municipal bond market adjunct concept, centered on two features of a WIFIA loan, is consistent with observed facts and provides a relatively robust explanation of WIFIA borrower motivation. To the extent that it is also the basis for detailed Program outcome assessment and policy guidance, further development is not simply an academic or theoretical matter.

Part 3: Where WIFIA Loan Value Goes

In Part 2 we showed that there was a consistent and significant source of value in a WIFIA loan for highly rated public water agencies financing long-lived basic infrastructure in the 2017-2019 period. That provides a preliminary answer to our first important question in Part 1 about borrower motivation. In this Part 3, we use the nature and scale of that value to discuss Part 1's second important question about what the Program is actually accomplishing in terms of its policy rationale, improving US water infrastructure.

The Value Stays in the Public Sector, Somewhere

One overarching observation on WIFIA loan value is straightforward but critically important. If the WIFIA Program had been utilized (as some may have expected) in greenfield project financings that included private-sector equity investment (e.g. a typical infrastructure P3 profile), it would now be necessary to determine as a threshold matter the extent to which the value of the WIFIA loans was

directed towards some public purpose or simply served as a windfall to improve private equity returns. Since the vast majority of WIFIA applicants in the 2017-2019 period were in fact public water agencies, it appears that most if not all the Program's loan value will be deployed within a framework that is intended to benefit the agencies' service communities, not maximize private profit.

Beyond that, however, Program outcomes are less clear. How specifically WIFIA loan value is deployed within a service community is not determined by a WIFIA loan, primarily because the nature and scale of its value (a marginal reduction in long-term debt service cost) can be applied to a wide range of water agency activities. There is no single 'highest and best' use for this kind of fungible financial value, and in contrast to upfront Programmatic and federal rules for use of loan *proceeds*, there are few strings attached to a WIFIA loan with respect to use of loan *value*. In addition, WIFIA loan value doesn't arrive in the form of a highly visible cash grant that will attract stakeholder attention and need to be put to an equally visible use. Instead, the value is effectively buried in long-term financial models and budget projections as a marginal improvement in future cash flow. Dramatic action is not required or expected, and WIFIA borrowers appear free to use the benefit of fine-tuning their project's debt capitalization for equally fine-tuned purposes.

As discussed in Part 1, most WIFIA projects appear to be non-optional. In light of the size and financial wherewithal of the highly rated public agencies that are WIFIA borrowers, this means WIFIA loan value may not be directed towards the project being financed – or even used directly for infrastructure capital expenditures at all. If a large and non-optional capital project is at the financing stage after many years of planning, and a WIFIA loan is included as a refinement to the project's final capitalization, required debt service cost will be slightly lower than originally planned. Those savings may be directed towards some change in the project's original plan – or they may not. Depending on the size and nature of the project, altering the project's design or schedule at this late stage may in fact be *the least effective way* to use the savings – a completely separate use somewhere else in the water system may offer much higher returns.

Figure 5 illustrates the range of possible uses. When the firm expectation of a WIFIA loan commitment is included in final plans for a project's capitalization, the (marginally) lower debt service requirements can be reflected in a plan to keep water rate increases (marginally) lower or the infrastructure budget (marginally) higher. A higher infrastructure budget can be used to plan for improved operations and maintenance on the new project or other existing system assets. Or the increased budget can be directed towards long-term capital planning. If the latter, the savings can be used to afford a larger or better design for the new project, build it for a longer useful life, or accelerate the start. Or used for other capital projects. All these choices (and there are likely more) can be made for part of the value and matched with others for the rest, and many can be amended over time as future budgets are adjusted for changed priorities.

