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Planning and Analysis
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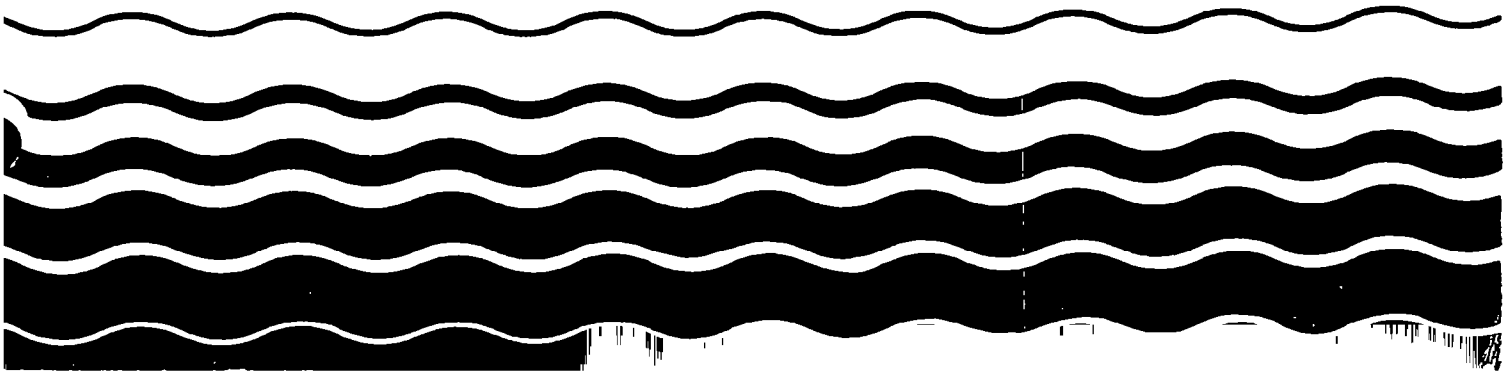
SRF

STATE REVOLVING FUND SIMULATION MODEL

USER GUIDE



STATE REVOLVING FUND (SRF)
SIMULATION MODEL
USER MANUAL
(VERSION 2)

May, 1987

PREPARED BY
Roy F. Weston, Inc.
955 L' Enfant Plaza, SW, 6th Floor
Washington, D.C. 20024
under Contract #68-01-6920

FOR
Environmental Protection Agency
Office of Municipal Pollution Control
Planning and Analysis Division (WH-546)
401 M St., SW
Washington, D.C. 20460

DISCLAIMER ON SRF MODEL SOFTWARE RESULTS

The Environmental Protection Agency does not endorse any of the hardware or software merchandise nor the companies associated with those products mentioned in this report. Any reference to merchandise or manufacturers in this manual is merely for illustrative purposes.

The State Revolving Fund (SRF) Model software serves as an analytical tool for evaluating basic factors and criteria involved in establishing a State revolving loan fund. It is not a discrete accounting tool mentioned in this report and the results of the model are directly reflective of (1) the assumptions made and (2) the quality of data entered by the user. In addition, every factor that can affect the operation of an SRF has not been included in the model. Therefore, results generated in this model should only serve as a general indicator of how well an SRF may operate.

TABLE OF CONTENTS

CHAPTER 1
DESCRIPTION OF STATE REVOLVING FUNDS AND THE ANALYTICAL MODEL

PURPOSE AND CONTENTS OF THE USER MANUAL

This manual accompanies a computer software model, contained in Lotus 1-2-3 files PROGRAM.WK1 and PROJECT.WK1, which simulates the operation of a State revolving fund (SRF). It can also be used to model other kinds of financial assistance programs such as bond pools and bond banks. The first chapter provides an overview of State revolving funds and the role of the model in planning an SRF. Chapter 2 goes a step further to help users understand what the model has to offer and how it can be used.

The manual explains how to use the model as a tool in planning and managing an SRF. It includes step-by-step instructions for using the SRF software to design a State assistance program, and for conducting simulations to show different funding and operating scenarios for such a program. Using the SRF Model enables financial planners to map out a program which best fits anticipated needs and economic conditions in their own States.

BACKGROUND ON STATE REVOLVING FUNDS

The Clean Water Act of 1972 and the Environmental Protection Agency's National Municipal Policy require local governments to meet certain water quality standards by July 1, 1988. Many States realize that in order to improve the quality of water resources for environmental, health, and economic development reasons, they will need to increase construction of new plants or upgrade existing facilities for the treatment of wastewater.

Financing such needed construction is proving increasingly more difficult, however, as federal assistance for such programs continues to decline. The Environmental Protection Agency's Construction Grants program, specifically devoted to funding the construction of wastewater facilities, will be phased out over the next four years, though capitalization funds will be available until 1991. Therefore, the requirements to comply with water quality standards, combined with a decline in previously available federal funds, has left States and localities with the problem of developing strategies and identifying funding sources to meet wastewater treatment needs. Local governments usually cannot afford to expend the entire amount needed for these improvements and are reluctant to increase user fees and taxes. Local governments have also found that borrowing money on their own is often prohibitively expensive, given their lack of market experience and the small size of their bond issues.

Many States have established financial assistance programs to help localities pay for needed capital improvements. Bond pools, bond banks, and revolving loan funds have all proved to be popular assistance programs. Bond banks and bond pools typically aggregate the bond issues of several municipalities into a single State bond issue. The interest rate paid on the State bonds becomes the rate that municipalities must pay on their loans. The loan repayments are dedicated to paying the debt service on the bonds. Legislative appropriations often are used to capitalize these programs in the initial stages. Several

States use revenues from specific taxes, such as dedicated sewer and water, excise, mineral severance, inheritance, and tobacco taxes.

These financing approaches yield an advantage over local financing programs b gaining access to larger quantities of funds at more reasonable terms. State's credit rating is usually higher than that of local governments, particularly small ones, which allows borrowing at lower interest costs. Borrowing costs for municipalities are lowered even further through the use of a State's supervisory and administrative resources, and through savings on the costs of underwriting and marketing the bond issues.

A revolving fund may issue debt in a similar fashion to the bond pool or bond bank, but is designed to be the basis for an ongoing program. The monies repaid to the fund by municipalities are lent out again ("revolved") to those applicants with wastewater treatment construction needs. Revolving loan funds generally require an initial capitalization of "seed money" from which loans to municipalities are made. A revolving fund is subsequently capitalized from repayments on existing loans and investment income; Figure 1 illustrates the flow of a limited supply of money in and out of the revolving fund. The equity capital of the revolving fund is replenished by loan repayments that consist of both the initial loan principal and interest, thus providing for a continually available source of new loan funds. The revolving feature allows a fund to be set up as a long-term, committed source of revenues for wastewater treatment construction. A revolving fund has significant advantages as a financing mechanism:

- The predictability of revolving fund revenues increases the certainty of project funding, and allows State and local governments to plan over the long term.

- The growth of revolving fund revenues over the long term enables States to plan for future wastewater treatment and collection needs.

- A revolving fund provides States with the means to achieve long-term self-sufficiency despite the decline in Federal dollars since it establishes a future State-level source of funds.

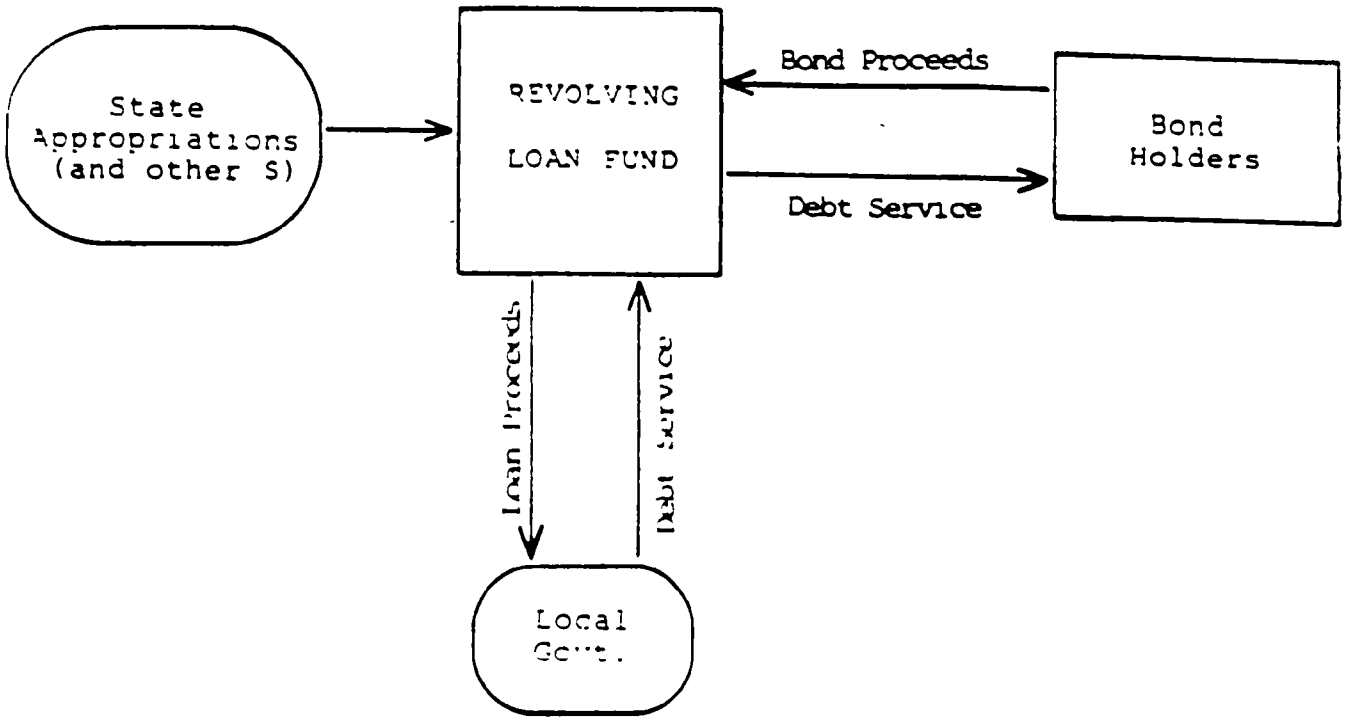
The amount of money initially available to a revolving fund depends on the degree of leveraging used. The SRF may use the bond market to leverage funds, but the need to maintain funds in reserve and pay principal and interest on bonds will reduce the amount of repayment monies that can be used to make new loans. The monies in the SRF will grow over time as a function of several factors: net earnings from bond proceeds, interest rate charged on loans to local governments, interest earned from short-term investment of funds, loan maturities, and loan defaults. Many State programs can acquire additional loan monies by using instruments such as bond insurance and interest-rate buydowns which reduce costs.

Several States currently use revolving loan funds to assist localities in financing wastewater treatment including California, Georgia, Montana, New Jersey, Ohio, Oklahoma, Utah, Virginia, Washington, West Virginia, and Wyoming. For further information on alternative State financial assistance programs, the following publications are available from the Environmental Protection Agency's Office of Municipal Pollution Control (OMPC): Study of the Future Federal Role in Municipal Wastewater Treatment (December, 1984 State Alternative Financing Programs for Wastewater Treatment (January, 1986).

FIGURE 1

STATE REVOLVING LOAN FUND:

Capitalization and Cash Flow



Planning and designing a revolving fund is a complex task. Even if individual factors can be anticipated (initial sources of capitalization, total funding needs, future market interest rates, loan default rate, inflation, etc.), it may be difficult to understand, much less predict, how these factors wil' interact with each other and influence the financial health of an SRF. Th model is designed to help the user consider the impacts of these factors by simulating SRF operations over a 20-year period. Given the assumptions made by the user regarding financial and economic conditions in a particular State, the model can provide helpful criteria in the decision to establish an SRF or another type of financial assistance program, and at what level to initially capitalize the fund.

OVERVIEW OF THE SRF MODEL

The SRF Model Software Package is not designed to serve as an accounting or financial management model--it is primarily intended for use as an analytical tool for planning purposes. The SRF Model Software Package offers financial analysts and managers a conceptual framework for testing whether or not the establishment of a revolving loan fund can provide the means for meeting wastewater treatment construction needs in any given State. For those States that have decided to establish an SRF, the model helps managers better anticipate and effectively simulate any operating deficits and surpluses over a 20-year funding scenario.

