NEW ISSUE - BOOK-ENTRY ONLY **Ratings: See "Ratings"**

In the opinion of McCarter & English, LLP, Bond Counsel, based upon an analysis of existing law, assuming, among other matters, compliance with certain covenants, (i) interest on the Bonds is excluded from gross income for federal income tax purposes under the Internal Revenue Code of 1986, as amended, and (ii) interest on the Bonds is not a preference item for purposes of the federal individual alternative minimum tax. Under existing law, interest on the Bonds and any profit on the sale of the Bonds are exempt from Massachusetts personal income taxes and the Bonds are exempt from Massachusetts personal property taxes. Bond Counsel expresses no opinion regarding any other tax consequences related to the ownership or disposition of, or the accrual or receipt of interest on, the Bonds. See "TAX EXEMPTION" herein.

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY
$208,725,000
Refunding Revenue Bonds
Senior Series 2019-1

Dated: Date of Initial Delivery **Due: As shown on the inside cover**

The Refunding Revenue Bonds, Senior Series 2019-1 (the "Bonds") will be issued by the University of Massachusetts Building Authority (the "Authority") as fully registered bonds and will be registered in the name of Cede & Co., as nominee for The Depository Trust Company ("DTC"), New York, New York. Individual purchases of beneficial ownership of the Bonds will be made in book-entry form, in denominations of $5,000 or any integral multiple thereof. No physical delivery of the Bonds will be made to purchasers. So long as Cede & Co. is the registered owner of the Bonds, principal and semiannual interest are payable to DTC by U.S. Bank National Association, Boston, Massachusetts, as Trustee. See "BOOK-ENTRY ONLY SYSTEM" herein. Interest on the Bonds will be payable on November 1, 2019 and on each May 1 and November 1 thereafter or, if any such day is not a Business Day, the next Business Day. The Bonds, including the redemption terms of the Bonds, are more fully described herein under "THE BONDS."

The Bonds are special obligations of the Authority payable solely from funds provided under the Enabling Act (defined herein), the Project Trust Agreement (defined herein) and the Series Resolutions (defined herein), including payments made by the University of Massachusetts (the "University"), all as more fully described under "SECURITY AND SOURCES OF PAYMENT FOR THE BONDS" herein.

THE BONDS SHALL NOT BE DEEMED TO CONSTITUTE A GENERAL OBLIGATION OF THE AUTHORITY OR A DEBT OR LIABILITY OF THE COMMONWEALTH OR ANY POLITICAL SUBDIVISION THEREOF. NEITHER THE FAITH AND CREDIT NOR THE TAXING POWER OF THE COMMONWEALTH OR OF ANY POLITICAL SUBDIVISION THEREOF IS PLEDGED TO THE PAYMENT OF THE PRINCIPAL OF OR THE INTEREST ON THE BONDS. THE ENABLING ACT OF THE AUTHORITY DOES NOT IN ANY WAY CREATE A SO-CALLED MORAL OBLIGATION OF THE COMMONWEALTH OR ANY POLITICAL SUBDIVISION THEREOF TO PAY DEBT SERVICE WITH RESPECT TO THE BONDS. THE AUTHORITY DOES NOT HAVE TAXING POWER.

The Bonds are offered when, as and if issued by the Authority and received by the Underwriters, subject to the approval of legality by McCarter & English, LLP, Boston, Massachusetts, Bond Counsel. Certain legal matters will be passed upon for the Authority by its Disclosure Counsel, Hinckley, Allen & Snyder LLP, Boston, Massachusetts, and for the Underwriters by their counsel, Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts. PFM Financial Advisors LLC is serving as financial advisor. It is expected that the Bonds in definitive form will be available for delivery through DTC in New York on or about May 1, 2019.

Wells Fargo Securities **Citigroup**

Ramirez & Co., Inc.

March 29, 2019

$208,725,000
University of Massachusetts Building Authority
Refunding Revenue Bonds, Senior Series 2019-1

Dated: Date of Delivery **Due: May 1, as shown below**

Year	Principal Amount	Interest Rate	Yield	CUSIP[†] Number
2024	$ 6,670,000	5.000%	1.610%	914437TJ7
2025	13,650,000	5.000	1.680	914437TK4
2026	14,305,000	5.000	1.780	914437TL2
2027	14,995,000	5.000	1.850	914437TM0
2028	15,460,000	5.000	1.920	914437TN8
2029	16,220,000	5.000	2.010	914437TP3
2030	10,615,000	5.000	2.100[c]	914437TQ1
2031	11,140,000	5.000	2.180[c]	914437TR9
2032	11,695,000	5.000	2.290[c]	914437TS7
2033	12,285,000	5.000	3.340[c]	914437TT5
2034	12,905,000	5.000	2.380[c]	914437TU2
2035	12,450,000	5.000	2.430[c]	914437TV0
2036	13,070,000	5.000	2.490[c]	914437TW8
2037	13,720,000	5.000	2.540[c]	914437TX6
2038	14,410,000	5.000	2.580[c]	914437TY4
2039	15,135,000	5.000	2.620[c]	914437TZ1

[C] Yield determined as of the earliest call date of May 1, 2029.
[†] CUSIP is a registered trademark of the American Bankers Association. CUSIP data herein are provided by CUSIP Global Services, managed on behalf of The American Bankers Association by S&P Global Market Intelligence. The CUSIP numbers are included solely for the convenience of owners of the Bonds, and the Commonwealth is not responsible for the selection or the correctness of the CUSIP numbers printed herein. CUSIP numbers assigned to securities may be changed during the term of such securities based on a number of factors, including, but not limited to, the refunding or defeasance of such securities or the use of secondary market financial products.

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY

One Beacon Street, 31st Floor
Boston, Massachusetts 02108
Telephone: (617) 287-3200

Authority Members

Victor Woolridge, *Chairman*
Henry M. Thomas, III, *Vice Chair*
Mary Burns, *Secretary-Treasurer*
Gerry-Lynn Darcy, *Vice Chair*
James McGaugh
Michael J. O'Brien
Kelly O'Neill
Christopher Philbin
John T. Smolak
Charles Wu

Executive/Senior Staff

Patricia Filippone, *Executive Director*
David Mullen, *Deputy Director and General Counsel*
Jennifer Gonzalez, *Chief Financial Officer**
Michael Wilson, *Treasurer and Budget Director*
Joseph Naughton, *Director of Capital Projects*

Trustee
U.S. Bank National Association
Boston, Massachusetts

Bond Counsel
McCarter & English, LLP
Boston, Massachusetts

Financial Advisor
PFM Financial Advisors LLC
Boston, Massachusetts

Disclosure Counsel
Hinckley, Allen & Snyder LLP
Boston, Massachusetts

* See "THE AUTHORITY - Members, Officers and Staff" herein.

No dealer, broker, salesman or other person has been authorized by the University of Massachusetts Building Authority (the "Authority"), The Commonwealth of Massachusetts (the "Commonwealth"), the University of Massachusetts (the "University") or the Underwriters to give any information or to make any representation with respect to the Bonds other than as contained in this Official Statement and, if given or made, such other information or representation must not be relied upon as having been authorized by any of the foregoing. This Official Statement does not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of the Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale.

Certain information contained herein has been obtained from the Authority, the University, The Depository Trust Company and other sources which are believed to be reliable, but is not guaranteed as to accuracy or completeness, and is not to be construed as a representation of the Authority, the Commonwealth, the University or the Underwriters. The information and expressions of opinion herein are subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the parties referred to above since the date hereof.

U.S. Bank National Association by acceptance of its duties as Trustee under the Project Trust Agreement described herein has not reviewed this Official Statement and makes no representations as to the information contained herein, including but not limited to any representations as to the use of the proceeds of the Bonds or related activities.

All quotations from and summaries and explanations of provisions of laws, the Project Trust Agreement, the Contract, the Bonds, the Series Resolution and other documents herein do not purport to be complete; reference is made to said laws, the Project Trust Agreement, the Bonds and other documents for full and complete statements of their provisions. Copies of the above are available for inspection at the principal office of the Trustee.

Information included in this Official Statement includes forward-looking statements about the future that are necessarily subject to various risks and uncertainties ("Forward-Looking Statements"). These Forward-Looking Statements are (i) based on the beliefs and assumptions of management of the Authority and the University and on information currently available to such management and (ii) generally identifiable by words such as "estimates," "expects," "anticipates," "plans," "believes" and other similar expressions. Events that could cause future results to differ materially from those expressed in or implied by Forward-Looking Statements or historical experience include the impact or outcome of many factors that are described throughout this Official Statement. Although the ultimate impact of such factors is uncertain, they may cause future performance to differ materially from results or outcomes that are currently sought or expected by the Authority and the University.

References to web site addresses presented herein are for informational purposes only and may be in the form of a hyperlink solely for the reader's convenience. Unless specified otherwise, such web sites and the information or links contained therein are not incorporated into, and are not part of, this final official statement for purposes of, and as that term is defined in, SEC rule 15c2-12.

The financial advisor to the Authority has provided the following sentence for inclusion in this Official Statement. The financial advisor has reviewed the information in this Official Statement in accordance with, and as part of, its responsibilities to the Authority and, as applicable, to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the financial advisor does not guarantee the accuracy or completeness of such information.

THE UNDERWRITERS HAVE PROVIDED THE FOLLOWING SENTENCE FOR INCLUSION IN THIS OFFICIAL STATEMENT: THE UNDERWRITERS HAVE REVIEWED THE INFORMATION IN THIS OFFICIAL STATEMENT IN ACCORDANCE WITH, AND AS PART OF, THEIR RESPECTIVE RESPONSIBILITIES TO INVESTORS UNDER THE FEDERAL SECURITIES LAWS AS APPLIED TO THE FACTS AND CIRCUMSTANCES OF THIS TRANSACTION, BUT THE UNDERWRITERS DO NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF SUCH INFORMATION.

IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICES OF THE SECURITIES OFFERED HEREBY AT A LEVEL ABOVE THOSE WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

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OFFICIAL STATEMENT

University of Massachusetts Building Authority

$208,725,000
Refunding Revenue Bonds
Senior Series 2019-1

INTRODUCTORY STATEMENT

General

The purpose of this Official Statement, which includes the cover page and the appendices hereto, is to furnish information in connection with the offering by the University of Massachusetts Building Authority (the "Authority") of its Refunding Revenue Bonds, Senior Series 2019-1 (the "Bonds"). Unless otherwise defined herein, capitalized terms used herein shall have the meanings set forth in Appendix D **-** "Summary of Legal Documents."

The Bonds are issued pursuant to Chapter 773 of the Acts of 1960 of the Commonwealth of Massachusetts, as amended (the "Enabling Act") and the Trust Agreement dated as of November 1, 2000 (the "Project Trust Agreement"), between the Authority and U.S. Bank National Association, Boston, Massachusetts, as successor trustee (the "Trustee"). The Series 2019-1 Bonds are issued pursuant to the Series Resolution Authorizing the Issuance of Refunding Revenue Bonds, Senior Series 2019-1 (the "Series Resolution"), adopted by the Authority on February 14, 2019.

The Authority was created by the Enabling Act as a body politic and corporate and a public instrumentality of The Commonwealth of Massachusetts (the "Commonwealth") for the general purpose of aiding and contributing to the performance of the educational and other purposes of the University of Massachusetts (the "University") by providing dormitories, dining commons and other buildings and structures for the use of the University, its students, staff and their dependents and for lease to certain other entities related to the University, all in accordance with the Enabling Act. See "THE AUTHORITY."

The Bonds are being issued to refund a portion of the bonds listed on Appendix H (the "Refunded Bonds") and to pay costs of issuance of the Bonds.

The Enabling Act provides that any refunding of Authority indebtedness shall be approved by the Trustees of the University, which approval has been obtained with respect to the issuance of the Bonds.

The Bonds will be special obligations of the Authority payable solely from funds provided under the Enabling Act, the Project Trust Agreement and the Series Resolution, including payments made by the University under the Second Amended and Restated Master Contract for Financial Assistance, Management and Services dated as of May 1, 2019 (the "Contract") among the Commonwealth, acting by and through the University, the University and the Authority.

Under the Contract, the University is obligated to pay debt service on the Bonds and other costs of the Authority related thereto with respect to the Projects from all available funds of the University. See "SECURITY AND SOURCES OF PAYMENT FOR THE BONDS."

The obligations of the University in connection with the Bonds do not constitute a general obligation of the University or a debt or obligation of the Commonwealth, and (a) the Commonwealth shall not be obligated to pay the Bonds, and (b) neither the faith and credit nor the taxing power of the Commonwealth or of any political subdivision thereof is pledged to the payment of the Bonds. The Enabling Act does not in any way create a so-called moral obligation of the Commonwealth or of any political subdivision thereof to pay debt service with respect to the Bonds. The Authority does not have taxing power.

Purpose and Content of Official Statement

This Official Statement describes the terms and use of proceeds of, and security for, the Bonds. This introduction is subject in all respects to the additional information contained in this Official Statement, including Appendices A through H hereto. All descriptions of documents contained herein are only summaries and are qualified in their entirety by reference to each such document.

Information about the University is set forth in Appendix A. Financial Statements of the Authority and of the University, respectively, as of and for the fiscal years ended June 30, 2018 and 2017 are set forth in Appendices B and C. A summary of certain provisions of the Project Trust Agreement and the Contract is included as Appendices D-1 and D-2, respectively. The proposed form of opinion of Bond Counsel is included in Appendix E. Appendix F includes a form of the Continuing Disclosure Agreement with respect to the Authority and the University. Appendix G includes information about The Depository Trust Company and the book-entry only system. Appendix H includes information about the Refunded Bonds.

The summaries of the agreements and other documents herein do not purport to be comprehensive or definitive and all references to any contract, agreement and other document described herein are qualified in their entirety by reference to each such contract, agreement and other document. Definitive copies of all contracts, agreements and other documents described in the Official Statement are available for inspection prior to the date of issuance of the Bonds at the offices of the Authority, located at One Beacon Street, 31st Floor, Boston, Massachusetts 02108, and subsequent to the date of issuance of the Bonds, at the principal corporate trust office of the Trustee.

THE AUTHORITY

General

The Authority was created in 1960 by the Enabling Act as a body politic and corporate and a public instrumentality placed in the Commonwealth's Department of Education, but not subject to the supervision or regulation of that Department or of any other department, commission, board, bureau or agency of the Commonwealth except as specifically provided in the Enabling Act and described herein. In 1995, the Authority was consolidated with and assumed the obligations of the Southeastern Massachusetts Building Authority and the University of Lowell Building Authority, following the University of Lowell and Southeastern Massachusetts University, respectively, being made the University's Lowell Campus and Dartmouth Campus in 1991.

The Authority was created for the general purpose of aiding and contributing to the performance of the educational and other purposes of the University by providing dormitories, dining commons and other buildings and structures primarily for (i) the use of the University, its students, staff and their dependents, (ii) lease to or use by an organization or association of students or others, the activities of which are a part of the activities at the University and subject to regulation by the University, (iii) a research foundation or other research organization the operation of which is approved by the University or (iv) any other entity the activities of which are approved by the University as furthering the purposes of the University.

The Authority is empowered, among other things, to acquire, construct, remove, demolish, add to, alter, enlarge, reconstruct, remodel and do other work upon any building or structure and to provide and install furnishings, furniture, machinery, equipment, approaches, driveways, walkways, parking areas, planting, landscaping and other facilities therein. The Enabling Act authorizes the Authority, among other things, to acquire property from the Commonwealth or others (but the Authority has no eminent domain power), to rent or lease as lessor or lessee any portion of a project, to operate projects, to employ experts and other persons, to enter into contracts, to borrow money to finance and refinance projects it undertakes and to issue and sell its revenue bonds and notes therefor payable solely from its revenues.

The Authority's outstanding debt has primarily been issued under the Project Trust Agreement. This includes bonds that refunded debt previously issued by the Authority, the University of Lowell Building Authority, the Southeastern Massachusetts University Building Authority and the Massachusetts Development Finance Agency (or its predecessor authority). The Authority also has issued bonds under the Trust Agreement dated as of December 1, 2000 (the "Facilities Trust Agreement"), between the Authority and the Trustee. Such bonds are designated Facilities Revenue Bonds and are secured by amounts pledged therefor under the Facilities Trust Agreement and under contracts with the University executed in connection with the issuance of such bonds. Facilities Revenue Bonds, unlike bonds issued under the Project Trust Agreement, are not secured by all available funds of the University.

For information about outstanding indebtedness of the Authority, including the Authority's authorized $200 million commercial paper program, see Appendix A under the heading "INDEBTEDNESS OF THE UNIVERSITY - Bonds Issued by the Authority." See Appendix B for a copy of the Authority's audited financial statements as of and for the years ended June 30, 2018 and 2017.

Under the Enabling Act, the Authority may have up to $200 million principal amount of notes and bonds issued by the Authority that are outstanding and guaranteed by the Commonwealth. As of March 1, 2019, $112,105,000 principal amount of Commonwealth guaranteed bonds were outstanding, including all outstanding bonds issued under the Facilities Trust Agreement ($18,150,000 par amount) and $93,955,000 of bonds issued under the Project Trust Agreement.

The Bonds are not guaranteed by the Commonwealth.

The Enabling Act requires approval by the Treasurer and Receiver General of the Commonwealth and the Secretary of the Executive Office for Administration and Finance of the Commonwealth, or by their designees, of the sale and terms of bonds or notes sold by the Authority, which approval has been obtained by the Authority.

Members, Officers and Staff

The Authority consists of eleven members appointed by the Governor of the Commonwealth, five of whom shall be appointive members of the Board of Trustees of the University and may, but need not, be graduates of the University, and two others who shall be graduates of the University. Members from the Board of Trustees of the University serve while they are Trustees of the University; each other member serves for a term expiring on June 30 in the sixth calendar year after the calendar year in which his or her term began (unless appointed to fill a vacancy in which case such member shall serve for the unexpired term). Each member continues in office until his or her successor is appointed and qualified. The Authority annually elects a chairman and vice-chairman from its members and also elects a secretary-treasurer and may elect an assistant secretary-treasurer, neither of whom needs to be a member of the Authority.

The present members and officers of the Authority and the dates of expiration of their respective terms are as follows:

Member's Name, Position, Residence and Profession	Term Expires
Mr. Victor Woolridge,[*] Chair, Springfield Vice President, Barings	September 1, 2019
Henry M. Thomas, III,[*] Vice Chair, Springfield President and Chief Executive Officer, Urban League of Springfield, Inc.	September 13, 2017
Mary Burns,[*] Secretary/Treasurer, Lowell Principal, Splash Media Group Boston, LLC and Principal, Chesapeake Outdoor, LLC	September 1, 2021
Gerry-Lynn Darcy, Vice Chair, Middleton Vice President of Real Estate, Lupoli Companies	June 30, 2022
James McGaugh, Member, Needham Executive Director & Counsel, US State and Local Government Affairs, General Electric	June 30, 2020
Mr. Michael J. O'Brien, Member, Southborough Executive Vice President, WinnCompanies	September 1, 2021
Kelly O'Neill, Member, Danvers Senior Associate, BSC Group	June 30, 2023

Christopher Philbin, Member, West Boylston VP for Government and Community Relations, UMass Memorial Health Care, Inc.	June 30, 2019
John T. Smolak, Member, North Andover Partner and Co-Founder, Smolak & Vaughan LLP	June 30, 2021
Charles Wu,* Member, Newton Managing Director, BayNorth Capital	September 1, 2021

There is one vacancy on the Authority Board.

* University Trustee member of Authority Board. Pursuant to the Enabling Act, the members who are appointive members of the University Trustees shall continue in office as members of the Authority so long as they continue in office as University Trustees. The date indicated is the expiration date of such member's term as a University Trustee.

