

## CREDIT OPINION

22 March 2017

New Issue

Rate this Research >>

### Contacts

Dmitriy Plit 212-553-7463  
 AVP-Analyst  
 dmitriy.plit@moodys.com

David A. Parsons 212-553-4537  
 AVP-Analyst  
 david.parsons@moodys.com

# Massachusetts Clean Water Trust - Master Trust Agreement

New Issue - Moody's Assigns Aaa Rating To MA Clean Water Trust SRF Bonds, Series 20 (Green Bonds) and Series 2017

## Summary Rating Rationale

Moody's Investors Service has assigned a Aaa rating to the Massachusetts Clean Water Trust's (formerly known as Massachusetts Water Pollution Abatement Trust) proposed \$207.78 million State Revolving Fund Bonds, Series 20 (Green Bonds) and \$97.24 million State Revolving Fund Refunding Bonds Series 2017. The outlook on the rating is stable. Moody's maintains Aaa ratings with stable outlooks on all outstanding Master Trust Agreement (MTA), Pool Program senior and subordinate lien bonds, and all Massachusetts Water Resources Authority (MWRA) SRF senior and subordinate lien bonds.

The assignment of the Aaa rating is based on the projected default tolerance of 46% for all of Massachusetts Clean Water Trust's indentures combined, additional security from the deficiency fund and equity fund, and a large, highly rated pool of borrowers.

## Credit Strengths

- » The loan pool for all of the Trust's indentures could experience a significant, but highly unlikely, default of approximately 46% of the loan payments securing the bonds through final maturity of the bonds outstanding and all debt service payments would still be met.
- » The Master Trust Agreement, Pool Program, and the MWRA bonds are cross-collateralized via the deficiency fund and the equity fund, both of which capture de-allocated reserves and excess revenues from their related programs. These reserve accounts may be used to cure shortfalls in any series and any program across the trust indentures.
- » Large and diverse pool of underlying borrowers with sound credit characteristics, and no defaults on leveraged loans. Approximately 37% of the loans outstanding are to borrowers with loans that compose less than 1% of the pool.

## Credit Challenges

- » The Trust is exposed to counterparty risk, as its reserve investments are held in guaranteed investment contracts (GICs). However, funds held with counterparties rated below A1 have been haircut in the program cash flows and default tolerance.
- » The Trust has a large exposure to Massachusetts Water Resources Authority (MWRA), as MWRA holds 27% of all outstanding loans. This is mitigated by the credit strength of

MWRA which is rated Aa2 with a stable outlook (subordinate rating) and the diversity of entities that provide revenue to MWRA. In total, 61 entities provide revenue streams to MWRA.

## Rating Outlook

The stable outlook on the bonds reflects Moody's expectation that the strong credit quality and diversity of the loan pool, cash flow projections and counterparty profile will remain relatively stable.

## Factors that Could Lead to an Upgrade

» N/A

## Factors that Could Lead to a Downgrade

» A decrease in the available reserves and default tolerance levels or a material change in the credit quality of the pool or the investment providers could put downward pressure on the rating.

## Key Indicators

Exhibit 11

(Year Ending 12/31)	2016
Total of bonds outstanding (\$B)	2.8
Default tolerance	46%
Number of borrowers	293
Percentage of pool top 5	39.3%
Percentage of pool below 1%	36.7%
Total loans outstanding (\$B)	3.7

Bonds outstanding and loans outstanding reflects all cross-collateralized indentures, excluding the Series 20, and Series 2017 issuance. Number of borrowers is current as of February, 2017. Source: Massachusetts Clean Water Trust

## Recent Developments

Incorporated in the sections below.

## Detailed Rating Considerations

### Portfolio Size and Diversity: Strong Credit Quality of the Loan Portfolio Supports the Rating on the Bonds

Portfolio size and diversity also contributes to the strength of the program. The program has 293 borrowers with approximately \$3.90 billion in total loans outstanding (including the Series 20 issuance). Approximately 37% of the borrowers each comprise less than 1% of the pool. However, the program does have a large exposure to the Massachusetts Water Resources Authority (MWRA subordinate obligations to the Trust rated Aa2), which accounts for approximately 27% of loan obligations outstanding. However, MWRA has a very diverse revenue stream, with 61 entities providing revenue to MWRA. The top five borrowers in the pool comprise approximately 39% of the aggregate loans outstanding.

### Underlying Credit Quality and Default Tolerance: Cash Flows and Default Tolerance are Robust and Provide Additional Bondholder Security

The strong credit profile of individual borrowers in the pool is a key driver of the Aaa rating. The majority of loans carry a general obligation repayment pledge with the remaining districts and commissions making water and wastewater revenue pledges. There has never been a loan default or delinquent payment on a pledged loan in the history of the program. However, in the event that a borrower defaults on a loan payment, the Trust has the right to intercept local aid payments due from the Commonwealth to a city or town to make up the deficiency to the Trustee for bond payment.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on [www.moody's.com](http://www.moody's.com) for the most updated credit rating action information and rating history.

Loan repayments along with reserves, equity funds, and funds released under the MTA, Pool Program and single obligor programs provide sufficient cash flow to withstand a sizable but unlikely default of approximately 46% of the loan repayments through the life of the outstanding bonds and still make timely debt service payments. This default tolerance includes loans, bonds and reserves held under the MTA, Pool Program trust indenture, and the MWRA trust indenture. In the default tolerance analysis, investments with GICs from providers rated below A1 received partial credit per Moody's methodology, the Build America Bond subsidy payments were not included as revenue, and short term investment rates were 0%.

