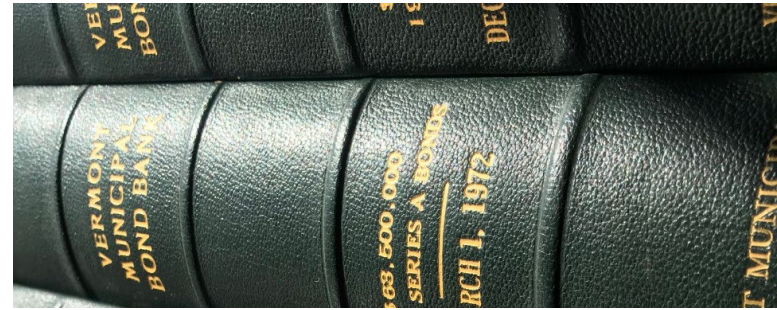




Vermont
Bond Bank



INTRODUCTION TO MUNICIPAL REVENUE BONDS

Presentation to the Vermont Community Broadband Board

February 28, 2022

Vermont Bond Bank

2020 Impact Summary



83,000
VERMONTERS IMPACTED



320,000 sq. ft.
OF PUBLIC FACILITIES UPGRADED OR CONSTRUCTED
INCLUDING 22,000 SQUARE FEET OF CIVIC, LIBRARY, AND COMMUNITY SPACE



2,600
STUDENT SEATS ENHANCED



17 ml.
OF STREETScape OR OTHER ROAD IMPROVEMENTS



5.5 acres
OF REMEDIATED LAND IN BROWNFIELD



1
NEW FIRE TRUCK

Disclosure

- Vermont Bond Bank can only purchase revenue bonds from municipal utilities under 24 V.S.A. § 1821
- Presentation for informational purposes; largely based on experiences of presenter

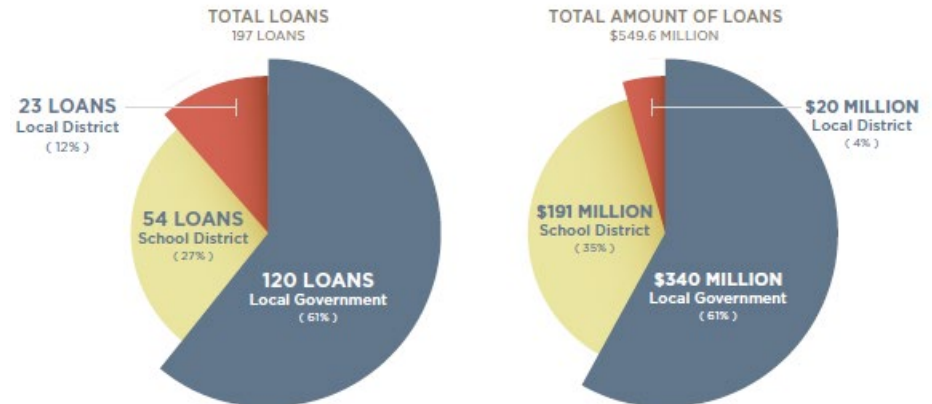
Mission

To assist Vermont's municipalities and other qualified public bodies in gaining access to affordable, innovative and appropriate financing to meet their capital needs.

Vision

To support Vermont's municipalities and other qualified bodies in making informed and knowledgeable financing decisions for present and future generations.

- Created by General Assembly in 1970
- State Treasurer serves as ex officio member of the board
- Other members of the board are appointed by the governor for two-year terms (terms are staggered)