Patricia Filippone is the Executive Director and Assistant Secretary-Treasurer of the Authority. Prior to joining the Authority in June 2012, Ms. Filippone served in various positions at The Broad Institute since 2008, including Chief Financial Officer and Assistant Treasurer, Senior Financial Officer and Controller. Previously, she was Director of Allston Finance at Harvard University. Prior to that, Ms. Filippone was at the Massachusetts Water Resources Authority for 12 years in various positions, including as Director of Finance and Chief Financial Officer, Treasurer and Controller. She began her career at Coopers & Lybrand and has been a Certified Public Accountant since 1991. She received a B.S. from Babson College.

David P. Mullen, Esq. is the Deputy Director and General Counsel of the Authority. Prior to joining the Authority in June 2015, Mr. Mullen was in private practice from December 2002. Previously, he served as the First Deputy General Counsel for the Massachusetts Bay Transportation Authority from August 2000 to November 2002. Prior to that Mr. Mullen was at the Massachusetts Highway Department from August 1992 to August 2000; serving as its Chief Counsel from 1998 to 2000. Mr. Mullen has also been an adjunct professor at law at the New England School of Law, Southern New England School of Law and Quincy College teaching various classes beginning in 1992 to present. After graduating from Suffolk University Law School in 1988, Mr. Mullen was appointed as an Assistant District Attorney in Suffolk County, Massachusetts. He has been a member of the Massachusetts Bar for 28 years and is a member of the Federal Bar.

Jennifer Gonzalez is the Chief Financial Officer of the Authority. Ms. Gonzalez has announced her resignation from the Authority effective April 19, 2019. The Authority will commence a search for a new Chief Financial Officer and in the interim will name an acting or temporary person to serve in that capacity.

Michael Wilson is the Treasurer and Budget Director of the Authority. Previously, Mr. Wilson worked as the Acting Budget Director for the Massachusetts Department of Transportation where he managed a $1.3 billion operating and capital budget. Prior to that, he was the Budget Director for the Massachusetts Turnpike Authority. Mr. Wilson received a B.S. in Business Administration from Salem State University.

Joseph Naughton is the Director of Capital Projects of the Authority. Previously, Mr. Naughton worked for the University's President's Office since 2006 in various positions, including as Director of Budget and Planning and Assistant Budget Director and Manager of Capital Planning. Prior to that, he was the Bond Fund Manager of the Capital Expenditure and Program Office for the Commonwealth's Department of Transportation. Mr. Naughton received a B.S. in Accounting from the Carroll School of Management at Boston College.

THE BONDS

General

The Bonds will be issued as fully registered bonds in the aggregate principal amounts as set forth on the inside cover page hereof, will be dated the date of delivery and will bear interest from that date to their respective maturities as set forth on the inside cover page hereof, subject to redemption as described below. Ownership interests in the Bonds will be available in denominations of $5,000 and integral multiples thereof. Interest on the Bonds will be payable on November 1, 2019 and on each May 1 and November 1 thereafter or, if any such day is not a Business Day, the next Business Day.

So long as Cede & Co. is the registered owner of Bonds, all payments of principal and interest on the Series Bonds are payable by wire transfer by the Trustee to Cede & Co., as nominee for The Depository Trust Company ("DTC"), New York, New York, which will, in turn, remit such amounts to the DTC Participants for subsequent disposition to Beneficial Owners. See Appendix G - "Book-Entry Only System" herein.

Redemption Provisions

Optional Redemption of the Bonds. The Bonds maturing on or after May 1, 2030 are subject to optional redemption prior to their stated maturity date on or after May 1, 2029 at the option of the Authority, in whole or in part, at any time, at a Redemption Price equal to the principal amount of such Bonds or portion thereof to be redeemed, without premium, plus interest accrued thereon to the date fixed for redemption. Any optional redemption may be stated to be conditional, and shall be conditioned upon the Trustee's receipt of funds sufficient to pay the Redemption Price of the Bonds to be redeemed on or prior to the Redemption Date.

Notice of Redemption. The Trustee is required to give notice of redemption of any Bonds, specifying the date of redemption, the portions of the principal amounts thereof to be redeemed and the redemption price, by mail, not more than sixty (60) days nor less than thirty (30) days prior to the redemption date, to the registered owners of any Bonds, or portions thereof, to be redeemed. Notice of redemption will be mailed to DTC or its nominee, as registered owner of the Bonds. Any notice of optional redemption may be conditional. The Trustee will not be responsible for mailing notices of redemption to anyone other than DTC or its nominee. The Authority is not responsible for mailing any notice of redemption.

Selection of Bonds To Be Redeemed Upon Partial Redemption. If less than all of the Bonds or a series are to be redeemed, the particular maturities of the series of Bonds to be redeemed at the option of the Authority will be determined by the Authority in its sole discretion.

If the Bonds are registered in book-entry only form and so long as DTC or a successor securities depository is the sole registered owner of such Bonds, if less than all of the Bonds of a maturity are called for prior redemption, the particular Bonds or portions thereof to be redeemed shall be selected on a pro rata pass-through distribution of principal basis in accordance with DTC procedures, provided that, so long as the Bonds are held in book-entry form, the selection for redemption of such Bonds shall be made in accordance with the operational arrangements of DTC then in effect, and, if the DTC operational arrangements do not allow for redemption on a pro rata pass-through distribution of principal basis, the Bonds will be selected for redemption, in accordance with DTC procedures, by lot.

The Authority intends that redemption allocations made by DTC be made on a pro rata pass-through distribution of principal basis as described above. However, neither the Authority nor the Underwriters can provide any assurance that DTC, DTC's direct and indirect participants or any other intermediary will allocate the redemption of Bonds on such basis.

Effect of Redemption. Notice of redemption having been given in the manner provided above, money sufficient for the redemption being held by the Trustee for such purpose, the Bonds so called for redemption shall become due and payable on the redemption date, and interest thereon shall cease to accrue and the owners of the Bonds so called for redemption shall thereafter no longer have any security or benefit under the Project Trust Agreement except to receive payment of the redemption price for such Bonds.

SECURITY AND SOURCES OF PAYMENT FOR THE BONDS

General

The Bonds are special obligations of the Authority payable solely from the funds provided under the provisions of the Enabling Act, the Project Trust Agreement and the Series Resolution, including payments received from the University under the Contract.

Pursuant to the Contract, the University is obligated to make payments to the Authority to pay debt service on the Bonds and other costs related to the Bonds and the Projects. Such payments are secured by a pledge of the University of all available funds of the University, including trust funds and other funds administered by the University as gifts, grants or trusts, or as provided in the University's enabling act. Further, under the Contract, the University is obligated to cause to be available Spendable Cash and Investments (defined under "Contract" below) at all times amounts sufficient to pay such costs.

However, the Bonds themselves do not constitute a general obligation of the University or a debt or obligation of the Commonwealth, and (a) the Commonwealth shall not be obligated to pay the Bonds, and (b) neither the faith and credit nor the taxing power of the Commonwealth or of any political subdivision thereof is pledged to the payment of the Bonds. The Enabling Act does not in any way create a so-called moral obligation of the Commonwealth or of any political subdivision thereof to pay debt service with respect to the Bonds. The Authority does not have taxing power.

Contract

The following is a brief overview of the terms of the Contract. For more details, see Appendix D-2 - "Summary of Certain Provisions of the Contract."

In connection with the issuance of the Bonds, the Authority and the University will certify that the Bonds are subject to the Contract.

Under the Contract, the University has agreed to remit to the Trustee amounts sufficient to pay debt service on the Authority bonds and notes that are secured by the Contract, including the Bonds, and to maintain, repair and operate the projects financed or refinanced by such bonds or notes.

The Contract also sets forth the Authority's and the University's respective obligations with respect to the projects that are the subject of the Contract, including, as applicable, acquisition, planning, construction, completion, operation, management, maintenance and repair thereof.

Under the Contract, the Authority shall annually certify by March 1 to the University for the twelve-month period commencing the next succeeding November 1, the amount estimated to cover the costs of debt service and other related expenses, including amounts to be funded under the Project Trust Agreement or Facilities Trust Agreement, as applicable, and costs related to the projects that are the subject of the Contract, in each case detailed by component of the financed projects. Such certificate, which may be revised from time to time as necessary, shall include the date on which such amounts are due and the source of such payments. For any project operated by the Authority for which the Authority sets rates and charges for such project, such certificate shall detail the fees, rents, rates and other charges proposed for the use of such projects, which shall be fixed so as to be sufficient, in the aggregate, together with other available moneys, to cover all of the costs allocable to such projects.

Under the Contract, the University pledges to the making of payments required thereunder from all available funds of the University, including trust funds and other funds administered by the University as gifts, grants or trusts. In addition, the University shall cause to be available Spendable Cash and Investments at all times amounts sufficient to pay such portion of the amounts certified by the Authority required to be paid therefrom and to provide for any other payments required under the MDFA Financing Agreements (as defined in Appendix D and referred to below under "Additional Indebtedness"). This pledge of the general obligation of the University does not apply to certain projects, referred to in the Contract as "Specific Revenue Projects" and bonds or notes related thereto.

"Spendable Cash and Investments" represents all accumulated unrestricted funds of the University available to pay debt service on the Bonds and other obligations under the Contract and, as of May 1, 2019, shall mean the sum of University cash and investments less debt service reserve funds, plus University of Massachusetts Foundation, Inc. cash and investments plus pledges receivable reported in permanently restricted net assets, less University permanently restricted net assets, less University of Massachusetts Foundation, Inc. permanently restricted net assets. Previously, such accumulated unrestricted funds were measured by reference to the Expendable Fund Balance or Unrestricted Net Assets. See Appendix D. The Contract is being amended and restated as of May 1, 2019 to reflect a definition that more accurately reflects accumulated unrestricted funds of the University. See Appendix A under the headings "INDEBTEDNESS OF THE UNIVERSITY – Bonds Issued by UMBA" and "- Spendable Cash and Investments" and Appendix D.

