

Municipal Bond Analysis Using Micromuni Debt

From
Financial Management Systems, Inc.

Disclaimer

This municipal debt analysis is in no way intended to illustrate all the methods and techniques available in Micromuni Debt. We will evaluate an existing bond issue that is considered for refinancing. While evaluating an existing bond issue for refinancing, you will be familiarized with Micromuni Debt features and methods to obtain bond solutions, price bonds, compare bond issue savings, and present value calculations.

Note: The first few pages of this tutorial are similar to the “Micromuni Debt Brief Look” but is included as a reminder of how Micromuni Debt handles bond issues.

What is Micromuni Debt

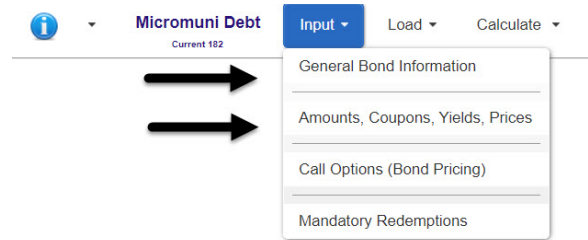
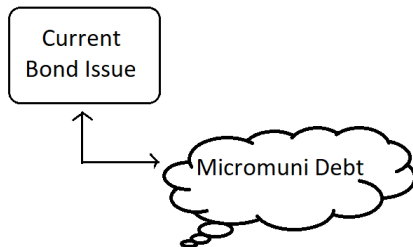
- A highly flexible software tool for analyzing the cash flows associated with a potential refinancing of an existing bond issue (or issues), or for simply structuring new debt.
- Save several bond issues within your unique database. Each bond issue is identified by a Project Name, Key Name, and a unique numeric Key ID generated by Micromuni Debt.
- Evaluates the repayment structure of tax-exempt debt obligations.
- Performs bond calculations, NIC, TIC, Arbitrage yield,
- Used for competitive bid calculations and bid verifications.
- Consolidates multiple bond issues into a single debt service stream.
- Calculates bond maturities for Level, Accelerated, Deferred, and Uniform Debt Service. Solutions can include prior debt service for wraparound Debt Service.
- Reports include Bond Issue Debt Service, Consolidated Debt Service, Debt Service Savings, Bond Production.

Micromuni Debt has the capability of handling two sets of bond issue cash flows. Each set contains a complete set of information about a bond issue, such as the dated date, delivery date, first and last maturity dates, and all the cash flows that represent the debt service principal and interest repayments. The two bond issues are referred to as the "Current Bond Issue" and the "Prior Bond Issue".



Current Bond Issue

The "Current Bond Issue" is the work area where all bond information is entered via input pages. You can enter and modify the bond issue information while it is stored in the program's current issue workspace. The current issue data is saved in your database and can be loaded into the current issue workspace or loaded into the prior issue workspace.



Bond Maturity Dates

Save Info

Par Amount: \$20,225,000.00 Denomination: 5,000.00

Dated Date: 1/1/2021 Delivery Date: 1/15/2021

First Coupon: 4/1/2021 First Maturity Date: 4/1/2022

Fiscal (Interest Payment Date): 4/1/2021 Last Maturity Date: 4/1/2041

Interest Frequency: Semi-Annual Maturity Frequency: Annual

Year for Interest Calculations: 30/360 Data Share: No

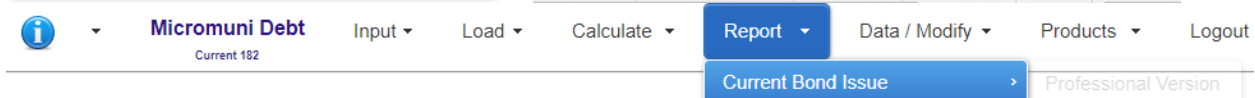
Project Name: State and Local Governments

Key Name: Municipal Financing Project

Report Titles:

- State and Local Governments
- Municipal Financing Project
-

Maturity Date	Amount	Bond Type	Coupon	Yield	Price
04/01/2022	\$975,000.00	Standard	0.100000	0.000000	100.000000
04/01/2023	\$975,000.00	Standard	0.150000	0.000000	100.000000
04/01/2024	\$980,000.00	Standard	0.200000	0.000000	100.000000
04/01/2025	\$980,000.00	Standard	0.250000	0.000000	100.000000
04/01/2026	\$985,000.00	Standard	0.300000	0.000000	100.000000
04/01/2027	\$985,000.00	Standard	0.350000	0.000000	100.000000
04/01/2028	\$990,000.00	Standard	0.400000	0.000000	100.000000
04/01/2029	\$995,000.00	Standard	0.450000	0.000000	100.000000
04/01/2030	\$995,000.00	Standard	0.000000	0.000000	100.000000
04/01/2031	\$995,000.00	Standard	0.550000	0.000000	100.000000
04/01/2032	\$1,005,000.00	Standard	0.600000	0.000000	100.000000
04/01/2033	\$1,010,000.00	Standard	0.650000	0.000000	100.000000
04/01/2034	\$1,015,000.00	Standard	0.700000	0.000000	100.000000
04/01/2035	\$1,025,000.00	Standard	0.750000	0.000000	100.000000
04/01/2036	\$1,030,000.00	Standard	0.800000	0.000000	100.000000
04/01/2037	\$1,040,000.00	Standard	0.850000	0.000000	100.000000
04/01/2038	\$1,045,000.00	Standard	0.900000	0.000000	100.000000
04/01/2039	\$1,055,000.00	Standard	0.950000	0.000000	100.000000
04/01/2040	\$1,065,000.00	Standard	1.000000	0.000000	100.000000
04/01/2041	\$1,080,000.00	Standard	1.050000	0.000000	100.000000

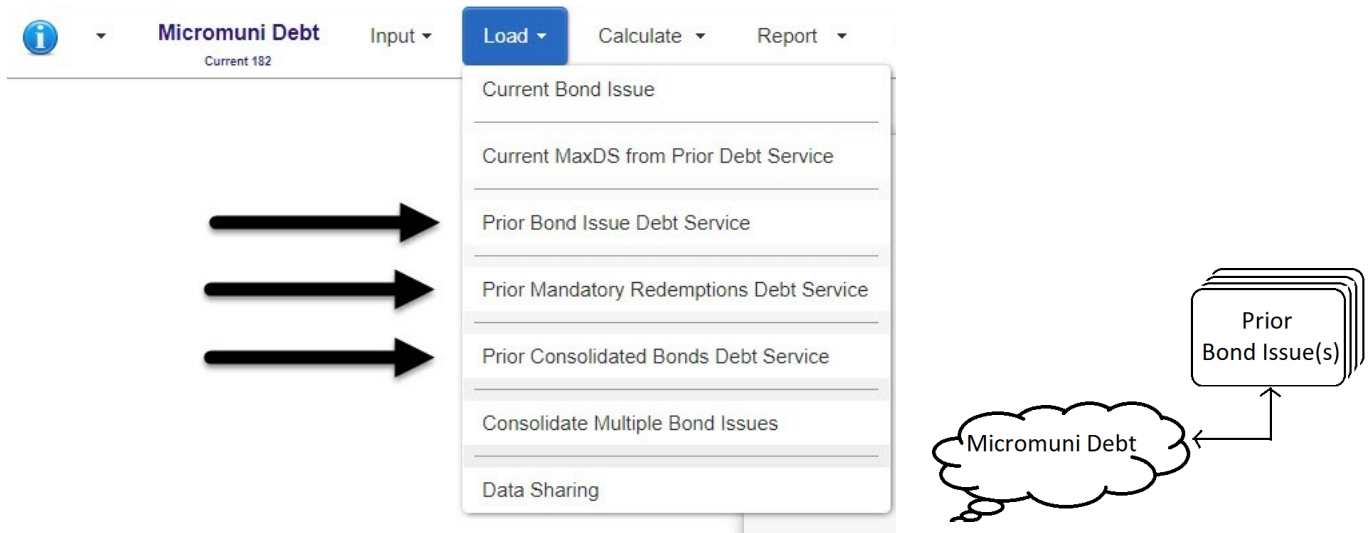


State and Local Governments
Municipal Financing Project
Delivery: January 15 2021
Debt Service Schedule

