



SRF Fund Management Handbook

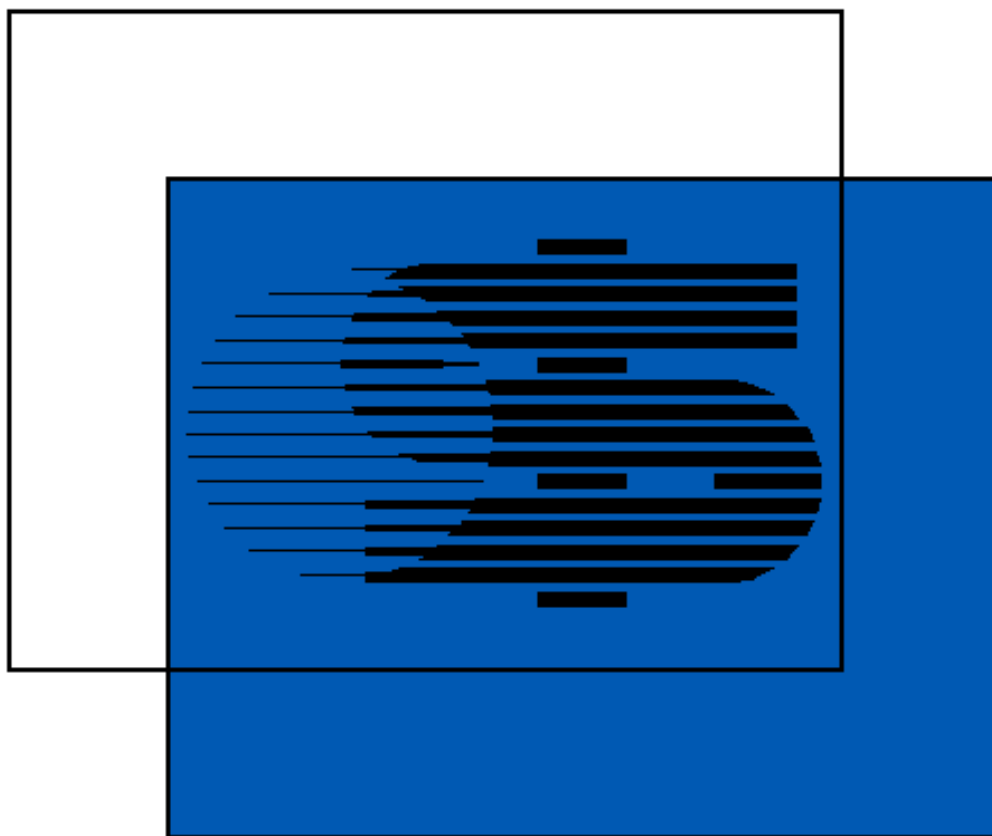


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Overview and Use of the Handbook

This handbook discusses a range of SRF fund management issues, with an emphasis on the *fiscal* aspects of fund management. Fiscal management of an SRF requires understanding and balancing day to day financial decisions against the long term performance of the fund. The handbook provides relevant case study examples of state SRF fund management experiences, and identifies useful tools and techniques for evaluating SRF fund management considerations. The handbook can be used in many ways:

- As a “how to” handbook for fiscally sound fund management by reading the entire document, or
- As a resource document to select and focus on specific fund management issues discussed in the handbook.
- The handbook also can and should be used in conjunction with other SRF fund management tools and resources such as EPA’s SRF Financial Planning Model, program information generated by the SRF National Information Management System, Leveraging and State Match Guides, SRF annual reports, and SRF financial statements.

This document is available electronically at <http://www.epa.gov/owm/finan.htm>

This handbook does not represent official policy determinations of the U.S. EPA with respect to the operations of SRFs. The handbook is intended to present management concepts and general good financial management practices to be considered by SRF fund managers.

1.0 INTRODUCTION

The Clean Water State Revolving Fund (CWSRF) program was created by the 1987 amendments of the Clean Water Act. Prior to the creation of the CWSRF, the Construction Grants program was the primary federal funding source for wastewater infrastructure. A key difference between the two programs is the revolving nature of the CWSRF. The available assets in the Construction Grants program consisted of incoming federal grants and varying amounts of state match. Once these assets were distributed to communities, they left the program. Aside from determining which communities receive the grants, state management of these assets was limited. In contrast, assets used to provide SRF assistance are lent to communities and ultimately return to the fund in the form of interest payments and principal repayments. States may also obtain additional funds for their programs through leveraging. Overall, states have a great deal of control over the flow of SRF assets and day to day management decisions can have significant impacts on the fund.

Implementing the SRF has resulted in a critical shift from **grant management** to **fund management**, from managing a static program that focuses on distributing grants to managing a complex loan program with diverse and constantly changing assets. The CWSRF is now reaching a mature stage of development with substantial principal and interest payments entering the fund. Continued success of both the CWSRF and the recently established Drinking Water SRF (DWSRF) will require an emphasis on managing the dynamic, revolving nature of an SRF.

This handbook is designed to highlight important fiscal aspects of SRF fund management and to provide examples and tools from state experiences to assist with the ongoing management of SRFs. The handbook is organized into three sections: The chapter on **strategic management** provides

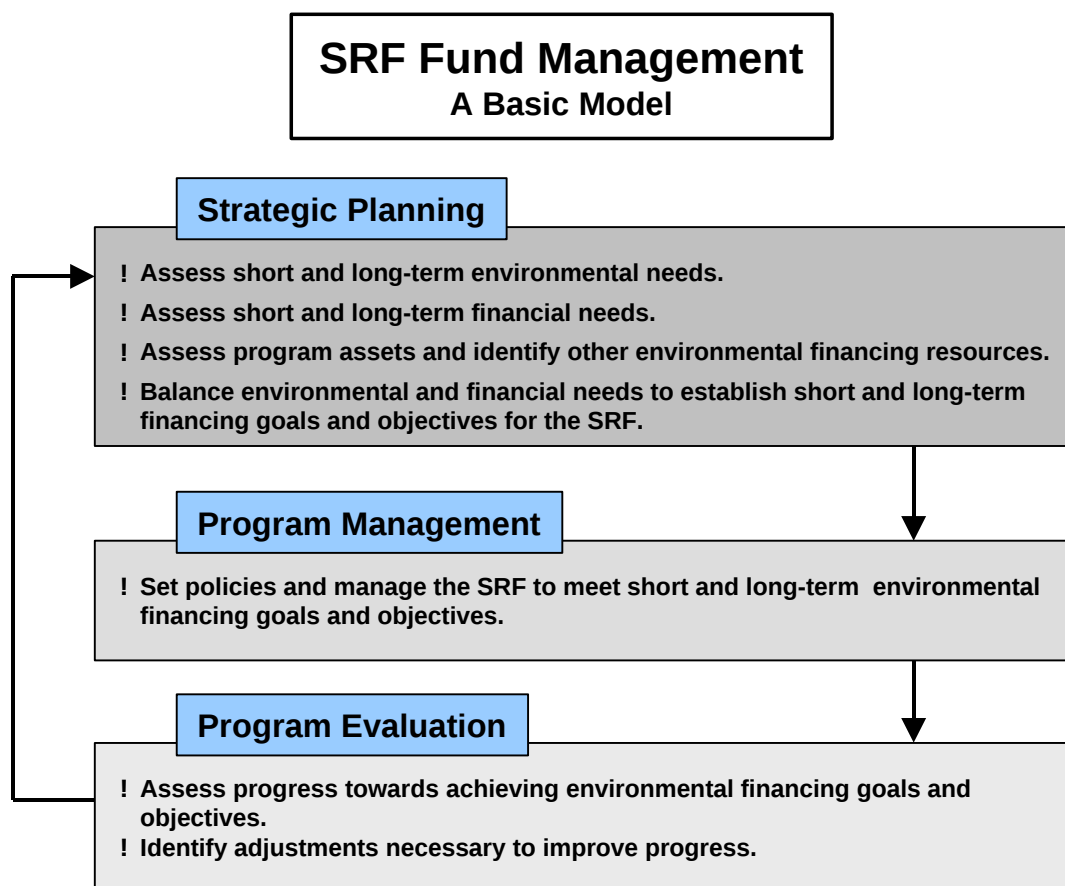
an overview of program assessment and goal setting in an SRF. Following the strategic management discussion is a set of chapters devoted to **fund management issues** that represent day to day program management topics which have a fiscal impact on the fund. The final section groups together a comprehensive set of **analytical tools and techniques** to be used in fund management. These include financial planning and projection techniques, the use of EPA's financial models and an overview of key SRF financial measures. Throughout the handbook, case studies of SRF programs have been included to show effective fund management at work.

1.1 PRINCIPLES OF FUND MANAGEMENT

The SRF program is specifically designed as an environmental financing program aimed at reducing clean water and drinking water project costs. The primary form of assistance is below market rate loans for water quality and drinking water projects. The financial subsidy aspect of the SRF program does not reduce the need for effective fund management. Fund management in the SRF is unique due to the balance that must be struck between environmental and financial goals.

The seed capital of an SRF is a valuable financial resource that should be utilized effectively. Comprehensive fund management should maximize an SRF's ability to meet current and anticipated environmental financing needs through judicious management of all program resources. A basic approach to fund management should include **developing a plan (establishing short & long term goals), program management, and program evaluation**. The process is illustrated in Figure 1 below.

Figure 1



In **strategic planning**, program managers essentially develop a long-term business plan for their program. To accomplish this, they should set out to determine what kinds of environmental and financial needs the SRF must address. This information should be used to establish short and long term financing goals for the program. Once the program's goals are established, the SRF should be managed to meet these goals. **Program management** encompasses the setting or adjusting of policies and the day-to-day management of the fund. Critical issues such as the level of interest rate subsidy to offer, selection of projects to

receive assistance, timely commitment of new and recycled funds to projects, investment of idle funds, and decisions to issue debt must be evaluated in a financially responsible manner to ensure that funds are used effectively. Collectively, the day-to-day decisions of SRF fund managers make up the overall effectiveness with which a fund is utilized. These decisions must be made in light of the goals established during the business planning process. Continuous **program evaluation** or assessment provides a check on whether or not current policies are helping to meet the SRF's goals.

1.2 FUND MANAGEMENT AT WORK: AN OVERVIEW OF STATE PROGRAMS

Individually, the SRFs vary greatly in the size and scope of their operations. Since the start of the CWSRF program, federal and state capitalization has accumulated steadily to \$20 billion and total cumulative available funding has grown to \$34 billion (through June of 2000). The funds available now exceeds 168% of the cumulative seed capital due to leveraging, loan principal repayment, and net interest earnings.

The financing approaches used in the SRF program does impact the funds that are available for projects and the financial management issues that each program faces. Table 1 below identifies the breakdown of the 51 CWSRF programs

according to two important dimensions, issuance of leverage bonds and issuance of bonds for state match.

The use of bonds or borrowing in the SRF program has numerous impacts on a program over time. The use of leverage bonds provides an increase in available funds for projects over the near term and may provide greater cumulative financial assistance over the life of a program, when adjusted for inflation. The use of bonds for state match enables a state to comply with the state match funding requirement, but reduces available funding over time as interest earnings that could have been used to fund new projects are instead used to repay match bond principal and interest.

Table 1

CWSRF Program Structures			
	Direct Loan Programs	Leveraged Programs	Total
No SRF Borrowing for Match	25 (49%)	10 (20%)	35 (69%)
SRF Borrowing for Match	4 (8%)	12 (24%)	16 (31%)
Total	29 (57%)	22 (43%)	51 (100%)

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2.0 STRATEGIC FINANCIAL MANAGEMENT

2.1 FUND MANAGEMENT OBJECTIVES

While there are many differences between SRF programs in terms of total dollars managed, financial structure, environmental priorities, and number of loan recipients, there are common objectives for the program that can serve to guide all programs in the area of fund management.

The SRF program has several goals. The first is that the capital contributed to the program is used efficiently and maintained in perpetuity. Ultimately, both the Clean Water and Drinking Water SRF programs are expected to revolve and this is reflected in EPA's goal of providing environmental assistance far into the future. Another goal is that states use SRF funds to achieve the greatest environmental results.

Working within these goals, states have two focused objectives in managing their SRF programs. The first is to ensure that financial assistance is provided to projects that will produce the most desirable environmental and public health benefits. The second objective is to achieve sound financial performance while providing the financial assistance.

All of these fund management objectives must be balanced to achieve an SRF's desired results. For example, loan interest rates shouldn't be set at such a low rate that the long-term SRF purchasing power is unnecessarily eroded by inflation and, at the same time, the rates should not be set so high that there is little financial benefit provided by an SRF loan. A balance must be struck between these extremes.

The balancing of objectives for an SRF program can be thought of as trying to reach an optimal solution to:

- make the most money available, consistent with demand for funds;
- commit money quickly to meet project needs;
- offer attractive financial terms; and
- maintain the purchasing power of the funds being managed.

For each SRF program, the optimal solution will depend on state specific factors such as the demand for financial assistance, availability and financial benefit of other assistance programs, state funding priorities, current market conditions, and legislative support.

All of these factors should be analyzed as part of an overall SRF financial plan. Such a plan should lay out the basic operating assumptions of the program over time. What are the expected cash inflows and outflows of the program, what assistance can be provided, and how valuable is the assistance to the borrowers?

2.2 FUND MANAGEMENT TIME HORIZON

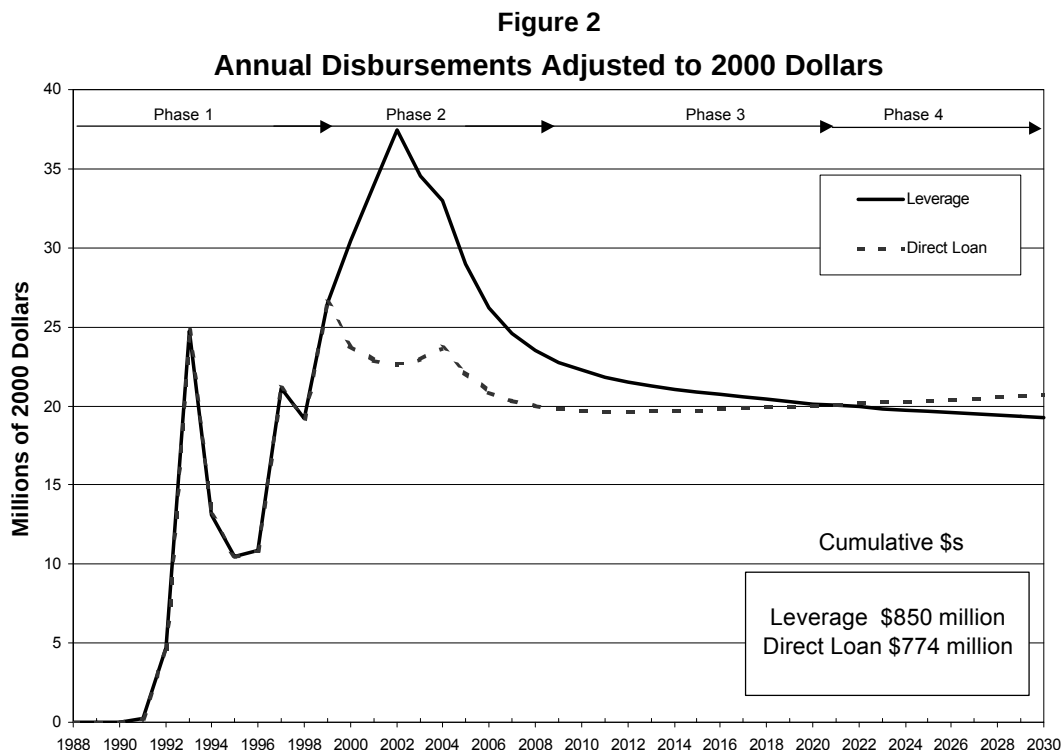
Time is a critical element when considering fund management. SRF financial management is a process that takes place over time and consists of a series of financial actions and decisions that have both short and long term implications. Due to the time value of money and the environmental benefits of building projects sooner rather than later, SRF assistance provided this year is not the same as assistance provided next year. Similarly, financial actions taken this year may have little impact until several years later. For these reasons, fund management must be considered across the dimension of time to balance what can be accomplished in the present versus the future. The time element is illustrated in Figure 2 below.

The figure shows project funding levels under two scenarios and is similar to the results produced by many SRF financial planning exercises. The dashed line represents a direct loan program and the solid line represents the same program with leveraging beginning in 2000. Phase 1 on the figure is the pre-leveraging period.

Phase 2 of the figure shows that leveraging will immediately increase the available project funding in 2000 when leveraging starts. Assuming that leveraging continues, the funding level (in inflation adjusted dollars) will remain higher for the next 22 years. However, the funding level under a direct loan program will rise relative to a leveraging scenario (Phase 3). At some point in the future, a direct loan program with otherwise identical financial terms will always produce more nominal annual funding than a leveraged program (Phase 4).

In this example, the cumulative funding provided over the period illustrated is higher for the leveraged program, demonstrating a leveraged program's potential to provide greater assistance overall. The challenge for fund managers in considering leveraging is to determine the value of funding projects and achieving environmental results sooner in exchange for potentially reduced longer-term funding.

When evaluating SRF programs in the context of time and future events, there are many factors that will affect the program that cannot be controlled or accurately forecasted. The best that can be done is to make reasonable assumptions about what is likely to happen in the future and to apply those assumptions to evaluate potential future outcomes.



Key assumptions are: leveraging initiated in 2000, loan rate of 3%, bond yield of 5.5%, 10% debt service reserve, 2% bond issuance cost, and investment earnings of 4.5%. Leveraging maintained at 50% of program equity. Discount rate of 3%.

The following are some important factors that may impact SRF programs. Changes in each could have varying effects on the financial projection results illustrated in Figure 2.

- Interest rates and Federal Reserve policies
- Short and long-term inflation rates, both expected and actual
- Congressional actions
 - future appropriations
 - reauthorization of existing legislation
 - passage of new legislation
- Available funding from other federal and state drinking water and water quality financing programs
- Legislative actions and enforcement
- National, regional, and local economic conditions
- Regional demographic shifts
- Technology changes
- Increased understanding of water quality and drinking water needs

These factors, both individually and collectively, will have impacts on SRF funding resources, loan terms, demand for loan funds, and the long-term financial position of an SRF. Of these factors, general market interest rates and inflation rates will have the most direct fiscal impact on the program and must be accounted for in any financial planning effort. Market interest rates will drive the level of loan interest rates that the program must offer to provide meaningful subsidies to borrowers and will also directly affect interest earnings of the SRF. Conversely, inflation will erode the purchasing power of the SRF over time. These two critical factors need to be incorporated into long-term financial planning in terms of an appropriate discount rate or effective real rate of interest.

The combination of financial and environmental factors that have short and long-term implications provides a complex framework for analyzing fund management issues. To help organize the discussion of these issues in this handbook, a number of major fund management questions

have been identified. These questions are introduced in Section 3.

2.3 ASSESSING ENVIRONMENTAL NEEDS

The pivotal activities of a water quality or drinking water program are to identify and understand the environmental and public health needs of the program. The basic question to answer is, “What activities or projects need to be undertaken to achieve the program’s environmental/public health objectives?” Examples include designing and constructing wastewater and drinking water facilities, identifying and protecting critical water resources, encouraging desirable uses of water resources, and discouraging undesirable uses of water resources.

The required information to assess environmental/public health needs include cataloging water resources in the state by location, type, use, and current and desired water quality objectives. Assessments of water resources are typically performed with the aid of geographic information systems (GIS). With this information, planning can be performed with respect to funding desired activities and projects.

2.4 ASSESSING SRF FINANCING NEEDS

For an SRF, the next step is to identify financing needs within the context of achieving environmental needs and goals. The project priority setting process and resulting project funding priority list provide a basis for identifying SRF financing needs.

Through the process a state can identify which projects have the highest priority, which projects are actually slated for receiving funding, what level of assistance is required, and when financing needs will actually be required. Evaluating funding needs can be used to assess the **demand** for SRF funds.

While overall financing needs may exceed available resources, the demand for SRF assistance may not. Managing demand, through activities that include marketing and technical assistance, is important in running an efficient SRF program. A fund manager must understand how many dollars will be required and when those dollars will be required from the fund. Such an assessment must be conducted in conjunction with assessments of other funding sources and the ability of other financing programs to share in the financing of desired activities and projects.

The end result is to identify the demand for SRF funds. This demand for funds is then compared to the availability of funds to determine the ability of the SRF to meet funding needs. When SRF funding demand greatly exceeds the availability of funding resources, the SRF may want to consider techniques for increasing funding

resources, such as altering loan terms or leveraging (see discussion that follows).