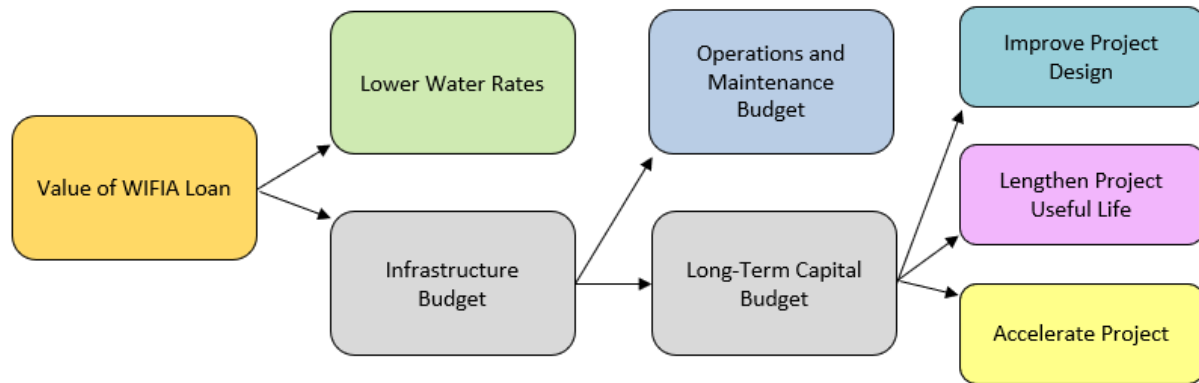


Figure 5: Potential applications of WIFIA Loan benefit

Without further detailed assessment, the only generalization from publicly available information that can be made about Program's impact to date on US water infrastructure is that WIFIA loan value is beneficially deployed *somewhere* within public water systems by water agencies who are responsible for providing the system's infrastructure. In itself, this is not a bad public policy result. The flexibility in deploying loan value is arguably a positive aspect of WIFIA loans in terms of efficiency, both in the Program transaction process and (more fundamentally) in allowing water agencies themselves to allocate loan benefits in accordance with local priorities. WIFIA is clearly delivering value to the US water sector in an effective manner, judging by its smooth start, and there's a solid basis to assume that public water agencies are in general using that value as effectively as possible in their local systems.

But this type of multi-faceted outcome is not great press release material. When a WIFIA loan commitment is made, the most accurate description of what has been achieved is likely to be: "We lowered the capitalization cost of this essential project by about 7% using a WIFIA loan and these savings will be deployed in various ways to benefit water consumers over the next 40 years". Not very exciting.

Instead, there is an understandable tendency, on the part of both the borrower and the Program, to connect the loan value directly to the project (often including a photo-op at the construction site), use the largest numbers possible to describe savings (e.g. total undiscounted interest cost savings) and hint that the loan itself made the project (and its associated jobs, economic stimulus, etc.) possible. WIFIA borrowers and the Program are naturally aligned in promulgating this soundbite-ready version of events, which ultimately aggregates into a general public impression.

Does this matter? Since WIFIA loan value is being efficiently delivered and efficiently deployed for purposes that ultimately benefit water consumers (who are the reason that public water system infrastructure exists), exaggerated or even misleading press releases and public impressions don't really detract from the Program's substantive outcomes in terms of public benefit. No windfall profits for

private parties are being disguised or imprudent risks by the federal government undertaken, so the usual mainstream criticisms of federal loan programs don't apply either.

Nevertheless, a more accurate characterization of what the Program actually does is important to its substantive success in two ways:

- Even if local communities are clearly benefitting in some way when their water system secures a WIFIA loan, the net national-level impact should be considered. This is especially relevant in the context of the long-term effect and cost of the Program, most directly for federal taxpayers but also for the municipal bond market as a mainstay of US public finance.
- The WIFIA Program has a proven capability to deliver a slightly lower cost of capital to public sector issuers using features that appear to complement (not simply displace) the tax-exempt bond market. Currently, this capability is specifically connected to water infrastructure capital expenditure and generally intended to improve US water systems. But this limited scope is not intrinsic to the features' value or even the efficient operation of the Program – it could be expanded to serve other objectives within the purview of public sector water agencies.

Regardless of public impressions (or more typically, lack of interest), both of these points need consideration in the public policy arena if correct decisions about the Program are to be made. The first one is discussed in the remaining sub-sections of this Part 3. The second point is an important element in Part 4's discussion.

The National Perspective: Benefit-Cost Analysis for Federal Taxpayers

WIFIA loans at Treasury rates to highly rated public water agencies intrinsically cost little to the US government lender. The official 'credit subsidy' cost, which must be appropriated from Congress, is determined by the precise protocols of the Federal Credit Reform Act (FCRA). In essence, the FCRA credit subsidy cost is an estimate of the present value of net losses from future loan defaults, generally based on well-established market data. For highly rated loans (which are substantively structured as water revenue bonds), that estimate is about 0.50% of loan amount. Compared to the benefit a WIFIA loan delivers to the water system (about 7% of project cost, corresponding to about 14% from the WIFIA loan itself), the FCRA cost is clearly a relatively minor transfer payment from federal taxpayers for the outcome. Aggregate Program numbers reflect this story: During the 2017-2019 period, WIFIA received only about \$125 million in credit subsidy appropriations, on which nearly \$14 billion of loan commitments have been or will be made.