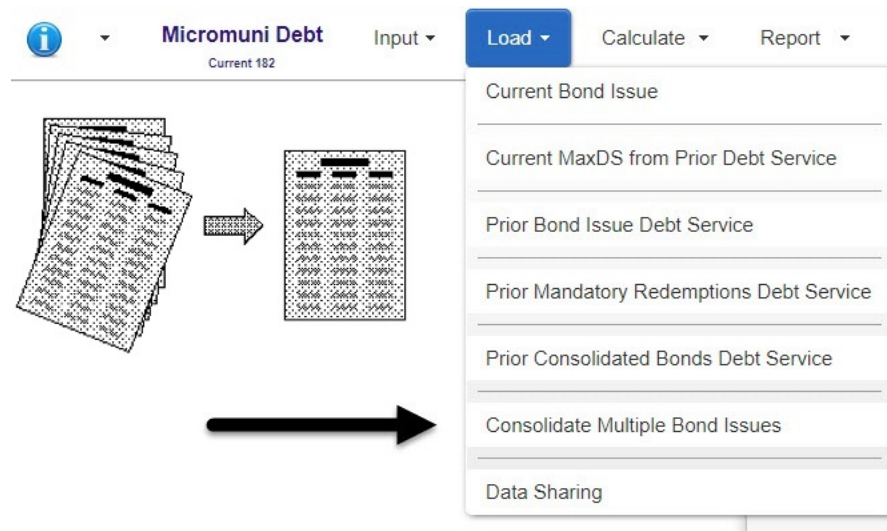
Date	Principal	Coupon	Yield	Interest	Period Total	Fiscal Total
4/1/2021				28,261.25	28,261.25	28,261.25
10/1/2021				56,522.50	56,522.50	56,522.50
4/1/2022	975,000.00	0.1000	0.1000	56,522.50	1,031,522.50	1,088,045.00
10/1/2022				56,035.00	56,035.00	56,035.00
4/1/2023	975,000.00	0.1500	0.1500	56,035.00	1,031,035.00	1,087,070.00
10/1/2023				55,303.75	55,303.75	55,303.75
4/1/2024	980,000.00	0.2000	0.2000	55,303.75	1,035,303.75	1,090,607.50
10/1/2024				54,323.75	54,323.75	54,323.75
4/1/2025	980,000.00	0.2500	0.2500	54,323.75	1,034,323.75	1,088,647.50
10/1/2025				53,098.75	53,098.75	53,098.75
4/1/2026	985,000.00	0.3000	0.3000	53,098.75	1,038,098.75	1,091,197.50
10/1/2026				51,621.25	51,621.25	51,621.25
4/1/2027	985,000.00	0.3500	0.3500	51,621.25	1,036,621.25	1,088,242.50
10/1/2027				49,887.50	49,887.50	49,887.50
4/1/2028	990,000.00	0.4000	0.4000	49,887.50	1,038,887.50	1,089,795.00
10/1/2028				47,917.50	47,917.50	47,917.50
4/1/2029	995,000.00	0.4500	0.4500	47,917.50	1,042,917.50	1,090,835.00
10/1/2029				45,678.75	45,678.75	45,678.75
4/1/2030	995,000.00			45,678.75	1,040,678.75	1,088,357.50
10/1/2030				45,678.75	45,678.75	45,678.75
4/1/2031	995,000.00	0.5500	0.5500	45,678.75	1,040,678.75	1,088,357.50
10/1/2031				42,942.50	42,942.50	42,942.50
4/1/2032	1,005,000.00	0.6000	0.6000	42,942.50	1,047,942.50	1,090,885.00
10/1/2032				39,927.50	39,927.50	39,927.50
4/1/2033	1,010,000.00	0.6500	0.6500	39,927.50	1,049,927.50	1,089,855.00
10/1/2033				36,645.00	36,645.00	36,645.00

Prior Bond Issue

The "Prior Bond Issue" is the work area where bond information, previously saved, can be loaded, through the "Load" menu item and "Prior Bond Debt Service" submenu item. The "Prior Bond Issue" can be used for bond issue comparisons with the "Current Bond Issue" or used for wraparound bond solutions so that the combination of the Current and Prior Bond Issues provide a desired debt service.



Additionally, using the "Load" menu item and "Consolidate Multiple Bond Issues" submenu item you can consolidate several bond issues into one set of cash flows and load it in the prior issue workspace. This feature is very helpful in advanced refunding's when you are evaluating various combinations of prior debt service.



How To Use This Tutorial

General Instructions

Because each step of the tutorial depends on the previous step, it is important to complete the tutorial at one sitting. If it is necessary for you to stop before completing it, save all your data and exit the program. When you begin again, Load the Current Bond Issue, (and Prior Bond Issue, if necessary), and Micromuni Debt will load all bond information, and you can continue from where you left off.

Details of Use

Most of the pages you will see and the reports you will print are reproduced in the tutorial to help you orient yourself to where you are. They also serve as checkpoints so you can make sure you are performing the steps correctly.

Menu Items

To select a menu item, move your mouse over any menu item, and a dropdown list of submenu items will appear. Select any submenu item by clicking your mouse.

Data Entry

Data Entry Web Pages have a “Save” button. If you have entered data or modify existing data, you must click the Save button for the information to be saved. If not, the changes will be lost.

Tutorial Purpose and Assumptions

Purpose of this Tutorial

This tutorial leads you through the process of using Micromuni Debt to determine a whether there is reasonable savings to issue a New Bond issue to refinance an Existing Bond Issue.

Tutorial Assumptions (Entering Data).

The assumptions that define this tutorial's scenario are explained on the following pages.

Existing Bond Issue Assumptions

Assume an existing bond issue was issued with a “Dated Date” of January 1, 2018, and a “Delivery Date” of January 15, 2018.

The bonds will pay interest semi-annually commencing on July 1, 2018.

Principal will be repaid annually from July 1, 2019, through July 1, 2038, with the following coupons and prices.

No.	Date	Bond Type	Amount	Coupon / Yield	Price
1)	7/ 1/19	Standard	\$500,000	1.500000	100.000000
2)	7/ 1/20	Standard	\$500,000	1.500000	100.000000
3)	7/ 1/21	Standard	\$500,000	1.500000	100.000000
4)	7/ 1/22	Standard	\$500,000	1.500000	100.000000
5)	7/ 1/23	Standard	\$500,000	1.500000	100.000000
6)	7/ 1/24	Standard	\$500,000	2.000000	100.000000
7)	7/ 1/25	Standard	\$500,000	2.000000	100.000000
8)	7/ 1/26	Standard	\$500,000	2.000000	100.000000
9)	7/ 1/27	Standard	\$500,000	2.000000	100.000000
10)	7/ 1/28	Standard	\$500,000	2.000000	100.000000
11)	7/ 1/29	Standard	\$600,000	3.000000	100.000000
12)	7/ 1/30	Standard	\$600,000	3.000000	100.000000
13)	7/ 1/31	Standard	\$600,000	3.000000	100.000000
14)	7/ 1/32	Standard	\$600,000	3.000000	100.000000
15)	7/ 1/33	Standard	\$600,000	3.000000	100.000000
16)	7/ 1/34	Standard	\$600,000	3.000000	100.000000
17)	7/ 1/35	Standard	\$600,000	3.000000	100.000000
18)	7/ 1/36	Standard	\$600,000	3.000000	100.000000
19)	7/ 1/37	Standard	\$600,000	3.000000	100.000000
20)	7/ 1/38	Standard	\$600,000	3.000000	100.000000

The bonds were issued with a call on 7/1/2028 @ 100.00 (Par Call) for all bond maturing from 7/1/2029 thru 7/1/2038.

New Bond Issue Assumptions

Assume the new bond issue will have a “Dated Date” of January 1, 2021, and a “Delivery Date” of January 15, 2021.

The bonds will pay interest semi-annually commencing on July 1, 2021.

Principal will be repaid annually from July 1, 2022, through July 1, 2041, with the following coupons and prices.

No.	Date	Bond Type	Coupon / Yield	Price
1)	7/ 1/22	Standard	0.750000	100.000000
2)	7/ 1/23	Standard	0.800000	100.000000
3)	7/ 1/24	Standard	0.850000	100.000000
4)	7/ 1/25	Standard	0.900000	100.000000
5)	7/ 1/26	Standard	0.950000	100.000000
6)	7/ 1/27	Standard	1.000000	100.000000
7)	7/ 1/28	Standard	1.050000	100.000000
8)	7/ 1/29	Standard	1.100000	100.000000
9)	7/ 1/30	Standard	1.150000	100.000000
10)	7/ 1/31	Standard	1.200000	100.000000
11)	7/ 1/32	Standard	1.250000	100.000000
12)	7/ 1/33	Standard	1.300000	100.000000
13)	7/ 1/34	Standard	1.350000	100.000000
14)	7/ 1/35	Standard	1.400000	100.000000
15)	7/ 1/36	Standard	1.450000	100.000000
16)	7/ 1/37	Standard	1.500000	100.000000
17)	7/ 1/38	Standard	1.550000	100.000000
18)	7/ 1/39	Standard	1.600000	100.000000
19)	7/ 1/40	Standard	1.650000	100.000000
20)	7/ 1/41	Standard	1.700000	100.000000

We will assume an underwriter’s discount of 7.0 dollars per bond and bond insurance of .25% of the total bond debt service less accrued interest.