2.5 SETTING SHORT & LONG-TERM FINANCING GOALS

The balancing of environmental and financing needs with financing resources provides a foundation for establishing short and long-term SRF financing goals. This can then be used to establish what projects and financial assistance can reasonably be provided over the near and longer terms. Such goals should become an integral part of an SRF strategic plan.

The Ohio CWSRF conducted a strategic planning exercise to determine the funding needs and resources of the CWSRF. The following case study describes their efforts.

Case Study of Ohio Water Pollution Control Loan Fund's (WPCLF) Assessment of Fund Management Options

Vital Statistics as of June 30, 2000

First Loan Issued in October 1989	Federal Capitalization Grants:	\$920 million
Leveraging Initiated in 1996	Total Funds Available:	\$1.8 billion
Extensive Borrowing for State Match	Total Assistance Provided:	\$1.6 billion
Average Loan Interest Rate: 4.0%	Number of Loans:	738

In March, 1997 the Ohio WPCLF initiated a strategic planning process to develop a long-term business plan to use as the “blueprint” to shape and direct the WPCLF through the year 2001. The purpose of the plan was to describe how the resources of the WPCLF would be directed beginning in 1998. The development of the plan was divided into three major steps:

1. Assessing environmental needs and priorities;
2. Evaluating funds available for assistance; and
3. Combining steps 1 and 2 into a business plan.

This case study focuses on the evaluation of funds portion of the planning process, and draws on a WPCLF funding analysis report. The WPCLF's Report on Fund Management Options begins with the fund objectives of:

- Providing financing for priority wastewater and NPS projects; and
- Maintaining the fund in perpetuity.

To begin evaluating approaches for achieving the objectives, various fund management options were considered. These options included combinations of altering loan interest rates and repayment periods, undertaking different leveraging approaches, and altering capitalization scenarios. The most suitable options were retained and analyzed in detail.

The options analysis consisted of financial modeling of the program through the year 2051 to project all program sources and uses of funds using the different assumptions associated with each option. For each option analyzed, annual and cumulative funding capacity was projected in nominal and inflation adjusted terms. Inflation adjustments were based on the average annual change in the consumer price index from 1952-1995, which was calculated to be 4.12 percent.

For purposes of the analysis, the WPCLF utilized a target funding level of \$200 million per year, which is slightly more than the average funding level achieved by the program in the previous five years. The funding levels achieved with each option were then compared to the target funding level in nominal and inflation adjusted terms. Total cumulative funding capacity achieved by each option was also calculated and presented for comparison purposes.

The results of the analysis showed that a combination of fund management steps will be required to meet the funding target. Leveraging will be an integral part of meeting funding needs, but must be used carefully to minimize the loss of annual funding capacity over time. Increasing loan interest rates and augmenting capitalization provided the greatest impact on the WPCLF's overall capacity.

The conclusion reached in the report is that the WPCLF has the capacity for meeting a significant amount of Ohio's present and future financing needs for water pollution control and water resource improvement projects. However, four essential factors need to be managed to do this:

1. The amount and timing of fund leveraging;
2. The costs of bond issuance;
3. The interest rates charged borrowers; and
4. Future strategic fund capitalization.

A public advisory group meeting was held to review the findings. Comments received from individuals supported funding immediate needs through leveraging with a possible trade-off in long-term capacity, increasing loan interest rates to increase capacity, and requesting additional state capitalization. A shorter 20 to 30 year time horizon was recommended for future fund planning.

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3.0 SRF FUND MANAGEMENT ISSUES

Effective SRF fund management is not the result of a single action or decision that results in a successful program. Instead, program success depends on how a series of fund management questions are identified, answered, and revisited over time. Important questions include:

- Should loan terms be adjusted?
- Does the fund receive adequate returns on cash and reserve fund investments?
- Are fund resources being utilized effectively?
- Does the fund have a sound loan portfolio?
- Is sufficient project assistance being made available?
- Does the fund have sufficient administrative resources?
- Should the fund leverage/continue to leverage?
- What impact will borrowing for state match have on the fund?
- What impact will set-asides or capitalization transfers have on the program?
- What is the sustainable funding level from the program?

This handbook is designed to take a three pronged approach to discussing fund management issues. First, the handbook addresses each of these fund management issues individually. Second, recognizing there is considerable overlap in the issues, the conclusion of each individual issue discussion identifies the relationship between the current fund management issue and other related fund management issues. Third, as each issue is addressed, the discussion is accompanied by pertinent case studies of how states have faced and answered these fund management issues.

Analytical tools and techniques that are referred to in the discussion are identified in italics and are explained in more detail with illustrative examples at the end of the handbook.

Use of Cash Flow Modeling/Financial Planning for SRFs

Each of the fund management topics require a certain level of financial analysis to understand the financial implications of any particular SRF financial policy choice. *Cash flow modeling/financial planning* is the principal technique for analyzing the financial impact of decisions over time, given the financial complexity of revolving loan funds. This type of financial analysis consists of systematically identifying all cash flows associated with an SRF over time, including capitalization, loan disbursements and repayments, earnings on investments, and bond issuance and repayment.

Computerized cash flow modeling tools have been developed by underwriters, financial advisors, EPA, and internally by states to support SRF financial management activities. These types of tools use historical financial activity of an SRF, anticipated near-term financial activity, as well as the longer-term projected future financial activity. Changes in key assumptions required to make financial projections are used to identify the impact of potential policy choices. Cash flow analyses should also consider the impact of time and the cost of money by evaluating financial scenarios in terms of *today's dollars or present value/constant dollars (dollars stated in terms of equal purchasing power)*.

Many of the analyses presented in this handbook are based on results from EPA's new SRF Financial Planning Model. This model allows program level analysis of CW and DW SRFs, capturing the most important financial assumptions that impact the financial condition of SRFs. The model is an Excel based tool available from the SRF branch at EPA headquarters.

In the discussion that follows, modeling tips and comments are provided in text boxes like this one for the EPA SRF Financial Planning Model.

The discussion of tools and techniques provides a comprehensive list of key financial measures that have been applied to SRF programs, along with a matrix that relates the application of each measure to the financial management questions.

An underlying requirement of any discussion of fund management is the availability of reliable financial information, confirmed through the *audit* process, to provide the basis for financial analysis of a fund. The use of *independent audits* of program funds provides assurance to SRF management that policy decisions are based on reliable financial information.

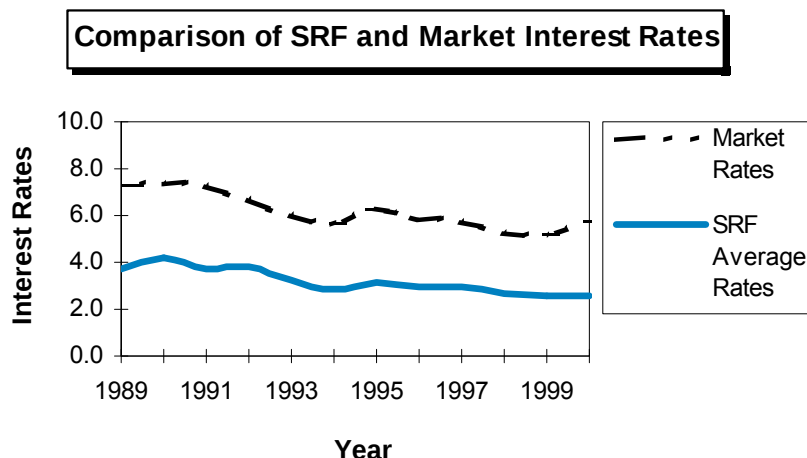
3.1 ADJUSTING LOAN TERMS

There are a number of situations that may cause SRF management to consider whether loan interest rates and other loan terms should be adjusted. These include overall changes in market interest rates, low demand for program assistance, complicated interest rate formulas, and/or a desire to stretch SRF funds further. Regardless of the reason for reviewing loan terms, all SRFs are continually faced with the question of what loan interest rates and repayment terms to use for their loans.

Figure 3 presents a comparison between average CWSRF interest rates and comparable market rates over the past ten years. After an initial start-up phase, the CWSRF rates are a relatively uniform proportion of market rates. The constant change in average CWSRF rates suggests that interest rate review and revision is an ongoing process.

Given that the purpose of SRF programs is to reduce the costs of environmentally beneficial projects, the interest rate charged and repayment terms for loans are critical factors to the entire program. The loan interest rate and repayment terms establish the subsidy or benefit provided by the program to borrowers. At the same time, loan

Figure 3

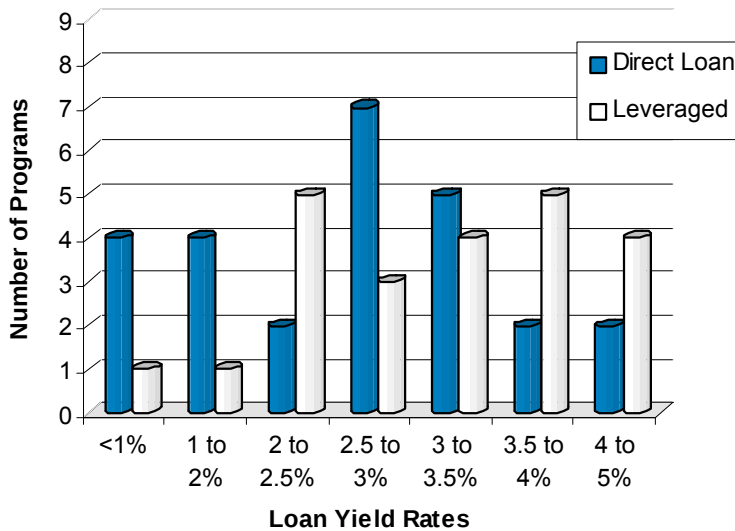


interest earnings and principal repayment are the main source (after capitalization and leveraging) of cash inflows for the program, allowing it to maintain its capital base and revolve into the future.

Loan interest rates may be set anywhere between zero percent and market rates (the DWSRF does have a provision allowing negative interest rates for hardship loans), as determined by the states. As loan interest rates are reduced below market rates a benefit is provided to the borrower in terms of reduced borrowing cost. The greater the loan interest rate reduction, the greater the benefit. The reduction of loan interest rates does have a negative consequence on the fund of reducing future loan interest earnings for the fund.

In 2000, CWSRF loan interest rates ranged from a low of zero percent to a high of 4.3 percent, with a median of 2.7 percent. Figure 4 provides a categorization of CWSRF interest rates for each of the 51 programs in 2000, broken out for direct loan and leveraged programs. The most common interest rates are in the 2.5 to 4.0-percent range. The leveraged programs tend to have higher loan interest rates, to help support the interest expense on the bonds.

Figure 4



For the borrower, delaying loan principal repayments has a similar effect to reducing interest rates. As principal repayment is delayed, more financial benefit is provided to the borrower. However, principal repayment terms also have a direct impact on an SRF. Delayed principal repayment translates into a direct delay in the recycling of those funds. The desire to maximize SRF earnings and principal repayment must be balanced with the desire to provide greater assistance to borrowers, in the form of lower interest rates and preferential repayment terms.

Loan principal repayment can be structured to shift principal repayment into the future, as long as some level of principal repayment begins within one year of project completion. The following principal repayment structures generally represent the spectrum from less to more shifting of principal into the future.

- **level principal** – periodic equal payments of principal over the loan amortization period, while interest included in total payments declines over time.

- **level debt service** – periodic equal total payments of principal and interest, results in lower principal payments early and larger payments later, like a home mortgage.
- **gradual ramp-up** – periodic payment of principal and interest increases over time, the resulting principal payment in early years is even lower than level debt service.
- **balloon payment** – majority of principal is paid at the end of the loan amortization period, interest (if charged) is paid on the outstanding loan balance until the balloon payment is made.

Each of these general approaches to principal repayment can be designed with unique variations; however, the exact impact for the borrower and SRF will depend on the specific structure of the loan. Naturally, longer loan repayment periods delay the repayment of principal resulting in potential financial benefit for the borrower and reduced fund recycling for the SRF.

The Massachusetts CWSRF recently initiated an extended bond purchase program that allows borrowers to refinance bonds with a term of greater than 20 years. This allows the borrower to reduce debt service payments by extending principal repayment. This is allowed in the CWSRF program because the term of refinanced debt is not limited at 20 years. Additionally, the state plans to reduce the SRF debt service reserves associated with these bond purchases to ensure that the overall financial ability of the SRF is not significantly affected.

Reviewing loan terms requires a balanced analysis of the effect on borrowers and the SRF. The results of each analysis can be reconciled to reach a final answer on appropriate loan terms.

SRF Planning Model Tip

- Select Loan Repayment under the Projections tab.
- Select “Enter Loan Portfolio.”
- Enter the terms (interest rate, maturity, and amortization type) that you want to analyze for your program.
- Enter up to 7 different combinations of loan terms.

3.1.1 Loan Terms from the Borrower’s Perspective

A potential SRF borrower will look to the SRF as one of several financing options for proceeding with a project. The highest cost option for a potential borrower is financing the project on their own by borrowing funds at the current market interest rates that the borrower faces (market rates vary for different borrowers based on their credit condition). The SRF program should provide lower cost alternatives to borrowing at market rates.

An evaluation of appropriate SRF loan terms (interest rates, repayment, and loan fees) requires an understanding of what the other financing options are for potential borrowers. Questions include:

- What is the cost of borrowing at market rates for a borrower?
- What other sources of funding exist?
- How available is the funding?
- What are the financing terms?

Understanding the range of options will help to gauge the financing role the SRF should play in the state and the appropriate interest rates or subsidy levels that the SRF program should provide.

Comparing current and potential SRF loan terms to a borrower’s market rates and other programs requires a common basis of comparison. For

different programs that involve borrowing funds over similar time periods, it may be sufficient to compare interest rates directly to other rates. Such comparisons take the form of differences in basis points (hundredths of a percentage point) or interest rates as a percent of market rates. Thus an SRF loan with a five percent interest rate when compared to a six percent market rate would be 100 basis points below market or 83 percent of market rates.

When financing options differ substantially in terms of the time period of financing, varying interest rates over the life of a loan, construction period interest, balloon payments, loan fees, or the form of assistance provided (*e.g.*, grants versus loans), a more rigorous approach is required to compare the options. A useful technique for comparing financing approaches is to calculate a ***grant equivalency*** of each option.

Financing a project using traditional borrowing at market rates would have no subsidy and would have a grant equivalency of zero percent. A two percent SRF loan for 20 years when market interest rates are six percent would be equivalent to a 30 percent grant. Grant equivalency is calculated as the reduction in present value cost of a financing option compared to assistance at market rates. This technique will allow analysis of a wide range of assistance programs in comparison to current and potential SRF loan rates to determine the appropriate interest rates for an SRF program. Section 4.4 provides additional information and example calculations of *grant equivalency*.

As alternative loan terms are being considered, it may be useful to calculate hypothetical loan amortization schedules (projected principal, interest, loan fees, total payment, and loan balance for each payment period) to help understand the magnitude of different changes in loan terms. This type of analysis can provide a realistic context for the differences between potential loan terms for the same loan amounts.

Case Study of the Utah State Revolving Fund Financial Assistance Program

Vital Statistics as of June 30, 2000

Federal Capitalization Grants:	\$102 million	First Loan Issued in 1989	
Appropriated State Match:	\$20 million	Direct Loan Program	
Total Funds Available:	\$154 million	Number of Loans:	40
Total Assistance Provided:	\$126 million	Loan Interest Rate:	0-5%

Since 1983, Utah has operated a state administered grant and loan program for wastewater projects to supplement the Construction Grants Program, initially, and now the State Revolving Fund Program. The focus of their program is matching the level of financial assistance provided with the financial need of each borrower. Financial need is based primarily on estimated annual residential sewer user charges as a percentage of median adjusted gross household income (MAGHI). Estimated user charges are based on projected O&M costs, plus existing debt service, plus the resulting debt service from the proposed loan (potentially combined with a grant). The MAGHI is determined from the most recently available State Tax Commission records.

When potential borrowers have projected costs that exceed 1.4 percent of MAGHI, they will be considered for a hardship grant to bring their cost below 1.4 percent of MAGHI. To be considered for a loan, the user charges cannot exceed 1.4 percent of MAGHI. The interest rate recommendation for the loan portion of assistance can fall between zero percent and market rates to ultimately achieve a cost burden on the residential users that falls in the 1.1 percent to 1.4 percent range relative to MAGHI. (The staff has developed a cost of service spreadsheet model to evaluate the potential cost burden under alternative scenarios.)

Other factors that the staff considers when evaluating assistance terms include:

- comparing project costs relative to MAGHI to other recently completed projects in the state;
- optimizing the return on the security account while allowing the project to proceed;
- local political and economic conditions;
- cost-effectiveness of financing alternatives;
- availability of funds; and
- environmental need.

The results of the staff evaluation of the specific criteria and other factors are presented as recommendations to their Board for consideration.

For additional information contact: Utah Department of Environmental Quality
288 North 1460 West
Salt Lake City, UT 84114

To the extent that borrowers consider or perceive the federal requirements that accompany SRF funding as increasing project costs, this higher cost should be factored into the analysis. For example, when comparing financing options for a project, the SRF funded approach may increase project costs by some percentage to account for the cost to comply with Federal requirements. The bottom line comparison can then be made in terms of *grant equivalency* or another basis of comparison.

3.1.2 Loan Terms from the SRF Perspective

The interest rates charged on loans and other terms will have a direct financial impact on an SRF over the entire life of each loan. During each loan amortization period, loan interest, principal repayment, and fees will be received by the SRF according to the loan terms. This stream of payments over time should be analyzed as part of any review of current or potential loan interest rates. A *financial plan* should be prepared that incorporates basic capitalization and loan assistance information into projections that estimate year-by-year inflows and outflows of funds. The major inflows for direct loan programs will be capitalization, loan interest and principal repayments, and investment earnings while the major outflows will be new loan disbursements and administrative costs.

Changes in interest rates on new loans will directly affect the *financial plan*. Increases in interest rates will increase interest earnings from loans and produce more funds for future loans. Decreases in interest rates on new loans will decrease interest earnings and reduce the amount of funds available for future loans.

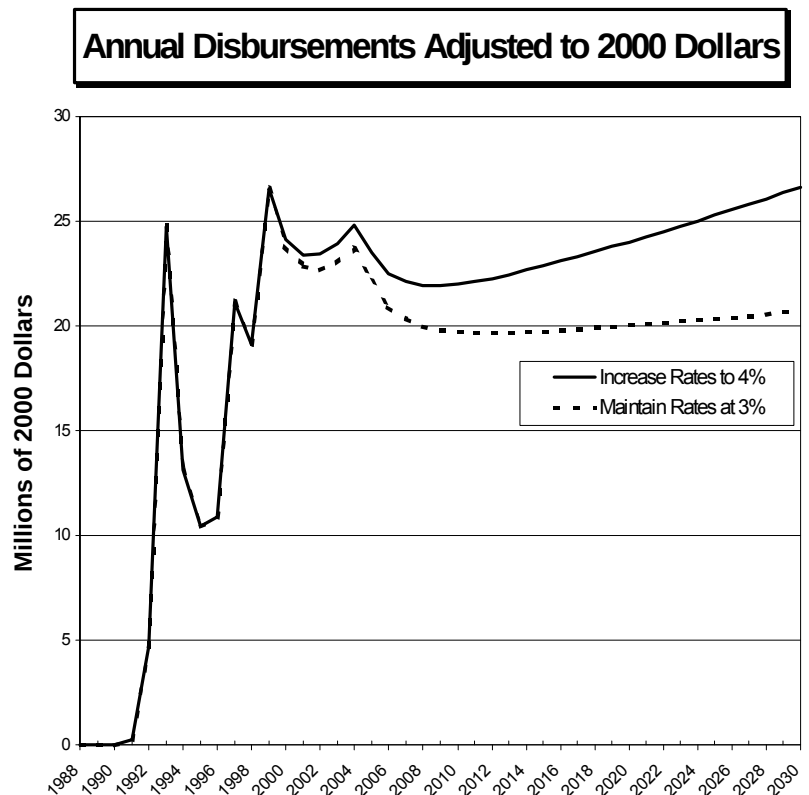
Leveraged programs and programs with match bonds add to the complexity of *financial planning* by adding bond fund cash inflows and bond interest and

principal repayments as cash outflows. However, the fundamental concept that changes in loan terms will impact the overall financial resources of an SRF and future project funding from an SRF remains the same.