#### LIQUIDITY

The default tolerance and cash flow analysis discussed above demonstrate that the program has sufficient liquidity to withstand highly stressful levels of loan defaults and investment losses.

#### Legal Framework, Covenants, and Debt Structure: Cross Investment Lends Strength

The Series 20 bonds are issued under the Trust's Master Trust Agreement, which is an open indenture that allows additional parity debt. Bonds under the indenture are secured by loan repayments and agreements, contract assistance payments made by the Commonwealth of Massachusetts to the Trust on behalf of the borrowers, the program's Equity Fund, and debt service reserves if any. The Series 20 bonds will not have a debt service reserve, as overcollateralization for the series will be provided via pledged direct loan repayments.

The Master Trust Agreement is supported by an Equity Fund and will also receive excess revenues from each MTA series. The Equity Fund can receive releases from the Deficiency Fund, which secures the Pool Program and single obligor programs, to cure defaults within the MTA. Furthermore, the Equity Fund is available to cure deficiencies for the Pool Program and single obligor program bonds if needed.

The obligation of the Commonwealth under the contract assistance payments constitutes a general obligation of the Commonwealth (G.O. rated Aa1 with a Stable outlook), to which its full faith and credit is pledged. Upon receipt by the Trust, contract assistance monies are pledged to the repayment on the bonds.

The bonds in the Pool Program and single obligor indentures are payable by a combination of loan repayments to be made by borrowers, earnings on reserve funds pledged to the bonds funded from federal and state grants (reserves were typically funded in an amount between 33% and 50% of bonds outstanding), and Commonwealth contract assistance payments. The earnings on reserve funds for certain series and the Commonwealth contract assistance subsidize the borrowers' loan repayments. All of the bonds issued under the Pool Program and single obligor programs are also secured by a parity lien on de-allocated reserves (as loans are repaid, a proportional amount of reserves are released) and excess loan repayments from pledged direct loans as they flow through the flow of funds into the Deficiency Fund under the Program Resolution.

The sizable reserves under the Pool and Single Obligor programs are generally invested in GIC agreements. The Trust's reserves are held with the following investment providers: Citigroup (11%), FSA Capital Management Services (Guaranteed by Financial Security Assurance Inc) (20%), Natixis Funding Corp (Guaranteed by CDC Ixis)(15%), and Trinity Funding Company, LLC (17%). The remaining 37% of investments are in US Treasuries and Agencies.

The majority of the equity funds that support the MTA program are held in the Massachusetts municipal depository trust's cash and short-term bond portfolios.

#### DEBT STRUCTURE

All bonds under the indenture are fixed rate, fully amortizing bonds, with the exception of the Series 2006 refunding pool program bonds which carry an interest rate indexed to CPI.

#### DEBT-RELATED DERIVATIVES

In November 2006, the Trust entered into two CPI swaps with JP Morgan Chase Bank, NA associated with the Series 2006 refunding pool program bonds. The Series 2006-1 swap has a notional value of \$46.605 million and terminates on August 1, 2023. Under the agreement, the counterparty will pay the Trust CPI plus 0.99% and the Trust will pay 3.9%. The Series 2006-2 swap has a notional value of \$30.65 million and matures on August 1, 2022. Under the agreement, the counterparty will pay the Trust CPI plus 0.99%

and the Trust will pay 3.88%. Termination events include a downgrade of the Trust's parity bonds to below A3 or a downgrade of the counterparty's credit support provider to below Baa3.

#### PENSIONS AND OPEB

Not a material factor for this rating action.

#### Management and Governance

The authority has a long history of strong management of the programs, as evidenced by the strong credit quality of the borrowers included in the pool, the solid legal structure of the programs, and the strong performance of the program.

#### Legal Security

The bonds are special obligations of the Trust, payable solely from the funds pledged pursuant to the MTA including borrower payments, contract assistance payments, loans and financing agreements, and other funds held under the MTA including the principal in the Equity Fund.

#### Use of Proceeds

The Series 20 bonds are being issued to finance or refinance costs of certain wastewater and drinking water projects for governmental units or other eligible borrowers.

The Series 2017 bonds are being issued to advance refund a portion of certain previously issued bonds (Series 15, Series 16, and Series 2012)

#### Obligor Profile

The obligor is the Master Trust Agreement originally created in 2015. The purpose of the obligor is to provide financial assistance to local governments and other eligible borrowers in the Commonwealth under its State Revolving Fund program.

#### Methodology

The principal methodology used in this rating was U.S. State Revolving Fund Debt published in March 2013. Please see the Rating Methodologies page on [www.moody.com](http://www.moody.com) for a copy of this methodology.

#### Ratings

Exhibit 2

#### Massachusetts Clean Water Trust

Issue	Rating
State Revolving Fund Refunding Bonds Series 2017	Aaa
Rating Type	Underlying LT
Sale Amount	\$97,240,000
Expected Sale Date	04/13/2017
Rating Description	Revenue: Pool
State Revolving Fund Bonds, Series 20 (Green Bonds)	Aaa
Rating Type	Underlying LT
Sale Amount	\$207,780,000
Expected Sale Date	04/13/2017
Rating Description	Revenue: Pool

Source: Moody's Investors Service

© 2017 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MOODY'S PUBLICATIONS MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,500 to approximately \$2,500,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at [www.moody.com](http://www.moody.com) under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJKK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY200,000 to approximately JPY350,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

REPORT NUMBER

1064261