By April 1 of each year, the University Treasurer shall certify in writing to the Authority whether or not there are sufficient funds in Spendable Cash and Investments to pay the amounts so required to be paid therefrom and, if so, that such funds will be held in trust in Spendable Cash and Investments for the equal and ratable benefit of the Authority and each other person or entity for whose benefit amounts will be applied to the payment of amounts required to be paid therefrom and will not be expended for any other purpose. Such funds will be so held and not expended for any other purpose; provided, however, that if any portion of the amount to be paid to the Authority is paid from gifts or trust funds or funds generated by the Authority from projects, then after any such payment an amount equal to such portion so paid need no longer be held in Spendable Cash and Investments.

If such certification states that sufficient funds are not available in Spendable Cash and Investments to pay such amounts, such certification shall state the amount of funds so available and ratably portion of such funds and hold them in trust for the benefit of the Authority to be applied pro rata. Notwithstanding any shortfall, the University will continue to be obligated to make payments in full. Further, under the Contract, the Authority is authorized to adopt or revise fee and other charges for the use of its projects and to bill and collect from students in the University the amounts necessary to cover any such shortfall. To date, there has never been such a shortfall.

Pledge of Revenues Under the Project Trust Agreement

The following is a brief overview of certain terms of the Project Trust Agreement. For more details, see Appendix D-1 **-** "Summary of Certain Provisions of the Project Trust Agreement."

Under the Project Trust Agreement the Authority assigns, pledges and grants to the Trustee a security interest in all rights of the Authority under the Contract to receive amounts payable to the Authority thereunder.

Under the Project Trust Agreement the Authority pledges to the Trustee for the benefit of the holders of the Bonds and all other bonds issued under the Project Trust Agreement (i) all moneys paid or payable for deposit in or on deposit in any Fund, Account or subaccount created under the Project Trust Agreement, all investments received or receivable for deposit in or on deposit in any Fund, Account or subaccount created under the Project Trust Agreement and all interest or other income on such investments paid or payable for deposit in or on deposit in any Fund, Account or subaccount created thereunder and all rights of the Authority to receive such moneys, investments and interest or other income (except for the Rebate Fund), subject to application of such moneys, investments and other income as provided in the Project Trust Agreement and (ii) subject to the Project Trust Agreement, (a) the Revenues from each project financed or refinanced under the Project Trust Agreement and (b) the Revenues, including Secondary Revenues payable to the Authority from Other Projects, except as set forth in the Project Trust Agreement.

Pursuant to the Enabling Act, Revenues pledged by the Project Trust Agreement and received by the Authority in connection with the projects financed or refinanced by any Series of bonds issued under the Project Trust Agreement are pledged to the payment of the principal of and interest on all Outstanding bonds under the Project Trust Agreement as they become due, the redemption price or the purchase price of Outstanding bonds redeemed or purchased as provided in the Project Trust Agreement and other costs payable with respect to Outstanding bonds under the Project Trust Agreement. As of March 1, 2019, there was $2,798,430,000 principal amount of bonds outstanding under the Project Trust Agreement.

Rate Covenant

Under the Project Trust Agreement, the Authority covenants that it will fix, revise, adjust and collect fees, rents, rates and other charges for the use of each Project and any other projects or property the Revenues from which are pledged under such Project Trust Agreement to provide Revenues sufficient in the aggregate to pay all expenses of the Authority allocable to projects financed or refinanced under the Project Trust Agreement and debt service on all bonds issued and Outstanding under the Project Trust Agreement, all as set forth in Appendix D-1 - "Summary of Legal Documents."

Additional Indebtedness

The Project Trust Agreement provides that the Authority may issue additional bonds on a parity with or subordinate to the Bonds issued under the Project Trust Agreement. See Appendix D-1 - "Summary of Certain Provisions of the Project Trust Agreement."

For a description of the Authority's indebtedness, see Appendix B.

Pursuant to certain financing agreements between the University, acting in the name and on behalf of the Commonwealth, and the Massachusetts Health and Educational Facilities Authority and its successor, the Massachusetts Development Finance Agency, in connection with the issuance of other debt for the University, the University agreed not to request or permit the Authority to issue additional indebtedness on behalf of the University except (i) indebtedness that is payable from all available funds of the University or (ii) indebtedness secured by pledged revenues derived from the project or projects being financed, new or increased student fees, existing pledged revenues or any combination of the foregoing, provided, that the maximum annual debt service on all such revenue-backed indebtedness then outstanding, including the proposed additional indebtedness, does not exceed 10% of the amount shown on the then most recent audited financial statements of the University as total available revenues. In addition, no such indebtedness shall be subject to acceleration.

For a description of the University's indebtedness, see Appendix A.

Annual Debt Service Requirements

The following table sets forth for each fiscal year ending June 30 the debt service on Outstanding bonds under the Project Trust Agreement (excluding the Refunded Bonds) and the Facilities Trust Agreement, following the issuance of the Bonds, including principal (whether at maturity or by mandatory sinking fund redemption), interest and total debt service.

Fiscal Year	Debt Service on Outstanding Authority Bonds*	Bonds Principal	Bonds Interest	Bonds Debt Service	Total Outstanding Bonds Debt Service
2019	$228,172,452	$ -	$ -	$ -	$228,172,452
2020	211,443,403	-	10,436,250	10,436,250	221,879,653
2021	211,341,651	-	10,436,250	10,436,250	221,777,901
2022	199,767,465	-	10,436,250	10,436,250	210,203,715
2023	199,938,764	-	10,436,250	10,436,250	210,375,014
2024	193,645,857	6,670,000	10,436,250	17,106,250	210,752,107
2025	169,982,096	13,650,000	10,102,750	23,752,750	193,734,846
2026	173,138,409	14,305,000	9,420,250	23,725,250	196,863,659
2027	169,166,212	14,995,000	8,705,000	23,700,000	192,866,212
2028	168,222,340	15,460,000	7,955,250	23,415,250	191,637,590
2029	161,830,998	16,220,000	7,182,250	23,402,250	185,233,248
2030	158,211,008	10,615,000	6,371,250	16,986,250	175,197,258
2031	141,747,238	11,140,000	5,840,500	16,980,500	158,727,738
2032	142,470,280	11,695,000	5,283,500	16,978,500	159,448,780
2033	134,371,092	12,285,000	4,698,750	16,983,750	151,354,842
2034	118,720,106	12,905,000	4,084,500	16,989,500	135,709,606
2035	134,883,597	12,450,000	3,439,250	15,889,250	150,772,847
2036	148,617,065	13,070,000	2,816,750	15,886,750	164,503,815
2037	148,053,515	13,720,000	2,163,250	15,883,250	163,936,765
2038	140,553,184	14,410,000	1,477,250	15,887,250	156,440,434
2039	146,740,568	15,135,000	756,750	15,891,750	162,632,318
2040	139,101,906	-	-	-	139,101,906
2041	137,625,372	-	-	-	137,625,372
2042	107,751,514	-	-	-	107,751,514
2043	107,756,457	-	-	-	107,756,457
2044	102,330,239	-	-	-	102,330,239
2045	77,185,003	-	-	-	77,185,003
2046	42,818,581	-	-	-	42,818,581
2047	20,939,200	-	-	-	20,939,200
2048	20,935,500	-	-	-	20,935,500

*Includes interest on the Authority's Project Revenue Bonds, Senior Series 2008-1, Facilities Revenue Bonds, Senior Series 2008-A Bonds, Project Revenue Bonds, Senior Series 2011-1 Bonds and Project Revenue Bonds, Senior Series 2011-2, each issued as variable rate debt, Outstanding as of March 1, 2019 in the principal amounts of $163,115,000, $18,150,000, $123,540,000 and $93,955,000, respectively, and amortizing in accordance with the terms thereof, assumed at the rates of 3.388%, with respect to the 2008-01 Bonds; 3.378%, with respect to the 2008-A Bonds; and 3.482% with respect to the 2011-1 Bonds and 2011-2 Bonds. These assumed rates are based on the fixed rates being paid to the counterparties under interest rate swap agreements associated with such bonds. See Note 6 to the Financial Statements of the Authority as of and for the years ended June 30, 2018 and 2017 attached hereto as Appendix B and see also Appendix A under the heading "INDEBTEDNESS OF THE UNIVERSITY - Bonds Issued by the Authority - Interest Rate Swap Agreement." With respect to the Authority's Project Revenue Bonds, Senior Series 2009-2 and Project Revenue Bonds, Senior Series 2010-2, which were issued as so-called "Build America Bonds" under the American Recovery and Reinvestment Act of 2009 outstanding as of March 1, 2019 in the aggregate principal amount of $702,175,000 and amortizing in accordance with the terms thereof, interest excludes the cash subsidy payments expected to be received from the United States Department of the Treasury.

PLAN OF REFUNDING

A portion of the proceeds of the Bonds will be used to redeem the Refunded Bonds listed in Appendix H on May 1, 2019 (the "Redemption Date"), the date of issuance of the Bonds, at the redemption prices plus accrued interest on the Refunded Bonds to the Redemption Date, as set forth in Appendix H.

APPLICATION OF PROCEEDS OF THE BONDS AND EQUITY CONTRIBUTION

Redemption of the Refunded Bonds	$263,212,861
Deposit to the Cost of Issuance Account (including underwriters' discount)	1,448,494
Total	$264,661,355

LITIGATION

There is no litigation of any nature now pending or, to the knowledge of the Authority, threatened seeking to restrain or enjoin or restraining or enjoining the issuance, sale, execution or delivery of the Bonds or in any way contesting the validity of the Bonds or any proceedings of the Authority taken with respect to the issuance or sale thereof, the validity of the Contract, or any proceedings of the Authority or of the Commonwealth taken with respect thereto, or of the pledge of any moneys or security provided under the Project Trust Agreement for the payment of the Bonds or the existence or powers of the Authority or the titles of its officers to their offices.