We will assume that the total par of the new bond issue will be the same as the par amount of the bonds being refunded.

We will enter coupons that reflect the current yield on municipal bonds. Then we will use the Micromuni Debt options to set the yields equal to the coupons.

We will then select coupons that will result in the new issue being sold as premium bonds to cover the underwriter’s expense and the bond insurance. The Net to the Issuer will be an amount that will be used to cover the cost of the escrow for the called bond debt service. The new issue TIC (which will not include the underwriter’s expense and bond insurance) will be used to present value the old called bond debt service (Mandatory Bond Redemptions). This present value amount reflects the cost of the escrow.

There are no call options for this scenario.

A Call option would reduce the bond production and result in increased new issue coupons.

These assumptions use only Micromuni Debt to estimate an advanced refunding of an old bond issue with only underwriter’s expense, bond insurance and estimated cost of escrow securities.

General Bond Information – New Refunding Bonds

Using the “Input” menu item, select the “General Bond Information” submenu item.
Enter the general bond issue assumptions.

The “Bond Maturity Dates” tab of your page should look like this:

Bond Maturity Dates	Interest Calc Methods	Convertible CABs	Underwriters Discount	Bond Insurance
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Save

Bond Maturity Dates

Info

Par Amount

\$10,000,000.00

Denomination

5,000.00

Dated Date

1/1/2021

Delivery Date

1/15/2021

First Coupon

7/1/2021

First Maturity Date

7/1/2022

Fiscal (Interest Payment Date)

7/1/2021

Last Maturity Date

7/1/2041

Interest Frequency

Semi-Annual

Maturity Frequency

Annual

Year for Interest Calculations

30/360

Data Share

No

Project Name

State and Local Governments

Key Name

Municipal Debt Analysis

Report Titles

1

State and Local Governments

2

Municipal Debt Analysis

3

2021 Series A Refunding Bonds

Be certain to press the **“SAVE”** button.

General Bond Information – New Refunding Bonds

(continued) – Underwriters Discount

Now select the “Underwriters Discount” tab of the “General Bond Information” page and enter the Underwriters Discount of 7.0 dollars per bond, and make sure that the Underwriters Discount is based on the “Par of the Issue”.

The “Underwriters Discount” tab of your page should look like this:

Save

Underwriters Discount Information

Info

Underwriters Discount Based on

A - Par of the Issue

Options A and B Only:

Spread Per Thousand (e.g. 27.5)

7.000000

Option C Only:

Bid Price (% or dollar amount)

0.000000

(Values 200 or less are percentage - Greater than 200 are a dollar amount)

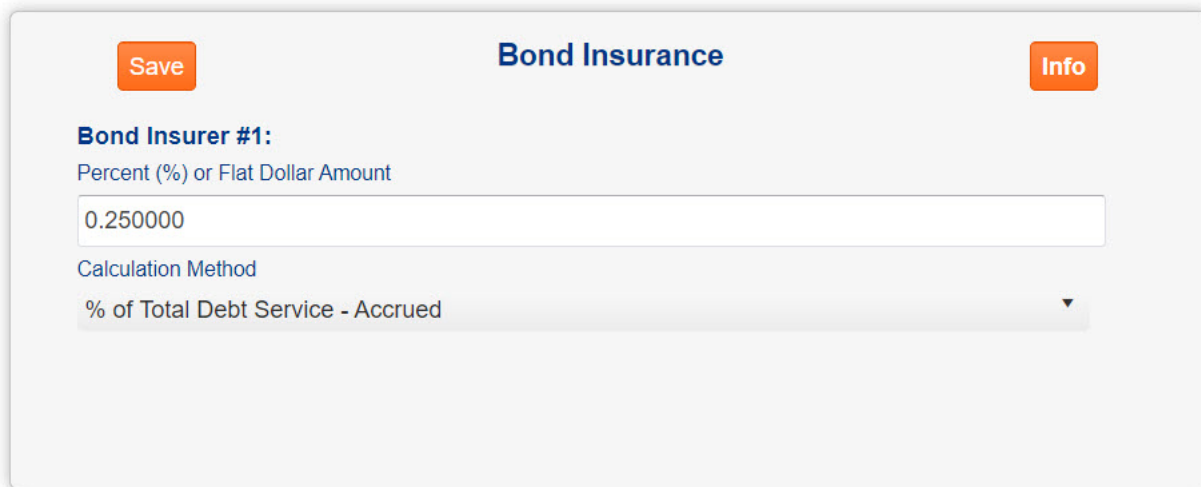
Be certain to press the “**SAVE**” button.

General Bond Information – New Refunding Bonds

(continued) – Bond Insurance

Now select the “Bond Insurance” tab of the “General Bond Information” page and enter the Bond Insurance of 0.25 for the percent of bond insurance. Make sure that the Bond Insurance is “Calculation Method” is set to “% of Total Debt Service - Accrued”.

The “Bond Insurance” tab of your page should look like this:



The screenshot shows a software interface for the "Bond Insurance" tab. At the top, there is a "Save" button on the left and an "Info" button on the right, both in orange. The title "Bond Insurance" is centered at the top in blue. Below the title, the section "Bond Insurer #1:" is displayed. Under this section, there is a label "Percent (%) or Flat Dollar Amount" followed by a text input field containing the value "0.250000". Below the input field, there is a label "Calculation Method" followed by a dropdown menu showing the selected option "% of Total Debt Service - Accrued".

Be certain to press the **“SAVE”** button.

Bond Maturity Coupons and Prices – New Refunding Bonds

Using the “Input” menu item, select the “Amounts, Coupons, Yields, Prices” submenu item. Here we enter the bond maturity amounts, coupons, prices, maximum allowable debt service and takedowns for each maturity. From the General Bond Information page, Micromuni Debt has generated all the bond maturity dates and set the default values. We will only enter the coupons for this tutorial.

First highlight the coupons that will be changed by clicking the first coupon to be changed with your mouse. The highlighted coupons will be changed soon.

Next enter a value of “20/.75” in the text box above the grid. This is the initial coupon value. Now enter an increasing value of “.05” for subsequent coupons, which will receive a value of 0.8, 0.85, 0.9, etc. (Note: This data entry is slightly different from Micromuni Sizing.)

Your page should look like this:

<div> <div>Save</div> <div>Add Row</div> <div>Cancel Changes</div> </div> <div> <div>Change to 20/.75</div> <div>Increase by .05</div> <div>Value</div> <div>Change Selections</div> <div>Video(s)</div> </div>						
Note: You must press the Save Button to complete changes, inserts and deletions.						
Maturity Date	Amount	Bond Type	Coupon	Yield	Price	
07/01/2022	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2023	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2024	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2025	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2026	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2027	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2028	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2029	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2030	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2031	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2032	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2033	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2034	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2035	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2036	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2037	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2038	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2039	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2040	\$0.00	Standard	0.000000	0.000000	100.000000	
07/01/2041	\$0.00	Standard	0.000000	0.000000	100.000000	

Lastly press the “Change Selections” button, which is highlighted in orange. Your completed page should look like this:

<div> <div>Save</div> <div>Add Row</div> <div>Cancel Changes</div> </div> <div> <div>Change to 20/.75</div> <div>Increase by .05</div> <div>Value</div> <div>Change Selections</div> <div>Video(s)</div> </div>						
Note: You must press the Save Button to complete changes, inserts and deletions.						
Maturity Date	Amount	Bond Type	Coupon	Yield	Price	
07/01/2022	\$0.00	Standard	0.750000	0.000000	100.000000	
07/01/2023	\$0.00	Standard	0.800000	0.000000	100.000000	
07/01/2024	\$0.00	Standard	0.850000	0.000000	100.000000	
07/01/2025	\$0.00	Standard	0.900000	0.000000	100.000000	
07/01/2026	\$0.00	Standard	0.950000	0.000000	100.000000	
07/01/2027	\$0.00	Standard	1.000000	0.000000	100.000000	
07/01/2028	\$0.00	Standard	1.050000	0.000000	100.000000	
07/01/2029	\$0.00	Standard	1.100000	0.000000	100.000000	
07/01/2030	\$0.00	Standard	1.150000	0.000000	100.000000	
07/01/2031	\$0.00	Standard	1.200000	0.000000	100.000000	
07/01/2032	\$0.00	Standard	1.250000	0.000000	100.000000	
07/01/2033	\$0.00	Standard	1.300000	0.000000	100.000000	
07/01/2034	\$0.00	Standard	1.350000	0.000000	100.000000	
07/01/2035	\$0.00	Standard	1.400000	0.000000	100.000000	
07/01/2036	\$0.00	Standard	1.450000	0.000000	100.000000	
07/01/2037	\$0.00	Standard	1.500000	0.000000	100.000000	
07/01/2038	\$0.00	Standard	1.550000	0.000000	100.000000	
07/01/2039	\$0.00	Standard	1.600000	0.000000	100.000000	
07/01/2040	\$0.00	Standard	1.650000	0.000000	100.000000	
07/01/2041	\$0.00	Standard	1.700000	0.000000	100.000000	

Be certain to press the “**SAVE**” button.