Beyond FCRA estimates, there are more fundamental reasons to believe that the direct cash cost of WIFIA loans to federal taxpayers is in fact intrinsically low. The primary features that make the loans valuable to highly rated issuers – the rate lock and Treasuries flat-forward commitment – play to federal strengths as a lender. Interest rate risk from the rate lock is dynamically managed within a context of

the US Treasury's entire borrowing operations and therefore benefits from massive economies of scale – the cost (if any) is far less than that of a transaction-specific static hedge provided by a construction escrow. The long-term maturities of a WIFIA loan fit well into many federal capabilities as the ultimate 'patient investor' and in any case are priced at what the US government's cost of borrowing past 30 years is assumed to be. Even Programmatic administrative and transaction costs can remain low when loan processing involves pre-packaged, high-quality loan applications from sophisticated, highly rated public water agencies.

In general, it appears that federal taxpayers are paying very little to deliver significantly more in benefits to the local communities served by the water systems that receive a WIFIA loan. But is there any *national-level* interest being served that would justify transferring tax resources (however trivial) from the overwhelming majority of taxpayers that don't receive any direct benefit in their local water systems to a select few who do?

As a loan program for large, long-lived projects, WIFIA was not designed to directly address the kind of localized humanitarian need that would automatically be considered a national-level concern. Such needs are usually far better served in a different type (e.g. grant or emergency loans) of federal program. In normal circumstances, the WIFIA Program's potential impact on physical US water infrastructure, not communities' financial condition in general, is the relevant measure of national-level benefit and Program success. In unusual circumstances this is not necessarily the case (as discussed in Part 4), but it was clearly applicable during the 2017-2019 period.

For US water infrastructure, in the short term and with respect to specific WIFIA loans, national-level interests aren't necessarily being served. As discussed above, many water projects will proceed, unaltered in design or start date regardless of a WIFIA loan. If these projects do apply for and receive a loan, the benefits may simply be reflected in slightly lower water rates for a few citizens, courtesy of the many. But in the longer term, and with respect to the aggregate volume of Program loans made, the picture may be very different. That is the relevant context for Program evaluation and policy decisions.

Regardless of their ultimate use, WIFIA loan benefits for highly rated borrowers intrinsically arise only in large financings that involve long construction terms and long-lived assets. In the short run, little may change in projects that have been many years in planning and are now at the financing stage. But if the Program is *perceived by borrowers to be a permanent and reliably efficient fixture* in the municipal finance market, planning decisions will start to reflect the slightly lower cost of capital that WIFIA makes available, especially the lack of distortion for maturities beyond 30 years. On the margin, this will encourage (or at least not deter) projects that are optimally done with longer construction terms and longer lives. In effect, WIFIA's enabling effect on *planning* for more efficient physical water infrastructure over the long run is the Program's fundamental additionality, not enabling specific projects per se.

Over time and with steady aggregation of WIFIA loans, a better stock of national water infrastructure will likely be the result. Since the downside risk and cost is very low even when a specific outcome is purely local financial benefit, the Program's overall national-level benefit-cost result is likely on a positive trajectory.

Private-Sector Debt Market Distortion

The WIFIA Program will require time and steady aggregation of loan volume to achieve its mission of improving US water infrastructure. In light of its smooth start and positive results during the 2017-2019 period, and especially because the overall cost to federal taxpayers is likely to be very low, this is a realistic path forward. But the timeframe and loan volume required for such success introduce another consideration – WIFIA's potential distortion of a fully-functioning private-sector capital market, the municipal bond market.