See Appendix A under the caption "LITIGATION" for information about the University.

LEGALITY FOR INVESTMENT

As declared by the Enabling Act, the Bonds are securities in which all public officers and public bodies of the Commonwealth and its political subdivisions, all savings banks, insurance companies, trust companies in their commercial departments and, within the limits set by Section 40 of Chapter 172 of the General Laws of the Commonwealth, banking associations, investment companies, executors, trustees and other fiduciaries, and all other persons whatsoever who are now or may hereto be authorized to invest in bonds or other obligations of a similar nature, may properly and legally invest funds, including capital, in their control or belonging to them. The Bonds are securities which may properly and legally be deposited with and received by any state or municipal officer or any agency or political subdivision of the Commonwealth for any purpose for which the deposit of bonds or other obligations of the Commonwealth is now or may hereto be authorized by law.

TAX EXEMPTION

In the opinion of McCarter & English, LLP, Bond Counsel ("Bond Counsel"), based upon an analysis of existing laws, regulations, rulings, and court decisions, and assuming, among other matters, compliance with certain covenants, (i) interest on the Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the "Code"), and (ii) interest on the Bonds is not a preference item for purposes of the federal individual alternative minimum tax. Bond Counsel expresses no opinion regarding any other federal tax consequences arising with respect to the ownership or disposition of, or the accrual or receipt of interest on, the Bonds.

The Code imposes various requirements relating to the exclusion from gross income for federal income tax purposes of interest on obligations such as the Bonds. Failure to comply with these requirements may result in interest on the Bonds being included in gross income for federal income tax purposes, possibly from the date of original issuance of the Bonds. The Authority and the University have covenanted to comply with such requirements to ensure that interest on the Bonds will not be included in federal gross income. The opinion of Bond Counsel assumes compliance with these covenants.

Bond Counsel is also of the opinion that, under existing law, interest on the Bonds and any profit on the sale of the Bonds are exempt from Massachusetts personal income taxes and that the Bonds are exempt from Massachusetts personal property taxes. Bond Counsel expresses no opinion regarding any other Massachusetts tax consequences arising with respect to the Bonds. Prospective Bondowners should be aware, however, that the Bonds are included in the measure of Massachusetts estate and inheritance taxes, and the Bonds and the interest thereon are included in the measure of certain Massachusetts corporate excise and franchise taxes. Bond Counsel has not opined as to the taxability of the Bonds or the income therefrom under the laws of any state other than Massachusetts. A complete copy of the proposed form of opinion of Bond Counsel is set forth in Appendix E hereto.

To the extent the issue price of any maturity of the Bonds is less than the amount to be paid at maturity of such Bonds (excluding amounts stated to be interest and payable at least annually over the term of such Bonds), the difference constitutes "original issue discount," the accrual of which, to the extent properly allocable to each owner thereof, is treated as interest on the Bonds which is excluded from gross income for federal income tax purposes and is exempt from Massachusetts personal income taxes. For this purpose, the issue price of a particular maturity of the Bonds is the first price at which a substantial amount of such maturity of the Bonds is sold to the public (excluding bond houses, brokers, or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers). The original issue discount with respect to any maturity of the Bonds accrues daily over the term to maturity of such Bonds on the basis of a constant interest rate compounded semiannually (with straight-line interpolations between compounding dates). The accruing original issue discount is added to the adjusted basis of such Bonds to determine taxable gain or loss upon disposition (including sale, redemption, or payment on maturity) of such Bonds. Prospective Bondowners should consult their own tax advisors with respect to the tax consequences of ownership of Bonds with original issue discount, including the treatment of purchasers who do not purchase such Bonds in the original offering to the public at the first price at which a substantial amount of such Bonds is sold to the public.

The Bonds purchased, whether at original issuance or otherwise, for an amount greater than the stated principal amount to be paid at maturity of such Bonds, or, in some cases, at the earlier redemption date of such Bonds ("Premium Bonds"), will be treated as having amortizable bond premium for federal income tax purposes and Massachusetts personal income tax purposes. No deduction is allowable for the amortizable bond premium in the case of obligations, such as the Premium Bonds, the interest on which is excluded from gross income for federal income tax purposes. However, a Bondowner's basis in a Premium Bond will be reduced by the amount of amortizable bond premium properly allocable to such Bondowner. Holders of Premium Bonds should consult their own tax advisors with respect to the proper treatment of amortizable bond premium in their particular circumstances.

Prospective Bondowners should be aware that certain requirements and procedures contained or referred to in the Agreement and other relevant documents may be changed and certain actions (including, without limitation, defeasance of the Bonds) may be taken or omitted under the circumstances and subject to the terms and conditions set forth in such documents. Bond Counsel has not undertaken to determine (or to inform any person) whether any actions taken (or not taken) or events occurring (or not occurring) after the date of issuance of the Bonds may adversely affect the value of, or the tax status of interest on, the Bonds.

Any federal, state or local legislation, administrative pronouncement or court decision (any such legislation, administrative pronouncement or court decision constitution a "Governmental Action") may affect (i) the tax status (whether or not discussed herein or address in the opinion of Bond Counsel) of the Bonds (including without limitation any exemption under applicable federal, state or local law from otherwise applicable taxes with respect to the (a) interest on the Bonds, (b) gain from the sale or other disposition of the Bonds, or (c) value of the Bonds or (ii) the market price or marketability of the Bonds. The impact of any Governmental Action cannot be predicted. Prospective Bondowners are encouraged to consult their personal or institutional tax and financial advisors with respect to the tax and financial aspects of ownership of the Bonds.

Although Bond Counsel is of the opinion that interest on the Bonds is excluded from gross income for federal income tax purposes and is exempt from Massachusetts personal income taxes, the ownership or disposition of, or the accrual or receipt of interest on, the Bonds may otherwise affect a Prospective Bondowner's federal or state tax liability. The nature and extent of these other tax consequences will depend upon the particular tax status of the Prospective Bondowner or the Prospective Bondowner's other items of income, deduction or exclusion. Bond Counsel expresses no opinion regarding any such other tax consequences, and Bondowners should consult with their own tax advisors with respect to such consequences.

On the date of delivery of the Bonds, the original purchasers of the Bonds will be furnished with an opinion of Bond Counsel substantially in the applicable form shown in "Proposed Form of Opinion of Bond Counsel" attached hereto as Appendix E.

RATINGS

The Bonds have been rated “AA,” “Aa2” and “AA-”, respectively, by Fitch Ratings, Inc., Moody’s Investors Service and S&P Global Ratings.

Such ratings reflect only the respective views of such organizations, and an explanation of the significance of such ratings may be obtained from the rating agency furnishing the same. There is no assurance that a rating will continue for any given period of time or that a rating will not be revised or withdrawn entirely by any or all of such rating agencies, if in its or their judgment, circumstances so warrant. Any downward revision or withdrawal of a rating could have an adverse effect on the market prices of the Bonds.

LEGAL MATTERS

All legal matters related to the authorization and issuance of the Bonds are subject to the approval of McCarter & English, LLP, Boston, Massachusetts, Bond Counsel for the Authority. The approving opinion of Bond Counsel, substantially in the form attached hereto as Appendix E, will be delivered on the date of delivery of the Bonds. Certain matters will be passed upon for the Authority by its Disclosure Counsel, Hinckley, Allen & Snyder LLP, Boston, Massachusetts and for the Underwriters by their counsel, Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts.

DISCLOSURE CERTIFICATES

At the time of delivery of the Bonds, the Executive Director of the Authority will furnish a certificate to the effect that, to the best of her knowledge and belief, the Preliminary Official Statement as of its date and as of the date of the Official Statement and the Official Statement as of its date and as of the date of delivery of the Bonds did not contain any untrue statement of a material fact and do not omit to state a material fact necessary to make the statements made therein, in the light of the circumstances under which they are made, not misleading. To the extent that such certificate covers information regarding the University, the Executive Director of the Authority will rely solely upon the certificates of the University discussed in the following paragraph.

At the time of delivery of the Bonds, the President and Senior Vice President for Administration and Finance & Treasurer of the University will deliver a certificate to the effect that, to the best of their knowledge and belief, the information set forth in the Preliminary Official Statement relating to the University, as of the date of the Preliminary Official Statement and as of the date of the Official Statement, and the information set forth in the Official Statement relating to the University, as of the date of the Official Statement and the date of delivery of the Bonds did not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made therein, in light of the circumstances under which they were made, not misleading.

UNDERWRITING

The Bonds are being purchased for reoffering by the Underwriters pursuant to a purchase contract (the “Purchase Contract”) between the Authority and Wells Fargo Bank, National Association, as representative of the Underwriters. The Underwriters have agreed to purchase the Bonds at an aggregate discount of $893,821.14 from the public offering prices (or prices computed at the yields) set forth on the inside cover page hereof. The Underwriters may offer and sell the Bonds to certain dealers (including dealers depositing Bonds into investment trusts, certain of which may be sponsored or managed by the Underwriters) and others at prices lower (or yields higher) than the public offering prices (or yields) stated on the inside cover page hereof. The Purchase Contract provides that the Underwriters will purchase all the Bonds if any are purchased. The Underwriters may allow concessions from the public offering price to certain dealers, banks and others. After the initial public offering at the offering prices (or yields) set forth on the inside cover of this Official Statement, the public offering prices (or yields) may be changed from time to time by the Underwriters.

Wells Fargo Bank, National Association, acting through its Municipal Products Group ("WFBNA"), the representative of the Underwriters, has entered into an agreement (the "WFA Distribution Agreement") with its affiliate, Wells Fargo Clearing Services, LLC (which uses the trade name “Wells Fargo Advisors”) ("WFA"), for the distribution of certain municipal securities offerings, including the Bonds. Pursuant to the WFA Distribution Agreement, WFBNA will share a portion of its underwriting or remarketing agent compensation, as applicable, with respect to the Bonds with WFA. WFBNA has also entered into an agreement (the "WFSLLC Distribution Agreement") with its affiliate Wells Fargo Securities, LLC ("WFSLLC"), for the distribution of municipal securities offerings, including the Bonds. Pursuant to the WFSLLC Distribution Agreement, WFBNA pays a portion of WFSLLC's expenses based on its municipal securities transactions. WFBNA, WFSLLC, and WFA are each wholly-owned subsidiaries of Wells Fargo & Company.