Bond Maturity Coupons and Prices – New Refunding Bonds (continued)

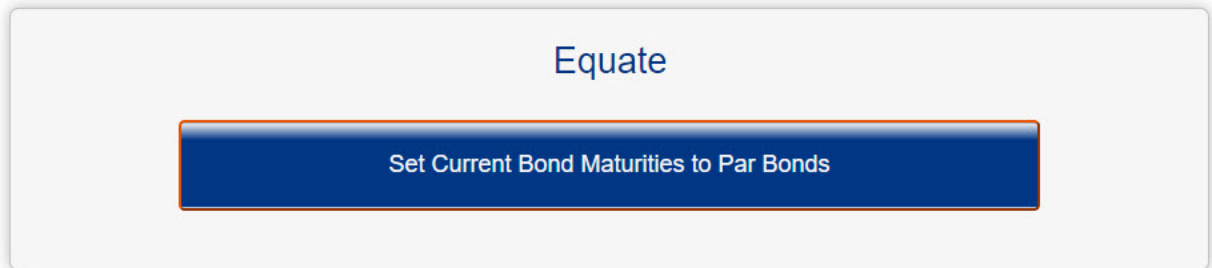
The coupon scale we entered reflects current yields on Municipal Bonds as of this tutorial. By default, Micromuni Debt sets all yields to zero and bond prices to 100%.

If we know the bond maturity amounts, we would have entered them at this time.

When we enter a coupon and the yield value is zero, Micromuni Debt will use the bond price entered when pricing bonds. If a coupon and yield is entered, Micromuni Debt will ignore the bond price and use the coupon and yield to determine the bond price. This will appear on the bond production report.

Now that we have entered our coupon scale and saved our information, we will set the yield scale to the coupon scale, without having to enter the yield scale.

Using the “Data/Modify” menu item click “Equate Coupons and Yields” submenu item. You will receive a prompt button “Set Current Bond Maturities to Par Bonds”. Click this button and Micromuni Debt will set the yields equal to the coupons and all bond prices to 100.00.



If you returned to the “Input” menu item, and “Amounts, Coupons, Yields, Prices” submenu item, you would see the changes.

This is a simple feature, but it is helpful when you know the yield scale, have not determined the coupon scale (competitive bidding on new issues), or you wish to generate premium bond production. We could have simply entered the yield scale, but I wanted the opportunity to introduce the “Data/Modify” menu item and the “Equate” submenu item.

The prior workspace should be empty. If not use the “Data/Modify” menu item and the “Clear Current and Prior Bonds” button to clear the Prior workspace.

We will now enter the old bond issue information.

Note: The old bond issue has a call option, and this information will be entered in the “Mandatory Redemptions” input page. Do not confuse the “Call options (Bond Pricing)” input page with the “Mandatory Redemptions” input page. One is for pricing new bonds and the other is for redeeming the bonds. Mandatory Redemptions produce called bond debt service which is used for the escrow in paying off the old bond being redeemed.

This is a very important difference.

General Bond Information – Existing Bonds to be Refunded

We now enter the information about the bonds we are going to refund.

Using the “Input” menu item, select the “General Bond Information” submenu item.
Enter the general bond issue assumptions.

The “Bond Maturity Dates” tab of your page should look like this:

Save

Bond Maturity Dates

Info

Par Amount	Denomination
\$11,000,000.00	5,000.00
Dated Date	Delivery Date
1/1/2018	1/15/2018
First Coupon	First Maturity Date
7/1/2018	7/1/2019
Fiscal (Interest Payment Date)	Last Maturity Date
7/1/2019	7/1/2038
Interest Frequency	Maturity Frequency
Semi-Annual	Annual
Year for Interest Calculations	Data Share
30/360	No
Project Name	
State and Local Governments	
Key Name	
2018 Series A Bonds	
Report Titles	
1	
State and Local Governments	
2	
2018 Series A Bonds	
3	

Be certain to press the “**SAVE**” button.

Bond Maturity Coupons and Prices – Existing Bonds to be Refunded (continued)

Using the “Input” menu item, select the “Amounts, Coupons, Yields, Prices” submenu item. Here we enter the bond maturity amounts, and coupons. From the General Bond Information page, Micromuni Debt has generated all the bond maturity dates and set the default values.

First highlight the first amount that will be changed and click your mouse. The highlighted amount will be changed soon.

Next enter a value of “10/500000000” in the text box above the grid. This is the initial amount value. Now click the “Change Selections” button and the first 10 amounts will be modified. Do the same for the next 10 amounts and set them to 600,000 each (do not use 10/600,000 – no comma). Now change the coupons based on the assumptions previously mentioned. The first 5 coupons are 1.5, the next 5 coupons are 2.0 and the last 10 coupons are 3.0.

Your page should look like this:

Maturity Date	Amount	Bond Type	Coupon
07/01/2019	\$500,000.00	Standard	1.500000
07/01/2020	\$500,000.00	Standard	1.500000
07/01/2021	\$500,000.00	Standard	1.500000
07/01/2022	\$500,000.00	Standard	1.500000
07/01/2023	\$500,000.00	Standard	1.500000
07/01/2024	\$500,000.00	Standard	2.000000
07/01/2025	\$500,000.00	Standard	2.000000
07/01/2026	\$500,000.00	Standard	2.000000
07/01/2027	\$500,000.00	Standard	2.000000
07/01/2028	\$500,000.00	Standard	2.000000
07/01/2029	\$600,000.00	Standard	3.000000
07/01/2030	\$600,000.00	Standard	3.000000
07/01/2031	\$600,000.00	Standard	3.000000
07/01/2032	\$600,000.00	Standard	3.000000
07/01/2033	\$600,000.00	Standard	3.000000
07/01/2034	\$600,000.00	Standard	3.000000
07/01/2035	\$600,000.00	Standard	3.000000
07/01/2036	\$600,000.00	Standard	3.000000
07/01/2037	\$600,000.00	Standard	3.000000
07/01/2038	\$600,000.00	Standard	3.000000

Be certain to press the **“SAVE”** button.

Mandatory Redemptions – Existing Bonds to be Refunded (continued)

We will not enter any information in the “Call Options (Bond Pricing)” input page, since we are not pricing the old bonds.

Using the “Input” menu item, select the “Mandatory Redemptions” submenu item.

There should not be any information on this page. If there is, use the “Delete” button.

Press the “Add Row” button in the top section. This will add a new row for bond redemptions.

Now enter the “Call Date”, the “First Maturity” and “Last Maturity” dates that are being called and the “Call Price”. We will enter a Call Date of 7/1/2028, First Maturity of 7/1/2029, a Last Maturity of 7/1/2038, and a Call Price of 100.00.

Your page should look like this:

<div><div>Save</div><div>Add Row</div><div>Cancel Changes</div><div>Bond Redemptions Mandatory Calls</div></div> <div>Note: You must press the Save Button to complete changes, inserts and deletions.</div>				
Call Date	First Maturity	Last Maturity	Call Price	
7/01/2028	7/01/2029	7/01/2038	100.000000	<div>✕ Delete</div>

Be certain to press the “**SAVE**” button.

Report – Existing Bonds to be Refunded

Using the “Report” menu item, select the “Current Bond Issue” submenu item.