Although there is federal policy guidance on this matter (for example, OMB Circular 129 for loan programs expressly requires “that private lending is displaced to the smallest degree possible”), in reality it is a practical issue related to scale and specific effect. WIFIA's \$14 billion of loan commitments to date is a rounding error compared to the nearly \$700 billion of municipal revenue bonds sold during the 2017-2019 period. However, it is a higher proportion of the approximately \$120 billion of water-sector revenue bonds sold in the same period. A market share of about 10%, if steadily maintained, likely will not cause significant market distortion, especially since investor demand may simply be transferred to similar alternatives in the same market (e.g. other highly rated revenue bonds for schools) with little net effect on the market overall. Still, as part of WIFIA's planning for the long term, the aggregate market effect should at least be on the Program's radar screen and included in annual reviews.

However, the *specific* impact of the primary WIFIA loan features on market segments requires deeper and more careful assessment even at this point. Since the rate lock is simply replacing an intrinsically inefficient escrow mechanism, this feature is probably not important in terms of market distortion. The private parties negatively affected by lower transaction costs can doubtless deploy their resources elsewhere with equal efficiency.

But WIFIA's willingness to (in effect) buy highly rated revenue bonds with maturities beyond 30 years on advantageous terms is more problematic. As discussed above, this particular market segment doesn't appear to have many tax-exempt buyers, given their natural preferences. Such tax-exempt buyers as there are in this segment can be seen as primarily opportunistic. But could that change? And could there be a role for taxable institutional investors in this segment if some other aspect of long-term infrastructure financing or federal policy begins to provide an indirect source of their risk return? Tax credit bond cash subsidies, for example, would directly achieve this and have been utilized as an effective federal policy tool in the past.

The perception of WIFIA as a permanent buyer in the very long-term muni market segment is critical to the Program's ability to *encourage* better US water infrastructure, but equally this may *discourage* new market entrants and innovative development in the same segment. This effect should be recognized and monitored along with other potential distortions. If there is a cost, it may simply be a price worth paying – the prioritization of competing policy objectives is not unusual. But making it unnecessary to pay in the first place would be a fundamentally better way to approach the market distortion issue. If our assessment of WIFIA loan value is correct, this may be a realistic objective.

A WIFIA loan only delivers value for a relatively small portion of its overall term. At the outset of a 40-year WIFIA financing, the primary drivers of loan value are likely to be the rate lock and flat forward long-term rates. After construction, the rate lock is no longer relevant. After about ten years, the flat forward rate is not relevant either. In effect, after about ten years a 40-year WIFIA loan will become substantively a highly rated 30-year water revenue bond. Even as a theoretical matter, a federal lender owning the loan at this stage is not efficient, since a typical private-sector investor in water revenue bonds will likely have a better use for the investment. The WIFIA Program legislative framework anticipates this long term 'seasoning' effect (though perhaps credit improvement in difficult deals was the original focus) and expressly permits portfolio loan sales "if the sale or reoffering can be made on favorable terms". As would be expected for a new program, this provision has not yet been utilized.

It is not obvious how "favorable terms" should be interpreted for Program purposes (e.g. should the terms include some estimate of avoiding market distortion? Are FCRA re-estimates included? Or is it based on straight cash balance of the loan?) or how easily realistic transactions could be done (Can loans be resold on a tax-exempt basis? Can securitization techniques add value in such small portfolios? Will some borrowers resist to preserve their own market capacity?). But for the purpose of avoiding private-sector market distortion, the mechanics of actually selling down the WIFIA portfolio in future *may be less important than the perception that there is a serious plan to do so* being developed now. In effect, creating the impression that WIFIA is a permanent *seller* of water infrastructure loans can balance the potentially market distorting effects of the perception that the Program is a permanent *buyer*. Both involve perception management that can be implemented immediately as part of long-term Program planning.

Figure 6 shows the basis on which a plan can be designed. There are naturally three phases in a WIFIA loan. In the first stage, up to construction completion, the loan should be held by the federal lender. In the second stage, soon after construction completion, secondary sales can be actively explored, but not necessarily executed unless there is serious interest – the real purpose is to ensure that a potential market demand for long-tenor maturities is not discouraged. In the third stage, when WIFIA loans have become substantively water revenue bonds, practical execution may be possible and would serve to avoid distortion in the main 30-year market.

