EDWARD J. COLLINS, JR. CENTER FOR PUBLIC MANAGEMENT
JOHN W. McCORMACK GRADUATE SCHOOL OF POLICY AND GLOBAL STUDIES
UNIVERSITY OF MASSACHUSETTS BOSTON

Memorandum

TO: David Michelsen, P.E. Executive Director
FROM: David A Colton, Collins Center for Public Management
DATE: February 20, 2026
RE: Capital Finance Presentation Overview

ACCEPTED BY
THE SOUTH ESSEX
SEWERAGE BOARD ON:
March 4, 2026

On April 23, 2025, the Collins Center Team presented several potential capital financing scenarios to the South Essex Sewerage District (SESD) Board of Directors for SESD's proposed twenty-year, $726.5 million capital improvement plan (CIP). The financing scenarios were developed in collaboration with senior SESD leadership based on current knowledge of available private and government financing programs, the projected cost of the CIP, and current apportionment formulas. A memorandum summarizing the presentation was prepared on July 23, 2025 (attached).

Since that time, SESD leadership has revised the capital program and some underlying assumptions. In response, the Collins Center Team revised the financial models. The purpose of this memorandum is to summarize the revised financing scenarios.

The CIP consists of four project tiers which were expressed as tranches of debt as follows:

Table 1

Tranche	Principal Amount presented on 4/23/25	Principal Amount Revised January 2026[1]
1	$151,674,000	$154,309,000
2	$266,304,000	$235,738,000
3	$186,990,000	$186,990,000
4	$121,503,000	$170,880,000
Total	**$726,471,000**	**$747,917,000**

[1] Revised principal amount includes program costs not included in the July 23, 2025, memo. Some or all of these costs may not be eligible for GO Bond Financing but may be included in the WIFIA loan.

There are three known sources of debt financing for sewer-related projects (1) General Obligation (GO) Bonds, which are Municipal bonds that are backed by the local government's ability to tax to pay bondholders. Interest rates vary based upon the government entity's rating, and terms are set for up to 30 years, (2) The Massachusetts Clean Water Revolving Fund (SRF) Program which Provides low-cost financing for wastewater infrastructure projects that benefit water quality and public health. Many factors can influence interest rates, and terms of up to 30 years are available, and (3) The Water Infrastructure Finance and Innovation Act (WIFIA) Program which is a federal credit program under which eligible government agencies can borrow up to 49% of the cost of a project. The interest rate is generally set as the long-term Treasury Rate at the date of closing.

Four debt financing scenarios were selected to represent a possible range of options including 100% of the borrowing through General Obligation, a combination of SRF (49%) and General Obligation (51%), 100% through SRF, and a combination of WIFIA (49%) and SRF (51%). All scenarios assumed a term of 30 years. Interest rates were assumed as follows: General Obligation 5%, SRF 2.2%, and WIFIA 3.5%[2].

Given recent negative feedback from the SRF program regarding the likelihood that it would provide funding at this level, a fifth option was added: a combination of General Obligation (51%) and WIFIA (49%). The result of that analysis is as follows:

Table 2 5 scenarios of Principal and Debt Service for all tranches

Scenario	Principal Amount	Total Debt Service Payments
100% GO Bonds	$747,917,000	$1,275,577,888
SRF/GO Split	$747,917,000	$1,118,669,435
100% SRF	$747,917,000	$943,445,468
SRF/WIFIA Split	$747,917,000	$1,007,693,720
GO/WIFIA Split	$747,917,000	$1,176,125,411

Recognizing that the scope of this analysis is broad and that projections 20 years into the future carry with them a great deal of uncertainty, the scope of the analysis was narrowed to include one funding scenario and the first two tranches. The GO/WIFIA split is recommended as a conservative option while tranches 1 and 2 are used because it is expected that they will be underway in less than 10-12 years. It is likely that some of the General Obligation borrowing could become SRF funding; however, it is impossible to estimate how much. Therefore, assuming WIFIA funds 49% this option could be viewed as the worst case.

[2] Since the presentation was made both General Obligation Bond rates and Treasury Rates have been rising at different rates. Should this continue, the difference between WIFIA and GO interest rates may become negligible.

Table 3 Debt Service with General Obligation/WIFIA split for priority 1 and 2 projects[3].

Sources	Priority 1	Priority 2	Cumulative
WIFIA Principal	$75,611,000	$115,512,000	$191,123,000
Total WIFIA Interest	$38,335,000	$62,665,000	$101,000,000
GO Bonds Principal	$78,698,000	$120,226,000	$198,924,000
Total GO Bonds Interest	$56,999,000	$93,175,000	$150,174,000
BANN Interest	$3,665,000	$7,342,000	$11,007,000
Total Principal	$154,309,000	$235,738,000	$390,047,000
Total Debt Service	$253,308,000	$398,920,000	$652,228,000

Debt Service Payments were calculated for each community based on the apportionment of the proposed capital spending. Payments would rise slowly during the first four years as short-term borrowing is utilized, increase rapidly in year five as the first tranche of borrowing becomes permanent, begin to rise again in year six as temporary borrowing commences for tranche 2 and then rapidly in year ten as all borrowing is now permanent. Debt service payments would decline steadily until year 25 as tranche 1 is retired and more precipitously in year 26 until all debt is retired in year 30.