State and Local Governments 2018 Series A Bonds

Delivery: January 15 2018

Debt Service Schedule

Date	Principal	Coupon	Yield	Interest	Period Total	Fiscal Total
7/1/2018				133,750.00	133,750.00	133,750.00
1/1/2019				133,750.00	133,750.00	
7/1/2019	500,000.00	1.5000	1.5000	133,750.00	633,750.00	767,500.00
1/1/2020				130,000.00	130,000.00	
7/1/2020	500,000.00	1.5000	1.5000	130,000.00	630,000.00	760,000.00
1/1/2021				126,250.00	126,250.00	
7/1/2021	500,000.00	1.5000	1.5000	126,250.00	626,250.00	752,500.00
1/1/2022				122,500.00	122,500.00	
7/1/2022	500,000.00	1.5000	1.5000	122,500.00	622,500.00	745,000.00
1/1/2023				118,750.00	118,750.00	
7/1/2023	500,000.00	1.5000	1.5000	118,750.00	618,750.00	737,500.00
1/1/2024				115,000.00	115,000.00	
7/1/2024	500,000.00	2.0000	2.0000	115,000.00	615,000.00	730,000.00
1/1/2025				110,000.00	110,000.00	
7/1/2025	500,000.00	2.0000	2.0000	110,000.00	610,000.00	720,000.00
1/1/2026				105,000.00	105,000.00	
7/1/2026	500,000.00	2.0000	2.0000	105,000.00	605,000.00	710,000.00
1/1/2027				100,000.00	100,000.00	
7/1/2027	500,000.00	2.0000	2.0000	100,000.00	600,000.00	700,000.00
1/1/2028				95,000.00	95,000.00	
7/1/2028	500,000.00	2.0000	2.0000	95,000.00	595,000.00	690,000.00
1/1/2029				90,000.00	90,000.00	
7/1/2029	600,000.00	3.0000	3.0000	90,000.00	690,000.00	780,000.00
1/1/2030				81,000.00	81,000.00	
7/1/2030	600,000.00	3.0000	3.0000	81,000.00	681,000.00	762,000.00
1/1/2031				72,000.00	72,000.00	
7/1/2031	600,000.00	3.0000	3.0000	72,000.00	672,000.00	744,000.00
1/1/2032				63,000.00	63,000.00	
7/1/2032	600,000.00	3.0000	3.0000	63,000.00	663,000.00	726,000.00
1/1/2033				54,000.00	54,000.00	
7/1/2033	600,000.00	3.0000	3.0000	54,000.00	654,000.00	708,000.00
1/1/2034				45,000.00	45,000.00	
7/1/2034	600,000.00	3.0000	3.0000	45,000.00	645,000.00	690,000.00
1/1/2035				36,000.00	36,000.00	
7/1/2035	600,000.00	3.0000	3.0000	36,000.00	636,000.00	672,000.00
1/1/2036				27,000.00	27,000.00	
7/1/2036	600,000.00	3.0000	3.0000	27,000.00	627,000.00	654,000.00
1/1/2037				18,000.00	18,000.00	
7/1/2037	600,000.00	3.0000	3.0000	18,000.00	618,000.00	636,000.00
1/1/2038				9,000.00	9,000.00	
7/1/2038	600,000.00	3.0000	3.0000	9,000.00	609,000.00	618,000.00
	11,000,000.00			3,436,250.00	14,436,250.00	
				10,402.78	10,402.78	
	11,000,000.00			3,425,847.22	14,425,847.22	

Report – Current Mandatory Redemptions

Using the “Report” menu item, select the “Current Mandatory Redemptions” submenu item.

Micromuni Debt will compute the Called Bond Debt Service from the information entered via the “Input” menu item and “Mandatory Redemptions” submenu item. The Mandatory Redemptions Report will be displayed. This only needs to be performed one time. All redemption debt service will be saved and can only be loaded into the prior workspace. The report that is automatically displayed can also be viewed

State and Local Governments
2018 Series A Bonds
Delivery: January 15 2018

Mandatory Redemptions Debt Service

Date	Principal	Principal Redemptions	Call Premium	Interest	Total
7/1/2018				133,750.00	133,750.00
1/1/2019				133,750.00	133,750.00
7/1/2019	500,000.00			133,750.00	633,750.00
1/1/2020				130,000.00	130,000.00
7/1/2020	500,000.00			130,000.00	630,000.00
1/1/2021				126,250.00	126,250.00
7/1/2021	500,000.00			126,250.00	626,250.00
1/1/2022				122,500.00	122,500.00
7/1/2022	500,000.00			122,500.00	622,500.00
1/1/2023				118,750.00	118,750.00
7/1/2023	500,000.00			118,750.00	618,750.00
1/1/2024				115,000.00	115,000.00
7/1/2024	500,000.00			115,000.00	615,000.00
1/1/2025				110,000.00	110,000.00
7/1/2025	500,000.00			110,000.00	610,000.00
1/1/2026				105,000.00	105,000.00
7/1/2026	500,000.00			105,000.00	605,000.00
1/1/2027				100,000.00	100,000.00
7/1/2027	500,000.00			100,000.00	600,000.00
1/1/2028				95,000.00	95,000.00
7/1/2028	500,000.00	6,000,000.00		95,000.00	6,595,000.00
	5,000,000.00	6,000,000.00		2,446,250.00	13,446,250.00

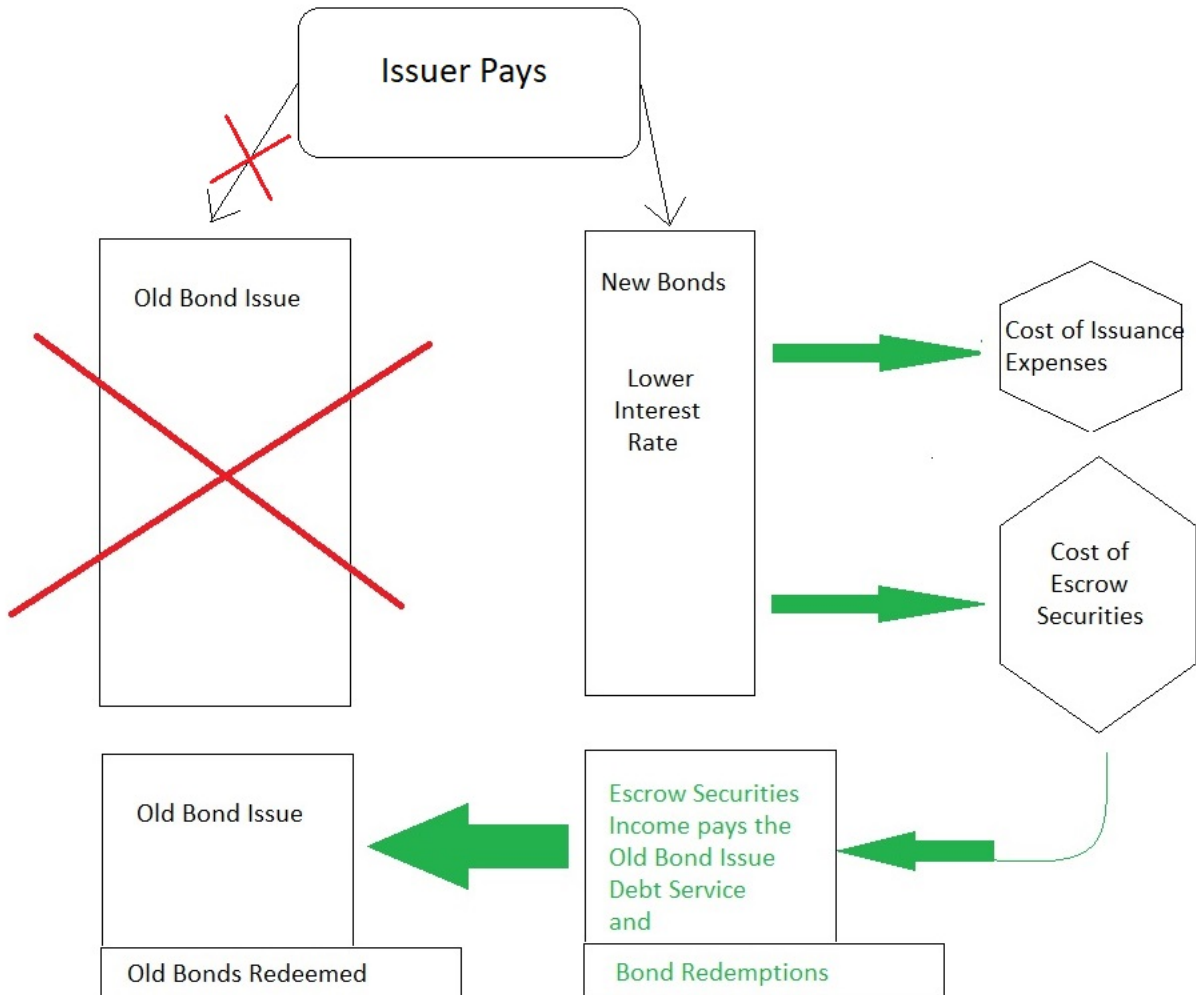
Call Date	First Maturity	Last Maturity	Call Amount	Call Price	Call Premium
7/1/2028	7/1/2029	7/1/2038	6,000,000.00	100.000	0.00

The “Mandatory Redemptions” calculations and debt service will only load into the prior workspace. You can then use the “Report” menu item and “Prior Bond Issue” submenu item to view the same report. The “Mandatory Redemptions” debt service is stored separately from the bond debt service and cannot be edited.