A key feature of the SRF Model is the capability to perform sensitivity analysis. The process of conducting sensitivity analysis involves (1) taking information generated from a complete run of the model, (2) reviewing model assumptions, (3) changing key model inputs, and (4) evaluating the effect o' revolving loan fund operations over the short or long term. By performin sensitivity analysis, a user can evaluate the impact of various factors on several funding scenarios simulated by the model. Sensitivity analysis enables the user to anticipate the effects of changing key variables or assumptions on the performance of an SRF. Therefore, sensitivity analysis is critical to the planning process because different prospective financial situations can be extensively evaluated.

While the model has the capability to perform complex operations, it is designed for users with basic computer skills. A series of customized menus that contain all necessary commands for using the model is provided. With this convenient user interface, users can spend more of their time on interpreting and evaluating model results.

Requirements and Conditions for Use of the Model

A microcomputer with 640K RAM (random access memory) is necessary to run the SRF Model. This memory capacity is becoming the conventional standard in personal computers (PCs). Expanding the processing memory of a personal computer with less than 640K RAM can be relatively inexpensive. Until recently, the cost of memory expansion ran upwards of $500. Because of technological advances, RAM can be expanded without having to add a new memory board; memory chips are inserted onto either the PC's mother board or a memory expansion board that is not yet at full capacity. Service costs can b' avoided by purchasing do-it-yourself upgrade kits.

Low cost memory upgrade kits may be available locally, or from mail order firms such as:

- Aristo, 16811 El Camino Real, 213-J, Houston, TX 77058. (713) 460-6288. This firm offers 640K upgrade kits for the COMPAQ, IBM PC, and IBM PC-XT for approximately $100.

- Add-Mem, 22151 Redwood Road, Castro Valley, CA 94546. (416) 886-5443. This firm specializes in do-it-yourself kits for under $100.

Note: As mentioned in the Disclaimer, EPA does not endorse these manufacturers or their products.

Even with 640K RAM, it is wise to have the computer's memory free of background software utilities (e.g., Sidekick) in order to avoid problems with saving model results. It is also essential to have extra disks available to back-up copies of software files; preferably, copies of files should be saved on both a floppy diskette and a hard disk. The use of an IBM PC-AT (or IBM PC-AT compatible) is desirable because it contains a hard disk and performs model routines quickly; users may find that some model routines run slowly on older PCs. PCs with "286" and "386" processing technology will process results even quicker than the PC-AT, and should be used if available. A dot matrix or laser printer, or a graphics plotter is necessary if hard copy output of reports or graphics is desired.

The model runs on Lotus 1-2-3; a user will need a copy of Release 2 (or later) of this software. A survey of State software users found that Lotus 1-2-3 is widely used and preferred.

Note: 1-2-3 clones may not have the proper framework to run this model because of the extensive and unique Lotus 1-2-3 commands built into the software.

The model (and this manual) uses basic and complex financial terminology. Definitions of these terms and examples of acceptable values for model variables are provided on pages 9-13 of this manual.

To summarize, you MUST have the following to operate the model:

- A microcomputer with at least 640K RAM,
- Lotus 1-2-3, Release 2 or later,
- Backup floppy diskettes for the software files, and
- Basic understanding of Lotus 1-2-3 and financial principles.

It is desirable, though not necessary, to have the following:

- IBM PC-AT (or compatible) for quick processing power, and
- Output Device -- dot matrix or laser printer, or graphics plotter.

By meeting all of these requirements, a user can obtain helpful model results in an efficient manner.

The SRF Model Concept

The SRF Model Software Package is designed to serve those who wish to conduct either basic or complex evaluations of various revolving loan fund scenarios Two floppy diskettes, one containing the Program file and the other the Project file, are provided in the package (Note: this manual uses the terms "disk" and "file" interchangeably because both the Project and Program files require their own disks). The Program file, the foundation of the previous versions of the software package, simulates fund balance operations over a 20-year period. Based on the data entered in the Program file and optionally transferred from the Project file, model results can be used to evaluate fundamental performance areas of an SRF. For example:

- Fund solvency,
- Optimization of fund buyout capability, and
- Projection of State construction needs.

Although previous versions of the model addressed the first two performance areas, the ability to conduct needs-based analyses is a new feature in both Program and Project files.

The Project file has been added to the software package for planners who are taking into account specific projects when defining the scope of an SRF. This file goes into a greater level of detail on needs and buyout patterns than the Program file so that planners can see how many projects can be funded by an SRF, given limited financial resources. The Project file is designed to support the evaluation of the three performance areas by addressing the timing and degree to which project needs are bought out.

Although a user may elect to approximate State totals for input in the Program file, the option of doing project-level planning will yield data that are based on specific project needs and funding plans in future years. The Project file aggregates data on individual projects for optional use in SRF simulations conducted in the Program file. Annual totals of all projects for the following key variables are outputs generated from the Project file that may be entered as inputs in the Program file:

- Construction Needs,
- Loans Made,
- Grants Made,
- Non-SRF contributions (e.g., local expenditures), and
- Loan Repayments.

These outputs from the project-level assessments, if used in the Program file, add a new dimension to the analysis of SRF scenarios that can enhance the usefulness of model results. An SRF's capability to buy out needs of specific projects can be assessed, as well as the impacts of particular project needs and funding strategies on the long-term health of an SRF program.

Like any model, the quantity and quality of data that is put into the model largely dictates the usefulness of the information generated. As a result, in planning SRF scenarios, **the user is strongly urged to consider all key variables offered in the model.** In addition, if project-level data is available, it should be incorporated into the model so that an SRF can be evaluated on the basis of meeting the needs of as many projects as possible

CHAPTER 2

USING THE MODEL

INTRODUCTION

The SRF model software is designed to be used in three phases: "Planning," "Use" and "Interpretation". This section guides the user with step-by-step instructions for using the model through these three phases. Troubleshooting tips and hints are provided throughout the step-by-step instructions. In addition, a quick-reference list of helpful hints is provided in Figure 2. This list summarizes important highlights of the step-by-step instructions, and will help you to use the model effectively.

The "Planning" stage involves identifying the appropriate scope of a revolving loan fund for a State--identifying assumptions and constraints, and defining and gathering the data needed for the model. The manual will show the user how to use manual worksheets (See Appendix A) for centralizing SRF information for data entry at the computer. The "Use" stage involves logging onto a PC and performing data entry and necessary calculations, and accessing and printing the model's reports and graphs. "Interpretation" of results involves conducting sensitivity analysis.

The following list outlines the six steps for producing results from the model:

1. **Defining the Scope and Assumptions of an SRF**
2. **Collecting Data**
3. **Filling out Data Entry Worksheets**
4. **Sitting Down at the PC**
5. **Performing Data Entry**
6. **Accessing SRF Model Reports**

After reading through the step-by-step instructions for "using the model software," refer back to the "Helpful Reminders" list provided on page 8 when using the model.

1. DEFINING THE SCOPE AND ASSUMPTIONS OF AN SRF

To achieve meaningful model results, it is necessary to first identify the important factors that affect the establishment and operation of a State revolving loan fund. By understanding the economic and financial conditions in a State, analysts can define the desirable terms for successfully starting an SRF. The process of defining these terms should include drafting the goals of the SRF (e.g., the SRF should "buy out" a total of "X" dollars of construction needs each year). A key consideration in obtaining useful model results is to reflect the goals and assumptions of an SRF in as many inputs as possible (e.g., if high inflation rates are assumed in the long term, these values should be entered in the model). Part of the process of defining the scope of an SRF is also to determine which of the inputs are relevant to the State being analyzed (e.g., for States that will not issue any bonds, values associated with the issuance of bonds or the retirement of bond debt are not required.).

The following is a list of key model inputs which may help to stimulate thought when initially scoping out model goals and assumptions:

FIGURE 2

SRF MODEL SOFTWARE HELPFUL REMINDERS

- The personal computer must possess at least 640K RAM to run both files.
- Make several copies of the blank data entry worksheets in Appendix A for the different SRF scenarios you plan to run.
- Press the <Alt><M> key simultaneously to access the main menu in either the Program or Project file.
- In order to quickly edit data, break out of line-by-line data entry routines when the first prompt for data appears by pressing the <Ctrl><Break> keys simultaneously.
- If a "Protected Cell" statement appears when performing line-by-line entry, make sure that a formula does not exist in the cell before trying to continue entry. Type the keystroke sequence of "/WGPD" in the READY mode in order to allow entry of information if the cell was wrongly protected.
- Review data that has been entered before interpreting results.
- If an "ERR" statement appears in any of the reports, check the spreadsheet for non-numeric characters or blanks entered in a cel' requiring a number.
- Once a decision has been made to use project-level data for a scenario, sensitivity analysis will require that the following procedures be followed:
  - Any changes to construction needs, loans and grants made, non-SRF contributions, and loan repayments data must first be made in the Project file.
  - An automated data transfer must be performed each time a change is made to project-level data.
- Always calculate the model by pressing the F9 function key before viewing or printing reports, saving results, and performing data transfers. This ensures that all of the data you have entered has been processed by the model.

- Construction Needs (either by Project or State-wide),
- Sources of Available Capitalization Funds (State and other),
- Bond Issues,
- Loans and Grants Made (either by Project or State-wide), and
- Terms for Retiring Bond Debt and Repaying Loans.

The following list contains definitions for these and all other model inputs:

- Construction Needs - The total annual amount of construction needs for each project can be entered in the Project file or State needs totals can be entered in the Program file. Valid entries for construction needs can range from zero to hundreds of millions of dollars (0 to 999999999). Model cell references (20 years): Program file, AF63 through BR63; Project file, BW7 through CP56.

- Capitalization - The total sum of seed money, provided by either private or public sources in any given year, serves as the initial and periodic revenue source for the fund. Valid entries for capitalization can range from zero to hundreds of millions of dollars (0 to 999999999).

  Note: Initial legislative appropriation is highly desirable for capitalizing the fund since it is very difficult to market bonds without establishing reserves and a repayment schedule. Model cell references (20 years): Program file, H4 through AA4.

- Bond Issues - For a leveraged revolving fund strategy, the total dollar value of proceeds from all bond sales that will be dedicated to the fund each year (including General Obligation, Revenue, Limited and Special Obligation, Special Assessment, and other types of bonds). Valid entries for bond issues can range from zero to hundreds of millions of dollars (0 to 999999999). Model cell references (20 years); Program file, H5 through AA5.

  Note: In determining potential bond revenues, keep in mind the following:

  - General Obligation Bonds State limitations are placed on their use for debt; there is sometimes a requirement for voter approval.

  - Revenue, Limited, or Special Obligation Bonds: While exempt in most States from debt and interest ceilings, these types of bonds are higher risk than general obligation bonds. This means that higher interest rates will be paid to bond holders.

To determine debt-service reserve, coverage requirements, bond insurance needs, and interest rate levels (discussed below), contact a State finance officer and/or bond counsel. The values that can be entered into the model depend on the current bond market conditions and bond ratings.

- Debt Service Reserve - Monies put aside in an account to cover the debt to bond holders in the event receipts from loan repayments (debt service) prove insufficient. These reserve funds reduce the risk to bond holders and, thus lower the interest costs to the borrower. It also reduces the level of funds the State would have to pay in the event of a loan default.

  Enter the percentage of bond issue dollars put aside for debt service reserve each year. Valid entries for debt service reserve can range from zero to ninety-nine (0 to 99) percent, although twenty (20) percent is considered a reasonable upper limit. Model cell references (20 years): Program file, H8 through AA8.

  Note: In general, a debt service reserve account is not required on general obligation (tax-pledge) debt. A common funding requirement for a debt service reserve fund is one-year's average or highest debt service on the bonds. In some cases, this reserve account is built up over a period of years. The use of debt service reserve funds is restricted for the life of the bond. These funds are commonly applied towards the last year's debt service of the bond.

- Coverage Requirements - Coverage is generally defined to be the ratio of the net revenue available for debt service to the average annual debt service requirements of an issue of revenue bonds. The coverage requirement of this model is another type of reserve account (similar to debt service reserve) used with revenue bonds to enhance the security of a bond issue. This model calculates the coverage requirement by adding the next year's annual debt service to a percentage selected as coverage. In this model, the amount set aside for coverage is not restricted over the life of the bond, and is a part of the Total Fund Balance calculated at the end of each year. Coverage percentages commonly range between one and one and-a-half percent . Model cell references (20 years): Program file, H11 through AA11.