Wells Fargo Securities is the trade name for certain securities-related capital markets and investment banking services of Wells Fargo & Company and its subsidiaries, including Wells Fargo Bank, National Association, which conducts its municipal securities sales, trading and underwriting operations through the Wells Fargo Bank, NA Municipal Products Group, a separately identifiable department of Wells Fargo Bank, National Association, registered with the Securities and Exchange Commission as a municipal securities dealer pursuant to Section 15B(a) of the Securities Exchange Act of 1934.

The Underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage services. The Underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various investment banking services for the Authority or the University, for which they received or will receive customary fees and expenses.

In the ordinary course of their various business activities, the Underwriters and affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities, which may include credit default swaps) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve securities and instruments of the Authority or the University.

The Underwriters and their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and may at any time hold, or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

In addition, certain of the Underwriters have entered into distribution agreements with other broker-dealers (that have not been designated by the Authority as Underwriters) for the distribution of the Bonds at the original issue prices. Such agreements generally provide that the relevant Underwriter will share a portion of its underwriting compensation or selling concession with such broker-dealers.

Citigroup Global Markets Inc., an underwriter of the Bonds, has entered into a retail distribution agreement with Fidelity Capital Markets, a division of National Financial Services LLC (together with its affiliates, "Fidelity"). Under this distribution agreement, Citigroup Global Markets Inc. may distribute municipal securities to retail investors at the original issue price through Fidelity. As part of this arrangement, Citigroup Global Markets Inc. will compensate Fidelity for its selling efforts.

CONTINUING DISCLOSURE

The Authority and the University will undertake to provide annual reports and notices of certain events. A form of the Continuing Disclosure Agreement is set forth in Appendix F attached hereto.

With respect to previous undertakings of the Authority and the University, certain of the Commonwealth's and the University's financial statements during the previous five year period were filed on a timely basis, but such information did not appear under certain CUSIP numbers on the Municipal Securities Rulemaking Board's Electronic Municipal Market Access system ("EMMA"). At this time, all such information has been refiled or relinked on EMMA.

FINANCIAL ADVISOR

The Authority has retained PFM Financial Advisors LLC (the "Financial Advisor") to serve as its financial advisor in connection with the issuance of the Bonds. The Financial Advisor has not independently verified any of the information contained in this Official Statement and makes no guarantee as to its completeness or accuracy. The Financial Advisor's fee for services rendered with respect to the sale of the Bonds is contingent upon the issuance and delivery of the Bonds, and receipt by the Authority of payment therefor. The Financial Advisor is an independent financial advisory firm and is not engaged in the business of underwriting, trading, or distributing municipal securities, including the Bonds, or other public securities. The Authority may engage the Financial Advisor to perform other services, including without limitation, providing certain investment services with regard to the investment of proceeds of the Bonds.

FINANCIAL STATEMENTS OF THE AUTHORITY

The financial statements of the Authority as of and for the years ended June 30, 2018 and 2017, included in this Official Statement as Appendix B, have been audited by Grant Thornton LLP, independent certified public accountants, as stated in their report included therein.

FINANCIAL STATEMENTS OF THE UNIVERSITY

The Annual Financial Report of the University for Fiscal Year 2018 is included in this Official Statement as Appendix C. It includes the financial statements of the business-type activities and the aggregate discretely presented component units of the University, which collectively comprise the University's basic financial statements, as of and for the years ended June 30, 2018 and 2017, which have been audited by Grant Thornton LLP, independent certified public accountants, as stated in their report included therein.

MISCELLANEOUS

All quotations from and summaries and explanations of the Enabling Act, the Project Trust Agreement, the Series Resolution and the Contract contained herein do not purport to be complete and reference is made to said laws and documents for full and complete statements of their provisions. The Appendices attached hereto are a part of this Official Statement. Copies, in reasonable quantity, of the Project Trust Agreement, the Series Resolutions and the Contract may be obtained upon request directed to the University of Massachusetts Building Authority, One Beacon Street, 31st Floor, Boston, Massachusetts 02108, Attention: Executive Director.

Any statements in this Official Statement involving estimates or matters of opinion, whether or not expressly so stated, are intended as such and not as representations of fact. This Official Statement is not to be construed as a contract or agreement between the Authority and the purchasers or holders of any of the Bonds.

The execution and delivery of this Official Statement by its Executive Director have been duly authorized by the Authority.

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY

By: /s/ Patricia Filippone
Executive Director

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APPENDIX A

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APPENDIX A

March 21, 2019

Members of the University of Massachusetts Building Authority

In connection with the issuance by the University of Massachusetts Building Authority (the "Authority" or "UMBA") of its Revenue Refunding Bonds, Senior Series 2019-1, we are pleased to submit the following information with respect to the University of Massachusetts (the "University" or "UMass") and other pertinent matters for inclusion in this Official Statement. Unless otherwise indicated, all utilization and financial data for any year refers to the fiscal year ended June 30. Unless otherwise indicated, the University is the source of all information included in this Appendix A.

University of Massachusetts

HISTORY AND MISSION

The University is a state coeducational institution for higher education with separate campuses at Amherst, Boston, Dartmouth, Lowell and Worcester in The Commonwealth of Massachusetts (the "Commonwealth"). The University was established in 1863 in Amherst, under the provisions of the 1862 Morrill Land Grant Acts, as the Massachusetts Agricultural College. It became known as the Massachusetts State College in 1932 and in 1947 became the University of Massachusetts. The Boston and Worcester campuses were opened in 1965 and 1970, respectively. The Lowell and Dartmouth campuses (previously the University of Lowell and Southeastern Massachusetts University, respectively) were made a part of the University by a legislative act of the Commonwealth, effective September 1, 1991.

The University's core mission is "*to provide an affordable and accessible education of high quality and to conduct programs of research and public service that advance knowledge and improve the lives of the people of the Commonwealth, the nation and the world.*" For Fall 2018, the University enrolled 74,705 students. The University's five campuses are geographically dispersed throughout the Commonwealth and possess unique and complementary missions. In addition, the University has a system-wide online education consortium called UMassOnline, which in academic year 2017-2018 offered approximately 1,500 online and blended courses and had 78,400 course enrollments.

The University was rated as one of the world's best universities in the *Times Higher Education* of London's "World University Rankings" for 2018-2019. UMass was ranked in the top 250 universities in the world and was the only public university in New England to be listed in the global top 250. The University was ranked seventh highest in Massachusetts, tenth highest in New England, 35th highest in American public universities and 66th highest of all American institutions (public or private). In addition, all four of the UMass undergraduate campuses were rated in the "National Universities" category in *U.S. News & World Report's* ("*U.S. News*") Best Colleges rankings – making UMass one of the few university systems in the nation to have each campus so acclaimed. Bolstering its global reputation, total research and development expenditures at the University reached approximately $651 million in fiscal year 2018, marking the ninth straight year that the University has exceeded the $500 million mark.

UNIVERSITY CAMPUSES

The University is composed of five campuses, spread across the Commonwealth in Amherst, Boston, Dartmouth, Lowell and Worcester. Each campus has a distinctive history and plays a unique role in advancing the University's mission.

Amherst Campus

The Amherst campus ("UMass Amherst" or the "Amherst Campus"), the University's flagship campus approximately 90 miles west of Boston, is the largest in the University system. With a student body of 23,779 full-time equivalent ("FTE") undergraduate and 5,272 FTE graduate students enrolled in Fall 2018, the Amherst Campus offers the most comprehensive and varied programs of the campuses in the University system, including liberal arts and professional programs, in addition to doctoral and research programs. It offers five associate-level programs and 109 bachelor's, 77 master's and 48 doctoral degree programs. During the 2017-2018 academic year, 44 associate's, 6,333 bachelor's, 385 undergraduate certificates, 1,872 advanced degrees (including 355 doctorate degrees) and 87 graduate certificates were conferred. Students may enroll in the College of Education, College of Engineering, College of Humanities and Fine Arts, College of Information and Computer Sciences, Isenberg School of Management ("ISOM"), College of Nursing, College of Natural Sciences, School of Public Health and Health Sciences, College of Social and Behavioral Sciences and the Stockbridge School of Agriculture.

The 1,400-acre Amherst Campus includes more than 13 million square feet in buildings, including the 28-story W.E.B. DuBois Library, containing over six million volumes including eBooks as well as governmental documents and law collections, the 9,000-seat multi-purpose arena, the William D. Mullins Center, and 52 campus residence halls in seven unique residential areas. Since 2008, the campus opened the Studio Arts Building, the Central Heating Plant, a new student recreation center, an integrated sciences building, a new Campus Police Station and Emergency Operations Center (which was the first new construction on campus to meet LEED certification standards), the Life Science Laboratories Complex, a 1,400-bed residential and classroom Commonwealth Honors College complex, a state-of-the-art classroom and academic facility, and a completely renovated South College. In the last two years, the Amherst Campus opened a new innovative wood-constructed Design Building, a state-of-the-art Physical Sciences Building with specialized laboratories and 130 lab benches, and the ISOM Business Innovation Hub addition. The iconic Old Chapel, closed since 1986 and listed on the National Register of Historic Places in 2015, underwent a complete renovation and opened in late 2016.

The Amherst campus is an AASHE (Association for the Advancement of Sustainability in Higher Education) STARS Gold Campus and is ranked in Princeton Review's *Top 50 Green Colleges* list, released in October 2018. The Amherst campus continues to develop its sustainable infrastructure, including installing the largest solar project on a college campus in New England and a commitment to ensuring that all new construction is 100% LEED-certified.