For an advanced refunding, AAA rated securities will be selected and placed in an escrow account where they will generate sufficient revenues to pay the “Mandatory Redemptions” debt service. The new bond issue must generate enough production to pay the cost of issuance (underwriter’s discount), bond insurance, and the cost of the securities for the escrow (this tutorial only).

What is an Advanced Refunding – Refinancing an Existing Bond Issue

An advanced refunding involves an old bond issue (“Refunded Bonds”) that the issuer wishes to refinance by issuing a new bond issue (the “Refunding Bonds”). The proceeds from the new bond issue pay expenses and the cost of the securities for an escrow, which generates enough revenue to payoff the old bonds (redeemed to one or more call dates). Visually it looks something like this:



The securities purchased for the escrow are government securities and often SLGS (State and Local Government Series). SLGS can be purchased in denominations of \$100 and have a maximum interest payable from the United States Treasury. SLGS can be purchased at rates lower than the maximum interest rate because the escrow yield is restricted to the arbitrage yield of the new bonds. Investing the bond proceeds in an escrow yielding higher interest than the arbitrage yield of the new bonds is considered a windfall and is not acceptable according to US government arbitrage regulations.

Report – New Refunding Bonds

Use the “Data/Modify” menu item and “Clear Current and Prior Bonds” submenu item so that both current and prior workspaces are empty. Use the “Load” menu item and the “Current Bond Issue” submenu to load the New Bond Issue, which we previously saved. Use the “Load” menu item and the “Prior Bond Issue Debt Service” submenu to load the “Prior Mandatory Redemptions Debt Service”). With a new issue delivery date of 7/15/2021, there will be \$10,000,000 in Bond Principal Amount remaining for the Existing Bond Issue. Use the “Input” menu item and the “General Bond Information” submenu item to set the Par Amount of the new bonds to “10000000”. We use the coupons and yields we entered in the “Amounts, Coupons, Yields, Prices” page to structure the New Bond issue.

Use the “Calculate” menu item and “Solve Current for Bond Maturity Amounts” submenu item, and the “Level Debt Service” submenu solution to structure the new bonds for level debt service. The “Debt Service Schedule” of the new bonds will be displayed as follows:

State and Local Governments
Municipal Debt Analysis
2021 Series A Refunding Bonds
Delivery: January 15 2021

Debt Service Schedule

Date	Principal	Coupon	Yield	Interest	Period Total	Fiscal Total
7/1/2021				95,297.50	95,297.50	95,297.50
1/1/2022				95,297.50	95,297.50	
7/1/2022	415,000.00	1.9000	0.7506	95,297.50	510,297.50	605,595.00
1/1/2023				91,355.00	91,355.00	
7/1/2023	425,000.00	1.9000	0.8001	91,355.00	516,355.00	607,710.00
1/1/2024				87,317.50	87,317.50	
7/1/2024	430,000.00	1.9000	0.8502	87,317.50	517,317.50	604,635.00
1/1/2025				83,232.50	83,232.50	
7/1/2025	440,000.00	1.9000	0.9002	83,232.50	523,232.50	606,465.00
1/1/2026				79,052.50	79,052.50	
7/1/2026	450,000.00	1.9000	0.9502	79,052.50	529,052.50	608,105.00
1/1/2027				74,777.50	74,777.50	
7/1/2027	455,000.00	1.9000	1.0001	74,777.50	529,777.50	604,555.00
1/1/2028				70,455.00	70,455.00	
7/1/2028	465,000.00	1.9000	1.0501	70,455.00	535,455.00	605,910.00
1/1/2029				66,037.50	66,037.50	
7/1/2029	475,000.00	1.9000	1.1000	66,037.50	541,037.50	607,075.00
1/1/2030				61,525.00	61,525.00	
7/1/2030	485,000.00	1.9000	1.1500	61,525.00	546,525.00	608,050.00
1/1/2031				56,917.50	56,917.50	
7/1/2031	495,000.00	1.9000	1.2000	56,917.50	551,917.50	608,835.00
1/1/2032				52,215.00	52,215.00	
7/1/2032	500,000.00	1.9000	1.2500	52,215.00	552,215.00	604,430.00
1/1/2033				47,465.00	47,465.00	
7/1/2033	510,000.00	1.9000	1.3001	47,465.00	557,465.00	604,930.00
1/1/2034				42,620.00	42,620.00	
7/1/2034	520,000.00	1.9000	1.3501	42,620.00	562,620.00	605,240.00
1/1/2035				37,680.00	37,680.00	
7/1/2035	530,000.00	1.9000	1.4001	37,680.00	567,680.00	605,360.00
1/1/2036				32,645.00	32,645.00	
7/1/2036	540,000.00	1.9000	1.4500	32,645.00	572,645.00	605,290.00
1/1/2037				27,515.00	27,515.00	
7/1/2037	550,000.00	1.9000	1.5000	27,515.00	577,515.00	605,030.00
1/1/2038				22,290.00	22,290.00	
7/1/2038	560,000.00	1.9000	1.5501	22,290.00	582,290.00	604,580.00
1/1/2039				16,970.00	16,970.00	
7/1/2039	575,000.00	1.9000	1.6000	16,970.00	591,970.00	608,940.00

Report – New Refunding Bonds (continued)

The remaining “Debt Service Schedule” of the new bonds will be displayed as follows:

1/1/2040				11,507.50	11,507.50	
7/1/2040	585,000.00	1.9000	1.6500	11,507.50	596,507.50	608,015.00
1/1/2041				5,950.00	5,950.00	
7/1/2041	595,000.00	2.0000	1.7000	5,950.00	600,950.00	606,900.00
<hr/>				<hr/>		
	10,000,000.00			2,220,947.50	12,220,947.50	
				7,412.03	7,412.03	
	10,000,000.00			2,213,535.47	12,213,535.47	
<hr/>				<hr/>		

Dated: 01/1/2021 and Delivery: 01/15/2021

Bond Years	116,250.000
Average Coupon	1.91049247
Average Life	11.625000
N I C %	1.529264
T I C %	1.390836
Weighted N I C %	1.447091
Weighted Bond Years	122,851.243
Weighted Average Life	11.651612

Bond Insurance

0.250000 % of (Total Debt Service - Accrued) = \$30,533.84

The “Debt Service Schedule” summary information at the bottom of the report shows a TIC of 1.390836%. The TIC “Micromuni Defaults” were modified to not include underwriters discount and bond insurance. The result is the TIC is the arbitrage yield for the escrow (the maximum investment rate for the escrow securities). Current SLGS yields are very low, and the following chart shows the rate paid by SLGS for years 1 to 7 (the length of the bond redemptions debt service).

Report – New Refunding Bonds (continued)

Current SLGS yields are very low, and the following chart shows the rate paid by SLGS for years 1 to 7 (the length of the bond redemptions debt service).

We will not be able to purchase SLGS securities to get a yield of 1.390836% from the SLGS based on the interest rates as of 9/3/2021.

The following table can be found at:

<https://www.treasurydirect.gov/GA-SL/SLGS/selectSLGSDate.htm>

SLGS TABLE FOR USE ON September 3, 2021

Demand Deposit Rate

Annualized Effective Rate	Daily Factor
0.02%	0.000000548

Time Deposit Rate

From (Year-Month)	Through (Year-Month)	Rate
01-00	ONLY	0.06%
02-00	ONLY	0.20%
03-00	ONLY	0.41%
04-00	ONLY	0.59%
05-00	ONLY	0.77%
06-00	ONLY	0.94%
07-00	ONLY	1.08%

In many cases we can estimate the cost of the escrow by using the “Calculate” menu item and “Present Value Calculations” submenu item and present value the “Prior Bond Issue” (the Mandatory Redemptions Debt Service) at a present value rate of 1.390836% to get the estimated cost of the escrow. However, we cannot do this with these low interest rate SLGS.