  Note: The percentage of coverage required is typically outlined in the bond resolution. The coverage requirement varies from bond to bond depending on several factors, such as the financial soundness of the issuer, and the degree of recognition by investors.

- Bond Insurance - This is another mechanism to secure bond issues. This outlay is incorporated into the model as a single insurance payment made in the same year that the bond is issued. Fees are calculated as a percentage of the dollar amount of bonds issued each year. Valid entries for bond insurance fees can range from zero to ninety-nine (0 to 99) percent, although two (2) percent is considered a reasonable upper limit.

  Note: Bond insurance is typically a one-time cost incurred at the time the bond is issued. Hence, it should be considered only in those years when bonds are issued Bond insurance is typically purchased only on revenue-pledged bonds.

- Loans Made - This line item reflects the total amount of funds loaned out to municipalities each year for the construction of wastewater treatment projects. Valid entries can range from zero to

hundreds of millions of dollars (0 to 999999999). Model cell references (20 years): Program file, H18 through AA18; Project file, E6 through X251.

Note: To ensure solvency of the SRF, States should only make sound loans that are backed by dedicated sources of local revenue sufficient to pay all principal and interest payments required. Commonly, such security is provided by local governments in the form of a bond, note, or agreement pledging user fees as required by the Water Quality Act, or some other form of local revenue that will be used towards repayment of the loan. By obtaining adequate dedications of funds from local communities, an SRF's ability to sell State bonds would be enhanced because these dedicated funds could be cited as collateral for the issue.

- Grants Made - The annual total of funds that are disbursed to municipalities in the form of State grants--not to be paid back. Valid entries can range from zero to tens of millions of dollars (0 to 99999999). Model cell references (20 years): Program file, H19 through AA19; Project file, E7 through X252.

  Note: While there may be a need for making grants in hardship cases, grants will deplete the build-up of loanable funds (received from loan repayments) over time. In no case may federal SRF seed money be granted out.

- Bond Retirement - The total dollar value of bonds retired each year. The model simulates the bond retirement schedule after the following information is supplied for each year that bonds have been issued:

  (1) **First Bond Retirement Year.** Depending on the type of retirement schedule chosen for the fund, the first retirement year can take place either shortly or long after the bond has been issued. Avoid the logical mistake of declaring the first retirement year as being before the actual year the bond was issued. Example: If the First Bond Retirement Year is to be one year after issuance, then a bond issued in year five would have a first retirement payment in year six. Therefore, double check the bond retirement years entered for each bond. Acceptable entries can range from years one to twenty (1 to 20). Model cell references (20 years): Program file, D26 through D45.

  (2) **Term for Bond Retirement.** This data item reflects the number of years over which bonds will be retired. Acceptable entries can range from one to twenty (1 to 20) years. Model cell references (20 years): Program file, E26 through E45.

  (3) **Number of Payments in a Year.** This feature allows the bonds to be repaid under a variety of different schedules: monthly, quarterly, semi-annually, and annually. A default value of one (1) percent a year has been entered into the spreadsheet. Acceptable values for this data item would be twelve, four, two, and one (12, 4, 2, and 1) respectively, or a bi-monthly (6) payment schedule. Model cell references (20 years): Program file, F26 through F45

Note: If zero is entered into any cell for this information when bond issue amounts have already been entered, errors will result throughout the entire spreadsheet.

(4) The Interest Rate on Bonds Issued. Select an interest rate that will likely be charged in the bond market. Interest rates that will likely be charged range from zero to twenty (0 to 20) percent. Model cell references (20 years): Program file, G26 through G45.

- Loan Repayments - This section of the model reflects the same types of calculations mentioned under BOND RETIREMENT (see above), but serves to simulate a schedule of revenues (in the form of loan repayments) based on the following items of information:

  - (1) The first year of loan repayments--Model cell references (20 years) in the Program file are D53 through D72;

  - (2) The term over which loans will be repaid--Model cell references (20 years) in the Program and Project file are E53 through E72 and AB7 through AB251, respectively;

  - (3) The number of payments each year--Model cell references (20 years) in the Program file are F53 through F72;

  - (4) The interest rate received on loan repayments--Model cell references (20 years) in the Program and Project files are G53 through G72 and AA7 through AA251, respectively; and

  - (5) The percentage of loans in default--Model cell reference (20 years) in the Program file are H76 through AA76. Loan repayments in default are an outlay in the model and calculated by multiplying the total of loan repayment funds expected each year by the expected default rate for that year. Valid entries for default rates range from zero to ninety-nine (0 to 99) percent, although ten (10) percent is considered a reasonable upper limit. To determine an input value, consider using the average default rate experienced under other State loan programs.

Note: Parameters for entry of the four terms for loan repayments are the same as those for BOND RETIREMENT. The current default rate on loans experienced by States is approximately two (2) percent. Ordinarily, interest paid by the community should cover State borrowing costs. Interest costs to local governments could be brought down by blending rates from bond proceeds with zero percent loans from appropriated State funds.

- Administrative/Operational Costs Of The Fund - This outlay encompasses all labor and capital expenses involved in administering the fund. Valid entries can range from zero to hundreds of millions of dollars (0 to 999999999), although the dollar equivalent of one to two percent of dedicated annual program funds would be a reasonable input value. Model cell references (20 years) in the Program file are H84 through AA84.

- Other Income - Revenues that are added into the fund from secondary sources. This figure includes cash from penalties for delinquent loan payments. Valid entries can range from zero to hundreds of millions of dollars (0 to 999999999).

  Note: The source of these revenues are similar to those for NON-SRF CONTRIBUTIONS, but differ in that OTHER INCOME revenues are spent through the SRF and NON-SRF CONTRIBUTIONS buy out needs independent of the SRF.

- Non-SRF Contributions - Revenues from secondary sources that are loaned and/or granted out to meet construction needs. Valid entries can range from zero to hundreds of millions of dollars (0 to 999999999).

  Note: This item is used in the software to help analysts see how well construction needs are being bought out by both SRF and non-SRF expenditures. Model cell references (20 years) in the Program and Project files are AF87 through BR87 and E8 through X253, respectively.

- Interest Rate On Invested Funds - The model is not equipped to calculate interest earned on the fluctuating fund balance throughout the year. For simplicity, interest is calculated on surplus funds that are available after a year of fund activity. Choose the interest rate that will likely be received from investing those funds. Acceptable entries for the interest rate range from zero to one hundred (0 to 100) percent. Model cell references (20 years) in the Program file are H88 through AA88.

  Note: There is currently no default. The interest rates should reflect those on current short-term federal notes. Contact your State financial officer to get the average annual interest rate on State investments.

- Inflation Rate - This input value is applied only to the end-of-year fund balance. The model takes the end-of-year fund balance, deflates it (i.e., reduces the amount because the spending power of the funds is diminished when accounting for inflation), and "rolls" the deflated figure into next year's beginning fund balance. The model does not attempt to calculate the varied inflationary impacts on other model variables. If the effect of inflation is not taken into account, enter a zero inflation rate for each year. An inflation rate, forecasted by a nationally respected source, has been entered into the model (a default value of 5 percent). The valid range of entries is zero to ninety-nine (0 to 99) percent. Model cell references (20 years) in the Program file are H92 through AA92.

  Note: You may choose to use the default values, or enter projections that closely reflect the anticipated construction index inflation rate in your State

The model can be run with or without information pertaining to many of the variable inputs. For example, data on inflation does not have to be entered in the model, but omitting this information will obviously affect the quality of model results. In any case, special consideration should be given whe deciding not to include information that is available on a key model input.

For each assumption or goal, identify the correlating inputs, so that they can be documented for the appropriate model simulation. Once the universe of variable inputs that will be used has been identified, define a range of reasonable values for each input. By defining input ranges, useful parameters will be available for modifying inputs during sensitivity analysis. As a reasonable range for each input is defined, enter the "best" guess value for each year of the SRF.

2. DOCUMENTING MODEL INPUTS

Collect copies of documents from which input data is to be used. In addition, written analyses of parameters relating to hypothesized (or predicted) inputs should also be collected. By collecting source documentation for all "hard" data (i.e., data that is contained in official documents) and written assumptions pertaining to predicted data, the information will be readily available when reviewing model results during sensitivity analysis and for use in establishing fund policies.

3. FILLING OUT DATA ENTRY WORKSHEETS

Worksheets for recording input data are provided to help users plan SRF scenarios (See Appendix A). Make several photocopies of all blank data entr worksheets so that values can be recorded for the possible financial scenarios that may be planned. Although several data entry worksheets may not be used because information is not available or the level of detail is beyond the scope of the planned scenario, keep them handy in the event that the scope of the scenario changes or additional information is made available. Record all information collected for running a complete SRF scenario in the appropriate input line item appearing on the data entry worksheet.

The data entry worksheets are not only helpful for the convenience they allow in planning an SRF, but are structured to exactly match the data entry routines provided in the model software. The similarity of the planning worksheets and the data entry routines will cut down on input errors and decrease the time spent entering information into the model. The data entry routines better ensure accuracy of entered information by also offering specific prompts for each key data value that exists in the model.

4. GETTING STARTED AT THE PERSONAL COMPUTER

Instructions for getting started on an IBM PC or IBM PC-AT (or compatible hardware) possessing a two-floppy disk drive system and an IBM PC-XT with a single floppy disk drive are provided in this section. The use of a system with a hard disk can speed the process of retrieving and saving files.

- Place a "boot" or Disk Operating System (DOS, version 2.0 or later disk in the "A" drive of either a two-floppy system or a hard disk system (if appropriate).

- Turn on the computer, monitor, and printer ("cold start"), or restart the system ("warm start") if the computer is already on by pressing the <Ctrl><Alt><Del> keys simultaneously.

- Be sure to enter the date and time when prompted in order to have a record of when the model was last used.

Hard Disk Instructions

If the PC being used possesses a hard disk (e.g., an IBM PC-XT or IBM PC-AT, or compatible) with an installed version of Lotus 1-2-3 Release 2 (or later), each of the model files should be copied into the Lotus 1-2-3 directory. Insert the SRF Program disk into the "A" (or left-hand) disk drive and type the following command.

A>COPY *.* C: 1-2-3 directory name <Return>

Repeat the command after inserting the SRF Project disk in the "A" disk drive. Place the original disks of the SRF Model Software Package in a safe place as a backup to the files now on the hard disk.

Floppy Disk System Instructions

For those using a two-floppy system without a hard disk (e.g., an IBM PC or compatible), place the SRF Program Disk of the package in the "A" drive and a blank disk formatted in DOS 2.0 (or later) in the "B" drive, and type the following command:

A>COPY *.* B:

Place the SRF Project Disk in the "A" drive and another blank disk formatted in DOS 2.0 (or later) in the "B" drive, and repeat the preceding command. Place the original disks of the SRF Model Software Package in a safe place as a backup to the these newly created floppy disks that you will now be using. Insert the Lotus 1-2-3 System Disk in the "A" drive and either SRF Model Disk in the "B" drive.

Accessing Lotus 1-2-3 and SRF Model File

Lotus 1-2-3 can now be loaded into the system to access the SRF Model Software. Depending on the hardware configuration being used, type the appropriate command to load Lotus 1-2-3 and SRF Model software:

USING A HARD DISK SYSTEM:

After having copied the SRF Model files to the hard disk, issue the following commands:

A>C: <Return>

C>123 <Return>

USING A NON-HARD DISK SYSTEM:

A>123 <Return>

Once the 1-2-3 opening spreadsheet appears on the screen, use the following file retrieval commands:

- Call up the 1-2-3 main menu by pressing the "slash" (or "/") key, then press "F" for File and "R" for Retrieve; this command sequence can be abbreviated as "/FR". Move the cursor to highlight the file you will be working on and press the <Return> key.

If neither of the two SRF Model files (i.e., "PROGRAM.WK1" or "PROJECT.WK1") appear:

- Type the key sequence "/FD" to indicate the directory from which Lotus 1-2-3 is trying to retrieve files. Merely type the letter of the disk drive on which the files are maintained, colon, "slash" key, the directory name (for hard disks only) -- "X: directory name", and <Return>, and then repeat the preceding file retrieval commands.

To get out of the spreadsheet and save any work that has been done:

- Type the keystroke sequence of "/FSR" which stands for File, Save, and Replace in Lotus 1-2-3.