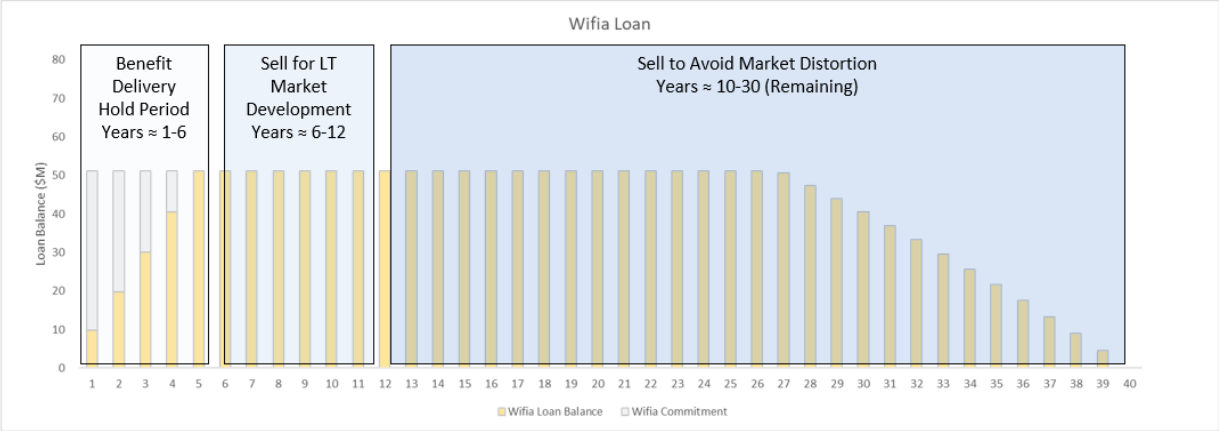


Figure 6: Three Phases of 40-Year WIFIA Loan Portfolio Management

Apart from designing a plan to do it, serious intent by WIFIA to sell seasoned portfolio loans can be signaled to muni market participants in another way. Currently, in annual Program funding legislation, both the appropriation amount for the FCRA credit subsidy and the total maximum volume of loans authorized are specified and quantitatively related, based mainly on highest expected credit quality (and lowest per-loan FCRA subsidy usage) among applications. For example, in the latest bill, \$50 million of credit subsidy supports maximum \$11.5 billion of new volume, corresponding to a FCRA cost of about 0.50% of loan commitment. That’s necessary to allow the Program to utilize the full appropriation even if all the selected applicants are highly rated – as was almost universally the case in reality for the 2017-2019 rounds. Interestingly, it is a practical recognition of what the program is actually doing (prior ratios were much lower) and naturally should be continued. But in the specification of maximum loan volume, a time element could be included where the authorized volume begins to decrease more rapidly than expected amortization – in effect, requiring portfolio sales. As a practical matter of course, such caps can always be amended in future bills, so the actual effect is one of encouragement, not permanent directive. But for the purpose of managing perceptions, and getting an important issue into the policy arena, managing maximum long-term WIFIA loan volume to minimize municipal bond market distortion should be considered.

Part 4: WIFIA’s Dual-Use Potential and Covid-19 Policy Responses

In the first three parts of this paper, we focused on the period 2017-2019 to examine results and draw conclusions about the WIFIA Loan Program. The basic factors that drove WIFIA results in the period were considered roughly representative of long-term conditions in the financial markets and the water sector that will likely determine WIFIA’s future performance and provide guidance for long-term policy. This is still likely to be the case. But since February 2020 there is another unexpected context in which

WIFIA's *immediately operative capabilities* should be examined – how the Program can be a part of federal policy responses for post-Covid 19 economic recovery.

State and local governments and public agencies are bearing the brunt of the pandemic's widespread impact, and they will be central in post-pandemic efforts for social and economic recovery. Highly rated public water agencies, though less directly involved in immediate responses, are far from immune to economic and financial market fall-out and share a responsibility for recovery. The most obvious challenges include:

- Loss of revenue due to delayed payment in the near-term and the need to address decreased affordability of water rates in the long-term.
- Increased costs due to disruption, various emergency responses, loss of workdays, etc.
- Perhaps most importantly for infrastructure, a perception of more difficult and uncertain conditions that will persist long after the immediate pandemic crisis and possibly will become permanent.

The temptation to delay or even cancel planned water infrastructure projects in light of these challenges will be overwhelming. Yet it is clearly the responsibility of public water agencies to do everything possible to continue these projects for short-term and long-term recovery of their service community – this is the responsibility they share with all levels of the US government public sector.