The Amherst Campus is now ranked 26th among national public universities in the Best College 2019 guide published by *U.S. News & World Report*. The 2017 report of The Center for Measuring University Performance, "The Top American Research Universities 2017 Annual Report," ranks UMass Amherst 66th for both total and federal research expenditures among public research institutions. The Amherst Campus ranks in the top 50 among public research universities on three measures: 38th for SAT score, 42nd in national academy memberships, and 43rd in faculty awards. It is also in the top 70 on a number of other measures of competitive success including doctorates awarded (56th) and postdoctoral appointees (69th). During fiscal year 2018, a total of 1,083 awards were secured for a total of approximately $161.4 million, including 410 federal awards totaling approximately $102.7 million.

In 2016, UMass Amherst completed its first major capital campaign – the largest in Massachusetts public higher education history – by raising $379.0 million, exceeding the $300.0 million goal one year ahead of schedule.

Boston Campus

The 175-acre Boston campus ("UMass Boston" or the "Boston Campus"), which is located three miles from downtown Boston on a harbor peninsula with the nearby John F. Kennedy Presidential Library and Museum (the "JFK Library"), the Edward M. Kennedy Institute for the United States Senate (the "Kennedy Institute") and the Massachusetts State Archives and Commonwealth Museum (the "State Archives"), is a residential campus that can house approximately 1,077 students. The Boston Campus focuses on the academic needs of the local urban and non-traditional populations and the research and policy needs of business, government and communities in the greater Boston metropolitan region. The Boston Campus has a diverse student body consisting of 10,857 FTE undergraduate students and 2,362 FTE graduate students enrolled in Fall 2018. The Boston Campus offers 64 undergraduate degree programs, 13 undergraduate certificate programs, 50 master's programs, 50 graduate certificate programs, and 30 doctoral programs through the College of Liberal Arts, College of Science and Mathematics, College of Management, College of Nursing and Health Sciences, College of Public and Community Service, McCormack Graduate School of Policy and Global Studies, College of Education and Human Development, College of Advancing and Professional Studies, School for Global Inclusion and Social Development, and School for the Environment.

During the 2017-2018 academic year, the Boston Campus conferred 221 certificates, 2,543 bachelor's and 1,048 advanced degrees.

The Boston Campus is the only educational institution in the Northeast to share its campus with a presidential library. The students and faculty have access to the JFK Library, as well as to the State Archives, which houses valuable Massachusetts historic and state government records. The Boston Campus also has over 550,000 books and journals at its Healey Library.

UMass Boston completed the construction of the Integrated Sciences Complex in Fall 2015 and a general academic building known as University Hall was opened for the 2016 spring semester. Additionally, the Kennedy Institute opened in Spring 2015. The Integrated Science Complex and University Hall are both operated by the Boston Campus. The Kennedy Institute is operated by a charitable organization registered in the District of Columbia with the same name and is owned by the Authority. The Kennedy Institute operates as a civic, academic and research institution focused on the study of the United States Senate. Although the Kennedy Institute has broad public access and is available for target groups outside of the University, one of the primary purposes of the Kennedy Institute is to enhance the academic and research environment available to the students and faculty of the University. Due to the multi-purpose nature of the Kennedy Institute, the University's annual financial commitment for the capital and operating expenses of the Kennedy Institute is limited to approximately $1.25 million.

UMass Boston's capital plan calls for the redevelopment of the campus with new and renovated facilities, new infrastructure and green space for greater access to and engagement with the public. The first phase of the capital plan, launched in 2007, called for more than $500 million in new facilities and infrastructure construction on the Boston Campus. UMass Boston opened its first-ever student dormitory in September 2018, achieving a long-held goal of providing students with an on-campus residential option.

In May 2010, the Authority purchased the Bayside Exposition Center (the "Bayside Site") for $18.7 million. The 20-acre Bayside Site is approximately one-half mile from the Boston Campus. The UMass Board of Trustees and the Authority voted in February 2019 to designate a developer to build a mixed-use urban innovation campus at the Bayside Site. Under the terms proposed by the designated developer, the developer, subject to certain contingencies, proposed that it will enter into a 99-year ground lease for an upfront payment of up to $235 million, with a minimum lease price of $192 million.

Dartmouth Campus

The Dartmouth campus ("UMass Dartmouth" or the "Dartmouth Campus") distinguishes itself as a vibrant public research university dedicated to engaged learning and innovative research resulting in personal and lifelong student success. The Dartmouth Campus serves as an intellectual catalyst for economic, social and cultural transformation on a global, national and regional scale. The Dartmouth Campus offers 58 undergraduate and 50 graduate programs of study (including 16 at the Doctorate level) through the College of Arts and Sciences (with a School of Education), the Charlton College of Business, the College of Engineering, the College of Nursing, the College of Visual and Performing Arts, the School for Marine Science and Technology and the University of Massachusetts School of Law (the "Law School"). The main campus, designed by the eminent architect Paul Rudolf, is located on 710 acres in Dartmouth and is approximately 55 miles south of Boston and 30 miles east of Providence, Rhode Island. Other Dartmouth Campus sites include the Law School in Dartmouth, the School for Marine Science and Technology on the waterfront in New Bedford, the Star Store Center for the Arts in New Bedford, the Center for Innovation & Entrepreneurship in Fall River and offices in New Bedford, Fall River and Fairhaven.

In February 2010, the Massachusetts Board of Higher Education issued approval for UMass Dartmouth to offer the Juris Doctor (J.D.) degree and the Law School was established as the first public law school in the Commonwealth. Through the donation of assets to the University of Massachusetts Foundation, Inc. (the "Foundation"), including the facility, equipment, systems and furnishings from an existing private law school, Southern New England School of Law ("SNESL"), the Dartmouth Campus admitted the first class of new students to the Law School in August 2010. The Law School prepared a comprehensive self-study for consideration of provisional American Bar Association ("ABA") accreditation and received an ABA site visit; the final decision for provisional accreditation was granted in June 2012. In December 2016, the Law School received full accreditation from the ABA. Despite downturns in admissions to law schools across the country, the Fall 2018 overall enrollment grew to 226 students. The Law School has a public-service focus, with a curriculum concentrating on civil and human rights, legal support for businesses, economic justice and community law. The operating plan for the Law School calls for further increases in enrollment, the bar pass rate, employment rate, and reputation, as well as assuring compliance with ABA standards.

The Dartmouth Campus had 6,138 FTE undergraduate and 1,192 FTE graduate students enrolled in Fall 2018. During the 2017-2018 academic year, 19 undergraduate certificates, 1,417 bachelor's and 647 advanced degrees/certificates were conferred. In the 2018 edition of the *U.S. News* "America's Best Colleges" report, UMass Dartmouth achieved a National Tier 1 designation for the first time in its history, rising from its previous designation as a regional university. The College of Engineering is listed among the best undergraduate engineering programs in the country, as are the online programs. The Dartmouth Campus, which is implementing its strategic plan, UMassDTransform2020, weaves the research, academic, creative and community service activities of faculty and graduate students into the undergraduate experience and into the economic and cultural life of southeastern Massachusetts and beyond. Areas of focus for the strategic plan include marine science, law and public policy, K-12 education, healthcare and economic development.

In Fall 2016, the Dartmouth campus opened the Charlton College Learning Pavilion, providing approximately 22,000 square feet of classrooms, meeting spaces, an auditorium and technology-enhanced space. In Fall 2017, the Dartmouth Campus opened the $55 million expansion of the School for Marine Science and Technology in New Bedford.

In 2016, UMass Dartmouth was officially designated as a Doctoral University – Higher Research Activity (R2) by the National Carnegie Classification of Institutions of Higher Education at the Center for Postsecondary Research at Indiana University, achieving a major milestone for the University and the region. UMass Dartmouth is the only Massachusetts research university located south of Boston. This designation elevated UMass Dartmouth from its previous designation as a Master's University.

Lowell Campus

The Lowell Campus ("UMass Lowell" or the "Lowell Campus") is a doctoral-level research university committed to educating students for lifelong success and conducting hands-on research and outreach that sustains the economic, environmental and social health of the world.

Located in the historic industrial city of Lowell, approximately 25 miles northwest of Boston, the campus spans more than 125 acres along the Merrimack River in three campus clusters – North, South and East. The Lowell Campus had a student body of 11,872 FTE undergraduate and 2,686 FTE graduate students in Fall 2018. The Lowell Campus offers four associate's, 122 bachelor's, 49 master's and 26 doctoral degree programs through the College of Fine Arts, Humanities and Social Sciences, the Kennedy College of Sciences, the Francis College of Engineering, the Zuckerberg College of Health Sciences, the Manning School of Business, and the College of Education. The most recent additions to UMass Lowell's degree inventory are bachelor's degrees in Psychology/Behavioral Analysis, Psychology/Clinical Psychology, Psychology/Community Social Psychology, Psychology/Developmental Disabilities, Psychology/Health Psychology, Environmental Engineering, and Exercise Science. During the 2017-2018 academic year, 201 associate's degrees and undergraduate certificates, 2,798 bachelor's degrees and 1,596 advanced degrees/certificates were conferred.

UMass Lowell's dramatic transformation has been driven by the campus' "2020 Strategic Plan", which led to rapid gains in enrollment, retention, student achievement, research expenditures, and fundraising. Undergraduate enrollment has increased 24% since Fall 2010, with over 80% of freshmen now living on what had historically been a commuter campus. The Fall 2018 incoming class is among the strongest in UMass Lowell history, with an average SAT score of 1233, and an average high school GPA of 3.60. Since Fall 2012, freshmen retention has increased from 81% to 85%, the four-year graduation rate has increased from 27% to 44%, and the six-year graduation rate has increased from 54% to 63%. UMass Lowell's 1,737-student Honors College, established in 2014, had a one-year retention rate of 90% for academic year 2017-2018.