To abandon all work that has been done at the end of the session at the computer:

- Press the keystroke sequence of "/QY" which stands for Quit and Yes.

When the PROGRAM.WK1 file is retrieved, a main menu will appear with the following numbered options and a description of each option:

- 1:SEG(1) -- Enter Model Initialization Data Items
- 2:SEG(2) -- Enter Terms for Bond Retirement
- 3:SEG(3) -- Enter Terms for Loan Repayments
- 4:SEG(4) -- Enter Miscellaneous Data Items (e.g., Interest and Inflation Rates)
- 5:NEEDS -- Enter and Analyze Construction Needs Information
- 6:UTILS -- Utilities to Expedite Data Entry and Save Results
- 7:REPORT -- View and Print SRF Program Reports
- 0:EXIT -- Leave the SRF Macro Routines and Return to the 1-2-3 READY Mode.

The PROJECT.WK1 file contains the following options on its main menu:

- 1:PROJECTS -- Enter Names of All State Projects
- 2:NEEDS -- Enter Construction Needs for Each Project
- 3:REVENUES/OUTLAYS -- Enter Amounts of Funds (1) Expended and (2) Received in Loan Repayments
- 4:REPORTS -- View or Print Project-Level Reports
- 5:SAVE -- Save Project Data to File (PROJECT.WK1)
- 0:EXIT -- Leave the Model Menu Structure

These choices can be selected either by typing in the number of the option or highlighting the option by way of cursor movement and pressing the <RETURN> key.

5. PERFORMING DATA ENTRY

Once an SRF Model file has been retrieved, select one of the data entry routines described above. If an undesired menu choice is accidentally selected, type zero ("0") to return to the previous menu or press the <Ctrl><Break> keys simultaneously to get out of the model menu structure altogether.

There are four ways to enter data in the two SRF spreadsheets:

- Line-by-Line Entry -- In the Program (PROGRAM.WK1) file, special routines are offered on the SRF Model menus that prompt for numeric values. The option to perform line-by-line entry exists for all inputs in the Program file. The routines for numeric values either require entries over a 20-year period or in 5-year increments (1-5, 6-10, 11-15, 16-20). For each project in the Project file (PROJECT.WK1), a routine is provided that prompts for annual construction needs over a 20-year period. The Project file contains routines for entering numeric values for 20 years, and fifty alphanumeric construction project names. If more than fifty projects are being considered, enter information into a fresh PROJECT.WK1 worksheet and save the results to a new file named PROJECT2.WK1.

  Note: When considering more than fifty projects, the PROJECT DATA TRANSFER feature will not work. To accommodate all project-level data in the Program file, add like values in the PROJECT SUMMARY (20 YEARS) reports of the different Project files that are being used and enter this information in the NEEDS, LOANS, GRANTS, and NON-SRF $ routines of the Program file. The aggregated project-level loan repayment information should be entered in the row labelled ANNUAL LOAN REPAYMENT TOTALS; the totals should be entered for twenty years beginning with Year 1 in cell H73 and ending with Year 20 in cell AA73. As data is changed in the Project file, PROJECT SUMMARY (20 YEARS) reports will have to be run again, like values added, and affected values in the Program file will have to be updated to reflect project-level changes.

- Free-Form Entry -- Free-form entry allows data values to be entered without prompts. In the Program file, free-form entry is recommended when editing only a few data values so that one does not have to go through an entire line-by-line entry routine. Althouc line-by-line entry with prompts is offered in the Project file fc entering project names and annual project construction needs, the free-form approach serves as the primary way to handle the majority of data entry (i.e., loans made, grants made, non-SRF contributions and loan repayment terms for each project). Menu options are provided in the Project file that bring the cursor to the general area where free-form data entry can occur.

- Replication -- This feature, offered in the Program file, allows a value to be copied throughout the 20-year life of the SRF without having to perform line-by-line entry. Replication of inputs that are likely to remain static for 20 years (e.g., the loan default rate) permits data entry to be performed quickly.

- Data Transfers -- Lotus 1-2-3 contains a useful feature that allows spreadsheets to share information. As was discussed in the "Model Concept" section, if project-level analyses are being conducted, aggregated totals of up to fifty projects in the Project file may be electronically transferred to the Program file. When data has been entered in the Project file that reflect annual State totals of (1) construction needs, (2) loans made, (3) grants made, (4) non-SRF contributions and (5) loan repayments over a period of up to 20 years, this information may be transferred from the Project file to the Program file by selecting the PROJECT DATA TRANSFER option in the UTILS submenu of the Program file. **In order to ensure a accurate transfer of project-level data to the Program file, th Project file must be calculated by pressing the F9 function key before saving information in the Project file.**

Although data entry options are automatically available when a file is initially retrieved, one may choose to exit from the special menus offered in the model to use the Lotus 1-2-3 menu structure or to perform free-form data entry. In either of the SRF Model files, when "READY" appears in the upper right-hand indicator panel type the <Alt><M> keys simultaneously to access the main menu.

Note: Do not type <Alt><M> simultaneously when "CMD" appears at the lower middle part of the screen because this indicates that the special menu structure has already been called and model routines may be occurring.

When performing data entry in either of the two spreadsheets, remember the following considerations/rules. These considerations not only serve as an excellent troubleshooting checklist for data entry, but also for interpreting results in output reports.

- The default setting for most inputs is zero ("0"). If data are not available for a numeric input item, the default value of zero will be retained. However, by entering conservative or "safe" values instead of retaining the default value, more useful model results are likely. For key line items (such as CAPITALIZATION, BON ISSUES, and LOANS and GRANTS MADE), carefully consider the values be entered because model results could be significantly affected.

- Commas can not be used when entering numbers. Once a number larger than three digits has been entered, 1-2-3 will assign commas in order to enhance readability. If a comma is included by accident, an error message will appear stating "Illegal Number Format". Press the <Return> key and re-enter the number without the comma(s).

- Do not type percent signs (%) for line items that require a percentage (e.g., 15.5 percent should be entered as "15.5" rather than ".155" or "15.5%"). Attaching a percent sign to a value will skew the results of the model. Similarly, do not type the dollar sign ($) for monetary inputs. Please remember the basic corollary of data entry: Enter only whole numbers or numbers with decimal points to represent dollar totals and percentages.

- The presence of asterisks in numeric cells may indicate an error. Adequate space has been reserved in the model for all reasonable entries and computations. The presence of asterisks in an output report indicates that incorrect deficits or surpluses may have been calculated. Asterisks that appear after a number has been entered indicates that the model did not anticipate the size of the number. The value was either over $1 billion or a percentage that used more than 6 character positions. To view legitimately large values, adjust the column widths by pressing the keystrokes sequence of "/WCS", and then pressing the right arrow key until the numbers appear.

- Parentheses indicate negative values or balances. A standard rule in accounting is that parentheses around a number indicate that it is a negative value. Lotus 1-2-3 will automatically place parentheses around negative numbers.

Entering Data in the Program File

The main menu of the Program file offers line-by-line data entry routines in options labelled SEG(1), SEG(2), SEG(3), SEG(4), and NEEDS; each of these options may be accessed by typing 1, 2, 3, 4, or 5, respectively, or by moving the cursor over to the desired option and pressing <Return>. The universe of input (or "line") items in the Program file are shown in Figure 3 and the data entry worksheets can be found in Appendix A on pages A-1 through A-5. All of the routines offered in the Program file have been structured to allow entry of a maximum of 20 values.

By selecting SEG(1), SEG(4), or NEEDS, prompts for annual numeric values (years 1 - 20) for a variety of line items are provided. In contrast, the routines for SEG(2) and SEG(3) require entry of four items of information (first payment year, term of the financial instrument, number of payments per year, and the interest rate) -- in 5-year blocks.

After line-by-line entry has occurred, free-form entry can be used in the following manner to edit information efficiently:

1. Press <Alt><M> simultaneously, if in the 1-2-3 READY mode.

FIGURE 3
PROGRAM FILE DATA ENTRY ROUTINES

SEGMENT 1
MODEL INITIALIZATION DATA

For each year:

- Capitalization amount
- Bond issues amount
- % of bond issues for debt service reserve
- % of bond issues for bond insurance fee
- Loans made*
- Grants Made*

SEGMENT 2
TERMS FOR BOND RETIREMENT

For each bond year:

- The first year that a bond issue will begin to be retire
- The number of years over whic a bond issue will be complete retired
- The number of payments per ye
- The annual interest rate

SEGMENT 3
TERMS FOR LOAN REPAYMENTS

For each loan year:

- The first year that repayments will begin on a loan
- The number of years to repay a loan in full
- The number of payments per year
- The annual interest rate
- The percentage of all loan repayments in default
- Annual Loan Repayments*

SEGMENT 4
MISCELLANEOUS DATA ITEMS

For each year:

- Administrative/Operationa Costs
- Other Income
- Interest rate earned on funds
- Inlation rate
- Non-SRF contributions*

NEEDS

For Each Year:

- State Construction Needs

*NOTE: This information can be calculated in the Project File and electronica transferred to the Program file.

2. Select the data entry routine containing the value(s) requiring change(s).

3. Select an input requiring change(s).

4. Press <Ctrl><Break> simultaneously, when the first prompt for data appears in the upper left-hand panel of the screen.

5. Enter the necessary changes.

6. Press <Alt><M> simultaneously, to continue performing model operations.

For example, if changes to two of the twenty values entered for the Capitalization line item are necessary, first follow steps 1-4 outlined above. After seeing the following prompt: "ENTER YEAR 1 CAPITALIZATION VALUE" break out of the routine by pressing <Ctrl><Break> simultaneously. Step 5 involves using the right and left arrow keys to find the Capitalization values that require change. Step 6 involves re-accessing the main menu to perform other model operations.

By breaking out of a data entry routine right after the first prompt for data appears, the cursor will be in the general location where changes can be made. The advantage of this technique is that numbers will not have to be re-entered for each cell as the Lotus 1-2-3 data entry macro routines require. **Until one is familiar with the spreadsheet and its data entry routines, data should only be entered by way of the 1-2-3 macro routines provided in the model's main menu. Once the structure of the spreadsheet is well understood, the free-form data entry approach may prove to be quicker than line-by-line entry.**

A replication feature (described above) is offered in the Program file that allows input variables containing the same value for any given year through year 20 to be entered with just a few commands. When recording information on the data entry worksheets, make a special note of the values to be replicated. If a value to be replicated has just been entered via line-by-line entry:

- Break out of the routine by pressing the <Ctrl><Break> keys simultaneously.

- Recall the main menu by pressing the <Alt><M> keys simultaneously.

- Choose the options titled "UTILS" on the main menu and "REPLICATE" on the following menu. The successive menu will contain options to replicate data in SEG(1) through SEG(4).

Note: the replication capability is not offered in the NEEDS option because construction needs will likely vary year to year.

After selecting one of the four segments, another menu will appear offering the option to either replicate data for (1) all of the line items in the chosen segment ("ALL"), or (2) a specific line item within the chosen segment. The first option is useful when making general assumptions about "out-year" data for all items in a segment. The second option should be used when only one or some of the line items in a segment require duplication.

The transfer of data can be performed efficiently when the Project and Program files are located on the same directory of a hard disk. Perform the following steps:

1. Press <Alt><M> simultaneously, to access the main menu.

2. Select the main menu option containing the annual State totals to be transferred (i.e., SEG(1) for loans and grants made, SEG(3) for loan repayments, or NEEDS for construction needs).

3. Select the line item for transfer of 20 annual State totals from the Project file to the Program file.

4. Select the "PROJECT DATA TRANSFER" option (this step may take a few minutes.

To perform data transfers using a two-floppy system without a hard disk, replace the Program disk with the Project disk and perform the steps outlined above. After all transfers have been performed, replace the Project disk with the Program Disk and continue using the model.