The federal government has been responsive in the immediate crisis. More federal responses regarding post-crisis economic recovery are likely, especially as the need at the state & local public sector level grows. As a federal program, can WIFIA assist public water agencies in meeting emerging challenges caused by the Covid-19 pandemic? If so, how?

Returning to our extended discussion in Part 3 about how WIFIA loan value is deployed by water agency borrowers, the answers would seem to be straightforward. Most fundamentally, a WIFIA loan will lower the debt service requirements on a long-term financing that includes delayed drawdowns for several years. In normal circumstances, that value is intended to be used to improve or accelerate the infrastructure project being financed, though in reality a large, highly rated water agency can deploy it in a wide range of other uses. As discussed in Part 3, this requires some consideration about how the Program is fulfilling its original mission, but we also noted that in any case the value is likely being efficiently used for some local public benefit. In the highly unusual circumstances of the Covid-19 crisis, WIFIA's mission and the perception of its national-level benefit, can be temporarily expanded to include local public benefit *regardless of specific outcomes on physical infrastructure*.

If a WIFIA loan enables or accelerates a water infrastructure project that otherwise would be stalled, this is a clearly a positive outcome under any circumstances. But for Covid-19 economic recovery objectives,

the list of positive outcomes with national-level benefit is expanded. Lowering water rates, keeping operational personnel on the payroll, catching up with delayed maintenance projects, funding special assistance programs and many other possible uses within the borrower's service community *should all be considered acceptable outcomes*.

In effect, what is a Programmatic 'bug' in normal circumstances (the flexible but uncertain use of WIFIA loan value with respect to specific infrastructure investment) becomes a 'feature' in the unusual circumstances of the Covid-19 crisis. Importantly, other than the perception of its mission, nothing fundamental (including current long-term trajectory) needs to change for WIFIA to make the switch since the Program inherently has a 'dual-use capability'. In light of that, the case to consider WIFIA's immediately available capability in federal Covid-19 responses appears to be compelling.

Practical Policy Suggestions

Once WIFIA's dual-use potential is recognized, temporarily expanding the Program's existing capabilities for post-Covid-19 recovery should also be considered, and we list several suggestions below. Enacting them will require minor legislative amendments. But this may be practical in the context of WIFIA's various positive characteristics discussed above – low-risk and cost to federal taxpayers, relatively high and measurable outcomes, current Programmatic efficiency, etc. The expansions can be explicitly limited with respect to time, volume or cost.

1. **Increase WIFIA's Credit Subsidy Appropriation:** This is a straightforward response to likely increased demand for WIFIA loans. Currently, the Program is expected to receive \$50 million in funding for the 2020 loan solicitation round. Simply increasing this amount by \$25 or \$50 million specifically for Covid-19 recovery purposes is obviously a minor item in the scale of federal budgeting for pandemic response; the potential impact in terms of increased loan volume will be about \$2.5 to \$5.0 billion, respectively. Using estimates of loan value discussed in Part 3 above, and regardless of infrastructure impact, local communities will receive between \$350 and \$700 million in benefit, respectively, from this additional funding.
2. **Extend WIFIA's Rate Lock and Treasuries Flat-Forward Features:** This is a more technical suggestion but may have significant value to WIFIA's highly rated borrowers who are planning large projects. Currently, the WIFIA loan rate lock can be used for up to one year past construction completion and final loan maturities can extend no later than 35 years after completion. Extending both of these time limitations, by two and five years respectively, will increase the intrinsic value of these features. There is specific applicability of such time extensions to Covid-19 recovery circumstances – the increased ability to manage interest risk in highly uncertain times, and to extend the debt service schedule for as long as possible to keep water rates affordable.

- 3. **Include Refinancing of Existing Loans in WIFIA’s Eligible Uses:** WIFIA’s predecessor program, TIFIA, already includes the ability to use loans to refinance existing debt. The language can simply be added to WIFIA’s equivalent list, perhaps with some specific Covid-19 adjustments. In normal circumstances, refinancing is somewhat problematic with respect to the infrastructure additionality issues discussed in Part 3, especially for highly rated water agencies that are clearly not financially constrained (as a TIFIA borrower might be). But in WIFIA’s dual-use role for Covid-19 recovery, the potential refinancing volume will add to the scale and efficiency of providing overall relief to local communities, as the lowered debt service can be immediately included in water agency operational planning. In addition, such refinancing loans will provide good portfolio material for pilot versions of the secondary sales program discussed in Part 3, and a time-related volume cap specifically for refinancings can be included as well.