The What and Who of Municipal Bonds

Who

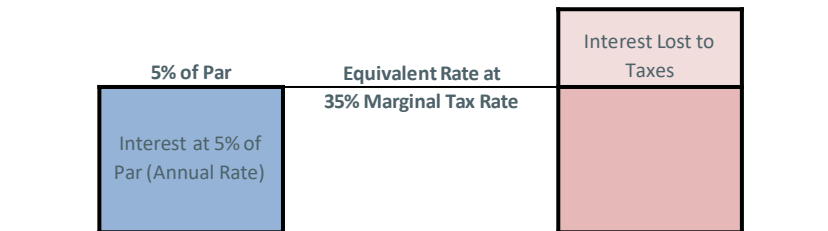
- State, local government, municipality, authority, political subdivision or any other entity that can legally issue bonds on behalf of a state or local government
- Tax-exemption is additionally given to certain categories of “private use” via private activity bonds, which includes 501(c)(3) organizations issuing bonds through a governmental authority (conduit issuer)
- Other “qualifying uses” are allowed if volume cap awarded to the debt, such as housing bonds, and now, broadband with significant involvement of a private entity
- Public benefit accrued from tax-exemption described to the right, so use restrictions on bonds issued with tax-exempt proceeds

What

- Class of fix income securities based on issuer and tax benefit
- Generally, investor (purchaser) of bonds does not have to pay taxes on the interest received from the bonds
- Investor is willing to receive less interest than a taxable bond of equivalent credit risk/duration because the income is “tax-exempt”
- Can be exempt from both federal, state, and local taxes
- Municipal bonds can also be taxable with interest from same and expanded investor base

Value of Tax-Exemption

In a vacuum

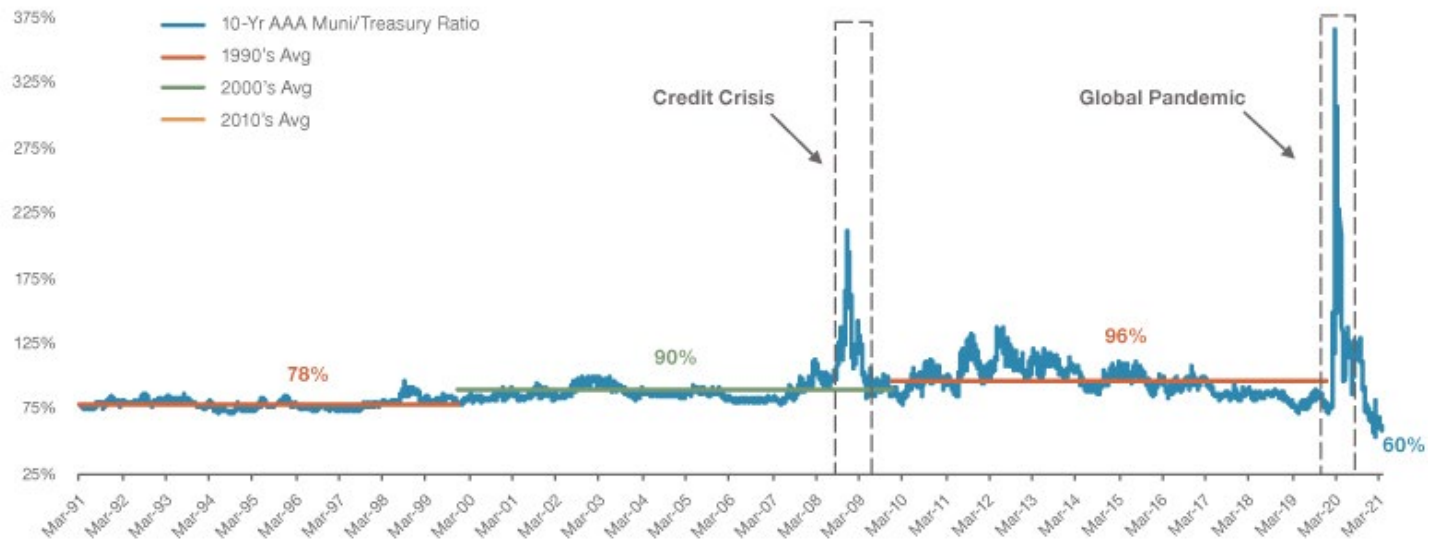


Taxable Equivalent
= Rate / (1 - Marginal Tax Rate)