Entering Data in the Project File

The main menu of the Project file offers data entry routines in three options labelled PROJECTS, NEEDS, and REVENUES/OUTLAYS; each of these options may be accessed by typing 1, 2, or 3, respectively, or by moving the cursor over to the desired option and pressing the <Return> key. The universe of inputs, their definitions, and the main menu options (in parentheses) for entering them in the Project file include:

- Project Names: The name of every State construction project. (PROJECTS)

- Project Needs: The annual construction needs for a given project. (NEEDS)

- Project Expenditures: The annual amounts of (1) Loans made, (2) Grants made, and (3) Non-fund expenditures. One or all of these types of expenditures can occur for a given project. (EXPENDITURES)

- Loan Repayment Terms: The interest rate on repayment term for each loan taken out for a project. (LOAN REPAYMENT TERMS)

The PROJECTS option in the main menu provides routines for adding, editing, and clearing project names from the Project file (See Appendix A, pages A6 - A10, for planning worksheets). These routines, labelled as ADD, EDIT, and CLEAR, can be accessed by typing 1, 2, and 3, respectively, or by moving the cursor over to the desired option and pressing <Return>. After selecting ADD from the submenu following the main menu, a prompt for a project name will appear. This data entry routine continues until fifty names have been entered. If less than fifty names are to be included in the analyses, simply press <Return> after the last project has been entered to leave the routine; the menu that contains routines for adding, editing, and clearing project names will reappear. The EDIT option involves free-form entry to correc

minor misspellings of project names. After all project names have been entered and edited, press <Alt><M> simultaneously to reaccess the main menu. The CLEAR option erases all project names, so select this option with caution. **Use the PROJECTS submenu option CLEAR when a significant amount of editing would be needed to correct large numbers of data input errors.** If only a few errors have been committed, use the EDIT option described above.

Note: Each project name entered has a unique identification number (i.e., 1 - 50) in the far left-hand column on the screen. This identification number is important because it allows for entry of construction needs for a particular project.

The main menu's NEEDS option provides a submenu that closely mirrors the types of routines offered in the PROJECTS submenu, with a few minor differences. After selecting the ADD option from the NEEDS submenu, a prompt will appear asking for the identification number of a project. Simply enter the identification number of any given project for which a name has already been entered. Enter the annual project construction needs for each year, years 1-20 (See Appendix A, pages A6-A10, for planning worksheets). Continue selecting project identification numbers and entering construction needs for all projects. **The CLEAR option in the NEEDS submenu (unlike the PROJECTS submenu) only clears the construction needs for one project at a time.** After selecting CLEAR, type the identification number for a given project to clear its construction needs totals. After all construction needs information has been entered and edited for all projects, return to the main menu from the submenu by typing zero ("0"); or press <Alt><M> simultaneously to access the main menu from the Lotus 1-2-3 "Ready" mode.

The REVENUES/OUTLAYS option in the main menu allows for free-form entry of two types of project information: EXPENDITURES, and LOAN REPAYMENT TERMS; these routines can be accessed by typing 1 and 2, respectively, or by moving the cursor over to the desired option and pressing <Return>.

The EXPENDITURES routine brings the cursor to the part of the spreadsheet where annual project expenditures in the form of loans, grants, and non-SRF contributions can be entered. This routine "freezes" horizontal and vertical titles to assist in free-form entry; the project names will always appear in the first column of the screen, while the years for which expenditures can be made appear along the top of the screen. Move the cursor around to the cells that correspond to the expenditure values entered in the planning worksheets (See Appendix A, pages A16 - A25, for planning worksheets).

For example, a loan of $5,000, a grant of $10,000, and a non-SRF contribution of $15,000 in 1987 for the "Smithgard" project (Project #1) would appear as follows:

PROJECT NAME	Year 1
1. Smithgard	
SRF LOANS MADE	5000 . . . .
SRF GRANTS MADE	10000 . . . .
NON-SRF CONTRIBUTION	15000 . . . .

Remember to carefully plan out when and how projects are to be funded before sitting down at the computer.

The second routine in the REVENUES/OUTLAYS submenu is called LOAN REPAYMENT TERMS. This free-form data entry routine calls for the interest rate and maturity on each project's loan series. Using the three previous examples where only one loan was made for a project in its first year, the terms for repayment of the project's loans can be entered in the following way:

PROJECT NAME	YEAR 1 20	LOANS MADE	LOAN TERMS INT RATE	LOAN TERMS MATURITY
1. Smithgard				
SRF LOANS MADE	5000	5000	6%	20
SRF GRANTS MADE	10000			
NON-SRF CONTRIBUTION	15000			

There are two approaches for entering loan repayment terms in the PROJECT file:

- Repeat the project name for each set of repayment terms (e.g., "1. Smithgard (Loan 1)" and "2. Smithgard (Loan 2)". By putting a loan designation in parentheses, a project will not appear as a duplicate.

- Only enter a project name once and roughly calculate the average of the interest rates over the period for which loans were made, weighted for the different principals (e.g., the average or weighted interest rate for loan principals of $15,000 at 5% and $15,000 at 10% would be 7.5%. Although the example is a simple one, the following formula can be used for more complex calculations:

  Raw Interest =
  [(LOAN PRIN #1/LOAN PRIN #1 + LOAN PRIN #2) * (LOAN INTEREST #1)] +
  [(LOAN PRIN #2/LOAN PRIN #1 + LOAN PRIN #2) * (LOAN INTEREST #2)]

  Weighted Interest = Raw Interest * 100

  An example of weighted interest: Calculate the weighted interest for a loan of $10,000 at 6% interest and a loan of $20,000 at 10% interest.

  Raw Interest = [(10,000/30,000) * (.06)] +
  [(20,000/30,000) * (.10)]
  = .0198 + .066
  = .0858
  Weighted Interest = .0858 * 100 = 8.6%

  Note: This weighted interest calculation does not take into account the length of repayment terms.

6. ACCESSING SRF MODEL REPORTS

The model software provides an extensive reporting capability that supports different analyses of SRF scenarios. Standard tabular reports and graphics are provided for conducting sensitivity analyses and documenting SRF program assessments. The Program and Project files both have the REPORT option for evaluating SRF scenarios. Special procedures have also been provided for printing reports on different types of hardware.

Program File Reports

Most of the reporting is done in the Program file. The main menu of the Program file, which can be accessed by typing <Alt><M> simultaneously, contains the REPORT option for viewing and printing model results. After selecting REPORT, a submenu appears offering the VIEW, PRINT, and GRAPHS options. The VIEW and PRINT options contain standard tabular reports titled "Construction Needs," "SRF Summary," "Comprehensive SRF," "Bond Inputs," and "Loan Inputs," which can be accessed by typing 1, 2, 3, 4, and 5, respectively, or by moving the cursor over to the desired option and pressing <Return>. The contents of each of these reports is provided in the following list:

- Construction Needs -- This report contains annual totals (years 1 - 20) for all model inputs and outputs in the following categories: "Available Funds for Loans and Grants," "Funds Expended (Not including Loans and Grants, e.g., Bond Insurance)," "Loans and Grants Made," and "Fund Balance Analysis." For each year, loan and grant activity is contrasted with State construction needs to help assess how well the SRF is meeting construction needs while maintaining a fund balance. **This report is extremely useful when conducting sensitivity analysis.**

- SRF Summary and Comprehensive SRF -- Although these reports address different time periods, they provide exactly the same types of information: annual and cumulative totals of model inputs and outputs. The SRF Summary report provides information on fund operations in 5-year intervals (i.e., years, 1, 5, 10, 15 and 20), while the Comprehensive SRF report provides information over a twenty year period (i.e., years 1 - 20).

- Bond Inputs -- The terms for retiring debt from bonds issued each year (i.e., the first year of bond retirement, term for bond retirement, number of payments made each year, and the interest rate charged in the bond market) are provided in this report. The Bond Input report may be used for reviewing the data entered into the bond retirement table in SEGMENT 2.

- Loan Inputs -- The terms for repaying loans to the fund (i.e., the first year of loan repayments, term over which loans will be repaid, number of payments each year, and the interest rate on loan repayments) are provided in this report. The Loan Input report ma be used for reviewing the data entered into the repayment table i SEGMENT 3.

  Note: When project-level data is electronically transferred, this report will contain zeroes because only annual loan repayment totals (and not individual project loan repayment terms) from the Project file are relevant in the Program file.

After selecting one of these reports in the VIEW mode, review the data by using the cursor to move around the report; horizontal and vertical titles are frozen to serve as a point of reference when reviewing data. Press the <Return> key when finished reviewing the report; the REPORT submenu will reappear.

Graphics Capability

The GRAPHICS option on the main menu contains four graphics that provide information for evaluating the performance of the fund. Each of the graphics can be very helpful when conducting sensitivity analysis (See "Interpreting Model Results" on page 26). The GRAPHICS submenu contains graphics titled "Needs Summary," "Loans/Grants," "Sources," and "Cumulative Sources," which can be accessed by typing 1, 2, 3, or 4, respectively, or by moving the cursor over to the desired option and pressing <Return>. The contents of each of these graphics is provided in the following list:

- Needs Summary -- A line graph that displays annual State construction needs versus the annual totals of available funds for loans and grants (years 1 - 20). This graph is useful for analyzing the potential of the fund to meet State construction needs.

- Loans/Grants -- A line graph that displays the annual totals of loans and grants made versus the annual totals of funds available for loans and grants (years 1 - 20). This graph is useful in performing basic optimization analysis of fund resources.

- Sources -- A line graph that displays trends of key sources of funds to the SRF (i.e., capitalization, bond issues, and loan repayments).

- Cumulative Sources -- A pie chart that shows the cumulative contribution of key sources of funds as a percentage of the total amount of available funds over the twenty years of an SRF.

The personal computer must possess either a color monitor with a graphics card, or a monochrome monitor with a Hercules board to view graphics. If, upon selecting one of the graphics options, a beep sounds, no graphic appears, and the GRAPHICS submenu is displayed, the hardware configuration being used

does not support graphical displays. Although some personal computers may have limitations viewing graphics, the Lotus 1-2-3 Printgraph Disk allows for all users to print graphics. Follow the procedures that are normally used for printing graphs on the office printer/plotter.

Project File Reports

The Project file provides reports summarizing key model information. The steps for viewing and printing reports is very similar to those for the Program file. The main menu of the Project file, which can be accessed by typing <Alt><M> simultaneously, contains the REPORT option for viewing and printing project-level information. After selecting REPORT, a submenu appears offering the VIEW and PRINT options; note that a graphics capability has not been built into the Projects file. The VIEW and PRINT options provide access to the reports titled "PROJECT SUMMARY (20 YEARS)" and "INPUT REPORT"; these reports can be accessed by pressing 1 and 2, respectively, or by moving the cursor over to the desired option and pressing <Return>. The contents of each of these reports is provided in the following list:

- Project Summary (20 Years): Annual State totals of (1) construction needs, (2) loans made, (3) grants made, (4) non-SRF contributions, and (5) loan repayments from project data is contained in this report. All of the information in this report can be transferred by selecting PROJECT DATA TRANSFER from the UTILS submenu in the Program file.

- Input Report: A complete list of all project data entered on (1) construction needs, (2) loans made, (3) grants made, and (4) non-SRF contributions is contained in this report.

When finished viewing a report, press the <Return> key to return to the REPORT submenu. **Use these reports to evaluate whether project-level information should be incorporated into the simulations occurring in the Program file.**

Hardware Printing Options

The reports are designed for printing on either dot-matrix (i.e., Epson or Epson-compatible) or laser (Hewlett Packard Laserjet or compatible) printers. For dot-matrix printers, align 8 1/2 x 11 paper in the printer so that printing can begin at the top of the page; do not leave a top margin. The paper should be set with the print head just below the upper edge of the paper at the fold. If the printer is ON and READY, select the desired report for printing. When printing is complete, the submenu with all reports reappears; either choose zero to leave the print mode so that other model operations can be performed, or continue printing reports.

For printing on the Hewlett Packard (HP) Laserjet printer and some HP compatible printers, make sure that 8 1/2 x 11 paper is in the paper tray and that the printer is ON and READY. Select the desired report for printing. When printing is complete, the submenu with all reports will reappear; either choose zero to leave the print mode so that other model operations can be performed, or continue printing reports.

Note: If the reports do not print out as they appear in Appendix B when selecting the PRINT option, use standard Lotus 1-2-3 commands to redefine print parameters (e.g., left and right margins, set-up strings, etc.) that match your printer.

INTERPRETING MODEL RESULTS

The model reports offered in the Program and Project files display key information for analyzing the performance of the simulated state revolving fund. Because several different assumptions will likely be tested when designing an SRF, the reports and graphs support sensitivity analyses of model simulations. Sensitivity analysis, introduced in the OVERVIEW OF THE MODEL section, is the process of reviewing model assumptions, changing key model inputs, and evaluating their effect on revolving loan fund operations over the short or long term.