Financial planning to assess interest rate impacts should begin with a common baseline that identifies funding levels over time using current program assumptions. Changes to interest rates or other assumptions can then be compared to this baseline to identify the magnitude and direction of each potential change. This type of analysis is presented in Figure 5 for an interest rate change in a program.

In this example, a program is currently charging an average loan interest rate of three percent. The dashed line presents the year by year funding (adjusted to 2000 dollars using a three percent discount rate) that this program can provide. The

Figure 5



Key assumptions: Direct loan program, initial loan rate of 3%, loan rate increased to 4% for loans made beginning in 2000, investment earnings of 4.5%, discount rate of 3%.

solid line presents a phased increase in loan interest rates to four percent. The impact of a rate change is not seen right away as all existing loans still yield three percent, but over time the return from new loans at four percent begins to dramatically increase project funding levels. By the year 2020, the funding level could be increased from \$22 million per year to \$27 million per year with a one percent change in loan rates. As the chart indicates the difference in funding levels will continue to increase over time.

Selecting an appropriate loan interest rate requires a judgement call to reach the right compromise between funding projects today at a meaningful subsidy level and preserving capital to fund projects into the future. No one answer is right for all states. Each SRF fund manager is responsible for determining what is appropriate for their state.

3.1.3 The Issue “Adjusting Loan Terms” Directly Relates to:

- Ability to make loans and market the program
- Fund utilization
- Composition of the loan portfolio
- Ability to leverage or borrow for match
- Long term sustainable funding levels

3.2 RETURNS ON FUND INVESTMENTS

After loan interest rates and other loan terms, the next most important area of SRF earnings comes from the interest earnings on cash and investments held by the SRF. Frequently, this area of the program is controlled by state investment policies and decisions are under the control of the State Treasurer’s office. Cash investment and management is one of many financial functions that a Treasurer’s office must perform and frequently SRF funds are invested along with other state funds in this manner. When bonds are held by the program, reserve investment requirements are specified

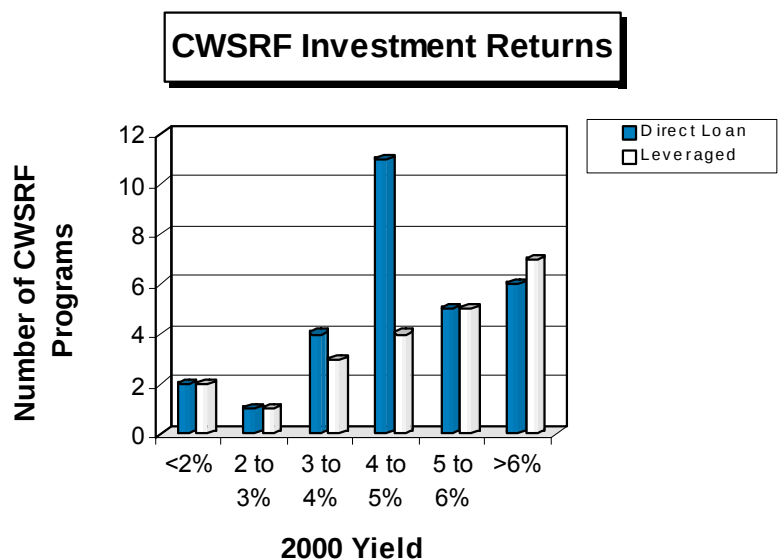
in the bond indenture. However, periodic review of investment earnings should be a part of ongoing SRF financial management to ensure that investment earnings meet expectations and are being properly credited to the SRF.

Figure 6 shows the distribution of investment returns for CWSRF programs in 2000 (returns are estimated based on average cash and investment balances held for 2000). The figure shows that many of the programs had investment yields in the four to six percent range. About an equal number had slightly higher or lower yields. At the lower end of the scale, six programs had yields below three percent. The figure does not show a significant difference between investment yield for direct loan programs as compared to leveraged programs.

The yields presented are based on estimates to provide a basis of yield comparisons. A more precise calculation of *investment yield* is required to assess this aspect of fund management in more depth. Specific analysis requires detailed data on investments and their returns.

SRF programs that issue tax-exempt bonds to leverage their program and/or raise state match are subject to a complex set of arbitrage earnings restrictions and rebate requirements. These rules, defined in section 148 of the Internal Revenue

Figure 6



Code, are designed to prevent issuers of tax-exempt bonds from retaining any interest earnings that exceed the interest cost of the bonds (*i.e.*, arbitrage earnings). Arbitrage restrictions add an additional dimension to investment earnings for programs using tax-exempt bonds.

SRF Planning Model Tip

- Investment earnings are controlled in the Use of Funds section of Projection Assumptions.
- Set anticipated interest earning rates on short-term investments and reserves.
- Generally, interest rates on longer-term reserve investments will be higher than short-term investments.

3.2.1 Evaluation of Investment Yield

Investment earnings should be monitored on a routine basis, typically monthly. The information required to review investment earnings usually takes the form of monthly investment reports. Such reports should provide basic transactional information on the investment accounts and periodic posting of interest earnings and gains and losses on investments.

Using the information supplied in each report, a simple *investment yield* calculation should be computed for each major investment account group, categorized by the length of investment maturity, and collectively for all fund investments. This will provide an indication of the average return over the period for each account group and in total. The results can then be compared to typical market rates for similar investments as reported in financial publications.

When significant deviations are found between actual investment returns and market rates for comparable investments, the differences should be investigated. Low investment returns for a particular type of investment could indicate:

- investment earnings not being properly posted to an SRF account;
- excessive trading losses on investments;
- investment in inappropriate investment vehicles; or
- time lapses on investment deposits (un-invested funds).

While higher than expected investment returns are immediately appealing, such instances should also be evaluated because they may indicate:

- a lack of understanding of the investment group;
- inappropriate (*e.g.*, high risk) investments that could cause problems in the future;
- misstated financial information; or
- higher than expected cash balances due to project delays.

Any potential investment problems usually can be corrected quickly. However, they must first be identified as problems by conducting routine investment reviews. Corrective action steps can then be taken to correct the situation.

Ideally, the investment portion of an SRF should provide a rate of return that is comparable to similar low risk investments in the market place, such as, investments in U.S. government bonds and bank issued certificates of deposit.

Case Study of the New York State Clean Water SRF

Vital Statistics as of June 30, 2000

Federal Capitalization Grants:	\$1,671 million	Leveraged and Direct Loan Program	
Funds Available for Loans	\$5,104 million	Appropriated Match Provided	
Total Assistance Provided:	\$4,550 million	Total Number of Loans:	<u>641</u>
First Loan Issued in 1990		Leveraged:	322
Average Loan Interest Rate:	2.4%	Direct Short Term:	238
		Direct Long Term:	81

The New York State Clean Water SRF offers leveraged and direct loans at below market rates. Both types of loans are offered to strike a balance among the need (a) to maximize the delivery of program benefits, (b) to protect the credit quality of the leveraged loan portfolio, and (c) to maximize benefits to disadvantaged communities. (New York also offers a short term zero interest rate planning, design, and/or initial construction loan that can be rolled into these long term loans.)

Initially, program resources were “leveraged” at a ratio of 3:1. For every \$150 in loans, New York State would commit \$50 from federal capitalization and state match funds to borrower (debt) reserve accounts. Earnings on borrower reserve accounts are applied as an offset to each borrower’s loan interest cost. Three times leveraging corresponds to approximately a one-third interest rate subsidy. In June of 1992, the leveraging ratio was reduced to 2:1 for the purpose of increasing the subsidy provided to borrowers (from approximately one-third to one-half).

The reduction in the leveraging ratio to increase the borrower subsidy was accomplished by an amendment to the New York State statute governing the CWSRF. The amendment is scheduled to sunset on September 30, 2003. New York has not made a commitment to permanently reduce the leveraging ratio to two times. Such a decision would depend on anticipated future federal grants and a decision by the State of New York that offering greater financial subsidies to high scoring projects on the Intended Use Plan will yield greater environmental results than maximizing the number of projects that receive funding, but with lower financial subsidies.

Bond Financing and Investment of Federal Capitalization and State Match Funds Deposited in Leveraged Borrower Reserve Accounts

Leveraged loans are funded from the proceeds of CWSRF bonds. Because the New York City Municipal Water Finance Authority (NYW) is the dominant leveraged loan borrower, CWSRF bond financing activity is undertaken under two separate indentures; one that serves NYW and one which serves all other local governments. Operating out of two indentures allows New York to isolate the NYW credit and maximize the program credit rating. NYW financings are marketed on the basis of Aa1/AA+/AA+ ratings and the pool financing indenture is marketed to investors on the basis of Aaa/AAA/AAA ratings. With this structure, participating local governments benefit from the New York Environmental Facilities Corporation’s (EFC) ability to borrow on the basis of the Aaa/AAA/AAA ratings while being assured that any deterioration in NYW’s credit would have no detrimental impact on program borrowing costs. This arrangement also works to the benefit of NYW as it allows New York State to respond specifically to the funding timetable of NYW.

Capitalization dollars deposited in borrower reserve accounts are invested in U.S. Treasuries (State and Local Government Series (SLGS) or long dated repurchase agreements which are collateralized with U.S. Treasuries or U.S. government guaranteed securities. Collateralized repurchase agreements have been entered into with domestic and foreign banks, broker dealers, and insurance companies each meeting certain statutory rating requirements. NYS currently requires funds deposited under these repurchase agreements to be collateralized 110% with U.S. Treasuries or 113% with U.S. government guaranteed securities. NYS must have a perfected security interest in the collateral and it must be marked to market weekly with any shortfall cured within one

business day. Agreement providers must pay interest one day in advance of the SRF bond payment date. Agreements are bid on the basis of market interest rates.

The objective of the program is to secure a market bid that will enable the program to deliver interest subsidy payments that accounts for a percentage of the borrower's annual interest cost that at least matches the corpus allocation percentage. Since the inception of the program, NYS has succeeded in meeting this objective.

Arbitrage and Reserve Model Leveraging: Capturing Equivalent Refunding Savings for the Benefit of CWSRF Borrowers

New York uses the interest earnings on reserve funds to provide subsidy benefits to borrowers. In accordance with Section 148(f) of the Internal Service Code and Section 1.148-5(c) of U.S. Treasury Regulations, arbitrage rebate and yield reduction payments, respectively, are made to the U.S. Treasury on certain reserve fund investment (other than tax-exempt bonds) earnings in excess of the bond arbitrage yield to the U.S. Treasury.

Bond debt service can be reduced by refunding bonds in a lower interest rate environment. When doing an *advance* refunding (where bonds are refunded by more than 90 days in advance of the first call date), it is necessary to issue refunding bonds in an amount that exceeds the amount of bonds to be refunded. This is necessary to generate the bond proceeds needed to fund an investment escrow that will produce the future cashflow requirements needed to pay the debt service of the refunded bonds. For state SRFs that rely on the reserve model, the net SRF subsidy benefit to SRF borrowers is diminished by the necessary increase in bonds outstanding and the requirement that earnings exceeding the arbitrage rate on the new bonds (the refunding bonds) be returned to the U.S. Treasury. This decrease can only be offset by increasing the allocation of SRF equity to borrower reserve accounts, which would restore the loan to borrower reserve ratio and preserves the interest rate subsidy. New York has found this option to be untenable as it would require that previously financed SRF projects be relisted on the IUP and compete with new projects for funding.

In September 1997, New York initiated an advance refunding of SRF bonds issued for the purpose of funding SRF projects for NYW. Because federal tax law and regulations would restrict the borrower reserve fund earnings to the new, lower arbitrage yield of the refunding bonds, New York undertook a partial refunding. The partial refunding was done without the benefit of an SRF reserve as part of the bondholder security pledge. In effect, the unrefunded bonds retained the SRF reserve pursuant to the outstanding bond indenture (the "Senior Bonds") and the refunding bonds were issued on a subordinate basis (the "Subordinate Bonds"). In accord with federal tax regulations, New York (a) refunded only those pre-1993 bonds for which debt service could not be covered by SRF debt service reserve fund earnings and (b) refunded post-1993 bonds as defined by the difference between the outstanding bond balance and outstanding reserve fund balance. The arrangement resulted in the SRF borrower receiving the equivalent of an interest free loan for their post-1993 unrefunded bonds and a market rate loan for the balance as set by the interest rate of the refunding bonds. Although New York would have preferred a traditional refunding, yield restrictions limited the refunding options available to them that would produce a meaningful present value savings.

The development of this Senior/Subordinate Refunding approach has enabled New York's reserve fund leveraging program to achieve meaningful present value savings on behalf of local borrowers. Unfortunately, New York found this refunding approach to be suboptimal in that it only maximizes PV savings for the bonds that are refunded. Absent, tax law and tax regulatory constraints, a traditional high to low refunding of all callable bonds, would offer much greater savings to SRF borrowers. So long as its SRF reserve fund investments are subject to rebate and yield reduction payments, New York has found that a traditional high to low refunding can not consistently compete with the senior/subordinate refunding approach.

For additional information contact: Environmental Facilities Corporation
50 Wolf Road, Room 502
Albany, NY 12205-2603

3.2.2 The Issue “Returns on Fund Investments” Directly Relates to:

- Total funds available for loans
- Ability to leverage or borrow for match
- Long-term sustainable funding levels

3.3 FUND RESOURCE UTILIZATION

Regardless of the level of capitalization or the availability of additional capital through leveraging or other sources, each SRF has a pool of financial resources at its disposal. An important question to ask is, “Are those resources being used as efficiently as possible?”

This question is best examined by analyzing the *SRF balance sheet assets* to see how SRF resources are being utilized. SRF assets consist of five main components:

- Cash and Short-Term Investments, including loan repayments
- Debt Service Reserve Investments
- Loans Outstanding
- Undrawn Federal Grants, less amounts designated for set-asides (may show up in financials as a footnote)
- Undrawn State Match Amounts

The sum of these asset components comprise the total assets or financial resources of an SRF. All of these assets except debt service reserves make up the total assets available for loans. Therefore, a simple measure of the efficiency with which funds are utilized is a calculation of *loan commitments as a percent of available assets* (total assets less debt service reserves).

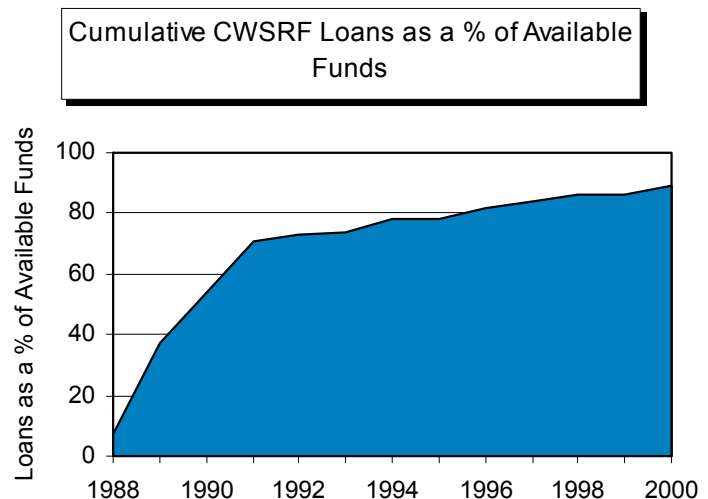
In the most efficiently managed SRF, this measure approaches 100 percent, which means almost all available assets are being committed as loans. From a practical standpoint, loan commitments must be less than available assets to account for the need to maintain cash balances that accommodate the time lag from receiving loan repayments, interest earnings,

new capital, or bond proceeds and actually disbursing the funds. Converting available assets to loans will also take time for programs as they go through their start-up phase. However, it is reasonable to expect that over time most SRF available assets should be committed as loans and this measure will approach 100 percent. Due to the timing of loan commitments and disbursements, most programs will not actually reach the 100 percent level.

Figure 7 presents the national average of cumulative CWSRF loan commitments as a percentage of cumulative available funds over time. The graph shows steady progress in increasing the use of available funds. In 2000, the average for the program had reached 89 percent, which was up from 86 percent in 1999. This trend is expected to continue as loan commitments continue to catch up to the available funds.

Individual CWSRF programs have naturally performed above and below the national average of cumulative loan commitments as a percentage of available funds. Some programs have even exceeded 100 percent, indicating that they are making loan commitments in anticipation of future availability of funds (*e.g.*, repayments and interest earnings).

Figure 7



Case Study of the Oregon's Accelerated Loan Commitment in the Clean Water SRF

Vital Statistics as of June 30, 2000

Federal Capitalization Grants: \$191 million	First Loan Issued in	1991
Total Funds Available: \$301 million	Direct Loan Program	
Total Assistance Provided: \$327 million	Number of Loans:	129
Match Provided from State Appropriations and GO bonds outside SRF	Average Loan Interest Rate:	3.8%

Oregon's Clean Water SRF is a direct loan program that is taking an innovative approach to making loan commitments. Initially, like all CWSRFs, Oregon only made loan commitments for funds that were actually on hand. However, with delays in project start-up and long disbursement schedules, Oregon's Department of Environmental Quality (DEQ) found itself with long lag times from the time when funds were initially available to actual project disbursements. This resulted in relatively large cash balances and undrawn grant amounts.

To reduce the lag time in fund utilization, Oregon is now committing more project assistance than it has funds immediately available because of its experience in projecting program cash flows and project disbursements. By examining the inflows and outflows of CWSRF funds, DEQ discovered that the program could commit to loans in anticipation of future cash inflows as long as it closely monitored the fund's projected cash balance. The table below presents a simplified illustration of this approach.

Quarter	Cash and Grants Available - Beginning of the Quarter	Loan Commitments	Loan Disbursements	Cash In-flows	Cash and Grants Available - End of the Quarter
1	\$10,000,000	\$20,000,000	\$2,000,000	\$1,000,000	\$9,000,000
2	9,000,000		3,000,000	2,000,000	8,000,000
3	8,000,000		7,000,000	5,000,000	6,000,000
4	6,000,000		4,000,000	8,000,000	10,000,000
5	10,000,000		3,000,000	2,000,000	9,000,000
6	9,000,000		1,000,000	1,000,000	9,000,000

In this illustration, if the program waited until the full \$20,000,000 was "available" the loan commitment could not be made until the end of the fourth period when funds available would exceed the \$20,000,000 project amount.

To monitor the fund's cash balance and to predict the fund's ability to commit to new projects, Oregon created an Excel based cash balance model to track the inflows and outflows of cash in the fund. With the spreadsheet, DEQ can predict the amount of new loans that the fund can originate and the effects the proposed disbursements would have on the fund's cash balance.

Program data quantifying all major projected cash inflows and outflows are entered into the spreadsheet on a quarterly basis. The current cash balance of the fund and the grants available to the fund are entered as the starting point for funds available. Then future inflows and outflows are added. The major cash flows consist of projected:

- grant payments;
- state match;
- loan principal and interest repayments;

- administrative expenses;
- disbursements for existing loan commitments; and
- investment earnings.

These cash flows are used to project future cash balances and the ability to commit to additional loans on a quarterly basis. Because the intent of the spreadsheet is to monitor the fund's future cash balance, only future activities of the fund need to be included for the spreadsheet to operate.

Once the anticipated financial activity has been included in the spreadsheet, the impact of committing to additional projects on the fund's cash balance can be evaluated based on the projected project schedules and disbursement schedules submitted by the borrower. This becomes one factor before loan commitments are made. This does not supplant either the calculation of funds available that determines the total amount of loans that will be committed each year, or the priority system that determines the order in which projects will be funded.

The cash balance projection spreadsheet does use a conservative estimate for potential investment interest and a rapid escalation of administrative expenses to build in a cushion against any unforeseen changes in the projected ability to commit funds. As the state gains more experience in projecting cash flows and committing funds in anticipation of funds becoming available, they will be better able to judge the need for conservative assumptions.

The use of accelerated loan origination has allowed Oregon to commit to \$37.7 million more in projects through fiscal year 1999 than they would have using the traditional funds on hand approach to loan origination. By completing the loan agreements earlier, projects are able to meet schedules rather than be delayed until the funds are available. The bottom line is that the program cash is used more efficiently. Additional benefits include being able to more accurately project the loan funds that will be available in future years. With this information, long-term forecasts are prepared for project management and administration. In addition, the state has been able to commit to four different short-term loans, providing construction period financing for projects that will receive USDA Rural Development funding. These projects, totally over \$15 million, have kept the cash in use for communities while other projects, higher on the priority list, are getting ready for construction.