Tax-Exempt
Equivalent = Rate * Marginal Tax Rate



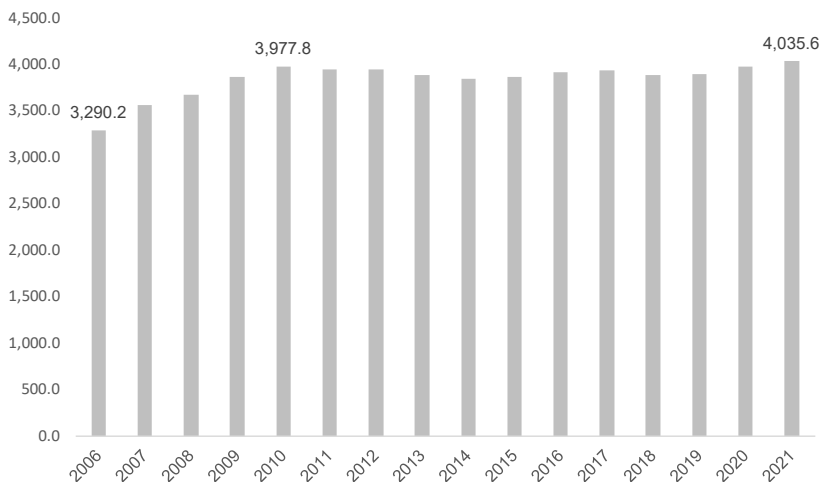
In reality



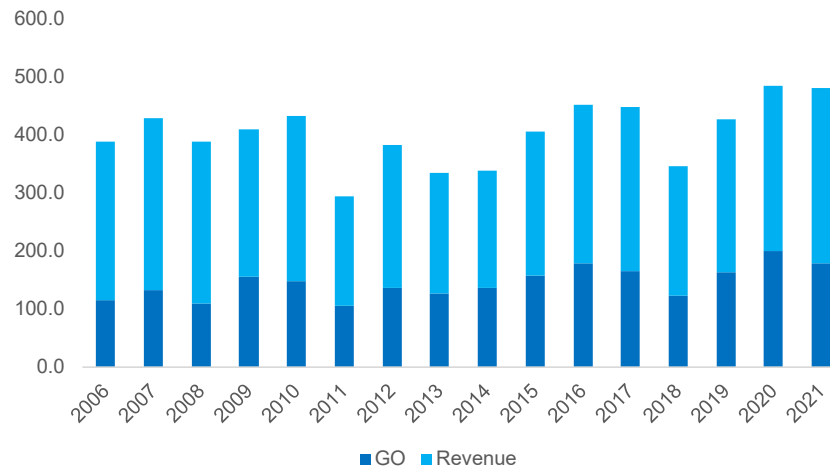
Source: Bloomberg, Morgan Stanley WM Municipal Research as of 4/22/21

Municipal Market Overview

US MUNICIPAL BONDS OUTSTANDING (IN BILLIONS)



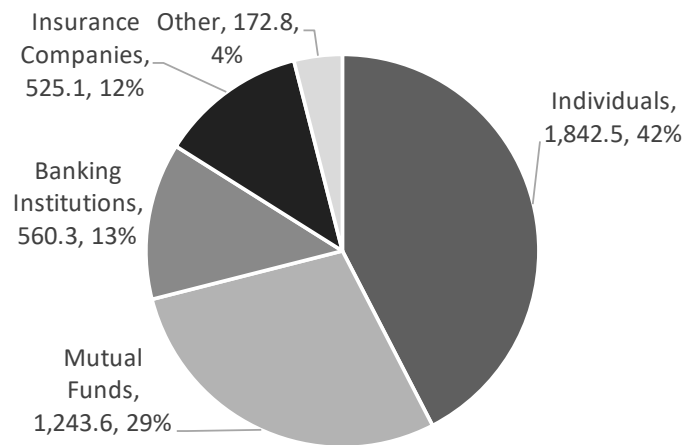
US MUNICIPAL BOND ISSUANCE (IN BILLIONS)