Although there may be many different goals relating to the operation of a SRF, basic goals relating to effective fiscal management include:

- Attaining close to a zero fund balance every year. The basic rule to follow is that the fund never runs an annual deficit that exceeds the amount of funds in the debt service reserve and the coverage requirements. Given the nature of State revolving funds, deficits are more likely to occur in the early years before loan repayments "kick in" to recapitalize the SRF. In cases of negative fund balances, make sure that all revenues that will be available to the fund are incorporated into the model. The key revenue items that may be revised in these cases are Capitalization, Bond Issues, Loan Repayments, and Other Income. Once the largest amount of revenues are made available, check to see if deficits are still occurring. If so, reduce the amount or timing of outlays in the way of Loans and Grants Made and Bond Retirement. Other factors that affect the pool of SRF resources are Debt Service Reserve, Coverage Requirements, and Inflation Rate. Make sure that the terms of these factors do not overly limit the amount of available funds for loans and grants.

- Meeting construction needs each year. Although it is unlikely to happen every year, funds should be loaned and granted out at a level to meet State construction needs. This goal is closely linked to the first goal because **it is highly desirable to come as close as possible (i.e., optimize) to meeting construction needs without running a deficit.** Once the optimization of revenues and outlays has been achieved, the analysis involved in meeting construction needs each year becomes straightforward. If construction needs remain, then either reduce the needs estimates or shift them to years in which more funds may become available. Another key factor affecting needs is Non-SRF Contributions. If SRF resources cannot meet all construction needs, investigate opportunities for State and local sources to directly meet the needs that are unmet by the SRF.

Given these and other goals that may be considered, sensitivity analysis should be performed in the following steps:

1. Review graphs and reports, and assess data entry errors and problem areas regarding fund operations and construction needs. Make a list of the characteristics of the problems (e.g., the first and subsequent years of SRF deficits, the amount of needs unmet each year).

2. Choose those inputs requiring modification. Review the list of inputs and their definitions offered in the USING THE MODEL section in order to isolate where changes may need to occur. Pay special attention to those items which significantly affect model results (e.g., capitalization amount).

3. Reassess and revise assumptions and parameters. Initial assumptions and input ranges may not hold true in the scenario that was planned. Therefore, take a second look at the assumptions that were defined because they may require changes (e.g., perhaps more bonds can or should be issued to meet needs).

4. Revise inputs within the range of previously defined acceptable values. The process of defining input ranges in the USING THE MODEL section was for the purpose of outlining the entire range of plausible values for a line item. Although assumptions and parameters may have changed somewhat, the range of plausible values should still hold true.

5. Conduct Free-form entry to change inputs. Follow the instructions in the subsection titled "Performing Data Entry" to efficiently edit information. If project-level information has been changed, make sure to perform an electronic data transfer to the Program file (if 50 or fewer projects are being analyzed) or revise computations from the PROJECT SUMMARY (20 YEARS) report and incorporate the new totals in the Program file.

6. View or Print Model results. View the reports that are relevant to your sensitivity analysis and follow the instructions contained in the "Accessing SRF Reports" subsection for printing those reports.

7. Repeat sensitivity analysis until all SRF scenarios have been run. Conduct the same thorough review outlined in the first 6 steps as many times as are needed to produce a comprehensive assessment of State revolving loan funds.

USER SUPPORT

Any questions regarding the structure, terminology, and operation of the SRF Model Software should be directed to the following:

- Jamie Bourne/Jim Werntz
  Environmental Protection Agency,
  401 M. St., SW
  Office of Municipal Pollution Control
  Planning and Analysis Division (WH-546)
  Washington, DC 20406
  (202) 382-7256 or FTS 8-382-7256

Robert Brotzman/Patti Shafer
Roy F. Weston, Inc.
955 L'Enfant Plaza, SW, 6th Floor
Washington, DC 20024
(202) 646-6800

Problems with hardware can also be directed to the appropriate ADP Support personnel in your office.

APPENDIX A
DATA ENTRY WORKSHEETS

APPENDIX A DATA ENTRY WORKSHEETS (PROGRAM FILE)
SEGMENT 1 AND NEEDS, YEARS 1-10

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
BEGINNING BALANCE										
CAPITALIZATION.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
BOND ISSUES	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
TOTAL $ AVAILABLE (EXCL LOAN REPAYMENTS & INTEREST $)										
DEBT SERVICE RESERVE										
PERCENTAGE OF BONDS ISSUED	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
DOLLARS RESERVED										
ANNUAL COVERAGE REQUIREMENTS										
EXCESS AS A % of DEBT SERVICE.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
DOLLAR VALUE OF EXCESS REVENUES										
BOND INSURANCE										
PERCENTAGE OF BONDS ISSUED	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
LOANS MADE.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
GRANTS MADE	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
TOTAL USES OF FUNDS (EXCLUDING BOND DEBT SERVICE)										
CONSTRUCTION NEEDS.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

NOTE: The underscores represent the fields where values can be entered; the other items are calculated by the model.

APPENDIX A DATA ENTRY WORKSHEETS (PROGRAM FILE)
SEGMENT 1 AND NEEDS, YEARS 11-20

	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
BEGINNING BALANCE										
CAPITALIZATION.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
BOND ISSUES	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
TOTAL $ AVAILABLE (EXCL. LOAN REPAYMENTS & INTEREST $)										
DEBT SERVICE RESERVE										
PERCENTAGE OF BONDS ISSUED	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
DOLLARS RESERVED										
ANNUAL COVERAGE REQUIREMENTS										
EXCESS AS A % of DEBT SERVICE	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
DOLLAR VALUE OF EXCESS REVENUES										
BOND INSURANCE										
PERCENTAGE OF BONDS ISSUED	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
LOANS MADE.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
GRANTS MADE	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
TOTAL USES OF FUNDS (EXCLUDING BOND DEBT SERVICE)										
CONSTRUCTION NEEDS.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

NOTE. The underscores represent the fields where values can be entered; the other items are calculated by the model.

APPENDIX A DATA ENTRY WORKSHEETS (PROGRAM E)
YEARS 1-20

SEGMENT 2: BOND RETIREMENT (DEBT SERVICE)

BOND YEAR	FIRST PAYMENT YEAR	BOND TERM	NUMBER PAYMENTS PER YEAR	INTEREST RATE
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

SEGMENT 3: LOAN REPAYMENTS

FIRST PAYMENT YEAR	LOAN TERM	NUMBER PAYMENTS PER YEAR	INTEREST RATE

PERCENT OF ALL LOANS IN DEFAULT EACH YEAR

1_____	2_____	3_____	4_____
5_____	6_____	7_____	8_____
9_____	10_____	11_____	12_____
13_____	14_____	15_____	16_____
17_____	18_____	19_____	20_____

NOTE: The underscores represent the fields where values can be entered; the other items are calculated by the model.

APPENDIX A DATA ENTRY WORKSHEETS (PROGRAM FILE)
SEGMENT 4, YEARS 1-10

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
INTERMEDIATE FUND BALANCE 2										
ADMINISTRATIVE/OPERATIONAL COSTS	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
OTHER INCOME (INCLUDING PENALTIES).	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
INVESTED FUNDS										
INTEREST RATE FOR INVESTED FUNDS.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
END OF YEAR FUND (CURRENT DOLLARS ROLLED OVER TO NEXT YEAR)										
INFLATION ANALYSIS OF FUND										
INFLATION RATE.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
CONSTANT DOLLARS										
NON-FUND EXPENDITURES	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

NOTE. The underscores represent the fields where values can be entered; the other items are calculated by the model.

APPENDIX A DATA ENTRY WORKSHEETS (PROGRAM FILE)
SEGMENT 4, YEARS 11-20

	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
INTERMEDIATE FUND BALANCE 2										
ADMINISTRATIVE/OPERATIONAL COSTS. .	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
OTHER INCOME (INCLUDING PENALITIES)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
INVESTED FUNDS										
INTEREST RATE FOR INVESTED FUNDS.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
END OF YEAR FUND (CURRENT DOLLARS ROLLED OVER TO NEXT YEAR)										
INFLATION ANALYSIS OF FUND										
INFLATION RATE.	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
CONSTANT DOLLARS										
NON-FUND EXPENDITURES	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

NOTE: The underscores represent the fields where values can be entered; the other items are calculated by the model.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE)
Construction Needs, Years 1-10

PROJECT NAME	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										

NOTE. Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Construction Needs, Years 1-10

	PROJECT NAME	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
11.											
12.											
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											

NOTE: Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Construction Needs, Years 1-10

	PROJECT NAME	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
21.											
22.											
23.											
24.											
25.											
26.											
27.											
28.											
29.											
30.											

NOTE: Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Construction Needs, Years 1-10

	PROJECT NAME	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
31.											
32.											
33.											
34.											
35.											
36.											
37.											
38.											
39.											
40.											

NOTE. Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Construction Needs, Years 1-10

	PROJECT NAME	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
41.											
42.											
43.											
44.											
45.											
46.											
47.											
48.											
49.											
50.											

NOTE. Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE)
Construction Needs, Years 11-20

	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
PROJECT NAME										
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										

NOTE: Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Construction Needs, Years 11-20

	PROJECT NAME	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
11.											
12.											
13.											
14.											
15.											
16.											
17.											
18.											
19.											
20.											

NOTE: Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Construction Needs, Years 11-20

PROJECT NAME	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
21.										
22.										
23.										
24.										
25.										
26.										
27.										
28.										
29										
30.										

NOTE: Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROGRAM FILE) (Continued)
Construction Needs, Years 11-20

	PROJECT NAME	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
31.											
32.											
33.											
34.											
35.											
36.											
37.											
38.											
39.											
40.											

NOTE: Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Construction Needs, Years 11-20

PROJECT NAME	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
41.										
42.										
43.										
44.										
45.										
46.										
47.										
48.										
49.										
50.										

NOTE: Write the name of the project next to the number. The underscores represent fields where annual needs data can be entered.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE)
Expenditures (REVENUES/OUTLAYS), Years 1-10

	PROJECT NAME	1	2	3	4	5	6	7	8	9	10
1.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
2.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
3.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
4.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
5.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
6.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
7.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
8.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
9.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
10.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g. "Project X (Loan 1)" and "Project X (Loan 2)") or use one project and calculate a weighted interest rate that accounts for different principals.

Expenditures (REVENUES/OUTLA.. , Years 1-10

		1	2	3	4	5	6	7	8	9	10
	PROJECT NAME										
11.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
12.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
13.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
14.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
15.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
16.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
17.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
18.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
19.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
20.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE. Enter annual expenditures for each project in the way of loans, grants, and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g., "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE)
Expenditures (REVENUES/OUTLAYS), Years 1-10

	PROJECT NAME	1	2	3	4	5	6	7	8	9	10
21.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
22.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
23.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
24.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
25.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
26.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
27.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
28.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
29.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
30.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE. Enter annual expenditures for each project in the way of loans, grants, and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g., "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

Expenditures (REVENUES/OUTL..., Years 1-10

	PROJECT NAME	1	2	3	4	5	6	7	8	9	10
31.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
32.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
33.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
34.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
35.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
36.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
37.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
38.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
39.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
40.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants, and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g., "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Expenditures (REVENUES/OUTLAYS), Years 1-10

	PROJECT NAME	1	2	3	4	5	6	7	8	9	10
41.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
42.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
43.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
44.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
45.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
46.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
47.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
48.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
49.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
50.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g., "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

Expenditures (REVENUES/OUTLA... Years 11-20

	PROJECT NAME	11	12	13	14	15	16	17	18	19	20
1.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
2.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
3.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
4.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
5.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
6.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
7.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
8.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
9.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
10.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants, and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g., "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Expenditures (REVENUES/OUTLAYS), Years 11-20

	PROJECT NAME	11	12	13	14	15	16	17	18	19	20
11.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
12.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
13.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
14.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
15.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
16.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
17.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
18.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
19.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
20	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants and non-SRF contributions. For each loan taken out for a project w ifferent repayment terms, either use a new project line (e.g. oject X (Loan 1)" and "Project X (Loan 2)") use one project line and c late a weighted interest rate that accounts for different pri. ls.