Recent Federal Policy Precedents

Finally, it is important to put possible WIFIA Covid-19 responses in a context of recent federal financing policy initiatives. Ordinarily, the WIFIA Program is considered a part of federal infrastructure policy, reflecting its original intent and future trajectory. As discussed in Part 2 above, its direct impact works primarily through a complementary interaction with the tax-exempt municipal bond market. But in a dual-use role for Covid-19 recovery, this interaction is in effect also the direct the purpose of the Program – to lower the borrowing cost of a local public sector agency.

Federal infrastructure policy development and legislation is highly uncertain in the current political environment, to say the least. In contrast, in the recently passed CARES Act, the US Treasury funded, and the Federal Reserve financed, an unprecedented type of lending support for the municipal bond market as a way to provide relief for state & local governments. The general purpose of the Municipal Liquidity Facility (MLF) is basically the same as WIFIA’s dual-use role for Covid-19, to lower the cost of debt for local public-sector borrowers. Obviously, the mechanisms involved are very different, but in principle (and perhaps also as a matter of political practicality), expanding WIFIA’s dual-use Covid-19 role should be seen as something closer to the Fed’s MLF than to an infrastructure initiative.

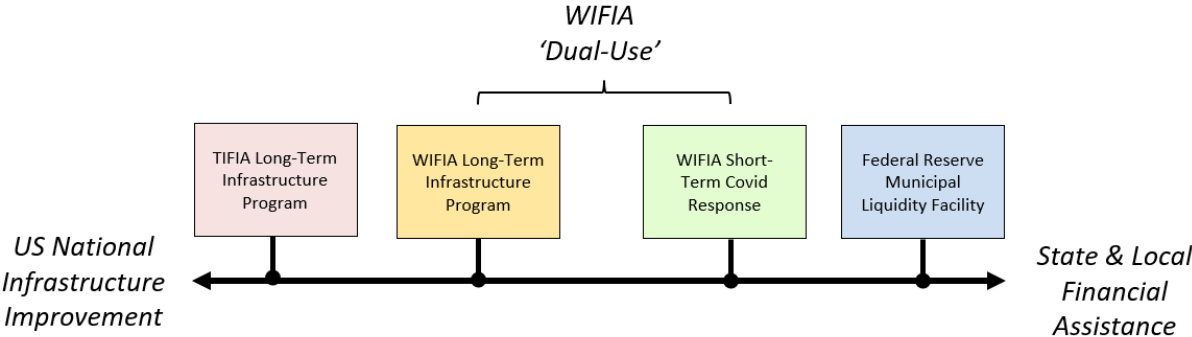


Figure 7: Spectrum of Federal Financing Objectives; WIFIA Dual-Use Context

Figure 7 illustrates this concept. Federal policy includes loan programs across a spectrum of very different objectives. A program like TIFIA designed for specific infrastructure additionality is at one end of such a spectrum, with the Fed's MLF for near-term state & local financial assistance at the other. As discussed throughout this opinion paper, WIFIA occupies a more nuanced spot on that spectrum. In normal circumstances, the Program is closer to TIFIA. To include federal Covid-19 responses, WIFIA can be characterized as being moved towards the Fed's MLF, which may help anchor the ideas in a recent precedent and explain the objectives.

Apart from an immediate use in connection with the policy suggestions listed above, this broader spectrum concept may be central to further assessment of WIFIA's fundamental mission and potential success. WIFIA is already treading an unusual path – its outcomes to date are positive but somewhat complex. For the Program to achieve its full potential in terms of not only improving US water infrastructure but additional policy objectives like post-pandemic recovery, a new context of consensus that defines success and provides guidance is required. Proposals to include WIFIA in post Covid-19 economic recovery efforts are an opportunity to start that necessary discussion.

About InRecap

InRecap LLC was started in 2017 to develop structural refinements for the debt recapitalization of US basic public infrastructure. The overall objective is to mitigate specific fiscal constraints that delay investment infrastructure renewal. InRecap's current focus is on defining and expanding the role of federal infrastructure loan programs to assist US state and local agencies in meeting the challenges of changing economic and social conditions. Website: www.inrecap.com