US MUNICIPAL BOND ISSUANCE (IN BILLIONS)



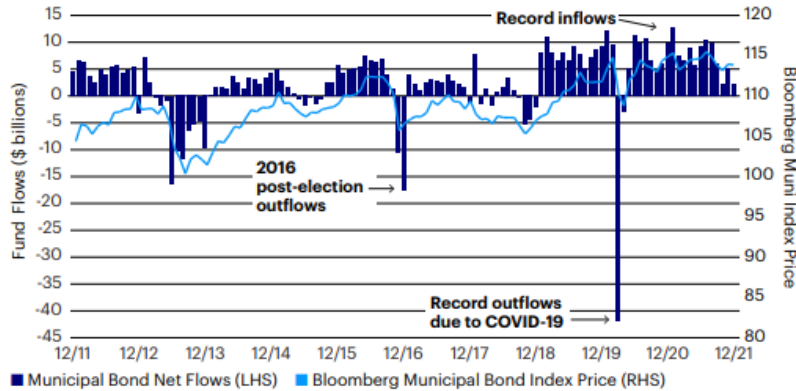
HOLDERS OF US MUNICIPAL BONDS OUTSTANDING (IN BILLIONS)



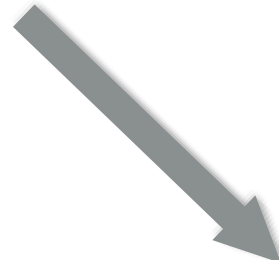
Current Environment – Supply & Demand

Exhibit 4: Investment flows hit record levels in 2021, with individual investors continuing to add to their municipal holdings

Monthly municipal bond fund net flows and muni index price history



Source: Strategic Insight (SI), Bloomberg, as of December 31, 2021. The Bloomberg Municipal Bond Index is an unmanaged index considered representative of the tax-exempt bond market. An investment cannot be made directly in an index.



Low supply vs high demand post 2020 combined with easy monetary policy led to all time low rates and tightening of credit spreads to present

10 YEAR MUNICIPAL MARKET DATA INDEX RATES FOR "AAA" RATING

Prepared by the Vermont Bond Bank



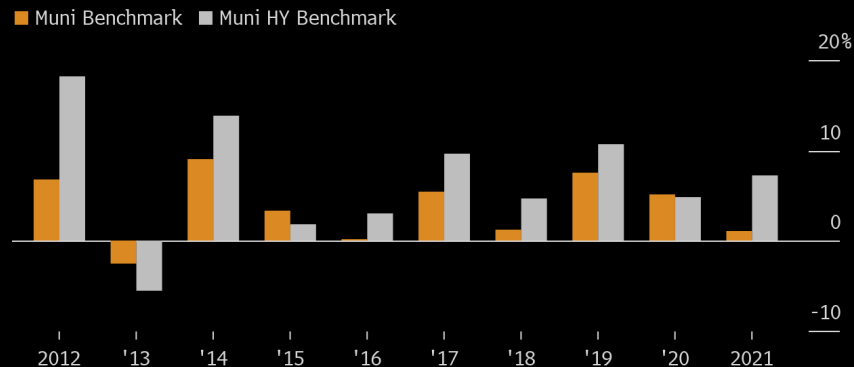
Low Rates / Credit Spreads Driving Interest in High Yield

Figure 14: Credit Spreads Are at Their Lowest Level Since the Great Financial Crisis