Expenditures (REVENUES/OUTL... Years 11-20

	PROJECT NAME	11	12	13	14	15	16	17	18	19	20
21.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
22.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
23.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
24.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
25.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
26.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
27.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
28.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
29.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
30.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants, and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g., "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Expenditures (REVENUES/OUTLAYS), Years 11-20

	PROJECT NAME	11	12	13	14	15	16	17	18	19	20
31.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
32.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
33.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
34.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
35.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
36.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
37.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
38.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
39.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
40.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g. "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

Expenditures (REVENUES/OUTL... Years 11-20

	PROJECT NAME	11	12	13	14	15	16	17	18	19	20
41.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
42.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
43.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
44.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
45.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
46.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
47.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
48.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
49.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										
50.	SRF Loan Made										
	SRF Grant Made										
	Non-SRF Contribution										

NOTE: Enter annual expenditures for each project in the way of loans, grants, and non-SRF contributions. For each loan taken out for a project with different repayment terms, either use a new project line (e.g., "Project X (Loan 1)" and "Project X (Loan 2)") use one project line and calculate a weighted interest rate that accounts for different principals.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE)
Loan Repayment Terms, Projects 1-50

Project Name	Loan Term	Interest Rate
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11..		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

NOTE: An assumption in the PROJECT FILE is that the first repayment year will always be the year after the loan is made. However, in the PROGRAM FILE, the ability to independently designate the first payment year exists.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Loan Repayment Terms, Projects 1-50

Project Name	Loan Term	Interest Rate
21.		
22.		
23.		
24.		
25.		
26.		
27.		
28.		
29.		
30.		
31.		
32.		
33.		
34.		
35.		
36.		
37.		
38.		
39.		
40.		

NOTE: An assumption in the PROJECT FILE is that the first repayment year will always be the year after the loan is made. However, in the PROGRAM FILE, the ability to independently designate the first payment year exists.

APPENDIX A DATA ENTRY WORKSHEETS (PROJECT FILE) (Continued)
Loan Repayment Terms, Projects 1-50

Project Name	Loan Term	Interest Rate
41.		
42.		
43.		
44.		
45.		
46.		
47.		
48.		
49.		
50.		

NOTE: An assumpton in the PROJECT FILE is that the first repayment year will always be the year after the loan is made. However, in the PROGRAM FILE, the ability to independently designate the first payment year exists.

APPENDIX B
SRF MODEL REPORTS

*** CONSTRUCTION NEEDS REPORT ***	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
CONSTRUCTION NEEDS	$0	$0	$0	$0	$0
AVAILABLE FUNDS FOR LOANS AND GRANTS					
Capitalization	$0	$0	$0	$0	$0
Bond Issues	$0	$0	$0	$0	$0
Net Loan Repayments	$0	$0	$0	$0	$0
Interest Income	$0	$0	$0	$0	$0
Other Income	$0	$0	$0	$0	$0
TOTAL (CREDIT)	$0	$0	$0	$0	$0
FUNDS EXPENDED (NOT INCLUDING LOANS AND GRANTS)					
Bond Retirement	$0	$0	$0	$0	$0
Bond Insurance	$0	$0	$0	$0	$0
Administrative Costs	$0	$0	$0	$0	$0
TOTAL (DEBIT)	$0	$0	$0	$0	$0
SRF AND NON-SRF EXPENDITURES					
LOANS MADE	$0	$0	$0	$0	$0
GRANTS MADE	$0	$0	$0	$0	$0
NON-SRF NEEDS BUYOUT	$0	$0	$0	$0	$0
TOTAL (DEBIT)	$0	$0	$0	$0	$0
FUND BALANCE ANALYSIS					
Inflation Rate	0.00%	0.00%	0.00%	0.00%	0.00%
FUND BALANCE (DEFLATED DOLLARS)	$0	$0	$0	$0	$0
REMAINING NEEDS [NEEDS > (LOANS + GRANTS)] OR UNNEEDED OUTLAYS [NEEDS < (LOANS + GRANTS)]	$0	$0	$0	$0	$0

*****COMPREHENSIVE SRF 20-YEAR REPORT*****	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
SOURCES OF FUNDS					
BEGINNING BALANCE		$0	$0	$0	$0
CAPITALIZATION					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
BONDS ISSUED					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
OTHER INCOME (INCLUDING PENALTIES)					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
LOAN ACTIVITY					
LOAN REPAYMENTS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
LOAN DEFAULTS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
NET LOAN REPAYMENTS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
INVESTED FUNDS	$0	$0	$0	$0	$0
Interest Rate for Invested Funds	0.00%	0.00%	0.00%	0.00%	0.00%
Interest on Invested Funds	$0	$0	$0	$0	$0
TOTAL SOURCES OF FUNDS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
USES OF FUNDS					
BOND RETIREMENT					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
TOTAL BOND INSURANCE FEE	$0	$0	$0	$0	$0
—LOAN ACTIVITY—					
LOANS MADE					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
GRANTS MADE					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
TOTAL LOANS & GRANTS MADE					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
ADMINISTRATIVE/OPERATIONAL COSTS	$0	$0	$0	$0	$0
TOTAL USES OF FUNDS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
****FUND BALANCE**** (END OF YEAR)	$0	$0	$0	$0	$0
INFLATION ANALYSIS OF FUND					
INFLATION RATE	0.00%	0.00%	0.00%	0.00%	0.00%
FUND BALANCE (CONSTANT DOLLARS)	$0	$0	$0	$0	$0

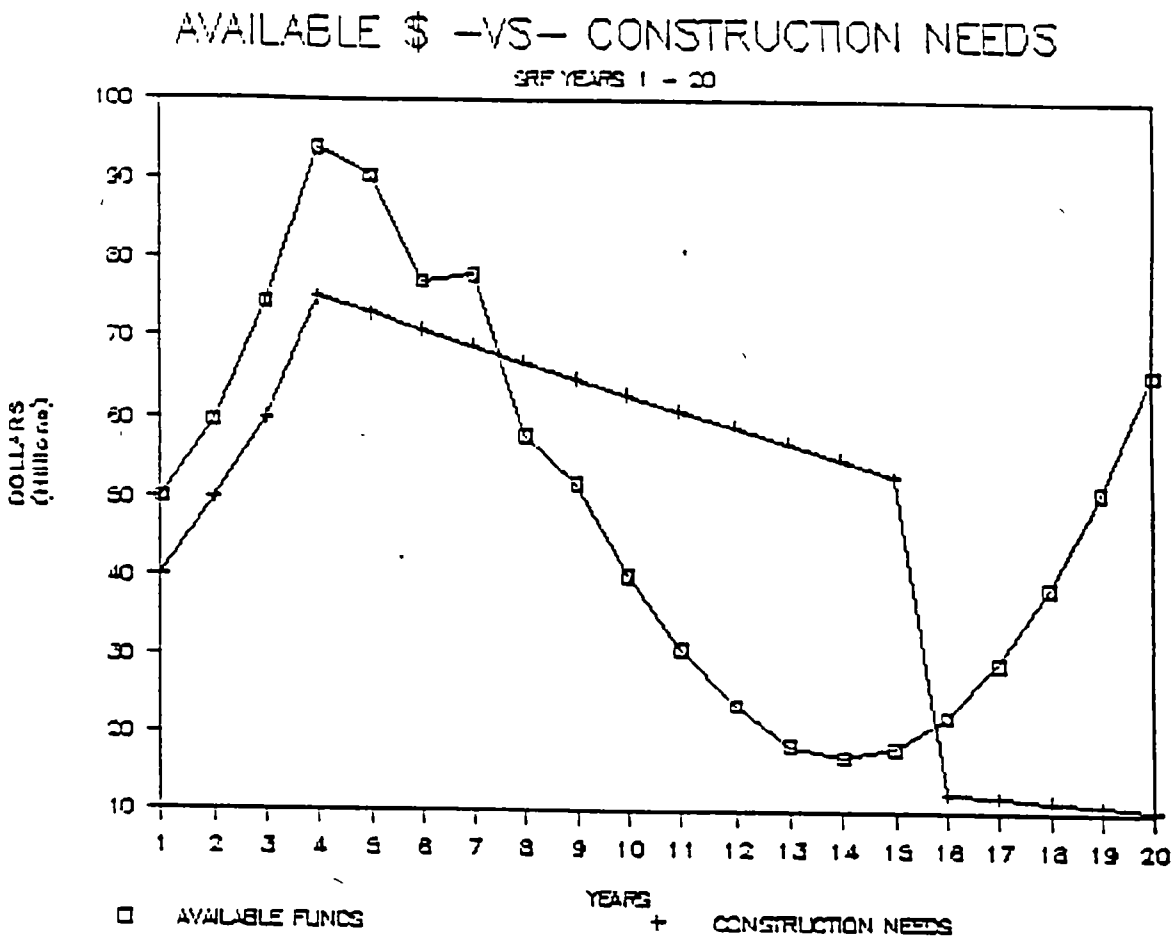
*****SRF SUMMARY REPORT*****	YEAR 1	YEAR 5	YEAR 10	YEAR 15	YEAR 20
SOURCES OF FUNDS					
BEGINNING BALANCE		$0	$0	$0	$0
CAPITALIZATION					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
BONDS ISSUED					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
OTHER INCOME (INCLUDING PENALTIES)					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
LOAN ACTIVITY					
LOAN REPAYMENTS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
LOAN DEFAULTS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
NET LOAN REPAYMENTS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
INVESTED FUNDS	$0	$0	$0	$0	$0
Interest Rate for Invested Funds	0.00%	0.00%	0.00%	0.00%	0.00%
Interest on Invested Funds	$0	$0	$0	$0	$0
TOTAL SOURCES OF FUNDS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
USES OF FUNDS					
BOND RETIREMENT					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
TOTAL BOND INSURANCE FEE	$0	$0	$0	$0	$0
—LOAN ACTIVITY—					
LOANS MADE					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
GRANTS MADE					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
TOTAL LOANS & GRANTS MADE					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
ADMINISTRATIVE/OPERATIONAL COSTS	$0	$0	$0	$0	$0
TOTAL USES OF FUNDS					
Current	$0	$0	$0	$0	$0
Cumulative	$0	$0	$0	$0	$0
****FUND BALANCE**** (END OF YEAR)	$0	$0	$0	$0	$0
INFLATION ANALYSIS OF FUND					
INFLATION RATE	0.00%	0.00%	0.00%	0.00%	0.00%
FUND BALANCE (CONSTANT DOLLARS)	$0	$0	$0	$0	$0

BOND RETIREMENT

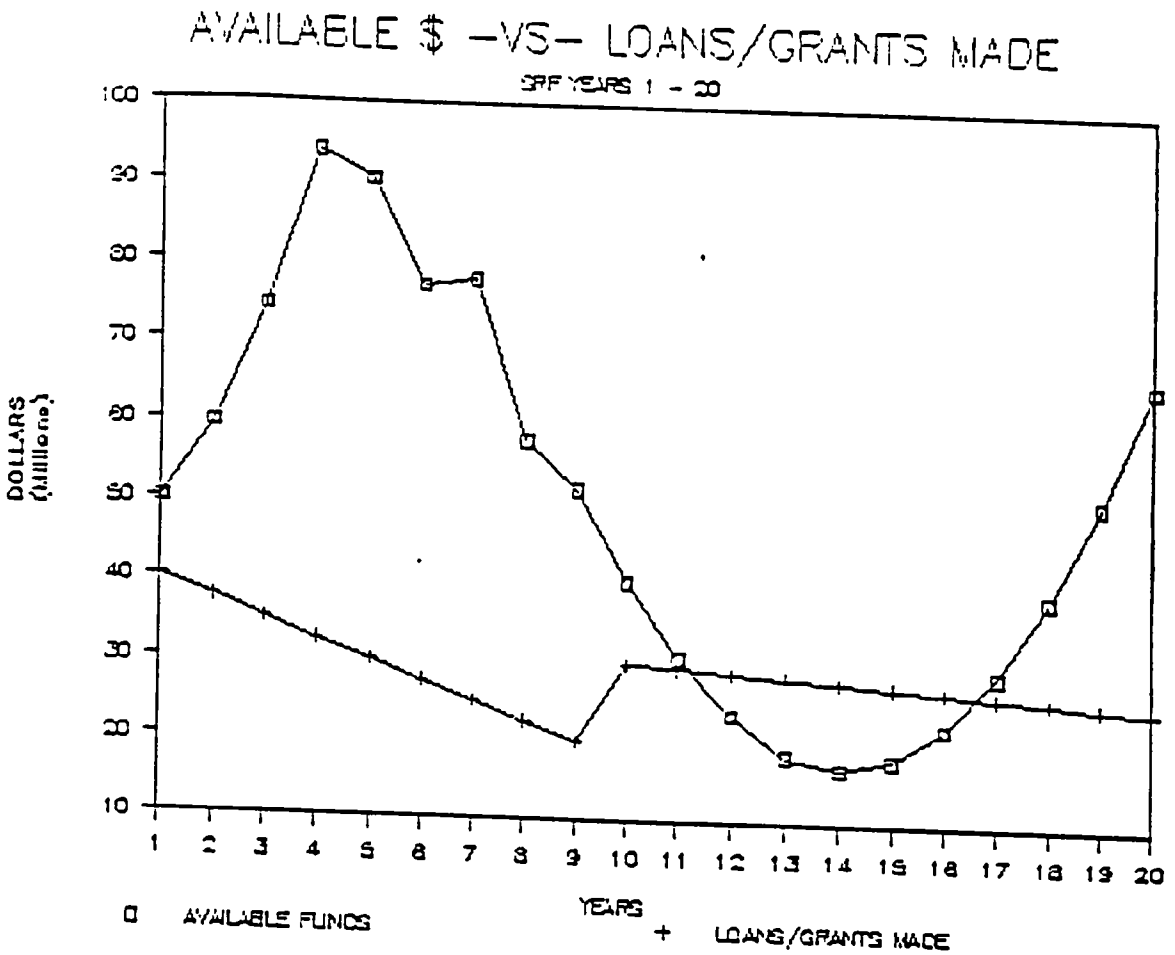
BOND YEAR	BOND PRIN	1ST PMT YR	BOND TERM	#PMTS PER YR	INT RATE
1	0	0	0	1	0
2	0	0	0	1	0
3	0	0	0	1	0
4	0	0	0	1	0
5	0	0	0	1	0
6	0	0	0	1	0
7	0	0	0	1	0
8	0	0	0	1	0
9	0	0	0	1	0
10	0	0	0	1	0
11	0	0	0	1	0
12	0	0	0	1	0
13	0	0	0	1	0
14	0	0	0	1	0
15	0	0	0	1	0
16	0	0	0	1	0
17	0	0	0	1	0
18	0	0	0	1	0
19	0	0	0	1	0
20	0	0	0	1	0