Table 4 Projected Assessments in millions of dollars (Debt Service Only)[4]

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Beverly	0.0	-	0.18	0.38	0.46	2.78	2.90	3.03	3.05	5.17	6.92
Danvers	0.00	0.04	0.12	0.25	0.30	1.97	2.11	2.24	3.17	4.51	5.91
Marblehead	0.00	0.03	0.16	0.45	0.56	3.07	3.07	3.06	3.05	3.03	4.53
Peabody	0.01	0.11	0.21	0.33	1.15	2.71	2.82	3.23	3.26	3.26	6.70
Salem	0.01	0.06	0.11	0.18	0.61	1.45	1.51	1.68	1.88	1.88	3.71
All others	0.00	0.00	0.01	0.01	0.02	0.12	0.13	0.13	0.19	0.26	0.36
Total Assessments	**0.03**	**0.24**	**0.79**	**1.61**	**3.11**	**12.10**	**12.54**	**13.38**	**14.61**	**18.1**	**28.1**

[3] Rounded to nearest 1,000.
[4] Inconsistencies in totals are due to rounding.

As a final step in the projections, a forecast of operation and maintenance costs was developed and overlaid on the debt service costs to show the total impact on assessments for each member community for the period of borrowing. The combined impact of the new debt service and rising operation and maintenance cost is a $30M revenue gap by 2036. To close the gap, annual assessments to member communities would rise significantly.

The Collins Center Team appreciates the opportunity to serve the South Essex Sewerage District in this endeavor. We look forward to a continuing relationship and successful implementation of the capital plan.

ATTACHMENT 1 - Capital Finance Presentation Overview Memo, August 11, 2025

EDWARD J. COLLINS, JR. CENTER FOR PUBLIC MANAGEMENT
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Memorandum

TO: David Michelsen, P.E. Executive Director
FROM: David A Colton, Collins Center for Public Management
DATE: August 11, 2025
RE: Capital Finance Presentation Overview

On April 23, 2025, the Collins Center Team presented several potential capital financing scenarios to the South Essex Sewerage District (SESD) Board of Directors for SESD's proposed twenty-year, $726.5 million capital improvement plan (CIP). The financing scenarios were developed in collaboration with senior SESD leadership based on current knowledge of available private and government financing programs, the projected cost of the CIP, and current apportionment formulas. The purpose of this memo is to summarize the presentation.

The CIP consists of four project tiers which were expressed as tranches of debt as follows:

Table 1

Tranche	Principal Amount	Term in Years	Repayment Begins	Repayment Ends
1	$151,674,000	30	2031	2060
2	$266,304,000	30	2036	2065
3	$186,990,000	30	2041	2070
4	$121,503,000	30	2046	2075
Total	**$726,471,000**			

There are three known sources of debt financing for sewer-related projects (1) General Obligation (GO) Bonds which are Municipal bonds that are backed by the local government's ability to tax to pay bondholders. Interest rates vary based upon the government entity's rating, and terms are set for up to 30 years, (2) The Massachusetts Clean Water Revolving Fund (SRF) Program which Provides low-cost financing for wastewater infrastructure projects that benefit water quality and public health. Many

factors can influence interest rates, and terms of up to 30 years are available, and (3) The Water Infrastructure Finance and Innovation Act (WIFIA) Program which is a federal credit program under which eligible government agencies can borrow up to 49% of the cost of a project. The interest rate is generally set as the long-term Treasury Rate at the date of closing.

Four debt financing scenarios were selected to represent a possible range of options including 100% of the borrowing through General Obligation, a combination of SRF (49%) and General Obligation (51%), 100% through SRF, and a combination of WIFIA (49%) and SRF (51%). All scenarios assumed a term of 30 years. Interest rates were assumed as follows: General Obligation 5%, SRF 2.2%, and WIFIA 3.5%[1]. The result of that analysis is as follows:

Table 2

Scenario	Principal Amount	Total Debt Service Payments
100% GO Bonds	$726,471,000	$1,287,941,000
SRF/GO Split	$726,471,000	$1,135,284,000
100% SRF	$726,471,000	$937,880,000
SRF/WIFIA Split	$726,471,000	$1,009,025,000

Recognizing that the scope of this analysis is broad and that projections 20 years into the future carry with them a great deal of uncertainty, the scope of the analysis was narrowed to include one funding scenario and the first two tranches. The SRF/GO split was selected as a conservative middle-ground option while tranches 1 and 2 are used because it is expected that they will be underway in less than 10-12 years.

Given these parameters, the total amount of debt incurred would fall to $417,978,000 while total debt service (principle and interest) payments would accumulate to $553,562,000 as presented in table 3 below.