High-Yield Wins

Junk munis on track to beat market benchmark by most since 2012

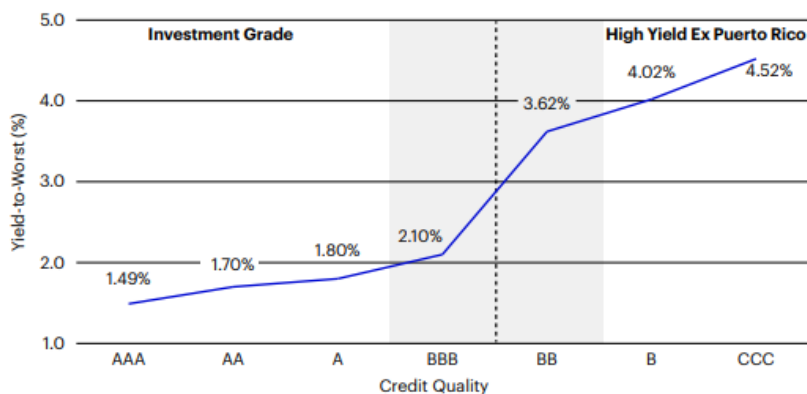


Source: Bloomberg Indices
Note: 2021 data is year-to-date to Nov. 12

Bloomberg

Exhibit 2: High yield municipals offered an attractive yield advantage over investment grade municipals at the end of 2021

Municipal bond yields across the credit spectrum



Source: Thompson Reuters, Bloomberg, Invesco. data as of December 31, 2021. Based on thirty-year maturities. Shaded area represents securities rated BBB (investment grade) to BB (high yield). Lower-rated municipal bonds involve a greater risk of default or price changes due to changes in the credit quality of the issuer. The values of such bonds fluctuate more than those of high-quality bonds in response to company, political, regulatory or economic developments. Values of these bonds can decline significantly over short periods of time. Investment grade is represented by the Bloomberg Municipal Bond Index. High Yield ex Puerto Rico is represented by the Bloomberg Municipal High Yield ex Puerto Rico Index.

Debt Placement Options

▪ **Public Offering**

- Competitive – FA puts deal together and municipal underwriting desks bid on set day and time
 - Frequent highly rated issuers
 - Stable economic conditions
 - State law
- Negotiated – underwriting desk discusses pricing with investors prior to sale
 - Good for lower rated and less frequent issuers
 - Critical for “story” credits
 - Public Offering

▪ **Limited Public Offering**

- Type of negotiated sale offered to accredited and institutional investors only
- Typically requires “big boy letter” and minimum denominations of \$100k or more
- Used for low investment grade, non-investment grade, and unrated offerings

▪ **Non-public Offering**

- Private Placement – direct sale to investor with offering memorandum
- Direct placement – sale of bonds to bank investor that is structured as a tax-exempt bank loan

Require public and on-going disclosure of financial reports as well as material events as required by the SEC

Benefits of Public Offering (i.e. Capital Markets)

Pros

- Amortizations of up to 30 + years
- Interest rates can be fixed for 30 years
- No prepayment penalties after call date
- 100% financing for project finance—generally, investors pursue cashflow based underwriting
- *Investors own tax risk*

Cons

- Optional redemption features typically occur after 8+ years (vs special redemption)
- Small deals difficult due to fixed transaction costs
- High technical / knowledge barriers
- Cost of issuance is higher
- High level of financial and operating disclosure

Issuer sells bonds to
underwriter less the takedown



Tax-Exempt Issuer



Underwriter



Investors

Underwriter sells bonds to
investors at the reoffering price

Survey of Broadband Related Security Structures*

Revenue Bond Structures

Lien on Broadband System

- Ex. EC Fiber
- Revenues and fees of the system

Lien on Established Utility Enterprise

- Ex. Longmont and Ft. Collins, CO
- Broadband activities included alongside existing electric utility revenues to support bonds

Lien on Sales Tax Revenue

- Ex. City of Rock Falls, IL; Lehi City, UT
- Sales tax revenue pledged given long history of receipts
- Broadband revenues also pledged but no history as start-up

General Obligation Bonds

Self-Supporting

- Ex. Town of Walpole, NH
- System operated by Consolidated Communications

Not Self-Supporting

- Ex. Kentucky Wired P3
- Availability payments made to concessionaire; no subject to appropriation risk
- State receives revenue but unclear if investments will be self-supporting in long run

"A number of uncertainties exist, including construction of the system itself, take rates, and competitive responses by commercial entities that offer internet, phone, and video services," S&P wrote. "In comparison with the general stability of public power electric utilities, the operating environment for telecommunications services is much more dynamic."