After several years of "leveraging" future cash inflows, the low point on the cash flow model has moved from being several years out to being only 18 months ahead of us. While the nature of project schedules and the conservative assumptions will probably keep moving the mark out further, the program should be close to drawing down all available federal funds and using the cash on hand by that time (maintaining an appropriate cash reserve).

Other calculations are used to be sure that funds remain available for the highest priority projects when they are ready to construct rather than just going to a project whose disbursement projections fit the cash flow gaps. More short-term construction period loans will probably not be added unless unusual construction schedules create significant periods of time that cash is idle. The cash flow model is most useful in modeling disbursements before a loan is signed to be sure that the cash will be on hand when needed.

A prudent reserve amount will be maintained to allow for project schedule changes, and loan increases on on-going projects. In addition, allowing for the accumulation of cash to fund large, high priority projects will create on-going cash balances.

Oregon's cash balance computer model has become a useful tool in the direct loan program, maximizing the use of cash for the benefit of the communities and, essentially, "leveraging" our own cash flow. While it does not give the total picture, it provides an important piece in using the CWSRF to make the greatest impact possible on water quality problems in Oregon.

For additional information contact: Oregon Department of Environmental Quality
811 S.W. Sixth Avenue
Portland, OR 97204-1390

3.3.1 Assessing the Use of SRF Funds

The ability of an SRF to convert available assets to loans is a use of funds issue. An evaluation of the use of fund resources should begin with an identification of available assets or resources beginning at the start of the program and continuing out into the future. This pool of available assets can be compared against the use of the assets to make loans. From the start of the program, the increase in loan funds outstanding as a proportion of available assets should be climbing. If the program is lagging behind in converting available assets to loans, then the program may want to develop a plan for increasing loan commitments and accelerating loan disbursements over the near-term.

SRF Planning Model Tip

- Fund utilization rates are critical to modeling SRF Programs and are controlled under the Use of Funds tab.
- Fund use is controlled relative to the availability of funds to make new loans.
- Constraints may be imposed to ensure minimum cash balances are maintained.
- The model can perform trial and error calculation to solve for your fund utilization goals – check “Optimize Cash Balance” to use this method.

For SRFs that are lagging in using available assets as loans (slow program pace), the anticipated increase in fund utilization should be reflected in subsequent intended use plans to identify how available assets, which include loan repayments and interest earnings, will be utilized in the coming year. The utilization of funds and commitments to new projects should account for a program’s need to maintain reasonable working capital in the program and to account for large scale projects that will require disbursements over a relatively long time frame (*i.e.*, three or more years). Programs that are experiencing low usage rates of available assets (*i.e.*, maintaining excess cash balances and undrawn grant/match amounts) should move aggressively to ensure that funds are put to their intended use over the near-term.

3.3.2 The Issue “Fund Resource Utilization” Directly Relates to:

- Loan terms
- Availability of funds for investment
- Use of funds produced by leveraging
- Ability to leverage or borrow for match
- Long-term sustainable funding levels

3.4 LOAN PORTFOLIO MANAGEMENT

The purpose of an SRF is to make below market interest rate loans to projects that can achieve desired environmental and public health results. The ability of the loan recipients to repay loan principal and interest could have a major impact on the financial condition of the SRF. The financial ability of potential SRF borrowers should be assessed as part of the loan application review to determine loan affordability, ability to repay the loan, and loan security provisions that may be required such as reserve requirements and collateral.

The question, “Does the fund have a sound loan portfolio?” refers to the financial condition and ability of the loan recipients to repay the loans on an ongoing basis. A simple test of the soundness of the loan portfolio is to see if all scheduled loan principal and interest payments have been paid on time. Have there been any late payments or the need to restructure payments? If all payments are not being paid currently, this may be a sign of problems with the loan portfolio. Such difficulties should be investigated to determine the magnitude of the problem and identify any overall weaknesses in the loan portfolio.

The presence of weak segments or credits within the loan portfolio is not an inherent flaw in the management of an SRF. An integral part of a program may be to loan funds to financially weak borrowers to support projects that achieve desired environmental results. However, the financial condition or strength of the loan portfolio must be monitored to assess uncertainty over future loan repayments and to establish loan loss reserves (or prepare for losses) when appropriate.

3.4.1 Loan Portfolio Analysis

Loan portfolio analysis requires an understanding of the financial condition of each borrower. If most of the borrowers have a bond rating, then their bond ratings could be used to assess the financial condition of the portfolio. For example, the loans outstanding could be categorized by bond rating such as 44 percent of the loans are A rated or higher, 34 percent are investment grade with B ratings, and 32 percent are not rated. A similar type of breakdown could be provided using the results of financial capability reviews performed by the SRF on the borrowers during the loan application process. The results of each review can be categorized into strong, medium, and weak financial condition. As with bond ratings, these categories can be used to break down the composition of the loan portfolio.

For SRF programs with loan portfolios that have a large proportion of financially weaker borrowers, there may be off-setting factors that should be taken into consideration that increase the assurance of repayment. Such factors include loan provisions that provide additional security for loan repayment beyond pledges of the revenues from user charges, such as, pledging the full faith and credit of the community, asset pledges, and state aid intercept. Additional pledges provide greater assurance of repayment and should be taken into consideration when evaluating the condition of an SRF loan portfolio.

Loans to individuals, non profit groups, and private businesses for nonpoint source and drinking water projects add complexity to loan portfolio analysis. Frequently, such loans are structured differently from loans to traditional governments. The source of revenue to repay the loan may be unique to the project and borrower's circumstances. Collateral to secure the loan may play a larger role in the loan structure because the borrower does not have broad taxing authority. Nonetheless, loan portfolio analysis should attempt to evaluate the credit risk of these loans using techniques such as those outlined in Credit Considerations for Reaching Nonpoint Source

SRF Borrowers, CIFA, April 1999.

Loan portfolios should also be evaluated with respect to loan terms that may strain the ability of borrowers to make repayments in the future. Examples are loans that have increasing interest rates/payments in the later years and loans with balloon repayments. In both cases, a borrower may be able to meet current obligations, but be unable to make higher payments later in the loan term. Assessments of loan portfolios should consider these factors when reviewing the overall ability of the borrowers to make all loan principal and interest payments.

The end result of assessing the financial condition of the SRF loan portfolio can serve a number of purposes. The first is to evaluate the likelihood that all outstanding loans will be repaid on time. If there is risk or uncertainty over repayment from a segment of the loan portfolio, this knowledge should be applied to *financial planning* by factoring in potential default rates on certain loans. It may also be desirable to establish accounting loan loss reserves to recognize the loss potential in financial statements.

Assessing the loan portfolio can also be used to provide feedback on a program's credit review/financial capability analysis process by determining if the process is adequate to categorize the financial condition of the borrowers. Secondly, any defaults and/or late payments can be linked back to the assessment of financial capability to ensure that borrowers that ultimately experience repayment difficulty were properly identified as higher credit risk.

3.4.2 The Issue "Loan Portfolio Management" Directly Relates to:

- Loan terms
- Fund utilization
- Ability to leverage or borrow for match
- Long-term sustainable funding levels

Case Study of Maryland Water Quality Financing Administration (WQFA) Loan Portfolio Evaluation Process

Vital Statistics as of June 30, 2000

Federal Capitalization Grants:	\$367 million	Total Funds Available:	\$687 million
Appropriated Match:	\$ 69 million	Total Assistance Provided:	\$533 million
Leveraging Initiated:	1990	Number of Loans:	160
First Loan Issued:	1990	Average Loan Interest Rate:	2.5%

As one of the first SRF programs to begin using a blended rate approach to leveraging, the credit quality of WQFA's loan portfolio was extremely important. Many of the early borrowers were well established communities that had debt issuance experience and had corresponding ratings on their debt from bond rating agencies. This situation provided a straightforward means of tracking the financial condition of the WQFA borrowers by tracking the bond ratings of these same entities for independently issued debt. This level of analysis is conducted annually to produce summary tables characterizing the financial condition of the loan portfolio.

The table below provides the summary as of June 30, 1997.

Rating	Loan Volume	Percent of Total
Aaa/AAA	\$33,050,723	14%
Aa/AA	\$116,135,010	49%
A/A	\$70,595,147	30%
Baa/BBB	\$9,926,209	4%
Not Rated	\$9,202,497	4%
Total	\$238,909,586	100%

The table shows a very strong portfolio with 92% of the loans with borrowers having a A rating or higher. However, the category of borrowers listed as "Not Rated" required additional review since no rating information is available on these borrowers on an ongoing basis. (The not rated borrowers do go through an initial credit review prior to loan commitment.)

To track "not rated" borrowers on an ongoing basis, Maryland developed a systematic approach for collecting and analyzing financial and other data on each of these borrowers. Financial statements are collected annually for both the enterprise and general funds and the information is entered (using a standard approach) into a financial analysis spreadsheet.

The spreadsheet is used to calculate standard industry ratios, including:

- current ratio
- cash/current liabilities
- total assets/total liabilities
- net debt/(fixed assets + working capital)
- O&M expenses/total operating revenues
- fund balance (retained earnings)/revenues
- interest and debt service coverage; and
- debt service safety margin

The ratios are compared to industry standards developed by Moody's and also compared to prior year's data for trend analysis. The results of the evaluation along with analysis of other economic and demographic information is used to identify potential weak credits in the loan portfolio and update a watch list of borrowers with potential financial problems. This information allows Maryland to actively oversee all aspects of their loan portfolio and to maintain a high degree of confidence for loan repayment. This oversight and evaluation process will become increasingly important in the program as a larger share of the loan volume for the CWSRF and DWSRF goes to unrated borrowers.

For additional information contact: Maryland Water Quality Financing Administration
2500 Broening Highway
Baltimore, MD 21224

3.5 AVAILABILITY OF FUNDS

States may be asked if their SRF programs are providing sufficient levels of project assistance to the right mix of borrowers. The question may arise because there is not enough SRF funding available for all of the eligible projects that wish to receive assistance. Excess demand for the SRF will manifest itself in several ways. The first is the general interest level in the program for traditional and other types of projects. Indicators include high numbers of inquiries about the program, requests for program information, strong attendance at SRF public meetings, and large numbers of assistance applications. A second indication is a low dropout rate for applicants approved for assistance. The projects that receive assistance commitments usually proceed with the project to avoid losing the funding. A third measure of demand is the diversity of potential applicants interested in the program. Is there strong interest in the program across community sizes and financial capability?

SRF Planning Model Tip

- Enter modeling assumptions for your state.
- Go to See Results – Single Graph.
- View results for fund resources to assess how well your program is using available funds.
- Adjust fund utilization assumptions to see how demand must change to meet your supply of funds.

Collectively, high demand for the program can be attributed to many factors, including: strong enforcement, favorable SRF loan terms, lack of alternative programs, or general economic conditions. The causes of the high demand may help direct the appropriate response to make more SRF funds available.

3.5.1 Factors to Consider When There Is Excess Demand for Funds

The consideration of making more funds available would lead to three of the other fund management questions:

- Should loan terms be adjusted?
- Are available resources being used effectively?
- Should the fund leverage/continue to leverage?

Responses to each of these questions could make more funds available by increasing loan interest rates, increasing the utilization of existing resources, or providing additional funds through leveraging. Any action must be considered in the short and long term. Changes in interest terms and improved fund utilization will take time to translate into increased funding levels. An increase in interest rates may also have a negative impact on loan demand making it more difficult to utilize all funds. Leveraging decisions could have a much more immediate effect on funds available for projects.

In addition to expanding the reach of the current SRF, the level of demand may warrant an appeal by the SRF and its constituents to request additional state contributions or the development of other state programs to complement the SRF.

3.5.2 The Issue “Availability of Funds” Directly Relates to:

- Loan terms
- Investment results
- Need for leveraging
- Impact of borrowing for match
- Long term sustainable funding

Case Study of Massachusetts State Revolving Fund (MASRF) Fund Utilization Strategy

Vital Statistics as of June 30, 2000

Federal Capitalization Grants: \$643 million	Total Funds Available:	\$1.8 billion
Match from GO Bonds outside the SRF	Total Assistance Provided:	\$1.9 billion
Leveraging Initiated: 1993	Number of Loans:	787
First Loan Issued: October 1991	Average Loan Interest Rate:	0%

For the past several years Massachusetts has been working to implement its Watershed Initiative, a comprehensive watershed approach to water quality protection. The Watershed Initiative divides the Commonwealth into 27 separate watersheds and assigns “basin teams” to manage water quality issues within the watersheds. The underlying concept of the watershed approach is to look at overall water quality within each watershed and allow experts familiar with the watershed to participate in developing water quality strategies.

In an effort to support the watershed initiative and achieve the highest level of water quality for the Commonwealth, the Department of Environmental Protection (DEP) began rethinking their MASRF utilization strategy in the spring of 1996. Like many states, the bulk of the MASRF funds had traditionally gone to large wastewater treatment and collection projects. DEP began developing a strategy that would allocate a certain amount of funding for NPS and other non-traditional projects. Initially DEP was leaning towards allocating five percent of funds to NPS projects in the first year and increasing it thereafter.

Further analysis of their fund utilization strategy led DEP to decide that the type of project, whether it was a new treatment plant or funding the repair of septic systems, was somewhat irrelevant since the real goal of the SRF is to protect and improve *overall* water quality. This thinking led DEP to conclude that financing NPS projects to a fixed level of five percent made little sense since DEP estimated that NPS’s were responsible for 80 percent of water pollution.

Subsequently, DEP revised its project category allocation approach for financing water quality projects. In October of 1997 the Commonwealth promulgated regulations that leveled the funding playing field between traditional and non-traditional projects. Funding criteria in the new regulations gives priority to the most desirable projects to fund within each watershed. Further no applicant can receive more than 33 percent of available funding in any one year. Under the new regulations, watershed teams review and rank projects within their watershed. Regional DEP staff (there are four regions in Massachusetts) then review and rank the projects within their region. As a final ranking step, DEP headquarters takes the regional rankings and compiles a final Project Priority List (PPL). The end result is a PPL that ensures the most desirable water quality projects receive funding, “regardless of project category.” The MASRF trend of utilizing funds to achieve the greatest water quality benefit is reflected in their funding levels. Before the new funding regulations were in place, the MASRF obligated \$1.7 million in NPS loans (through 1997), mostly to communities to assist with the repair of failing septic systems. This funding level increased dramatically in 1998, to \$39 million, the first year the watershed-based ranking criteria and regulations were employed. Once the watershed assessment period ends, it is expected that the NPS funding level will be 50 to 60 percent of all SRF funding.

For additional information contact:	Massachusetts Department of Environmental Protection 1 Winter Street Boston, MA 02108
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3.6 ADMINISTRATIVE RESOURCES

“Does the fund have sufficient administrative resources?” is a common question posed to SRFs to determine if a fund can not only revolve financially in perpetuity, but that it has the administrative resources to provide for operating the program in perpetuity. The use of SRF funds for administrative costs is capped at four percent of the capitalization grant amount, which means that at some point each SRF will require outside sources of SRF administrative funding.

Determining the administrative resource requirements of an SRF is a long-term *budgeting* exercise. The historical and projected administrative costs of the program must first be calculated to understand the funding requirement over time. The funding requirement on a sustainable basis should be calculated as an average annual administrative cost in *today's dollars*.

Currently available administrative resources should be matched year-to-year with estimated administrative costs. This will provide an indication of how long currently available resources will be sufficient to pay these costs. The short-fall between available funds and projected costs is the amount of additional administrative funding that will be required. Opportunities to reduce operating costs, while not diminishing the effectiveness of the program, should be considered along with any review of projected administrative costs.

Sources of additional funding include ongoing state program funding or fees generated as part of the SRF program as a cost to the borrowers. The political appeal of either approach may dictate the direction that administrative funding will follow.

Meeting administrative funding needs with SRF generated revenue requires charging an administrative fee to borrowers. The fee should be set to meet the administrative funding need of the SRF over the near-term and the estimated

average annual cost over the long-term. Administrative fees usually take the form of an application fee, a loan closing fee as a percent of the loan amount (points), and/or a loan servicing fee charged as a percentage of the debt service payment or principal balance outstanding on the loan. Various fee systems should be evaluated to project the revenue generated by each system or combination of systems and its sufficiency for meeting administrative costs. Systems to generate fees should also be evaluated with respect to fairness across segments of borrowers.

SRF Planning Model Tip

- A separate section allows the user to model alternative fee scenarios.
- Fees work in combination with administrative set-aside amounts and user entered funding requirements.
- Immediate feedback is available on the ability of fee levels to meet anticipated costs.

For a number of states, the imposition of an administrative fee has been accompanied by an off-setting reduction in the loan interest rate to avoid increasing the total loan cost for the borrower. This reduction of interest earnings reduces the amount of funds available for future loans, affecting fund growth. The cost of administrative fees should be factored into subsequent analyses of SRF loan interest rates to ensure that the fees are reasonable.

3.6.1 The Issue “Administrative Resources” Directly Relates to:

- Administrative fee portion of loan terms and total cost to the borrower
- Ability to manage leveraging or borrowing for match
- Achieving sustainable funding levels

3.7 LEVERAGING

Leveraging can be an effective tool to provide greater project assistance than a direct loan program for near-term needs. Additional monies to provide assistance are obtained through the issuance of bonds secured by the assets of the program.

In general terms, there are two types of leveraging used by SRF programs, reserve-fund and cash-flow leveraging. The key differences between these methods are related to the debt service reserves set aside to secure the bonds. In reserve fund leveraging, the reserve is “oversized” and often is 40 to 60 percent of the bonds outstanding. These reserves provide enhanced security for the bonds and are invested to produce sizeable interest earnings which help to pay off the bond debt service. Cash flow leveraging uses a more traditional reserve fund of approximately 10 percent of the bonds outstanding. This allows the use of smaller bond issues to fund an equivalent amount of projects. The net result of each leveraging approach produces similar levels of funding and subsidy for the SRF borrowers.

If two programs are the same in all aspects, except that one leverages and the other does not, then the leveraged program should be able to provide more assistance sooner than the non-leveraged program. Over time, the non-leveraged or direct-loan program will build program equity faster than the leveraged program. In the leveraged program, earnings generated from loan and investment interest are applied to debt service payments and may not build as much equity over time. At some point in time, the amount of annual assistance provided under the non-leveraged program will exceed that of the leveraged program. How many years this takes is based on a number of factors, the most important of which are:

- rate of inflation
- loan interest rates
- bond interest rates

- rate of return on investments

Figure 8 illustrates this concept by comparing a leveraged program to an otherwise identical direct-loan program. As the graph demonstrates, even though a direct-loan program will eventually provide more annual assistance than a leveraged program (phase 4), the leveraged program still provides more cumulative assistance. By providing greater assistance sooner than the direct-loan program (phase 2), the leveraged program is able to buy more “bricks and mortar” over time due to the erosive effect inflation has on the purchasing power of the fund. A detailed discussion of Figure 8 is provided in the next section.

The question of whether a fund should leverage or continue to leverage should carefully consider two of the fund management issues discussed in earlier chapters. The first question is “Are the fund resources being used efficiently?” If the answer is no, the SRF has existing fund resources that could be used to fund projects. The existing resources should be fully utilized before leveraging or additional leveraging is undertaken.

The second question is “Is sufficient project assistance being made available?” If the answer to this question is no, then there may be sufficient demand for leveraging, provided that all existing resources are being fully utilized. In other words, the first two criteria for a program to leverage or continue to leverage are:

- strong sustained demand for additional loans from the program
- efficient utilization of existing financial resources

For SRFs that are in this situation and are administratively capable of managing leveraging, new or continued leveraging should be pursued.