Table 3

	Priority 1	Priority 2	Cumulative
SRF Principal	$74,320,000	$130,488,000	$204,809,000
Total SRF Interest	$11,995,000	$20,982,000	$32,977,000
GO Bonds Principal	$77,353,000	$135,815,000	$213,168,000

[1] Since the presentation was made both General Obligation Bond rates and Treasury Rates have been rising at different rates. Should this continue, the difference between WIFIA and GO interest rates may become negligible.

Total GO Bonds Interest	$33,279,000	$69,328,000	$102,607,000
Total Principal	$151,674,000	$266,304,000	$417,978,000
Total Debt Service	$196,948,000	$356,614,000	$553,562,000
Repayment Begins	2031	2036	2031
Repayment Ends	2060	2065	2065
Peak Year	2031	2036	2036

Debt Service Payments would rise slowly during the first four years as short-term borrowing is utilized, increase rapidly in year five as the first tranche of borrowing becomes permanent, begin to rise again in year six as temporary borrowing commences for tranche 2 and then rapidly in year ten as all borrowing is now permanent. Debt service payments would decline steadily until year 25 as trance 1 is retired and more precipitously in year 26 until all debt is retired in year 30. This was depicted graphically in the board presentation for the district as a whole and for each member according to the relevant apportionment formula.[2]

As a final step in the projections, a forecast of operation and maintenance costs was developed and overlaid on the debt service costs to show the total impact on assessments for each member community for the period of borrowing. The combined impact of the new debt service and rising operation and maintenance cost is a $30M revenue gap by 2036. To close the gap annual assessments to member communities would rise significantly resulting in the following annual assessments.[3]

Table 4 Projected Assessments in millions of dollars

	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**
Beverly	$5.1	$5.3	$5.8	$6.0	$6.2	$8.7	$9.2	$9.7	$9.9	$10.1	$13.2
Danvers	$4.6	$4.7	$5.2	$5.3	$5.5	$7.5	$8.1	$8.6	$8.9	$9.2	$13.5
Marblehead	$3.3	$2.4	$2.7	$2.9	$3.1	$5.7	$5.8	$5.9	$6.0	$6.1	$7.3
Peabody	$8.7	$8.5	$9.3	$9.8	$10.1	$12.5	$13.0	$13.5	$13.9	$14.3	$17.2
Salem	$5.1	$5.3	$5.8	$6.0	$6.2	$7.5	$7.8	$8.1	$8.3	$8.6	$10.3
All others	$0.3	$0.3	$0.3	$0.4	$0.4	$0.5	$0.5	$0.6	$0.6	$0.6	$0.9
Total Assessments	**$27.1**	**$26.5**	**$29.1**	**$30.4**	**$31.5**	**$42.4**	**$44.4**	**$46.4**	**$47.6**	**$48.9**	**$62.4**

[2] A copy of the board presentation is attached for reference.
[3] It is important to note that the gap cannot be closed given the current revenue generating methodology which is limited to a 2.5% annual increase by statute.

The board presentation includes graphic representations of the annual increase for each member, including a theoretical “smoothing” analysis, which would result in a smoothed average annual increase of approximately 9.75%.

To place these increases in some context, relevant capital programs for similarly situated sewerage utilities and districts in New England were identified. The SESD was benchmarked against these utilities and districts as shown in tables 5 and 6.

Table 5 Current Financial Data for six New England Sewerage Utilities

Utility	Pop. Served	Total Annual Budget	Total Budget Per Capita	Oper. Budget Per Capita	Debt Budget Per Capita	Revenue Per Capita
South Essex Sewerage District	190,000	$26,073,433	$137	$129	$10	$1.50
Greater Lawrence Sanitary District	170,000	$19,188,569	$113	$114	$15	$17
Upper Blackstone Clean Water	250,000	$29,431,936	$118	$97	$48	$28
Lowell, MA WWTP	180,000	$30,786,182	$171	$132	$51	$12
Manchester EPD (NH)	155,000	$23,088,619	$149	$83	$80	$14
Portland Water District (ME)	125,000	$29,218,832	$234	$189	$59	$14

Table 6 Comparable Capital Improvement Programs for five Sewerage Utilities

Utility	Population Served	Total Capital Program	Capital Program Duration	Capital Program Per Capita
South Essex Sewerage District	190,000	$418,000,000	10	$2,200
Upper Blackstone Clean Water	250,000	$330,425,000	20	$1,322
Lowell, MA WWTP	180,000	$225,000,000	10	$1,250
Manchester EPD (NH)	155,000	$338,000,000	20	$2,181
Portland Water District (ME)	125,000	$86,365,000	5	$691

Finally, the Collins Center Team identified several recommended next steps which are ongoing:

1. Reach out to lending programs to verify assumptions
2. Assess capital program based on Board feedback
3. Continue discussions on complications associated with Proposition 2 ½
4. Evaluate options for "smoothing" assessment or rate increases
5. Explore grant funds or opportunities for principal forgiveness

The Collins Center Team appreciates the opportunity to serve the South Essex Sewerage District in this endeavor. We look forward to a continuing relationship and successful implementation of the capital plan.