-- from *The Bond Buyer*, "Colorado cities flip the narrative on municipal broadband"

***Municipal structures only; research preliminary in nature**

Credit Analyst Approach to Broadband

No rating criteria from major rating agencies on broadband specifically exists given use of electric utilities, sales tax, and general obligation pledges to support security for bonds issued with public rating

MOODY'S MUNI UTILITY REVENUE DEBT

Municipal Utility Scorecard Factors

| Broad Scorecard Factors | Factor Weighting | Subfactors | Subfactor Weighting |
|-------------------------|------------------|--|---------------------|
| System Characteristics | 30% | Asset Condition (Remaining Useful Life) | 10% |
| | | Service Area Wealth (Median Family Income) | 12.5% |
| | | System Size (O&M) | 7.5% |
| Financial Strength | 40% | Annual Debt Service Coverage | 15% |
| | | Days Cash on Hand | 15% |
| | | Debt to Operating Revenues | 10% |
| Management | 20% | Rate Management | 10% |
| | | Regulatory Compliance and Capital Planning | 10% |
| Legal Provisions | 10% | Rate Covenant | 5% |
| | | Debt Service Reserve Requirement | 5% |
| Total | 100% | Total | 100% |

Factor 2: Financial Strength (40%)

EXHIBIT 3

| Financial Strength (40%) | Aaa | Aa | A | Baa | Ba | B and Below |
|------------------------------------|------------|-------------------------|------------------------|-----------------------|----------------------|-------------|
| Annual Debt Service Coverage (15%) | > 2.00x | 2.00x ≥ n > 1.70x | 1.70x ≥ n > 1.25x | 1.25x ≥ n > 1.00x | 1.00x ≥ n > 0.70x | ≤ 0.70x |
| Days Cash on Hand (15%) | > 250 Days | 250 Days ≥ n > 150 Days | 150 Days ≥ n > 35 Days | 35 Days ≥ n > 15 Days | 15 Days ≥ n > 7 Days | ≤ 7 Days |
| Debt to Operating Revenues (10%) | < 2.00x | 2.00x < n ≤ 4.00x | 4.00x < n ≤ 7.00x | 7.00x < n ≤ 8.00x | 8.00x < n ≤ 9.00x | ≥ 9.00x |

“...usually in a government-protected monopoly”

MOODY'S GENERAL PROJECT FINANCE

Generic Project Finance Scorecard

| Rating Factors | Factor Weighting | Sub-factors | Amortizing Debt Sub-factor Weighting | Non-amortizing Debt Sub-factor Weighting |
|-----------------------|------------------|--|--------------------------------------|--|
| Business Profile | 50% | Market Position | 25% | 25% |
| | | Predictability of Net Cash Flows | 25% | 25% |
| Operating Risk | 20% | Technology | 5% | 5% |
| | | Capital Reinvestment | 5% | 5% |
| | | Operating Track Record | 5% | 5% |
| | | Operator and Sponsor Experience, Quality and Support | 5% | 5% |
| Leverage and Coverage | 30% | Debt Service Coverage Ratio (DSCR) | 30% | 15% |
| | | Project Cash from Operations / Adjusted Debt | | 15% |
| Total | 100% | | 100% | 100% |