3.7.1 Using Financial Planning to Evaluate Leveraging

Evaluating new or additional leveraging requires detailed *financial planning* with the assistance of a financial advisor and/or underwriter. This process should begin by establishing a reasonable baseline plan. The plan should project the financial future of the SRF using all of the relevant operating assumptions for the program,

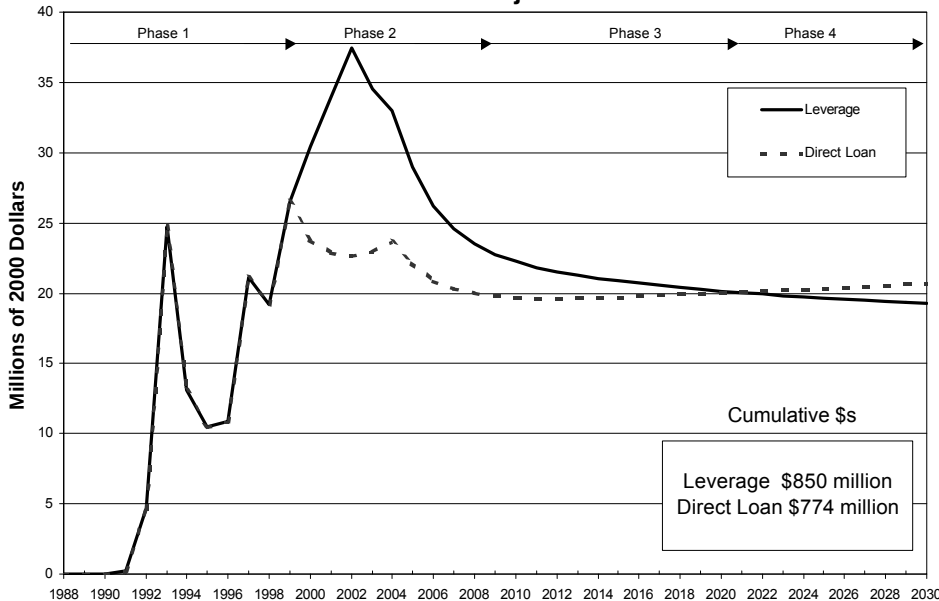
three parameters should be tabulated for each scenario. The scenarios should be compared to the baseline to assess the desirability of leveraging and the preferred scenario. The comparison between the baseline and leveraging should be comparable where possible. For example, the interest rate on new loans should be the same in the baseline as in a leveraging scenario.

The fundamental trade-off to consider with leveraging is the benefit of financing projects over the short-term versus potentially reduced annual project funding in the longer-term. The environmental benefit alone of supporting projects sooner rather than later may favor leveraging. When the time value of money is considered, there may also be a net economic benefit from leveraging by funding projects sooner rather than later. Therefore, a fundamental requirement to consider leveraging is adequacy of demand for the leveraged funds.

Analyzing leveraging scenarios should include the calculation and assessment of *key financial measures* that demonstrate the financial viability of leveraging proposals. Common measures include debt service coverage, net interest margin, and debt to equity.

Figure 8

Annual Disbursements Adjusted to 2000 Dollars



Key assumptions are: leveraging initiated in 2000, loan rate of 3%, bond yield of 5.5%, 10% debt service reserve, 2% bond issuance cost, and investment earnings of 4.5%. Leveraging maintained at 50% of program equity. Discount rate of 3%.

but without any new or additional leveraging. This will provide a basis for comparing each leveraging scenario. Key parameters to understand are total project funding that can be achieved over the next three years, average project funding over the next twenty years, and average project funding in years twenty-one to thirty, all in *today's dollars*. These parameters will establish a baseline for evaluating the near-term, medium-term, and long-term impacts of leveraging.

The next step is to add one or more leveraging scenarios to the financial projections. The same

SRF Planning Model Tip

- Leveraging parameters are set on a single leveraging page under Projection Assumptions.
- First select the level of leveraging you want to achieve relative to grant dollars or total program capital.
- Then set key assumption on bond yield, term, size of debt service reserve, and issuance expense.
- The earning rate for the reserves is set under Use of Funds.

Case Study of State of Tennessee Clean Water State Revolving Fund's Assessment of the Need for Leveraging

Vital Statistics as of June 30, 2000

Federal Capitalization Grants:	\$279 million	Total Funds Available:	\$464 million
Appropriated Match:	\$ 59 million	Total Assistance Provided:	\$440 million
First Loan Issued:	January 1989	Number of Loans:	124

Tennessee, as a financially conservative state, strongly considered the federal language that the intent of the CWSRF is to provide funding in perpetuity for wastewater facility construction. At the inception of the CWSRF, many discussions were held regarding the viability of leveraging. It was determined that leveraging as a concept was viable and could greatly increase project funding over the near term; however, neither the need (demand) for leveraging nor the administrative coordination to leverage was resolved. Consequently, the State decided to not leverage and as a result all repayment of principal and interest is returned to the fund and revolved into new loans.

Tennessee received its first CWSRF capitalization grant on March 30, 1988. The first three loans were awarded on January 30, 1989. In 1993, the State's Department of Finance and Administration conducted a study to consider leveraging the CWSRF. The study focused on:

- demand for CWSRF funding;
- authorizing legislation;
- CWSRF operating procedures;
- program administration; and
- activity nationally and in other southeastern states.

In addition, they evaluated the flow of funds required for leveraging and, while they identified the potential benefits of leveraging, they identified three critical concerns. The first concern was that the Federal laws governing the use of tax-exempt bond proceeds would necessitate a relatively rapid disbursement of funds for projects. Historically, the State's experience with disbursements for these types of projects had been slower; hence, creating a risk relative to rebate requirements. The second concern was that the relatively low interest payments from borrowers may not be sufficient to repay the leverage debt and that supplemental state appropriations may be required to sustain the CWSRF. The third concern was that leveraging may adversely affect the State's bond ratings for general obligation and revenue bonds.

Given these concerns and an overall assessment that leveraging was not required to meet demand, the state decided to not pursue leveraging at that time. However, they did institute the use of a cash flow tracking spreadsheet to assess on an ongoing basis the availability of funds and ability to commit to new loans. Based on this analysis, the State continues to believe that they have sufficient funding resources to not require leveraging.

The spreadsheet tracks actual and projected:

- capitalization grants;
- state match;
- loan principal and interest;
- interest on investments; and
- administrative expenses.

The flow of funds in each category are used to record past available loan dollars, loan awards, and cash balances and to project future loan awards based on using 90 percent of available funds in each year. This analysis shows that annual loan awards will climb in nominal dollars from \$40 million currently to over \$100 million in the next 20 years (\$55 million per year in 1998 dollars using a three percent inflation rate).

So far, a project has not been denied access to the CWSRF because of the lack of available funds. This does not imply that the CWSRF has met all the wastewater project needs in Tennessee. It is important to recognize the multiple funding options available for these projects, the driving forces behind project initiation, and the expediency in which funds are required. During the past few years Tennessee has limited the maximum loan amount to one recipient within a fiscal year to 10 million dollars. Again, conservatism translates in Tennessee that the intent of the program is to primarily assist financially distressed systems rather than merely subsidize large cities which have more opportunities to alternative financing with lower bond interest rates.

For additional information contact: Tennessee Department of Environmental Conservation
Division of Community Assistance
401 Church Street
Nashville, TN 37243

3.7.3 The “Leveraging” Issue Directly Relates to:

- Loan terms
- Investment earnings
- Fund utilization
- Loan portfolio management
- Ability to increase available assistance
- Adequacy of administrative resources
- Long-term funding and sustainable funding levels

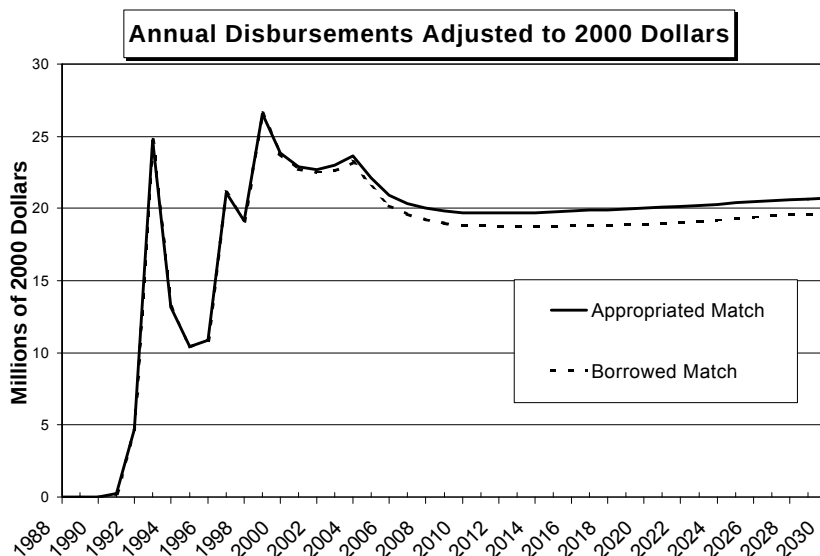
3.8 BORROWING FOR STATE MATCH

With limited state financial resources, most SRFs at one time or another are faced with the question of what impact borrowing for state match will have on the program. The most preferable approach for receiving match is through a state appropriation or other mechanism that does not require repayment by the SRF. However, in certain cases or at certain times this form of match may not be available. This leads to consideration of SRF borrowing for the state match.

When an SRF borrows for state match, interest earnings from the program are used to repay principal and interest on the match bonds. This reduces the financial resources of the SRF because interest earnings that could have been used to fund new projects are used to pay bond interest and principal. The loss of project funding is compounded by the additional loss of interest that would have been earned on the loans that could have been made from the funds. Figure 10 illustrates the impact of borrowing for state match for a single \$5 million grant. Continued borrowing for match for multiple grants will increase the financial impact illustrated.

Evaluating the net impact of borrowing for state match requires *financial planning* analysis over the life of the bond issue(s). As with the analysis

Figure 10



Key assumptions are: Loan rate of 3%, bond yield of 5.5%, 10% debt service reserve, 2% bond issuance cost, and investment earnings of 4.5%. Discount rate of 3%.

for leveraging, a baseline scenario should first be developed that estimates near, medium, and long-term funding. A scenario in which state match is borrowed can then be applied to the financial projection to calculate comparable results. The difference between the two scenarios is the cost of borrowing for state match. Understanding the magnitude of the impact from borrowing for state match is valuable information for presenting the case to request direct match contribution from the legislature.

SRF Planning Model Tip

- Match contribution levels and sources are set under the Match Data tab.
- The first entry just sets match as a percentage of grants regardless of the source of the match.
- Remaining entries allow specification of borrowed match assumptions.
- Borrowing for match has similar modeling control parameter as leveraging.

In simplistic terms, borrowing for state match can be thought of as providing “temporary” matching funds. At the time the match funds are borrowed,

the state has the full 20 percent match available for projects. Over time, as interest earnings are used to repay the match bonds, the interest earnings that would have otherwise remained with the SRF are lost to the SRF to repay the bonds. At the end of the bond repayment period, there are no matching funds remaining from the match bonds since they have been repaid. The program is left with the original grant amount that was being matched, plus accumulated net earnings after repaying the bonds.

3.8.1 The “Borrowing for State Match” Issue Directly Relates to:

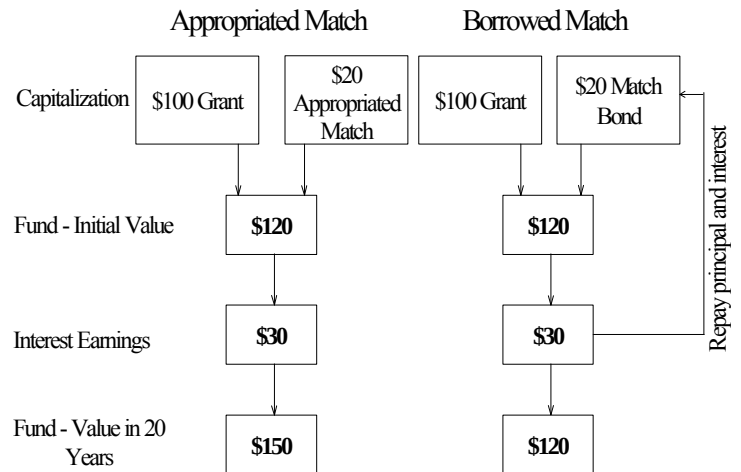
- Loan terms
- Investment earnings
- Future ability to provide needed assistance
- Use of leveraging
- Long-term funding and sustainable funding levels

3.9 SET-ASIDES AND CAPITALIZATION FUND TRANSFERS

One of the most significant factors affecting the financial resources of an SRF is the level of capitalization. Steps that can be taken to increase the capitalization of an SRF will have immediate positive impacts on the availability of funds. Increases in capitalization beyond new federal grant awards can take the form of additional state contributions or transfers from the state’s other SRF program (subject to transfer rules). Reductions in capitalization, primarily caused by the use of set-asides or transfers out of the SRF, have an opposite impact on SRF funding by immediately reducing available funding resources by the dollar amount of the set-aside or transfer.

Cash flow modeling and financial planning will be required to evaluate the effect of changes in capitalization levels. The analysis should begin with reasonable baseline capitalization levels before increases or decreases to those levels.

Figure 11
Impact of Borrowing State Match



Impact is loss of full amount of Match plus interest cost. In this example \$30

This baseline can then be used to compare the relative impact of using funds for set-asides, transfers, or anticipated other capitalization impacts. The appropriate point of comparison will be the resulting impact on annual funding levels immediately and over the long term.

SRF Planning Model Tip

- Grants data allows the entry of various future grant funding scenarios.
- Options are available to specify use of grants for set-asides.
- Transfers may be specified separately from the initial grant data.

The results of analyses of capitalization levels should be used to frame the policy discussion of using funds for set-asides, transferring funds between programs, and making the case for increasing state capitalization.

3.9.1 The Issue “Set-Asides and Capitalization Fund Transfers” Directly Relates to:

- Availability of funds
- Ability to leverage or borrow for match
- Long-term sustainable funding levels

Case Study of the Nevada Drinking Water State Revolving Fund Use of Set-Aside Funds

Vital Statistics as of June 30, 2000:

Federal Capitalization Grants:	\$27.1 million	Total Funds Available:	\$27.0 million
State Match:	\$5.4 million	First Loan Issued:	Spring of 1999

As the Nevada Bureau of Health Protection Services (BHPS) began planning for the implementation of a DWSRF, it evaluated many aspects of the new program including the potential use of set-aside funds. Key issues considered included determining which set-asides to use and what funding level to plan for. By working with the Nevada Division of Environmental Protection, who has the authority to administer wellhead protection and underground injection programs, the BHPS was able to develop an estimate for set-aside funding.

The proposed budget for set-asides was incorporated into work plans and a draft Intended Use Plan, which were then presented at four workshops to solicit public review and comment. The initial dollar amounts presented in the IUP consisted of educated guesses that were later refined based on responses to a comprehensive request for proposals (RFP) to support many of the set-aside activities. The revised work plans and budget were submitted to EPA for review and ultimately received approval.

Nevada's decisions concerning the set-asides resulted in the following use of funds:

Administration – Full four percent (\$502,352) was set aside.

State Program Management – The State is eligible for a \$509,758 set-aside, based on the 1:1 state expenditure credit, plus appropriated funds. Nevada is also providing an additional \$100,000 for the 1:1 match to utilize an additional \$100,000 set-aside. In total, \$709,758 was made available for this State Program Management set-aside, used as follows:

Public Water System Supervision Program	\$146,000
Technical Assistance and Education	\$201,338
Underground Injection Control Program	\$227,618
Develop and Implement Capacity Development Strategy	\$43,262
Operator Certification	<u>\$91,540</u>
Total	\$709,758

The State has an additional \$650,000 of available state funds that could be applied to this set-aside to further increase the funding of these activities with state and federal money. However, any unused amounts will revert to the state general fund.

Technical Assistance for Small Water Systems – Full two percent (\$251,176) was set aside.

Local Assistance and Other State Programs – This set-aside allows up to 15 percent of the grant amount to support several programs, with no more than 10 percent used on any one activity. Nevada allocated almost 12 percent (\$1,465,147) of the grant to these programs. The full 10 percent amount or \$1,255,880 was allocated to the source water assessment program (which would not be available in future years). Smaller additional amounts were allocated to capacity development and wellhead protection. No funds were allocated to source water protection loans.

In total, Nevada is setting aside \$2.8 million of their \$12.6 million capitalization grant. The remaining grant amount of \$9.8 million coupled with the 20 percent state match amount of \$2.5 million will result in a revolving fund balance available for loans of \$12.3 million. This is 81 percent of the total funds available from the 1997 allotment plus match.

In addition to planning for set-aside activity as it applies to the current grant, Nevada also extended its set-aside budgeting exercise to include annual and quarterly set-aside budgeting through the year 2003.

For additional information contact: Nevada State Health Division
Drinking Water State Revolving Fund
1179 Fairview Drive
Carson City, NV 89701

3.10 SUSTAINABLE FUNDING LEVELS

A valuable benchmark for an SRF is the sustainable funding level that the program can achieve. This information is frequently expressed as an average dollar amount of funding that the program can provide each year. Using *financial planning*, fund managers can estimate what the sustainable funding level will be over time based on current and anticipated operating assumptions. Funding levels are usually expressed in *today's dollars* to account for inflation.

The sustainable funding for a program is frequently used in conjunction with promoting the program and appealing for additional investment in the program. It can also be used as a point of reference to identify how additional funding for the program or other program changes will impact annual funding levels. For example, an additional state contribution of \$X million now will increase average annual funding from the program by \$Y million through the life of the program.

An important aspect of evaluating sustainable funding levels is to reconcile funding levels with the current demand or need for funds. The goal should be to develop an approach for achieving sustainable funding levels that match the demand for funds. Funding strategies should attempt to overcome funding shortfalls and at the same time avoid creating excess funds beyond the current demand for funds. *Cash flow modeling* is a valuable tool for evaluating potential sustainable funding levels that can be achieved and then comparing funding levels to funding need.

3.10.1 The Issue “Sustainable Funding Levels” Directly Relates to:

- Loan terms
- Investment earnings
- Availability of funds
- Loan portfolio management
- Availability of administrative resources
- Ability to leverage or borrow for match
- Use of set-asides and transfers

Case Study of the Minnesota Clean Water SRF Capacity Analysis

Vital Statistics as of June 30, 2000

Federal Capitalization Grants:	\$291 million	First Loan Issued in	1989
Total Funds Available:	\$849 million	Leveraging Initiated in	1990
Total Assistance Provided:	\$823 million	Number of Loans:	665
Match Provided from GO bonds outside SRF		Loan Interest Rate:	1-4%

Minnesota's Clean Water SRF is a leveraged program where most of the capitalization grant funds from 1989 through 1994 were put into a debt service reserve. Beginning in 1995 when Minnesota's nonpoint source loan programs were initiated, the majority of capitalization grant funds were used to make direct loans for nonpoint source projects. (Due to the nature of the nonpoint source projects, they cannot be funded from bond proceeds.) From 1995 through 1998, 60 percent of capitalization grant funds went to the nonpoint source programs.

To keep up with the loan demand from point source projects, the Public Facilities Authority (PFA) issued five series of bonds from 1995 through 1998 that raised \$283 million in net proceeds for new projects, while adding only \$27.5 million to the debt service reserve. This rate of leveraging is not sustainable over the long-term based on the PFA's analysis of the Fund's future lending capacity. In 1997, the PFA initiated discussions with the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Agriculture (MDA), the agencies that administer the nonpoint source SRF programs, regarding overall point and nonpoint source needs and how to manage the Fund to best address those needs.

The PFA's capacity analysis looks at the annual lending level for point source projects that the Fund could sustain in perpetuity, based on the assumption that capitalization grants would continue at declining levels through 2003 and then end. The PFA uses the capacity analysis to guide policy decisions by examining annual lending levels and their impact on future lending capacity.

The model tested annual lending capacity based on two variables: the loan subsidy level and the percentage of capitalization grants provided for nonpoint source programs. The table below summarizes the results of the capacity analysis at two different subsidy levels, 1.5 percent and 2.0 percent below market rate. (The actual weighted average interest rate on all loans to date is between these two levels.)

Percent of Capitalization Grants Used For NPS Programs	Annual Point Source Lending Capacity (in millions)	
	Rate Spread = 2% below market	Rate Spread = 1.5% below market
0%	\$53	\$65
25%	\$47	\$58
50%	\$43	\$52
100%	\$33	\$40

If the 1995-98 nonpoint source funding level of 60% of capitalization grants were to continue, the annual lending level for point source projects would be less than \$50 million. The PFA has determined this is not an acceptable level, given that the annual point source loan demand is in excess of \$200 million. Based on this analysis, a decision was made that the MPCA and MDA would submit separate legislative requests for state funding for their nonpoint source programs, to be provided as SRF overmatch. Through future rule revisions, the PFA will also consider reducing the interest rate subsidy for point source projects. Another possible step would be to reduce or eliminate the interest free period provided for point source projects. Currently interest does not begin to accrue for most projects for 12-18 months after the loan is made.

In the near future, the PFA intends to continue to leverage the Fund to finance as many point source projects as financially feasible. With municipal contracting costs inflating nationally at twice the overall inflation rate (and beginning to approach double digits in Minnesota) and borrowing costs below five percent, it is prudent to finance as much as possible as soon as projects are ready to go.