We need a different way to estimate the cost of securities for the escrow. We will create a bond issue that will match the “Mandatory Redemptions Debt Service” with the above SLGS rates. Here is how we will create a pseudo escrow that mimics the escrow securities.

Pseudo Escrow Cost of Securities

To create a pseudo escrow to obtain the cost of securities, we will create a bond issue with maturity dates and interest payment dates like the “Mandatory Redemptions Debt Service”.

Use the “Data/Modify” menu item and “Clear Bond Issues” submenu item and click the “Clear Current Bonds” button. Now, use the “Input” menu item and the “General Bond Information” submenu. Note: Bond Denomination of \$1.00. Your page should look like:

Save

Bond Maturity Dates

Info

Par Amount	Denomination
<input type="text" value="\$0.00"/>	<input type="text" value="1.00"/>
Dated Date	Delivery Date
<input type="text" value="1/1/2021"/>	<input type="text" value="1/15/2021"/>
First Coupon	First Maturity Date
<input type="text" value="7/1/2021"/>	<input type="text" value="7/1/2022"/>
Fiscal (Interest Payment Date)	Last Maturity Date
<input type="text" value="7/1/2021"/>	<input type="text" value="7/1/2028"/>
Interest Frequency	Maturity Frequency
<input type="text" value="Semi-Annual"/>	<input type="text" value="Annual"/>
Year for Interest Calculations	Data Share
<input type="text" value="30/360"/>	<input type="text" value="No"/>
Project Name	
<input type="text" value="State and Local Governments"/>	
Key Name	
<input type="text" value="Pseudo Escrow Cost of Securities"/>	
Report Titles	
1	
<input type="text" value="State and Local Governments"/>	
2	
<input type="text" value="Pseudo Escrow Cost of Securities"/>	
3	
<input type="text"/>	

Be certain to press the **“SAVE”** button.

Pseudo Escrow Cost of Securities (continued)

Now use the “Input” menu item and the “Amounts, Coupons, Yields, Prices” submenu to enter the SLGS rates for the coupons values. Your page should look like:

NOTE: You must press the Save button to complete changes, inserts and updates.

Maturity Date	Amount	Bond Type	Coupon	Yield	Price	Max Debt Service
07/01/2022	\$0.00	Standard	0.060000	0.000000	100.000000	100,000,000.00
07/01/2023	\$0.00	Standard	0.200000	0.000000	100.000000	100,000,000.00
07/01/2024	\$0.00	Standard	0.420000	0.000000	100.000000	100,000,000.00
07/01/2025	\$0.00	Standard	0.590000	0.000000	100.000000	100,000,000.00
07/01/2026	\$0.00	Standard	0.770000	0.000000	100.000000	100,000,000.00
07/01/2027	\$0.00	Standard	0.940000	0.000000	100.000000	100,000,000.00
07/01/2028	\$0.00	Standard	1.080000	0.000000	100.000000	100,000,000.00

We will not change the Max Debt Service values to reflect the debt service from the “Mandatory Redemptions Debt Service” which is loaded in the prior workspace. We can report the prior debt service to see the debt service values or we can use a Micromuni Debt feature that will do it for us. Let’s do it the easy way.

The prior workspace has the “Mandatory Redemptions Debt Service” loaded. Using the “Load” menu item and the “Load Current MaxDS from Prior Debt Service” submenu item, Micromuni Debt will calculate the fiscal totals for each maturity and enter the “Max Debt Service” values for us.

Your page should look like:

Maturity Date	Amount	Bond Type	Coupon	Yield	Price	Max Debt Service
07/01/2022	\$0.00	Standard	0.060000	0.000000	100.000000	745,000.00
07/01/2023	\$0.00	Standard	0.200000	0.000000	100.000000	737,500.00
07/01/2024	\$0.00	Standard	0.420000	0.000000	100.000000	730,000.00
07/01/2025	\$0.00	Standard	0.590000	0.000000	100.000000	720,000.00
07/01/2026	\$0.00	Standard	0.770000	0.000000	100.000000	710,000.00
07/01/2027	\$0.00	Standard	0.940000	0.000000	100.000000	700,000.00
07/01/2028	\$0.00	Standard	1.080000	0.000000	100.000000	6,690,000.00

Be certain to press the **“SAVE”** button.

With these maximum debt service values and SLGS interest rates, we will get a good estimate of the cost of the SLGS securities for the escrow.

Pseudo Escrow Cost of Securities (continued)

Using the “Calculate” menu item and the “Solve Current for Bond Maturity Amounts” submenu item and then the “Fill up to Max Debt Service Constraints” solve option, Micromuni Debt will fill each maturity with as much principal amount up to the “Max Debt Service” value. After the solution is complete, the following report will be displayed:

State and Local Governments Pseudo Escrow Cost of Securities

Delivery: January 15 2021

Debt Service Schedule

Date	Principal	Coupon	Yield	Interest	Period Total	Fiscal Total
7/1/2021				45,145.21	45,145.21	45,145.21
1/1/2022				45,145.21	45,145.21	
7/1/2022	654,709.00	0.0600	0.0600	45,145.21	699,854.21	744,999.42
1/1/2023				44,948.80	44,948.80	
7/1/2023	647,602.00	0.2000	0.2000	44,948.80	692,550.80	737,499.59
1/1/2024				44,301.20	44,301.20	
7/1/2024	641,397.00	0.4200	0.4200	44,301.20	685,698.20	729,999.39
1/1/2025				42,954.26	42,954.26	
7/1/2025	634,091.00	0.5900	0.5900	42,954.26	677,045.26	719,999.52
1/1/2026				41,083.69	41,083.69	
7/1/2026	627,832.00	0.7700	0.7700	41,083.69	668,915.69	709,999.38
1/1/2027				38,666.54	38,666.54	
7/1/2027	622,666.00	0.9400	0.9400	38,666.54	661,332.54	699,999.07
1/1/2028				35,740.01	35,740.01	
7/1/2028	6,618,519.00	1.0800	1.0800	35,740.01	6,654,259.01	6,689,999.01
	10,446,816.00			630,824.59	11,077,640.59	
				3,511.29	3,511.29	
	10,446,816.00			627,313.30	11,074,129.30	
Dated: 01/1/2021 and Delivery: 01/15/2021						
Bond Years				64,838.665		
Average Coupon				0.97291422		
Average Life				6.206548		
N I C %				0.972914		
T I C %				0.971999		
Weighted N I C %				0.972914		
Weighted Bond Years				64,838.665		
Weighted Average Life				6.206548		

According to this report, the cost of the escrow securities would be \$10,446,816.00. SLGS securities are issued in \$100 denominations, but we used a \$1 denomination to get a tighter answer.

Par Amount of the New Bond Issue

Using the “Load” menu item and the “Current Bond Issue” submenu item, load the new refunding bond issue.

The new bond issue needs to produce a bond production to cover the underwriters discount of \$7 per bond, bond insurance of .25% of total debt service less accrued interest, and the cost of escrow securities of \$10,446,816. How do we do that, if the “Par Amount” of the new bond issue is \$10,000,000 (the same as the par amount of bonds being refinanced).

Some issuers do not want to increase the amount of bonds being issued. They have a debt ceiling, so increasing the par amount of bonds would not be acceptable. If it were, we could leave our new issue coupons, by issuing par bonds, but the total bond size would increase. A perfect solution for Micromuni Sizing.

However, we want to keep the New Bond Issue bond size at \$10,000,000. So where do we get the additional revenue to cover expenses. Simple! We will make the \$10,000,000 of new bonds “premium bonds” that will cover these expenses. We need to change the coupons of the new bond issue so that the bond production “Net to the Issuer” is enough to cover the \$10,446,816 estimated cost of the escrow. On the Bond Production Report, the “Net to the Issuer” value has already covered the underwriter’s discount and the bond insurance. This will take a little trial and changing the coupons, but leave the yields as is. Using the “Input” menu item and the “Amounts, Coupons, Yields, Prices” submenu item, set all the coupons to 2.0%.