LOAN REPAYMENTS

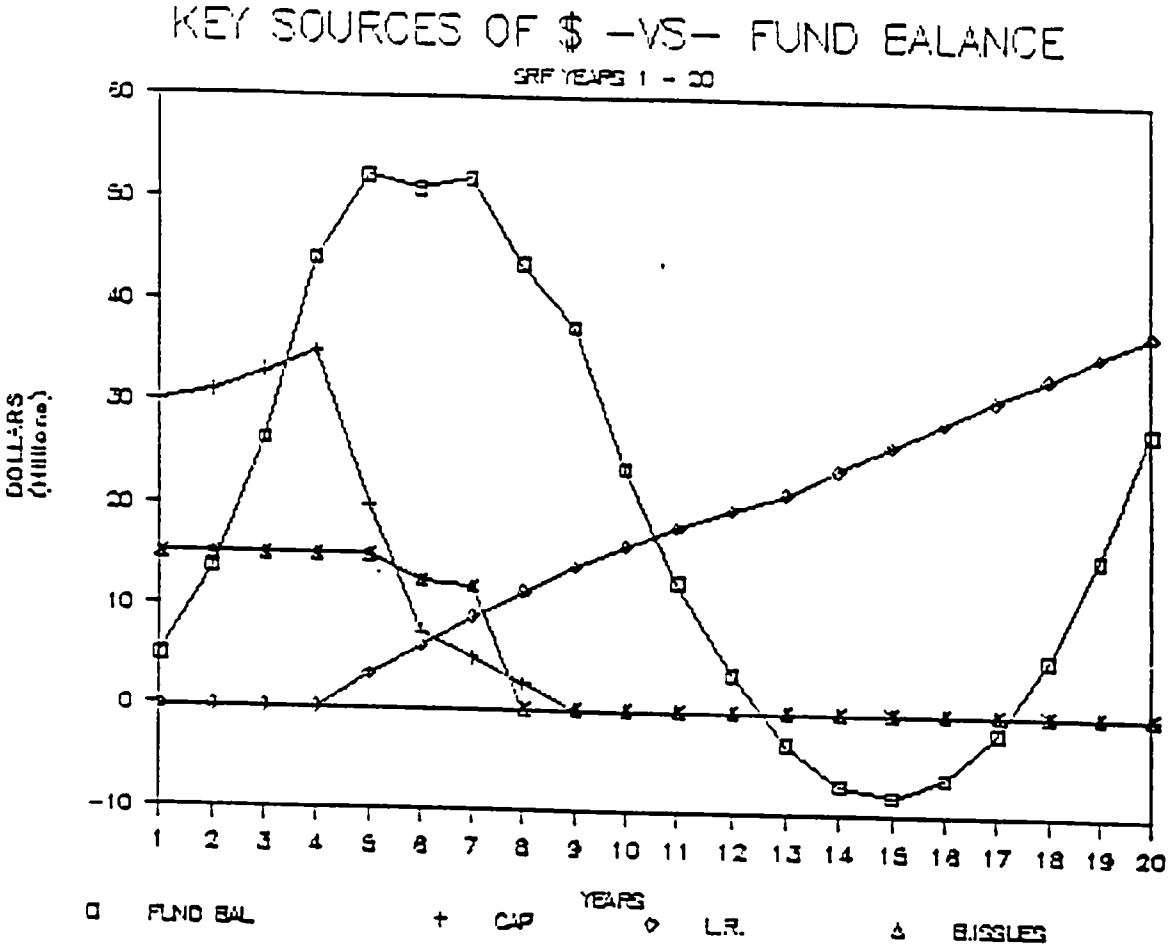
LOAN YEAR	LOAN PRIN	1ST PMT YR	LOAN TERM	#PMTS PER YR	INT RATE
1	0	0	0	1	0
2	0	0	0	1	0
3	0	0	0	1	0
4	0	0	0	1	0
5	0	0	0	1	0
6	0	0	0	1	0
7	0	0	0	1	0
8	0	0	0	1	0
9	0	0	0	1	0
10	0	0	0	1	0
11	0	0	0	1	0
12	0	0	0	1	0
13	0	0	0	1	0
14	0	0	0	1	0
15	0	0	0	1	0
16	0	0	0	1	0
17	0	0	0	1	0
18	0	0	0	1	0
19	0	0	0	1	0
20	0	0	0	1	0



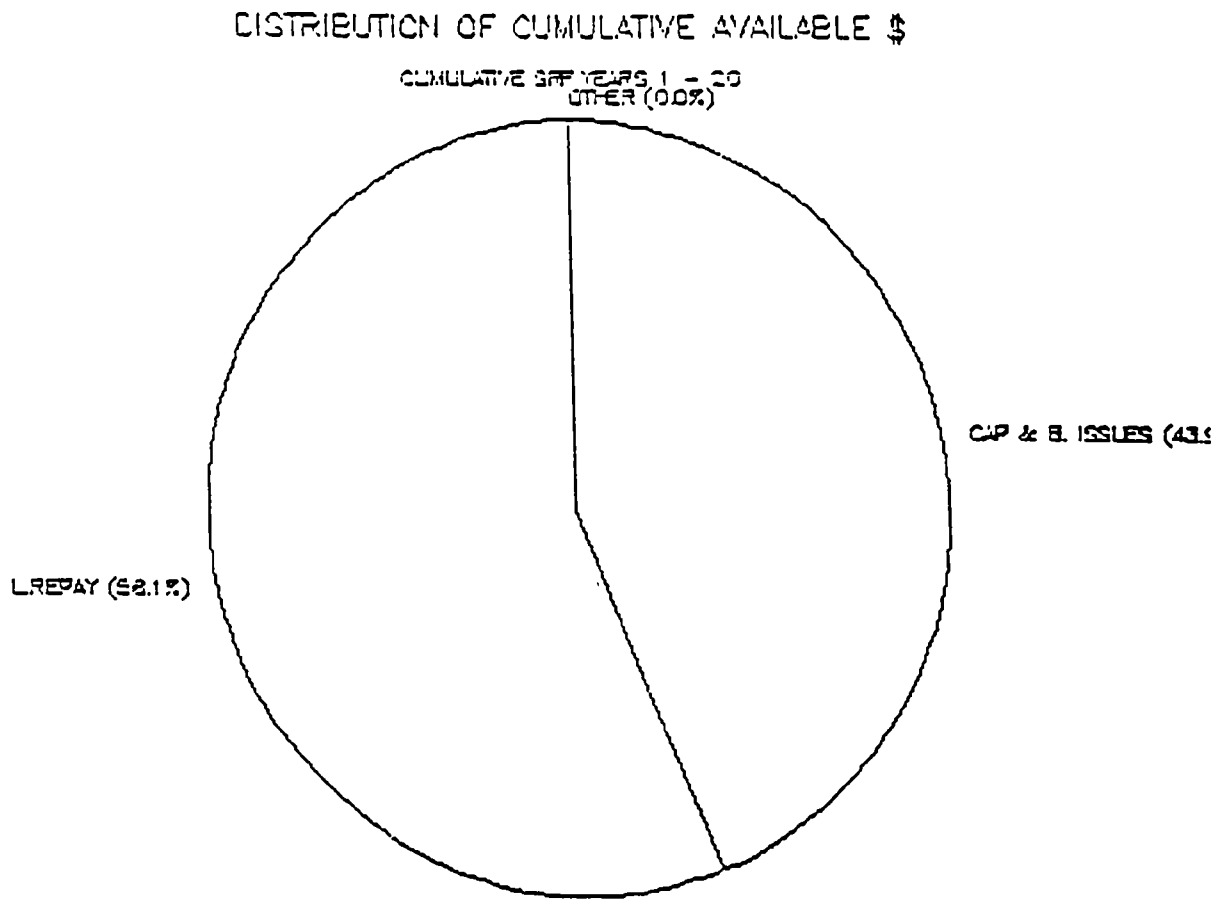
NOTE: The totals and/or percentages reflected in this graphic are for illustrative purposes only, and do not reflect any planned or actual State revolving funds.



NOTE: The totals and/or percentages reflected in this graphic are for illustrative purposes only, and do not reflect any planned or actual State revolving funds.



NOTE: The totals and/or percentages reflected in this graphic are for illustrative purposes only, and do not reflect any planned or actual State revolving funds.



NOTE: The totals and/or percentages reflected in this graphic are for illustrative purposes only, and do not reflect any planned or actual State revolving funds.

STATE REVOLVING FUND MODEL
20-YEAR PROJECT SUMMARY REPORT

YEAR	NEEDS	NEEDS BUYOUT	SRF Loans Made	SRF Grants Made	Non-SRF Expenditures
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	0	0	0
12	0	0	0	0	0
13	0	0	0	0	0
14	0	0	0	0	0
15	0	0	0	0	0
16	0	0	0	0	0
17	0	0	0	0	0
18	0	0	0	0	0
19	0	0	0	0	0
20	0	0	0	0	0
	0	0	0	0	0

LOAN REPAYMENTS

YEAR		YEAR	
1	0	11	0
2	0	12	0
3	0	13	0
4	0	14	0
5	0	15	0
6	0	16	0
7	0	17	0
8	0	18	0
9	0	19	0
10	0	20	0

STATE REVOLVING FUND MODEL
PROJECT DETAIL REPORT

PROJECT NAME	NEEDS	NEEDS BUYOUT	SRF Loans Made	SRF Grants Made	Non-SRF Expenditures
PROJECT 1	0	0	0	0	0
PROJECT 2	0	0	0	0	0
PROJECT 3	0	0	0	0	0
PROJECT 4	0	0	0	0	0
PROJECT 5	0	0	0	0	0
PROJECT 6	0	0	0	0	0
PROJECT 7	0	0	0	0	0
PROJECT 8	0	0	0	0	0
PROJECT 9	0	0	0	0	0
PROJECT 10	0	0	0	0	0
PROJECT 11	0	0	0	0	0
PROJECT 12	0	0	0	0	0
PROJECT 13	0	0	0	0	0
PROJECT 14	0	0	0	0	0
PROJECT 15	0	0	0	0	0
PROJECT 16	0	0	0	0	0
PROJECT 17	0	0	0	0	0
PROJECT 18	0	0	0	0	0
PROJECT 19	0	0	0	0	0
PROJECT 20	0	0	0	0	0