For additional information contact: Minnesota Public Facilities Authority
500 Metro Square
121 7th Place East
Saint Paul, MN 55101

4.0 ANALYTICAL TOOLS AND TECHNIQUES

This section of the handbook provides a discussion of the analytical tools and techniques that were identified earlier in italics and are commonly used in support of SRF fund management. The tools and techniques consist of:

- Cash Flow Modeling and Financial Planning/Projection
- Role of Auditing/Accounting in Financial Management
- Today's Dollars or Present Value (Constant Dollars)
- Grant Equivalency
- Investment Return
- Balance Sheet Analysis
- Loan Portfolio Analysis
- Key Financial Measures
- Financial Indicators

4.1 CASH FLOW MODELING AND FINANCIAL PLANNING AND PROJECTION

Definition:	Prospective or projected financial activity of an SRF require key assumptions about capitalization, the use of funds, investments, loan interest rates and repayment terms, use of debt, and retained earnings. Typically presented as year by year financial projections over a reasonable time horizon of up to 30 years. It may consist of short-term or long-term planning. Cash flow modeling/financial planning is an ongoing process that requires periodic updating to reflect actual program operations and current market conditions.
Illustrative Usage:	The SRF financial plan projects average annual project funding of \$42 million over the next 20 years in today's (2000) dollars. The SRF financial plan projects average annual equity growth in excess of the rate of inflation, indicating that the SRF will be able to continue to increase funding levels in today's dollars in perpetuity.
Calculation Approach:	SRF financial projections require year by year calculation of the inflows and outflows of funds. The accounting financial statement model (income statement, statement of cash flows, and balance sheet) provides a common structure for making financial projections. The primary inflows of funds are federal and state capital, bond proceeds, interest income from loans and investments, and loan principal repayment. The primary outflows of funds are loan disbursements, administrative expense, interest expense, bond issuance cost, and principal repayment on bonds.
Calculation Method:	Requires year-by-year construction of fund inflows and outflows (actual data to the present and estimated results in the future). Critical assumptions beyond capitalization and debt issuance are future interest earnings on loans and investments, interest expense on bonds, use of debt service reserves, and commitment of available funds for loans. For each year of a financial plan, a key calculation is the estimation of funds available for projects and the use of those funds for new projects. The results of the calculation of each year's new loan disbursements will affect all future period cash flows (<i>i.e.</i> , interest earnings on loans and investments and future loan principal repayment). The calculations proceed from year to year as new funds become available for projects and are then committed to new projects. This iterative process continues through the relevant financial planning period.
Example:	Illustrative financial modeling results from the new EPA SRF Financial Planning Model are presented on the following pages.

Home Screen of the SRF Financial Planning Model

SRF Financial Planning Model

Home | Manage Scenarios | Manage Historical Data Sets | Enter Projection Assumptions | See Results

SRF Being Analyzed: National Clean Water SRF

First Fiscal Year of the SRF: 1988

Current Scenario: <Unsaved Scenario>

Fiscal Year to Start Projections: 2001

Active Data Set: Current CW NIMS Data Set (Unmodified)

Projections will end in: 2100

Current Filename: C:\AFK\Current Projects\Planning Model\FPM2000.xls

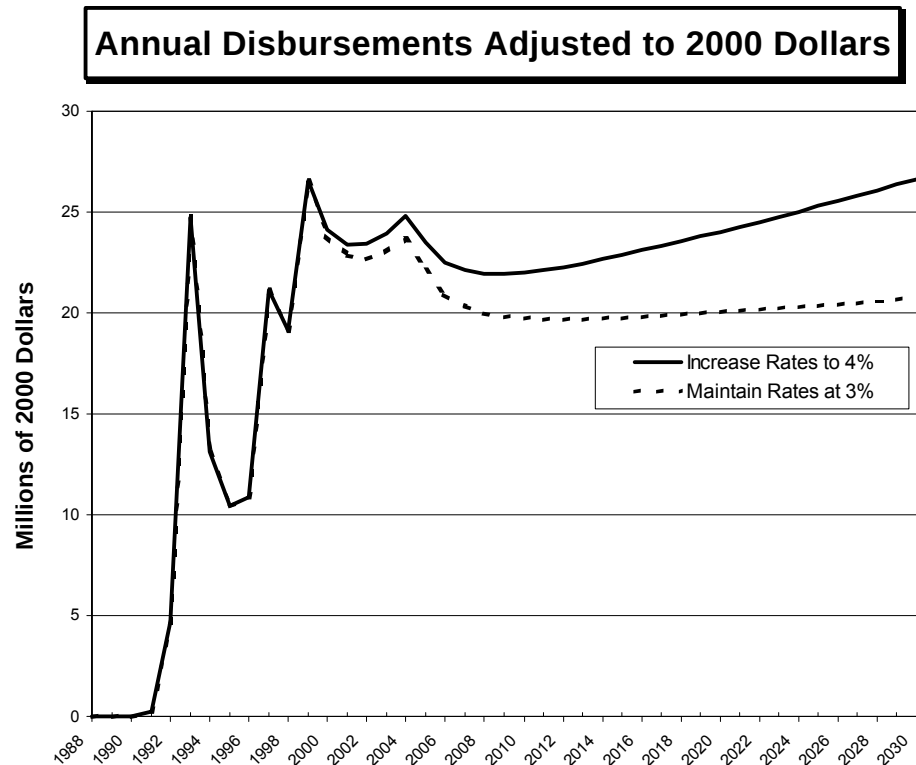
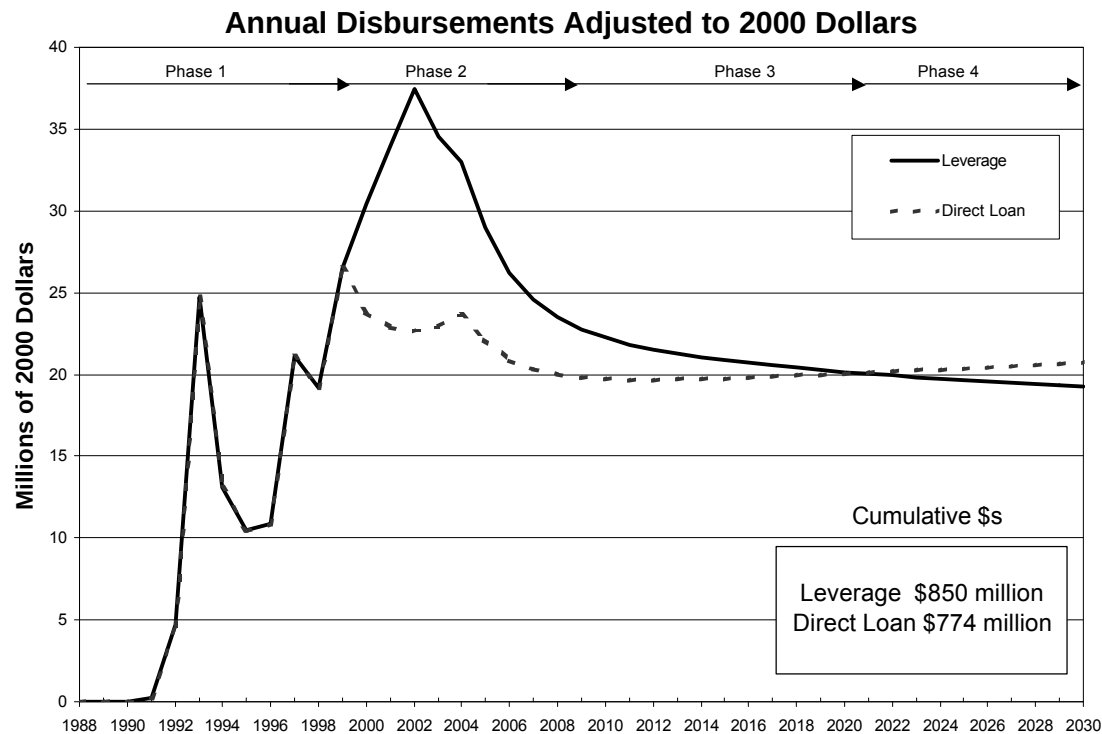
Save Model

Help

Quit Model

Click to Change Date:
3/13/2001

Sample Output from the SRF Financial Planning Model



Financial Information for the Example SRF

(Millions of Dollars)

Funds Available

	1998	1999	2000	2001	2002	2003	2004
Federal Grants (net of National Set-Asides)	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Transfers - Federal Capitalization Grant Funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reserved for State Set-Asides	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Annual Net Grants	9.6	9.6	9.6	9.6	9.6	9.6	9.6
State Match Deposits - Excluding Bonds Paid by SRF							
Net State Match Bond Proceeds (Gross less Issuance Expense)	3.2	3.1	3.1	3.2	2.2	1.9	1.9
State Match Bond Principal Repayment	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Release from (Deposits to) Debt Service Reserve for Match Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Additional State Contributions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total State Contributions	3.2	3.1	3.1	3.2	2.2	1.9	1.9
Net Leverage Bond Proceeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Funds Used for Refunding	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leverage Bond Principal Repayment	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Release from (Deposits to) Debt Service Reserve for Leveraged Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Net Funds Provided by Leveraged Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transfers - Other SRF Funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loan Principal Repayments	2.1	2.7	3.5	4.4	5.3	6.3	7.5
Interest Earnings - Short-Term	0.6	0.8	1.1	1.4	1.8	2.0	2.2
Interest Earnings - Reserves	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest Earnings - Loans	2.8	3.4	3.9	4.4	5.0	5.5	6.0
Total Revenues	3.3	4.2	5.0	5.9	6.8	7.5	8.2
Bond Interest Expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Funds Made Available from Operations	3.3	4.2	5.0	5.9	6.8	7.5	8.2
Annual Fund Activity (Excludes Set-Asides)							
New Funds Available for Assistance	18.3	19.6	21.2	23.0	23.8	25.3	27.2
Project Commitments (Executed Loan Agreements)	22.1	17.4	18.6	20.2	21.9	22.5	23.9
Uncommitted Funds Available	(3.9)	2.2	2.6	2.9	2.0	2.8	3.3
Project Disbursements	19.4	18.4	18.5	19.3	20.6	21.6	22.7
Federal Project Cash Draws	16.2	15.3	15.4	16.1	10.9	9.6	9.6
Cumulative Fund Activity (Excludes Set-Asides)							
Cumulative New Funds Available	142.7	162.2	183.5	206.5	230.3	255.6	282.8
Cumulative Project Commitments (Executed Loan Agreements)	122.7	140.1	158.7	178.9	200.8	223.3	247.2
Uncommitted Funds Available	20.0	22.2	24.7	27.6	29.6	32.4	35.6
Cumulative Project Disbursements	103.3	121.7	140.2	159.6	180.2	201.7	224.4
Undisbursed Project Commitments	19.4	18.4	18.5	19.3	20.6	21.6	22.7
Cumulative Net Federal Capitalization Grants	105.6	115.2	124.8	134.4	144.0	153.6	163.2
Cumulative Federal Project Cash Draws	86.2	101.5	116.9	133.1	144.0	153.6	163.2
Cumulative Undisbursed Net Federal Capitalization Grants	19.4	13.7	7.9	1.3	0.0	0.0	0.0

Financial Information for the Example SRF

(Millions of Dollars)

Income Statement	1998	1999	2000	2001	2002	2003	2004
Revenues							
Interest Earnings - Short-Term	0.6	0.8	1.1	1.4	1.8	2.0	2.2
Interest Earnings - Reserves	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest Earnings - Loans	2.8	3.4	3.9	4.4	5.0	5.5	6.0
Total Revenues	3.3	4.2	5.0	5.9	6.8	7.5	8.2
Expenses							
Bond Interest Expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bond Issuance Expense	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loan Principal Forgiveness	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Income	3.3	4.2	5.0	5.9	6.8	7.5	8.2
Beginning Balance - Retained Earnings	9.4	12.7	16.9	21.8	27.7	34.5	42.0
Ending Balance - Retained Earnings	12.7	16.9	21.8	27.7	34.5	42.0	50.2
Cash Flows							
Operating Activities							
Interest Received on Loans	2.8	3.4	3.9	4.4	5.0	5.5	6.0
Loan Principal Repayments	2.1	2.7	3.5	4.4	5.3	6.3	7.5
Total Loan Disbursements (incl. amounts forgiven)	(19.4)	(18.4)	(18.5)	(19.3)	(20.6)	(21.6)	(22.7)
Transfers - Other SRF Funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Federal Capitalization Grants - Cash Draws	16.2	15.3	15.4	16.1	10.9	9.6	9.6
State Match Deposits - Excluding Bonds Paid by SRF	3.2	3.1	3.1	3.2	2.2	1.9	1.9
Additional State Contributions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Provided by Operating Activities	4.9	6.1	7.5	8.8	2.7	1.7	2.3
Noncapital Financing Activities							
Gross Leverage Bond Proceeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leverage Bond Proceeds (Gross less Issuance Expense)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest Paid on Leveraged and State Match Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Refunding Bonds and Funds Used for Refunding	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Match Bond Proceeds (Gross less Issuance Expense)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repayment of Leveraged Bond Principal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Repayment of State Match Bond Principal	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Provided by Noncapital Financing Activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investing Activities							
Interest Received on Short-term Investments	0.6	0.8	1.1	1.4	1.8	2.0	2.2
Interest Received on Debt Service Reserves	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deposits to Debt Service Reserve for Match Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deposits to Debt Service Reserve for Leverage Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Cash Provided by Investing Activities	0.6	0.8	1.1	1.4	1.8	2.0	2.2
Net Increase (Decrease) in Cash and Cash Equivalents	5.5	6.9	8.5	10.2	4.6	3.7	4.4
Beginning Balance - Cash and Cash Equivalents	14.4	19.9	26.8	35.4	45.6	50.2	53.9
Ending Balance - Cash and Cash Equivalents	19.9	26.8	35.4	45.6	50.2	53.9	58.4
Ending Balance - Undrawn Federal ACH Balance	19.4	13.7	7.9	1.3	0.0	0.0	0.0

Financial Information for the Example SRF

(Millions of Dollars)

Balance Sheet		1998	1999	2000	2001	2002	2003	2004
Assets	Cash and Equivalents	19.9	26.8	35.4	45.6	50.2	53.9	58.4
	Debt Service Reserve - Match Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Debt Service Reserve - Leverage Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Loans Outstanding	96.2	111.8	126.8	141.8	157.1	172.4	187.7
	Unamortized Bond Issuance Expenses	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Assets		116.1	138.7	162.2	187.4	207.3	226.3	246.0
Liabilities	Match Bonds Outstanding	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Leveraged Bonds Outstanding	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equity	Federal Contributions	86.2	101.5	116.9	133.1	144.0	153.6	163.2
	State Contributions	17.2	20.3	23.4	26.6	28.8	30.7	32.6
	Transfers - Other SRF Funds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Retained Earnings	12.7	16.9	21.8	27.7	34.5	42.0	50.2
	Total Equity	116.1	138.7	162.2	187.4	207.3	226.3	246.0
Total Liabilities & Equity		116.1	138.7	162.2	187.4	207.3	226.3	246.0
Projection Parameters								
Target Cash Balance		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Loan Commitments								
Match	Match Deposits as a % of Cash Draw	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	Match Bonds as a % of Total Match	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Interest Rate on Match Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Average Match Bond Maturity (Years)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Debt Service Reserve as a % of Match Bonds Outstanding	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Bond Issuance Cost as a % of Match Bond Proceeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leveraged Bonds	Leverage Bonds Outstanding as a % of Federal Grants	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Interest Rate on Leveraged Bonds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Average Leveraged Bond Maturity (Years)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Debt Service Reserve as a % of Leveraged Bonds Outstanding	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Bond Issuance Cost as a % of Leverage Bond Proceeds	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Use of Funds	Cumulative Project Commitments as a % of Cumulative Available Funds	88.0	88.0	88.0	88.0	88.0	88.0	88.0
	Actual Cumulative Project Commitments as a % of Available Funds	86.0	86.3	86.5	86.6	87.2	87.3	87.4
	Average Disbursement Period (Years)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Federal Project Cash Draws as % of Disbursements	83.4	83.4	83.4	83.4	83.4	83.4	83.4
	Investment Yield (Short-Term)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	Investment Yield (Reserves)	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Loan Repayment	Loan Yield	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	Average Loan Maturity (Years)	29.5	28.0	26.4	24.9	23.3	21.8	20.2
	Principal Forgiven as % of Loan Disbursements	0.0	0.0	0.0	0.0	0.0	0.0	0.0

4.2 ROLE OF AUDITING/ACCOUNTING IN FINANCIAL MANAGEMENT

To effectively monitor the financial side of the SRF program, SRF managers must have timely and reliable financial information available that thoroughly covers the essential areas of their program. Meaningful financial information is necessary to conduct financial analyses, track the progress of achieving financial goals and objectives, and develop future financial management decisions that will ultimately affect an SRF program. Through adherence to standard accounting guidelines and the conducting of annual independent audits, the SRF program has a way to monitor the financial information needed to manage this program.

The importance and usefulness of governmental accounting and financial reporting has been previously noted in the statement of goals provided by the National Council of Governmental Accounting (NCGA) in their Concepts Statement Number 1:

- 1 - *provide financial information useful for making economic, political, and social decisions, and demonstrating accountability and stewardship; and*
- 2 - *provide information useful for evaluating managerial and organizational performance.*

To have effective financial control, management should utilize information obtained from the normal accounting and auditing process which is also an integral part of the above goals. It is essential that quality and objectivity be a part of the audit phase so that the final audit results will be credible and timely. By having reliable financial information, management can make improved financial decisions that will affect the entire SRF program as a whole.

Another major point of consideration is what type of fund to use for accounting purposes. The two major fund types are (1) proprietary fund or (2) special revenue fund. A proprietary fund treats the SRF financial activity like a business or commercial activity to show profit and loss and the accumulation and use of capital. A special revenue fund, however, is established to account for the proceeds of a specific revenue source. It treats an SRF like a checkbook with an emphasis on the current period inflows and outflows of funds. The special revenue fund is useful for tracking current financial activity, but quickly loses track of the longer-term financial position of an SRF as a separate entity.

To have sound SRF financial management, it is necessary for the SRF to be regarded as a stand alone entity that is designed to exist in perpetuity. Therefore, the proprietary fund is the preferred approach for an SRF. When a state maintains an SRF as a special revenue fund, financial statements should still be prepared and the overall financial structure of the SRF should still be thought of as a proprietary fund. This is similar to treating the SRF like a bank or some other lending institution, which are the types of financial entities that the SRF most closely resembles.

Financial reporting for proprietary funds consists of preparing three financial statements along with supporting notes to the financial statements for the current period of activity, which is usually one year. These statements are:

Statement of Revenues, Expenses, and Change in Retained Earnings – This statement is like an income statement and shows the current period revenues (from interest earnings on loans and investments) minus expenses (*e.g.*, interest expense, bond issuance costs, and administrative expense). The annual excess/(deficit) of revenues over expenses are added to the accumulated retained earnings/fund balance reported on the balance sheet and increase the total equity or capital available

to the program. For governmental purposes, retained earnings may also be referred to as “fund balance,” which is the accumulated net earnings of the program.

Statement of Cash Flows – This statement shows the additions and subtractions from cash for the current period. The statement begins with the change in retained earnings or fund balance for the current period, reconciles accounts receivable and payable, and then identifies the major sources and uses of cash. Major cash inflows consist of such items as ACH cash draws, loan principal repayment, bond proceeds, and withdrawals from debt service reserves. Major cash outflows consist of such items as loan disbursements, bond principal repayments, and deposits to debt service reserves. The net result is the current period change in cash, which is added to the accumulated cash balance on the balance sheet.

Balance Sheet – This statement shows the SRF’s ending balances for a specific period of time. Financial resources (assets) are equal to obligations (liabilities) plus equity (Assets = Liabilities + Equity). The primary components of an SRF Balance sheet consist of:

Assets

- Cash and cash equivalents
- Debt service reserves (if debt has been issued)
- Loans outstanding
- Undrawn federal grants (may be identified in a footnote only)

Liabilities

- State match bonds outstanding
- Leverage bonds outstanding

Equity

- Federal contributions
- State contributions
- Retained earnings or fund balance

This structure for financial reporting using the proprietary fund reporting model provides a simplified approach for understanding how the financial activity of an SRF could be reported like a business. Annual independent audits should provide additional assurance that the financial information is fairly presented and for decision making. The Environmental Protection Agency Clean Water State Revolving Fund Audit Guide, June 1998, provides additional information about auditing standards while outlining key issues to be considered in SRF programs.