After saving your new coupons, use the “Calculate” menu item and the “Solve Current for Bond Amounts” submenu item and select the “Level Debt Service” bond solution. Micromuni Debt will solve for the bond maturity amounts and display the “Debt Service Schedule” report for the new bond issue.

We need to view the Bond Production report to see if we have enough revenue to pay for the cost of the escrow securities.

Par Amount of the New Bond Issue (continued)

Using the “Report” menu item and the “Bond Production” submenu item, the bond production summary report will be displayed. Notice the “Net to the Issuer” amount of \$10,545,096.37, which is too much revenue from the sale of the bonds. If we set all the coupons to 1.90%, we would discover that there is not enough “Net to the Issuer” to cover the cost of the escrow securities.

Ultimately, we found that all coupons of 1.9% and the last coupon set to 2.0% was the correct coupon scale to cover all cost of issuance expenses and cover the cost of the escrow securities. With this coupon scale the “Net to the Issuer” is \$10,450,590.34.

The final bond production report should look like this:

Bond Production			
State and Local Governments			
Municipal Debt Analysis			
2021 Series A Refunding Bonds			
Dated 1/1/2021			
Delivery 1/15/2021			
Par Amount	\$10,000,000.00		
Production	543,712.15		
Gross Production	10,543,712.15		105.4371215
Bond Insurance	30,533.84	←	0.3053384
Underwriters Discount	70,000.00	←	0.7000000
Bid	10,443,178.31		104.4317831
Accrued	7,412.03		
Net to Issuer	10,450,590.34	←	Covers cost of the escrow securities
Gross Interest Cost	2,220,947.50		
-Net Premium	-443,178.31		
Net Interest Cost	1,777,769.19		
N I C %	1.5292638		
T I C %	1.3908358		TIC calculated from Delivery
Bond Years	116,250.000		
Average Coupon	1.910492		
Average Life	11.625000		
Weighted N I C %	1.4470909		
Weighted Bond Years	122,851.243		
Weighted Average Life	11.651612		

Notice the “Net to the Issuer” amount is \$10,450,590.34. This is what is available after the underwriter’s discount and bond insurance have been covered and is sufficient to cover the estimated cost of the escrow securities (\$10,446,816.00).

Refunding Savings Analysis

Now that we have the correct New Issue bond size, we need to compare the new bond issue to the original bonds to be refunded. Using the “Load” menu item and the “Prior Debt Service” submenu item, load the original Existing Bond Issue into the prior workspace.

Use the “Report” menu item and the “Debt Service Savings” submenu item to display the savings for the issuer by refunding their existing bond issue. You will notice the gross dollar savings is \$427,802.50 and the present value savings is \$677,510.66. This looks like a good refunding project.

Your report should look like this:

State and Local Governments Municipal Debt Analysis 2021 Series A Refunding Bonds <small>Delivery: January 15 2021</small>							
Debt Service Savings Details							
Date	Principal	Coupon	Interest	Current Debt Service	Prior Debt Service	Debt Service Savings	Fiscal Savings
7/1/2021			95,297.50	95,297.50	626,250.00	530,952.50	530,952.50
1/1/2022			95,297.50	95,297.50	122,500.00	27,202.50	
7/1/2022	415,000.00	1.9000	95,297.50	510,297.50	622,500.00	112,202.50	139,405.00
1/1/2023			91,355.00	91,355.00	118,750.00	27,395.00	
7/1/2023	425,000.00	1.9000	91,355.00	516,355.00	618,750.00	102,395.00	129,790.00
1/1/2024			87,317.50	87,317.50	115,000.00	27,682.50	
7/1/2024	430,000.00	1.9000	87,317.50	517,317.50	615,000.00	97,682.50	125,365.00
1/1/2025			83,232.50	83,232.50	110,000.00	26,767.50	
7/1/2025	440,000.00	1.9000	83,232.50	523,232.50	610,000.00	86,767.50	113,535.00
1/1/2026			79,052.50	79,052.50	105,000.00	25,947.50	
7/1/2026	450,000.00	1.9000	79,052.50	529,052.50	605,000.00	75,947.50	101,895.00
1/1/2027			74,777.50	74,777.50	100,000.00	25,222.50	
7/1/2027	455,000.00	1.9000	74,777.50	529,777.50	600,000.00	70,222.50	95,445.00
1/1/2028			70,455.00	70,455.00	95,000.00	24,545.00	
7/1/2028	465,000.00	1.9000	70,455.00	535,455.00	595,000.00	59,545.00	84,090.00
1/1/2029			66,037.50	66,037.50	90,000.00	23,962.50	
7/1/2029	475,000.00	1.9000	66,037.50	541,037.50	690,000.00	148,962.50	172,925.00
1/1/2030			61,525.00	61,525.00	81,000.00	19,475.00	
7/1/2030	485,000.00	1.9000	61,525.00	546,525.00	681,000.00	134,475.00	153,950.00
1/1/2031			56,917.50	56,917.50	72,000.00	15,082.50	
7/1/2031	495,000.00	1.9000	56,917.50	551,917.50	672,000.00	120,082.50	135,165.00
1/1/2032			52,215.00	52,215.00	63,000.00	10,785.00	
7/1/2032	500,000.00	1.9000	52,215.00	552,215.00	663,000.00	110,785.00	121,570.00

This looks like a good refunding. In the first fiscal year, the issuer saves \$530,952.50. In most of the subsequent years the issuer saves over \$100,000.

Refunding Savings Analysis (continued)

Your report should look like this (continued):

1/1/2033			47,465.00	47,465.00	54,000.00	6,535.00	
7/1/2033	510,000.00	1.9000	47,465.00	557,465.00	654,000.00	96,535.00	103,070.00
1/1/2034			42,620.00	42,620.00	45,000.00	2,380.00	
7/1/2034	520,000.00	1.9000	42,620.00	562,620.00	645,000.00	82,380.00	84,760.00
1/1/2035			37,680.00	37,680.00	36,000.00	-1,680.00	
7/1/2035	530,000.00	1.9000	37,680.00	567,680.00	636,000.00	68,320.00	66,640.00
1/1/2036			32,645.00	32,645.00	27,000.00	-5,645.00	
7/1/2036	540,000.00	1.9000	32,645.00	572,645.00	627,000.00	54,355.00	48,710.00
1/1/2037			27,515.00	27,515.00	18,000.00	-9,515.00	
7/1/2037	550,000.00	1.9000	27,515.00	577,515.00	618,000.00	40,485.00	30,970.00
1/1/2038			22,290.00	22,290.00	9,000.00	-13,290.00	
7/1/2038	560,000.00	1.9000	22,290.00	582,290.00	609,000.00	26,710.00	13,420.00
1/1/2039			16,970.00	16,970.00		-16,970.00	
7/1/2039	575,000.00	1.9000	16,970.00	591,970.00		-591,970.00	-608,940.00
1/1/2040			11,507.50	11,507.50		-11,507.50	
7/1/2040	585,000.00	1.9000	11,507.50	596,507.50		-596,507.50	-608,015.00
1/1/2041			5,950.00	5,950.00		-5,950.00	
7/1/2041	595,000.00	2.0000	5,950.00	600,950.00		-600,950.00	-606,900.00
<hr/>							
	10,000,000.00		2,220,947.50	12,220,947.50	12,648,750.00	427,802.50	427,802.50
			7,412.03	7,412.03			
	10,000,000.00		2,213,535.47	12,213,535.47			
<hr/>							
Dated: 01/1/2021 and Delivery: 01/15/2021							
Bond Years					116,250.000		
Average Coupon					1.91049247		
Average Life					11.625000		
N I C %					1.529264		
T I C %					1.390836		
Weighted N I C %					1.447091		
Weighted Bond Years					122,851.243		
Weighted Average Life					11.651612		
Bond Insurance							
0.250000 % of (Total Debt Service - Accrued) = \$30,533.84							
Net Present Value Savings at: 1.390836% Equals \$677,510.66							

Note: The savings keep declining and in the last three years the savings is negative, because the prior issue was exceeded. However, the overall gross savings for the refinancing is \$427,802.50 and the “Net Present Value Savings” is \$677,510.66 (or 6.776107% of the Prior Issue). These calculations can be seen in the final summary information at the bottom of the report.

Summary

Tutorial Completed

Congratulations! You have successfully completed the Micromuni Debt tutorial.

If you have any questions about this tutorial or of the use of Micromuni Debt, please feel free to contact Financial Management Systems, Inc at:

Phone: (425) 881-8687

Email: fms@micromuni.com

Thank you for being a loyal Micromuni customer.