| Factor | Sub-factor Weight | Aaa | Aa | A | Baa | Ba | B | Caa | Ca | |
|--|-------------------|---|-----------|-----------|-----------|--------------|---------------|-------------|--------|--|
| DSCR | 30% | | | | | | | | | |
| DSCR (Cost Recovery) | | Score DSCR at the level of off-taker rating | | | | | | | | |
| DSCR (Low) ⁷ | | ≥ 5x | 3.5x - 5x | 2x - 3.5x | 1.4x - 2x | 1.15x - 1.4x | 1.05x - 1.15x | 1x - 1.05x | < 1x | |
| DSCR (Medium) ¹¹ | | ≥ 7x | 5x - 7x | 3.5x - 5x | 2x - 3.5x | 1.4x - 2x | 1.2x - 1.4x | 1.1x - 1.2x | < 1.1x | |
| DSCR (High) ¹¹ | | ≥ 10 | 7x - 10x | 5x - 7x | 3.5x - 5x | 2 - 3.5x | 1.4x - 2x | 1.2x - 1.4x | < 1.2x | |
| Project CFO/Adjusted Debt (Low) ¹⁵ | | ≥ 40% | 25% - 40% | 15% - 25% | 10% - 15% | 6% - 10% | 3% - 6% | 1% - 3% | < 1% | |
| Project CFO/Adjusted Debt (Medium) ¹⁶ | | ≥ 65% | 40% - 65% | 25% - 40% | 15% - 25% | 9% - 15% | 4% - 9% | 2% - 4% | < 2% | |
| Project CFO/Adjusted Debt (High) ¹⁷ | | ≥ 90% | 60% - 90% | 35% - 60% | 20% - 35% | 12% - 20% | 5% - 12% | 3% - 5% | < 3% | |

Intended for P3 structures that involve construction and start-up risk

Case Studies

LONGMONT COMBINED UTILITY (S&P UNDERLYING "A" RATING)

Below from 2018 rating report

- Secured by net revenue pledge of the combined electric and broadband system
- Rate covenant such that net revenues are equal to 125% principal and interest
- Service area at 120% of median HH income
- Broadband system has 51% take rate
- DCOH of 46 days
- Debt to capitalization of 36%
- Debt service coverage ratio of 3.77x
- 15% of \$82 mm in revenues from broadband

In our opinion, these strengths are tempered by the following weaknesses:

- LPC's recent development of its broadband system exposes it to potential financial uncertainty. The broadband industry is competitive by nature and the utility could rapidly face obsolescence as new technology emerges. However, the broadband utility has outperformed original expectations, and current take rates indicate a high degree of market penetration. Management also expects broadband revenues will be self-supporting in the future.

EC FIBER (UNRATED)

Below from 2021 Limited Offering Memorandum

- Secured by revenues of the broadband system including sale proceeds from any sale, lease, or disposition of the Network
- Fully debt funded debt service reserve fund
- Reserve and contingency fund equal tot \$50k plus \$200 per mile in excess of 235 miles
- Rate covenant such that net revenues are equal to 125% principal and interest
- Additional bonds test equal to 125% debt service coverage in consideration of additional bonds
- 1.77x debt service coverage
- 118% debt to capitalization
- 6.86x debt to revenues

Recommendations for future Broadband Debt

- Globally engage independent registered municipal advisor (“IRMA” or municipal advisor) to develop plan of finance and rating strategy for all CUDs
 - At time of pricing, can ensure fair price of the bonds as well as fair compensation of underwriter
- Globally engage bond counsel to avoid relearning tax issues in each CUD and standardize documentation to lower transaction costs and develop market
- Consider other shared service contracts and/or pre-qualified pool of bond specific professionals
 - Ex. independent third-party feasibility and market report to accompany bond offering if substantial amount of the revenues for repayment of the bonds is projected
- Identification of systems and amount of debt that may be substantially supported by a private entity, either through operations, guarantees, or some combination
 - Infrastructure Bill included expansion of Private Activity Bond authorization to broadband (allowing tax-exemption), if following met:
 - Qualifying projects provide broadband service to 1 or more census block groups in which more than 50 percent of residential households do not have access to fixed, terrestrial broadband service which delivers at least 25 megabits per second downstream and at least 3 megabits service upstream
 - Broadband can be provided to both residential and commercial locations, so long as 90% of such locations did not previously meet the speed criteria
 - New broadband speeds must be not less than 100 megabits per second for downloads and 20 megabits for second for uploads
 - Need to identify amount of volume cap that will be needed prior to debt being issued



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