From a financial management standpoint, audited financial statements following the proprietary fund reporting model, summarize financial activity to date in a useful format and can also provide a structure for projecting future financial activity using cash flow modeling techniques. Cash flow modeling seeks to quantify financial activity that has already taken place and projects future financial activity using reasonable assumptions about how a program will be managed in the future. The projected financial activity can be characterized as the potential financial impact of decisions on a program’s revenues/expenses, cash flows, and its resulting balance sheet.

4.3 TODAY'S DOLLARS OR PRESENT VALUE (CONSTANT DOLLARS)

Definition: Dollars received today have a different monetary value than dollars received in the future or the past. This is due to two factors, inflation and the time preference of money or risk associated with receiving money now versus at another point in time. In order to perform valid analyses, a dollar received in the past or future must be adjusted to reflect its value in today's dollars. This adjustment is commonly referred to as calculating the present value of past or future dollars.

Illustrative Usage: A payment received today of \$100 is worth \$100 or has a present value of \$100. If the cost of capital or borrowing rate is 8 percent per year, a payment of \$100 received one year from now has a present value of \$92.59 and a payment received a year ago has a present value of \$108.

Calculation Approach: Today's dollars or present value is calculated by first identifying the dollar amount of each payment and the date when the payment will be made. The payment amount is then discounted over the time period from the date of the payment to the present using the cost of capital or borrowing rate for the entity receiving the payment. (The use of the borrowing rate as the discount rate is an appropriate simplification of a complex financial topic.) Multiple future and/or past payments can each be discounted to their present value and added together to compute the total present value of a series of payments or cash flows received in the past or the future.

Calculation Method:
$$\text{Present Value} = \text{Pmt}_1/(1+i)^{n1} + \text{Pmt}_2/(1+i)^{n2} + \text{Pmt}_3/(1+i)^{n3} + \dots$$

 Pmt_1 = future or past value of the first identified payment
 i = periodic discount rate or cost of capital, usually current borrowing interest rate
 n = number of compounding periods from the present at interest rate i (time periods must be consistent with periodic interest rate). Positive values of n represent future periods and negative values represent past periods

Example 1: Payment of \$1,000 in 2 years
 Current borrowing rate of 6.5% per year

$$\text{Present Value} = \$1,000/(1+0.065)^2 = \$1,000/1.1342 = \$881.66$$

Example 2: Payments of \$1,000 in 2 years and \$500 received 3 years ago
 Current borrowing rate of 5% per year

$$\begin{aligned} \text{Present Value} &= \$1,000/(1+0.05)^2 + \$500/(1+0.05)^{-3} \\ &= \$907.03 + \$578.81 = \$1,485.84 \end{aligned}$$

4.4 GRANT EQUIVALENCY

Definition: The equivalent value of SRF or other subsidized financial assistance as if it is received as a direct grant. The grant equivalency is the benefit received by a borrower resulting from financing project costs at a below-market interest rate.

Illustrative Usage: With current borrowing rates at 6.5 percent, a three percent loan has a grant equivalency of 26 percent.

Calculation Approach: Grant equivalency is calculated by computing the present value cost (see present value discussion) of each financing option using the current market cost of borrowing as the discount rate. The percentage difference between the present value of each option is then calculated which is the grant equivalent amount.

Calculation Method:
$$\text{Grant Equivalency} = 100 \times (\text{PV of Option A} - \text{PV of Option B}) / \text{PV of Option A}$$

Example: Project cost of \$1,000,000

Financing Option A - Borrowing at Current Market Rates

Current borrowing rate of 6.5%

Annual level debt service over 20 years is \$90,756

Present value cost @ 6.5% is \$1,000,000

Financing Option B - Borrowing from an SRF

SRF loan rate of 3%

Annual level debt service over 20 years is \$67,216

Present value cost @ 6.5% is \$740,617

$$\text{Grant Equivalency} = 100 \times (\$1,000,000 - \$740,617) / \$1,000,000 = 25.9\%$$

Reference Table: The table below presents grant equivalency percentages for various loan interest rates and market rates.

Grant Equivalency Values for Different Loan and Market Interest Rates (Level Debt Service for 20 Years with Annual Payments of Principal and Interest)						
SRF Loan Interest Rates						
Market Rates	5%	3%	2%	1%	0%	-2%
7%	15%	29%	35%	41%	47%	57%
6%	8%	23%	30%	36%	43%	54%
5%	0%	16%	24%	31%	38%	50%
4%	NA	9%	17%	25%	32%	45%

4.5 INVESTMENT RETURN

Definition: Investment return is the total return received on an investment over a finite period of time. The calculation must account for all earnings, gains, losses, and expenses that are directly attributable to the investment. Investment returns must account for new investments and withdrawals from accounts that are independent of investment returns.

Illustrative Usage: The total investment return from the guaranteed investment contract is 4.9 percent per year.

Calculation Approach: Investment return is the net change in the value of an investment from the start of a period to the end of a period, accounting for all financial activity attributable to the investment. The investment return is expressed as a percentage of the investment value at the start of the period.

Calculation Method:

$$\text{Investment Return} = 100 \times (\text{EV} - \text{BV} + \text{E} - \text{X}) / \text{BV}$$

EV = ending value of the investment or group of investments that corresponds directly to the investment(s) at the start of the period (*i.e.*, proper adjustments for deposits and withdrawals)

BV = beginning value of the investment or group of investments at the start of the period

E = all earnings properly allocated to an investment(s) that are not reinvested (not included in EV)

X = all expenses properly allocated to an investment(s) that are not deducted directly from the investment(s) (not included in EV)

Example 1:

Investment of \$1,000 at the start of the year
 Investment is worth \$990 at the end of the year
 Interest earned from the investment for the year, but not reinvested, is \$79
 Investment advisory fees allocated to the investment, but not deducted from the investment, for the year is \$24

$$\begin{aligned} \text{Annual Investment Return} &= 100 \times (\$990 - \$1,000 + \$79 - \$24) / \$1,000 \\ &= 100 \times \$45 / \$1,000 \\ &= 4.5\% \end{aligned}$$

Example 2:

Investment A of \$1,000 at the start of the year
 Investment A is worth \$1,075 at the end of the year
 Interest earned from Investment A for the year, but not reinvested, is \$42
 Investment advisory fees allocated to Investment A, but not deducted from the investment, for the year is \$14

Investment B of \$2,000 at the start of the year
 Investment B is worth \$1,920 at the end of the year
 Interest earned from Investment B for the year, but not reinvested, is \$84
 Investment advisory fees allocated to Investment A, but not deducted from the investment, for the year is \$12

$$\begin{aligned}\text{Annual Investment Return} &= \frac{100 \times ((\$1,075 - \$1,000 + \$42 - \$14) + (\$1,920 - \$2,000 + \$84 - \$12))}{\$1,000 + \$2,000} \\ &= \frac{100 \times (\$103 - \$8)}{\$3,000} \\ &= 3.2\%\end{aligned}$$

4.6 BALANCE SHEET ANALYSIS

Definition:	Use of an SRF's balance sheet to calculate the use of financial resources, claims on the resources, and sources of capital. Ratio calculations that compare balance sheet items are an integral part of any meaningful balance sheet analysis.
Illustrative Usage:	An SRF has 80 percent of its assets in use as loans outstanding. An SRF has a debt to equity ratio of 62 percent.
Calculation Approach:	A balance sheet represents the year end (or end of period) snapshot of the balances of both the financial resources of an SRF (assets) and the source of those resources (liabilities and equity). All balance sheet analyses are based on same period percentage comparisons of relevant balance sheet items. Year by year trends in balance sheet ratios can provide useful insight into fund management.
Calculation Method:	$\text{Balance Sheet Ratio} = 100 \times (\text{Balance Sheet Item 1} / \text{Balance Sheet Item 2})$
Typical measures:	<i>Cash as a Percent of Total Assets</i> - proportion of available and currently unused assets <i>Debt Service Reserve as a Percent of Total Assets</i> - proportion of assets dedicated as reserves for bonds and unavailable to make loans <i>Loans as a Percent of Total Assets</i> - proportion of assets that are outstanding loans from the SRF <i>Debt as a Percent of Total Equity</i> - indicates degree of leveraging <i>Debt Service Reserve as a Percent of Debt</i> - measure of leveraging structure and security behind SRF leverage bonds <i>EPA Contribution as a Percent of Total Equity</i> - proportion of capital from EPA <i>State Contribution as a Percent of Total Equity</i> - proportion of capital from state <i>Retained Earnings as a Percent of Total Equity</i> - proportion of capital generated or lost through net earnings or losses

Example:**SRF Balance Sheet as of June 30, 2000 (thousands)**

Assets	Cash and Investments	\$500
	Debt Service Reserve	1,000
	Loans Outstanding	<u>5,800</u>
	Total Assets	\$7,300
Liabilities	Accounts Payable	\$250
	Debt Outstanding	<u>2,700</u>
	Total Liabilities	\$2,950
Equity	EPA Contribution	\$3,000
	State Contribution	600
	Retained Earnings	<u>750</u>
	Total Equity	\$4,350
	Total Liabilities and Equity	\$7,300

Cash as a Percent of Total Assets = $100 \times (500/7,300) = 6.9\%$

Debt Service Reserve as a Percent of Total Assets = $100 \times (1,000/7,300) = 13.7\%$

Loans as a Percent of Total Assets = $100 \times (5,800/7,300) = 79.5\%$

Debt as a Percent of Total Equity = $100 \times (2,700/4,350) = 62.1\%$

Debt Service Reserve as a Percent of Debt = $100 \times (1,000/2,700) = 37.0\%$

EPA Contribution as a Percent of Total Equity = $100 \times (3,000/4,350) = 69.0\%$

State Contribution as a Percent of Total Equity = $100 \times (600/4,350) = 13.8\%$

Retained Earnings as a Percent of Total Equity = $100 \times (750/4,350) = 17.2\%$

4.7 LOAN PORTFOLIO ANALYSIS

Definition: Loan portfolio analysis consists of segmenting an SRF's loan portfolio by the credit quality of the borrowers. Such analysis is used to evaluate the credit quality of a loan portfolio and, hence, the financial risk an SRF faces for loan repayment.

Illustrative Usage: Over 65 percent of the outstanding loans have been made to communities with above average or higher credit ratings.

Calculation Approach: Each loan recipient must be categorized by credit condition or financial capability. The dollar amount of loans outstanding are then grouped by the available categories to calculate the proportion of loan dollars in each category. Bond ratings provide a convenient set of categories to measure credit condition. However, many SRF loan recipients may be unrated. SRFs that perform financial capability analyses on loan applicants may be able to categorize loan recipients into ranges of financial capability from strongest to weakest. Other SRFs may want to rank loan recipient financial capability based on secondary sources of financial and socio-economic data on their loan recipients, such as, debt per capita, median household income, and unemployment rates.

Calculation Method: Percentage breakdown of the loan portfolio by appropriate measures of financial capability.

Example: Total SRF loans outstanding of \$5,800

<u>Financial Capability</u>	<u>Loan Amount</u>	<u>Percent of Total</u>
Strong	\$1,500	25.9%
Above Average	2,300	39.7
Average	1,400	24.1
Below Average	600	10.3
<u>Weak</u>	<u>0</u>	<u>0.0</u>
Total	\$5,800	100.0%

Over 65 percent of the loan portfolio is rated above average or higher and almost 90 percent is average or above, indicating a financially strong loan portfolio.

4.8 KEY FINANCIAL MEASURES

The following measures can be used to evaluate various aspects of SRF programs. The measures are based on commonly used financial analysis techniques used to assess the financial performance of self-supporting entities. The application and use of these measures is most appropriate for evaluating the current status and year-to-year trends of individual SRF programs. It also may be useful to assess certain measures in conjunction with other measures to obtain a more complete picture of an SRF. Care must be taken when attempting to compare measures across SRF programs due to the unique aspects of many program structures. Table 2 cross references the potential application of the financial measures to the fund management issues discussed earlier.

This introduction to financial measures is followed by an example set of SRF financial statements. The sets of equations that are included with each measure below refer to these statements. The first equation in each set uses references for individual line items on the statements, while the second equation uses the numbers that correlate to each reference. Where years are not specified, the most recent year is used.

Utilizing the CWSRF NIMS data, a number of these measures were calculated for reference purposes. Table 3 at the end of this section presents upper quartile, median, and lower quartile values. This data is based on NIMS data for all 51 CWSRF programs and then segmented into programs that use bonds in their program and those that don't. These values are intended to provide a gauge for the typical values that may be found in SRF programs.

Measures that Apply to All SRF Programs

Binding Commitments as a Percent of Federal Contributions –

This measure shows the percentage of SRF funds committed to projects as a percentage of federal capitalization grants. It is calculated by dividing cumulative binding commitments by cumulative federal capitalization grant awards. Cumulative binding commitments is the total amount of money that has been committed as loans. Binding commitments may or may not be closed loans, depending upon a state's definition of a binding commitment. Cumulative federal capitalization grant awards is the total amount of federal capitalization grant funds that have been awarded.

$$= (\text{cumulative binding commitments} / \text{federal grant contributions}) * 100$$

$$= (S2 / B11) * 100^\dagger$$

$$(701.5 / 289.6) * 100 = 242\%$$

[†] see financial statements on pages 4-27 to 4-30 for reference numbers.

At a minimum, this value should equal or exceed 120 percent to satisfy the statutory requirements (within one year). However, with commitment of repayments and leveraging, this measure will exceed 120 percent and continue to grow into the future. Year-to-year increases in this measure will indicate continued growth in the projects funded relative to the initial federal seed capital.

Undisbursed Binding Commitment Liability –

Measures the ability of the fund to meet major off-balance sheet potential liability. This is calculated by dividing cumulative undisbursed binding commitments by total current assets (including undrawn federal grant and state match amounts).

$$= (\text{cumulative undisbursed binding commitments} / \text{total current assets}) * 100$$

$$= ((S2 - S3) / (B1 + B4 + B5)) * 100$$

$$((701.5 - 625.3) / (248.9 + 51.2 + 0)) * 100 = 25.4\%$$

When this measure is 100 percent, it indicates that the fund has outstanding commitments that exactly equal currently available resources. Values below 100 percent indicate that all currently available resources are not committed to new loans. Values over 100 percent will indicate that the program is making loan commitments in advance of the receipt of funds, particularly repayments and new bond issuance.

Project Completion Ratio (Dollars) –

Reflects the proportion of project funding resulting in project completions. It is equal to the cumulative dollar amount of completed projects divided by the cumulative dollar amount of projects funded.

$$= (\text{completed projects} / \text{projects funded}) * 100$$

$$= (S4 / S2) * 100$$

$$(517.6 / 701.5) * 100 = 73.8\%$$

A relatively high percentage for this measure will indicate an effective pace of having projects proceed to completion. Over time this measure should continue to rise at an ever slower rate as it approaches 100 percent. A declining trend in this measure over several years could indicate a slowing of project start-up and/or construction progress.

Table 2 - Financial Measures

Fund Management Questions	Binding Commitments as a % of Federal Contributions	Undisbursed Binding Commitment Liability	Project Completion Ratio - Dollars	Project Completion Ratio - Number	Loans as % of Total Available Assets	Loan Principal Repaid as a % of Loans Outstanding	Delinquency Ratio	Loan Yield	Reported Loan Rates	Interest Rate Spread	Investment Yield	Net Interest Margin	Return on Equity	Internal Capital Formation	Debt to Equity	Debt to Performing Assets	DSR as % of Bonds Outstanding	Debt Service Coverage (Fixed Charge Coverage Ratio)	Interest Coverage Ratio	Debt Rating
1. Should loan terms be adjusted?	✓				✓	✓		✓	✓	✓		✓	✓	✓				✓	✓	
2. Does the fund receive adequate return on fund investments?										✓	✓	✓	✓	✓				✓	✓	
3. Are fund resources being utilized effectively?	✓	✓	✓	✓	✓															
4. Does the fund have a sound loan portfolio?						✓	✓			✓							✓	✓	✓	✓
5. Is sufficient project assistance being made available?	✓	✓	✓	✓	✓		✓	✓	✓											
6. Does the fund have sufficient administrative resources?	✓		✓	✓	✓		✓													✓
7. Should the fund leverage /continue to leverage?					✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8. What impact will borrowing for state match have on the fund?										✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
9. What impact will set-asides or capitalization fund transfers have on the program?					✓									✓	✓	✓				
10. What is the sustainable funding level from the program?					✓	✓	✓			✓		✓	✓	✓	✓	✓				✓

Project Completion Ratio (Number of Projects) –

Reflects the proportion of project completions in relation to the total number of projects funded. It is equal to the cumulative number of completed projects divided by the cumulative number of projects funded.

$$= (\text{completed projects} / \text{projects funded}) * 100$$

$$= (S10 / S9) * 100$$

$$(47 / 59) * 100 = 80\%$$

A relatively high percentage for this measure will indicate an effective pace of having projects proceed to completion. Over time this measure should continue to rise at an ever slower rate as it approaches 100 percent. A declining trend in this measure over several years could indicate a slowing of project start-up and/or construction progress.

Loans as a Percent of Total Available Assets –

Measures the proportion of available fund resources utilized as loans. This is determined by dividing total loans receivable by total assets less debt service reserves.

$$= (\text{total loans receivable} / (\text{total assets} - \text{debt service requirements})) * 100$$

$$= (B3 / (B7 - B2)) * 100$$

$$(541.2 / (991.1 - 149.8)) * 100 = 64.3\%$$

As a program with a sole purpose of providing financial assistance, SRF programs should be utilizing a substantial portion of their financial assets to make loans. This measure will indicate the degree to which available assets are being converted into loans. A high percentage, approaching 100 percent, should indicate that virtually all available resources are being converted into loans. A relatively low percentage or a downward trend could indicate underutilization of fund resources.

Loan Principal Repaid as a Percent of Loans Outstanding –

Shows the rate at which loan principal is being repaid and, thus, being made available to revolve. The measure reflects the average maturity of loan principal outstanding. This value is determined by dividing the amount of current year principal that has been repaid on loans by the average loans outstanding.

$$\begin{aligned}
 &= (\text{current year principal repaid} / \text{average loans outstanding}) * 100 \\
 &= (C4 / ((B3^{\text{beginning of year}} + B3^{\text{end of year}}) / 2)) * 100 \\
 &= (21.4 / ((541.2) / 2)) * 100 = 4.0\%
 \end{aligned}$$

A mature loan portfolio with 20 year loans that are repaid in level payments will have loan principal repayment of nine to ten percent of the outstanding loan balance every year. Programs that offer level debt service payments will have a lower percentage of principal repayment initially (less than five percent), but that percentage will rise over time to greater than 8 percent. The length of maturity of the loans will also directly affect this measure, with shorter loan maturities increasing the percentage of principal repaid each year. For mature programs, a rate that approaches eight to ten percent will be typical (reflecting average repayment across a diverse loan portfolio) and higher percentages will indicate a more rapidly revolving fund.

Delinquency Ratio –

Identifies potential risk and liquidity problems that could be caused by delinquencies in the loan portfolio. It is equal to the dollar amount of loans that are delinquent by more than 30 days divided by total loans receivable.

$$\begin{aligned}
 &= (\text{delinquent loans} / \text{average loans receivable}) * 100 \\
 &= (S8 / ((B3^{\text{beginning of year}} + B3^{\text{end of year}}) / 2)) * 100 \\
 &= (0 / ((493.9 + 541.2) / 2)) * 100 = 0\%
 \end{aligned}$$

Loan Yield –

This measure calculates the rate of return on the loan portfolio from interest. It is useful for assessing total returns, as well as the reasonableness of loan interest earnings. It is calculated by dividing loan interest earnings for a year by average loans outstanding.

$$= (\text{loan interest earnings} / \text{average loans outstanding}) * 100$$

$$= (I2 / ((B3^{\text{beginning of year}} + B3^{\text{end of year}}) / 2)) * 100$$

$$(18.8 / ((493.9 + 541.2) / 2)) * 100 = 3.6\%$$

Interest earnings from loans is a primary source of revenue for SRF programs and this measure will present the average interest earnings yield from loans. The interest rate charged by SRFs is at the discretion of the state, within allowable boundaries. Individual loan yield values must be evaluated in the context of individual program objectives and market/alternative rates for borrowers. May wish to include administrative fees in the calculation of total loan yield.

Reported Loan Rates –

Weighted average loan rates reported by the state. Use these amounts to assess the reasonableness of the Loan Yield.

$$= S5$$

$$= 3.0\%$$

Interest Rate Spread (Estimated Subsidy) –

The difference between the interest rate charged on SRF loans and market rates. The market rate should be a comparable cost of borrowing for communities such as the Bond Buyer 20 Year GO bond index.

$$= (\text{interest rate charged on SRF loans} - \text{market rates})$$

$$= S7 - S5$$

$$5.9 - 3.0 = 2.9\%$$

The interest rate spread indicates the amount of subsidy being offered by the program. A larger interest rate spread indicates a greater benefit being given to the borrower and a lower return for the SRF.

Investment Yield –

This measure calculates the rate of return on investments. It is useful for assessing total returns and the reasonableness of investment earnings. It is calculated by dividing investment interest revenue by average investment assets.

$$\begin{aligned}
 &= (\text{investment interest revenue} / \text{average investment assets}) * 100 \\
 &= (I1 / ((B1 + B2)^{\text{beginning of year}} + (B1 + B2)^{\text{end of year}}) / 2) * 100 \\
 &= (19.0 / ((159.8 + 143.9) + (248.9 + 149.8)) / 2) * 100 = 5.4\%
 \end{aligned}$$

Investment yields should approach current short term interest rates for low risk investments, such as U.S. treasury bills and money market funds. Low investment yields may indicate inappropriate investments or interest earnings not being properly credited to the SRF. Ideally investment yields should be calculated and evaluated by type of investment.

Net Interest Margin –

Indicates the net positive or net negative interest return relative to total average assets. It is equal to the yearly total interest revenue minus total interest expense for an SRF, divided by total assets over the year.

$$\begin{aligned}
 &= ((\text{total interest revenue} - \text{total interest expense}) / \text{average total assets}) * 100 \\
 &= ((I3 - I4) / ((B7^{\text{beginning of year}} + B7^{\text{end of year}}) / 2)) * 100 \\
 &= ((37.8 - 25.7) / ((820.9 + 991.1) / 2)) * 100 = 1.3\%
 \end{aligned}$$

This measure indicates the net earning potential of an SRF. A positive value indicates a program that has positive earnings from its basic operations. The size of net interest margin will directly impact the earnings and growth of an SRF.

Return on Equity –

Measures the overall net return on contributed capital plus retained earnings. It is the excess (deficit) of total revenues minus total expenses or change in fund balance/retained earnings, divided by average equity.

$$\begin{aligned}
 &= ((\text{total revenues} - \text{total expenses}) / \text{average total equity}) * 100 \\
 &= ((I9 - I14) / ((B14^{\text{beginning of year}} + B14^{\text{end of year}}) / 2)) * 100 \\
 &= ((13.6 - 2.0) / ((327.9 + 396.7) / 2)) * 100 = 3.2\%
 \end{aligned}$$

This measure shows the overall return that is being earned on the equity of an SRF. A positive return on equity will indicate that the fund is earning a positive return and growing as a result of the positive earnings.

Internal Capital Formation –

Measures the rate of growth of internally generated equity. It is determined by dividing current period change in fund balance/retained earnings by prior period total fund balance/retained earnings.

$$= (\text{current change in fund balance/retained earnings} / \text{total fund balance/retained earnings}) * 100$$

$$= (I15 / B14^{\text{beginning of year}}) * 100$$

$$(11.6 / 327.9) * 100 = 3.5\%$$

This measure focuses on the return being generated by the SRF from internal net earnings. A positive value means that the SRF is generating capital from ongoing operations, thus expanding its capital base to make future loans.

Measures That Apply to Programs That Use Debt

Debt to Equity –

Expresses the degree to which the fund is leveraged and the amount of financial risk associated with leveraging. It is calculated as total outstanding debt divided by total equity.

$$= (\text{total outstanding debt} / \text{total equity}) * 100$$

$$= (B9 / B14) * 100$$

$$(592.9 / 396.7) * 100 = 150\%$$

This is a common measure used to evaluate the financial structure of an entity. The higher the value the more a program is leveraged, which simultaneously increases the near term funds available for projects and the financial risk of the SRF.

Debt to Performing Assets –

Measures the amount of performing assets derived from borrowed funds. It is calculated by dividing total outstanding debt by total assets that are earning interest (*i.e.*, loans and investments). Total outstanding debt is the combination of current year leveraged bond proceeds minus the state and leveraged bond principal repayments, in addition to this value from the prior year. Total assets that are earning interest include: cash, investments, loans receivable, and the debt service reserve fund.

$$= (\text{total outstanding debt} / \text{total assets earning interest}) * 100$$

$$= (B9 / (B1 + B2 + B3)) * 100$$

$$(592.9 / (248.9 + 149.8 + 541.2)) * 100 = 63.1\%$$

This measure identifies the proportion of available funds that were generated from bonds. Highly leveraged programs will have a relatively large proportion of performing assets generated from borrowing.

Debt Service Reserve Fund as Percent of Bonds Outstanding –

Identifies the level of security provided by the Debt Service Reserve Fund to meet current debt service requirements. It is determined by dividing the cumulative end of period Debt Service Reserve Fund balance by end of period outstanding debt.

$$\begin{aligned}
 &= (\text{cumulative debt service reserve fund balance} / \text{outstanding debt}) * 100 \\
 &= (B2 / B9) * 100 \\
 &= (149.8 / 592.9) * 100 = 25.3\%
 \end{aligned}$$

A reserve fund leveraging structure will result in a relatively high percentage for this measure. Cash flow leveraged programs will have approximately 10 percent of the debt outstanding in reserves.

Debt Service Coverage (Fixed Charge Coverage Ratio) –

Reflects the SRF's ability to meet both interest and principal payments on outstanding debt with available net earnings. It is equal to loan principal repayments plus revenues minus expenses (excluding interest expense), divided by total interest expense plus debt maturities paid in the last year. Total revenues include investment interest plus interest on loans. Expenses include administrative and bond issuance costs. Interest expense is interest paid on bonds issued by the SRF. Debt maturities paid in the last year consist of the bond principal repayment for leveraged and match bonds.

$$\begin{aligned}
 &= ((\text{loan principal repayments} + \text{revenues} - \text{expenses}) / (\text{total interest expense} + \text{debt maturities})) \\
 &= (I15 + I4 + C4) / (I4 + C6) \\
 &= (11.6 + 25.7 + 21.6) / (25.7 + 102.7) = 0.46
 \end{aligned}$$

Typical coverage ratios exceed 1.2 as an appropriate degree of financial safety.

Interest Coverage Ratio –

Identifies the SRF's ability to cover at least interest expense with available net earnings. It is equal to total revenues minus non-interest expenses, divided by total interest expense. Total revenues include investment interest plus interest on loans. Expenses include administrative and bond issuance costs. Interest expense is interest paid on bonds issued by the SRF.

$$= ((\text{revenues} - \text{expenses}) / \text{total interest expense})$$

$$= (I15 + I4) / I4$$

$$(11.6 + 25.7) / 25.7 = 1.45$$

Typical coverage ratios exceed 1.2 as an appropriate degree of financial safety.

Debt Rating –

Indicates the relative financial risk associated with an SRF Program's bonds. It is a measure of the most recent ratings for debt issued by the SRF, if any. This is provided by debt rating agencies such as Moody's or Standard & Poor's.

$$= S6$$

$$= AA$$

Example Financial Statements

Balance Sheet
Year Ended June 30, 2000
(\$ millions)

Reference		2000	1999
	Assets		
B 1	Cash and Equivalents	248.9	159.8
B 2	Debt Service Reserve	149.8	143.9
B 3	Loans Receivable	541.2	493.9
B 4	Undrawn ACH (may only be a footnote)	51.2	23.3
B 5	Accounts Receivable	--	--
B 6	Other Assets	--	--
B 7	Total Assets	991.1	820.9
	Liabilities		
B 8	Accounts Payable	1.5	--
B 9	Bonds Outstanding	592.9	493.0
B 10	Total Liabilities	594.4	493.0
	Equity		
B 11	Federal Contribution	289.6	241.9
B 12	State Contribution	57.9	48.4
B 13	Retained Earnings	49.2	37.6
B 14	Total Equity	396.7	327.9
B 15	Total Liabilities and Equity	<u>\$ 991.1</u>	<u>\$ 820.9</u>

Statement of Revenue, Expenses, and Changes in Retained Earnings

Year Ended June 30, 2000
(\$ millions)

Reference		2000	1999
	Interest Revenue		
I 1	Cash and Investments	19.0	16.7
I 2	Loans Receivable	18.8	16.8
I 3	Total Interest Revenue	37.8	33.5
I 4	Interest Expense - Bonds	25.7	22.2
I 5	Net Interest Revenue	12.1	11.3
	Other Revenue		
I 6	Administrative Fee	1.2	0.9
I 7	Other	0.3	0.1
I 8	Total Other Revenue	1.5	1.0
I 9	Net Revenue	13.6	12.3
	Other Expense		
I 10	Administrative Costs	1.1	1.0
I 11	Bond Issuance Cost	0.7	0.8
I 12	Bad Debts Expense	--	--
I 13	Other	0.2	0.3
I 14	Total Other Expense	2.0	2.1
I 15	Net Income (change in retained earnings)	11.6	10.2
I 16	Retained Earnings - Beginning of Year	37.6	27.4
I 17	Retained Earnings - End of Year	\$ 49.2	\$ 37.6

Statement of Cash Flows
Year Ended June 30, 2000
(\$ millions)

Reference		<u>2000</u>	<u>1999</u>
	Cash Flow from Operating Income		
	Net Income	\$ 11.6	\$ 10.2
C 1	Adjustment to reconcile net income to net cash from operating activities	<u>1.5</u>	<u>(1.0)</u>
C 2	Net cash provided by operating activities	13.1	9.2
	Cash Flows from Noncapital Financing Activities	--	--
	Cash Flows from Capital and Related Financing Activities		
C 3	Loan Disbursements	(68.9)	(78.5)
C 4	Loan Principal Repayments	21.6	19.3
C 5	Bond Proceeds	202.6	238.6
C 6	Bond Principal Repayments	(102.7)	(112.6)
C 7	ACH Cash Draws	19.8	17.4
C 8	State Match Deposits	<u>9.5</u>	<u>7.6</u>
C 9	Net Cash provided by capital and related financing activity	81.9	91.8
	Cash Flows from Investing Activities		
C 10	Net (increase) decrease in debt service reserve	<u>(5.9)</u>	<u>(6.1)</u>
C 11	Net Cash provided by investing activities	(5.9)	(6.1)
C 12	Net Increase (Decrease) in Cash and Equivalents	89.1	94.9
C 13	Cash and Equivalents - Beginning of Year	159.8	64.9
C 14	Cash and Equivalents - End of Year	<u>\$ (11.8)</u>	<u>\$ (12.2)</u>
C 15	Increases to ACH	47.7	38.1

Supplemental Data Sheet

Year ended June 30, 2000
(\$ millions)

<u>Reference</u>		<u>2000</u>	<u>1999</u>
S 1	Binding Commitments	56.0	103.4
S 2	Cumulative Binding Commitments	701.5	645.5
S 3	Cumulative Project Disbursement	625.3	556.4
S 4	Cumulative Project Completions	517.6	459.4
S 5	Reported Average Loan Rate	3.0%	3.1%
S 6	Debt Rating	AA	AA
S 7	Bond Buyer 20 Year GO Bond Index	5.9%	6.1%
S 8	Loan Delinquencies Over 30 days	0%	0%
S 9	Cumulative Assistance Agreements	59	46
S 10	Cumulative Project Completions	47	38

4.9 CWSRF Financial Indicators

Like the measures included in Section 4.8, the following suite of indicators can be useful in assessing various aspects of the SRF program. The suite of financial indicators in this section were developed through the State/EPA Workgroup. They are currently used by EPA to report to Congress under the Government Performance and Results Act (GPRA) on the performance of the national CWSRF program. For GPRA they are only calculated on a national, aggregate level. See Table 3 for a summary of calculated financial indicators.

The indicators were developed as a complete suite in order to provide a balanced approach to understanding SRF performance. They reflect the different financial objectives of the SRF and provide broad indicators of how the SRF is meeting them. The overall CWSRF goal these indicators intend to address is: *To balance the sometimes conflicting objectives of **funding over time the largest dollar amount** of the most environmentally beneficial eligible projects **as timely as possible**, yet at the same time providing a **meaningful financial subsidy** to borrowers while, **maintaining the fund's contributed capital into perpetuity**.*

The indicators are:

- federal return on investment
- percentage of executed loans to funds available
- percentage of funds disbursed to executed loans
- estimated additional SRF loans made due to leveraging
- perpetuity (retained earnings or sustainability of fund)
- estimated subsidy (subjective indicator only)

Each of these indicators are discussed below along with the formula required to compute the indicator. The specific data assumptions required for each formula are presented at the conclusion of this section along with calculated values for CWSRF programs.

Return on Federal Investment –

This indicator is designed to show how many dollars of assistance were disbursed to eligible borrowers for each federal dollar spent. It is computed by dividing cumulative CWSRF assistance disbursed by cumulative federal outlays (including those for administrative expenses).

= cumulative CWSRF assistance disbursed / cumulative federal outlays

When comparing the results of this indicator among the state CWSRF programs care needs to be taken in drawing conclusions. A CWSRF program with a higher value is not necessarily better run than a CWSRF program with a lower value. This is because there are several good reasons why significant differences exist among the state CWSRF programs. For example, CWSRFs that issue bonds (leveraging) tend to have higher returns on federal investment than CWSRFs that do not issue bonds. This is because CWSRFs that leverage have more loanable funds available relative to the amount of federal funding than those that do not leverage.

Other factors that can affect this indicator include the type of loans made, types of projects funded, and the timing of when loan funds are disbursed. For instance, if state A issues loans for shorter

periods of time than state B then state A will have a higher federal return on investment than state B, all other factors being equal. This is because the shorter-term loans will get repaid sooner, which makes more money available for additional loans.

Percentage of Executed Loans to Funds Available for Loans –

This indicator measures the cumulative dollar amount of executed loan agreements relative to the cumulative dollar amount of funds available for loans. It is one indicator of how quickly funds are made available to finance CWSRF eligible projects.

$$= (\text{cumulative executed loan agreements} / \text{cumulative funds available for loans}) * 100$$

The methodology used to compute funds available for loans takes into account the varying CWSRF financial structures in place, so that only funds truly available for loans are counted as being available, thus permitting valid comparisons between the various CWSRFs.

Percentage of CWSRF Loan Disbursement to Executed Loans –

This indicator attempts to measure the speed at which projects are proceeding toward completion. It does this by comparing the cumulative dollar amount of CWSRF loan disbursements to the cumulative dollar amount of executed loan agreements, and expressing this as a percentage. A key assumption underlying this methodology is that there is a strong correlation between the amount of loan disbursements and the amount of construction progress. While this assumption generally appears to bear out actual experience, there are two notable exceptions - - refinancing and disbursement of loans at the time they are executed.

$$= (\text{cumulative CWSRF loan disbursements} / \text{cumulative executed loan agreements}) * 100$$

Estimated Additional CWSRF Loans Made Due to Leveraging –

This indicator tries to estimate the dollar amount of additional projects that have been funded due to leveraging (i.e., projects that otherwise might not have been funded, had leveraged bonds not been issued). This is done by comparing the cumulative amount of CWSRF executed loans to the cumulative amount of funds available after subtracting out the net funds provided by issuing bonds. The difference by which the cumulative amount of CWSRF executed loans exceeds the cumulative amount of funds available, after subtracting out the net funds provided by issuing bonds, represents the estimated dollar amount of additional projects that have been funded as a result of leveraging. This indicator only applies to states that have issued leveraged bonds.

$$= \text{cumulative SRF Assistance} - \text{Cumulative SRF Funds Available w/o Leveraged Bonds}$$

One critical assumption underlying this methodology is that states are only able to enter into loan agreements to the extent that they have loanable funds available within the current year. It is important to note that there are states that have adopted a cash flow approach to making loans that allows them to enter into loan agreements in excess of loanable funds available in the current year. There are two major reasons they are able to do this. The first is that there is a lag between when loan agreements are signed and when funds need to be disbursed. Thus, the signing of a loan agreement does not represent cash immediately going out the door. Second, states that have adopted

a cash flow approach do not limit themselves to funds available in the current year. They also take into consideration funds that are expected to become available in future years.

Perpetuity of Fund –

This indicator seeks to gauge how well CWSRFs are maintaining their invested or contributed capital, without making adjustments for loss of purchasing power due to inflation. For purposes of this indicator only, contributed capital is defined as the federal capitalization grant less the four percent allowed to cover CWSRF administrative expenses, plus the required 20 percent state match whether borrowed or unborrowed.

= (Interest revenues from Loans and Investments - Bond Interest Expenses and State Match Bonds Principal Repayments)

For those states that do not borrow for state match, if the amount of retained earnings of a CWSRF is greater than or equal to zero, then the CWSRF is deemed to be maintaining its contributed capital, and therefore, the perpetuity of the fund. If a state borrows for the required state match, then a CWSRF will be deemed to be maintaining its contributed or invested capital if the amount of retained earnings after subtracting out cumulative match bonds repaid equals or exceeds zero. This approach puts states that borrow for state match and those that do not on an equal footing by requiring that fund equity (assets minus liabilities) be equal to 96 percent of the federal capitalization grant plus the 20-percent state match.

Estimated Subsidy Provided –

This indicator provides a narrative, rather than quantitative description, of the subsidy provided by the various CWSRF programs. A quantitative indicator was not developed because of the difficulty in estimating what value or values should be used to establish a market interest rate proxy or proxies, and also to compute the true effective interest rate charged to borrowers.

However, because information about the subsidy being provided to borrowers is vital to understanding the structure and operation of a state's CWSRF program, EPA will request a brief narrative from States about the amount of subsidy being provided to borrowers. This narrative would include the following elements:

- the estimated market interest rate or rates used, and how they are determined;
- the estimated range of effective interest rates charged to borrowers, taking into account fees charged and other loan conditions and requirements; and
- the estimated average effective interest rate charged on loans.

Data Assumptions Used to Compute CWSRF Financial Indicators

- Net Federal Capitalization Grants = Total Federal Capitalization Grants - 4% Administrative Set-Aside (Total Federal Capitalization Grants * 0.04)
- Net Funds from Bonds = Net Leveraged Bonds Issued - Debt Service Reserve - Funds Used to Refund Bonds
- Earnings from Operations = Interest on Loans + Investment Interest - Net Bond Interest Expense
- Net Bond Interest Expense = Total Bond Interest Expense - Capitalized Bond Interest Expense Paid
- Cumulative Funds Available = Net Federal Capitalization Grants + Total State Match + Net Funds From Bonds + Earnings From Operations - Leverage Bonds Repaid - Match Bonds Repaid + Loan Principal Repaid + Net Transfers
- Federal Return on Investment = Cumulative SRF Assistance Disbursed / Cumulative Federal ACH Draws
- Cumulative SRF Funds Available Without Leveraged Bonds = Cumulative SRF Funds Available - Net Funds Provided By Bonds
- Additional SRF Closed Loans Due to Leveraged Bonds = Cumulative SRF Assistance Provided - Cumulative SRF Funds Available Without Leveraged Bonds

Table 3

CWSRF FINANCIAL INDICATORS FOR REPORTING YEAR 2000 BASED ON NIMS DATA THROUGH 6/30/2000 STATE AND NATIONAL SUMMARY					
Non-Leveraged State	Federal Return on Investment	SRF Executed Loans as a % of Funds Available	SRF Loan Disbursements as a % of Executed Loans	Additional CWSRF Executed Loans Due to Leveraged Bonds	Retained Earnings Less State Match Bond Principal Repayments
Unweighted State Average: <i>Non-Leveraged States</i>	1.25	89%	78%	N/A	N/A
Unweighted State Average: <i>Leveraged States</i>	1.94	88%	80%	N/A	N/A
National Weighted Average	1.78	90%	83%	\$6.8 Billion	\$2.8 Billion

APPENDIX

Annotated Listing of EPA Guidance Related to Fiscal Fund Management

Guide to Using EPA's Automated Clearing House for the Drinking Water State Revolving Fund Program, September 1998

The Clean Water State Revolving Fund Funding Framework, October 1996

The Clean Water State Revolving Fund - Financing America's Environmental Infrastructure
— A Report of Progress, January 1995

The Clean Water State Revolving Fund - Practical Approaches to Improving Pace, September 1997

State Match Options for the State Revolving Fund Program, February 1997

Report on Leveraging in the State Revolving Fund Program, July 1995

EPA Clean Water State Revolving Fund Audit Guide, June 1998