The Lowell Campus continues to receive new honors and accolades. The Commonwealth Institute and the *Boston Globe Magazine* ranked UMass Lowell No. 4 among the Top Women-led Businesses in Massachusetts in 2018. The new Pulichino Tong Business Center, home to the Manning School of Business, was awarded LEED Gold certification in 2017. In 2019, *U.S. News* named UMass Lowell's online graduate programs in criminal justice (number 5) and information technology (number 10) in the top ten in the nation and number one among those offered by all public institutions in New England. UMass Lowell's online bachelor's degrees were also highly rated, coming in at number two in New England and in the top 25 in the nation among the more than 200 public and private programs ranked.

During the last nine years, 15 buildings have been constructed, acquired and redeveloped, fully renovated or built via public-private partnership on the Lowell Campus. In 2009, UMBA purchased the former Doubletree Hotel in downtown Lowell and converted the property into the UMass Lowell Inn & Conference Center (the "ICC"), a multi-purpose property that provides hotel accommodations, high-quality conference space and housing for 500 students. In 2010, UMBA acquired the 6,500-seat Tsongas Arena from the City of Lowell, renaming it the Tsongas Center at UMass Lowell and hosting hockey and basketball games, concerts, functions, University events and other community activities. In 2011, UMBA purchased the former St. Joseph's Hospital in Lowell, redeveloping it as University Crossing, an important connection point among UMass Lowell's North, South and East campuses that has become a vibrant hub for students and the community since opening in 2014.

The $80 million, 84,000-square-foot Mark and Elisia Saab Emerging Technologies and Innovation Center (the "Saab Center") opened in October 2012 as the first new academic building on campus in more than three decades. The opening of the Saab Center was followed by the opening of the $40 million Health and Social Sciences Building in 2013. Also in 2013, UMass Lowell opened the $54 million University Suites residence hall, providing suite-style housing for 472 students. A second suite-style residence hall, Riverview Suites, with housing for 800 students, was built by a private developer for lease by UMass Lowell in 2013 with the second phase completed in 2015. In 2014, the Charles J. Hoff Alumni Scholarship Center opened following a private developer's historic renovation and lease to the campus. In 2015, the McGauvran Center reopened as a hub for dining, learning and gathering, following a $34 million renovation and expansion. During that span, two parking garages were also constructed at a total cost of $40 million.

The campus's 13th building since 2009, the $40 million Pulichino Tong Business Center, opened in April 2017. UMass Lowell purchased the $61.5 million Residences at Perkins Park and the Lofts at Perkins Park near East Campus and reopened it in fall of 2017 as River Hawk Village. A renovation of Perry Hall, which houses UMass Lowell's engineering programs and will facilitate additional industry partnerships, opened in January 2019. In 2015, UMass Lowell launched a $27 million project with the Commonwealth's Accelerated Energy Program ("AEP") that is expected to generate $1.5 million in annual energy savings and reduce campus-wide energy usage by 20% or more.

In July 2013, UMass Lowell athletics officially elevated to Division I in all sports. Currently 16 sports are part of the America East Conference. The reclassification to full Division I status is a four-year process, which UMass Lowell formally completed in August of 2017. The ice hockey program has competed in Division I since 1983 and is a member of Hockey East.

Worcester Campus

The UMass Medical School ("UMass Medical School," "UMass Worcester" or the "Worcester Campus") provides general and specialized medical education, engages in a comprehensive program of basic scientific and clinical research, and provides graduate level training in biomedical sciences and nursing. As Massachusetts' first and only public medical school, UMass Medical School takes seriously its mission to improve the health and well-being of the people of the Commonwealth and the world through pioneering advances in education, research, and health care delivery. Founded in 1962 by the Massachusetts Legislature and sited in Worcester in 1965, UMass Medical School welcomed its first class of 16 medical students in 1970. Less than 50 years later, UMass Medical School has become an internationally renowned hub for medical education, biomedical research, and health care innovation.

UMass Medical School's academic community, which is nationally recognized for its primary care education program, is vibrant and includes undergraduate and graduate medical education, graduate-level training in nursing and biomedical sciences, interprofessional training in allied health professions, and continuing education for health care practitioners. UMass Medical School's three graduate schools – the School of Medicine, the Graduate School of Biomedical Sciences, and the Graduate School of Nursing – educate more than 1,100 medical, science, and nursing students. In collaboration with its primary clinical partner, UMass Memorial Health Care, Inc., UMass Medical School operates a large post-graduate medical residency and fellowship program that annually trains more than 556 residents and fellows.

The School of Medicine offers medical students an accessible and exceptional academic experience that optimally prepares them to become physicians who are caring, competent, productive, and self-fulfilled in their chosen career. The Graduate School of Biomedical Sciences, composed of the Basic & Biomedical Sciences and Clinical & Population Health Research divisions, trains students in their selected specialty area while emphasizing a broad background in the basic biomedical sciences in preparation for research that is directly relevant to human disease. The Graduate School of Nursing provides high quality master's and doctoral-level preparation for advanced-practice nurses and nurse educators. In 2012, the educational program leading to the MD degree was successfully re-accredited by the Liaison Committee on Medical Education ("LCME"), for a full eight-year cycle. In addition, the New England Commission of Higher Education ("NECHE") engaged in a comprehensive re-accreditation process that included a site visit from an external evaluation team. UMass Medical School received the NECHE re-accreditation in May 2013.

While the academic community has evolved over the years, UMass Medical School's commitment to its founding public mission remains steadfast. UMass Medical School educates the future physicians, researchers and nurses for the Commonwealth. Alumni survey data indicate that 52% of graduates establish their careers in Massachusetts. Moreover, UMass Medical School is recognized as a national leader in primary care training as evidenced by its consistent position among the top ten percent of all medical schools for primary care in *U.S. News* *and World Report's Annual Graduate School Rankings.* In the latest primary care rankings (2019), UMass Medical School ranked 14th nationally among 144 Doctor of Medicine (M.D.) and Doctor of Osteopathic Medicine (D.O.) schools. In 2015, UMass Medical School expanded its public service mission to respond to the growing opioid epidemic by becoming the first medical school in the nation to mandate an opioid-conscious curriculum for all medical and nursing students. UMass Medical School's classification by the Carnegie Foundation as a community-engaged institution both reflects and reinforces a genuine and unyielding commitment to its public mission.

Given its commitment to primary care and to educating the next generation of physicians for the state, UMass Medical School plays an important and unique role in helping to address the health care workforce needs of Massachusetts. UMass Medical School has aligned itself with the Association of American Medical Colleges' recommendation that medical schools increase the number of physicians they educate to help address the looming shortage of doctors, especially those in primary care fields. Over the last decade, UMass Medical School has been committed to expanding the School of Medicine's class size. In 2008, the first-year class totaled 100 students; Fall 2018's first-year class grew to 162 students. This significant class size expansion initiative has necessitated identifying and partnering with additional clinical affiliates to ensure that UMass Medical School continues to offer an outstanding educational experience. In 2015, UMass Medical School announced a new affiliation with Cape Cod Hospital in Hyannis, as well as the establishment of its first-ever regional campus, UMMS-Baystate, in partnership with Baystate Health in Springfield.

As of Fall 2018, the UMass Medical School student body was composed of 1,153 FTE medical, nursing and biomedical science students, who are enrolled in one of six master's or six doctoral degree programs. In addition, the UMass Medical School's educational community includes 455 residents and 101 fellows in residency and fellowship training programs accredited by the Accreditation Council for Graduate Medical Education ("ACGME"). The Graduate Medical Education enterprise consists of 20 core residency programs and 34 fellowship programs, all of which are accredited by their respective accreditation bodies.

Consistent with its strategic plan and mission, UMass Medical School also supports a highly productive and collaborative research enterprise that attracts more than $250 million a year in external research funding, including $159 million from the National Institutes of Health. Importantly, the Medical School ranked 32nd out of 141 U.S. Medical Schools and 12th among all public medical schools for NIH funding according to the Blue Ridge Institute for Medical Research's latest national rankings (2018).

UMassOnline

In February 2001, the University launched UMassOnline, the University's system-wide online education consortium. Headquartered at the President's Office Collaborative Services Facility in Shrewsbury, Massachusetts, UMassOnline enables the University to provide greater access to its educational programs and to increase revenues that can be used to support the campuses. In fiscal year 2018, UMassOnline and the Continuing Education units at the five campuses collaboratively generated tuition revenue of $113 million and supported over 78,400 course enrollments.

UMassOnline's mission is to provide access to a University of Massachusetts education to students who are unable to attend one of the campuses, serving community needs for education in the critical areas of economic development, health and welfare and education, and raising revenues for support of students, faculty, teaching, outreach and research. To this end, UMassOnline supports the campuses in developing, growing and marketing online programs by funding the development of new online programs, and providing faculty support, development and training. UMass Online also provides technology support and creates and maintains a robust platform for online learning, assessing new teaching and learning technologies, and deploying marketing programs that will position the University as a high-quality national leader in online higher education, as well as increase online course and program enrollments in the Massachusetts, New England, national and international markets.

In academic year 2017-2018, the University offered over 160 online degrees, certificates and continuing medical education programs, as well as 1,500 online and blended courses.

In March 2019, the University's President announced plans to create a new online college for adult learners, citing the need to preserve the University's mission in the face of a looming demographic decline that will dramatically disrupt higher education. The University's goal is that the new college would become a key workforce development partner to Massachusetts employers, increase economic mobility for Massachusetts residents and generate revenue that will sustain the University over the next several decades, positioning UMass to lead through the coming disruption and emerge stronger.

The University of Massachusetts Club

The University, acting through UMBA, has established an Alumni dining club, known as "the University of Massachusetts Club" or the "Club." The Club opened in 2005 and is now located on the 32nd floor of One Beacon Street in downtown Boston. As of August 2015, the Club was managed by the not-for-profit organization University Services, Inc.

UNIVERSITY RELATED ORGANIZATIONS

The financial statements of the University include the University and certain other organizations that have a significant relationship with the University. The financial statements include the University's blended component units, which are UMBA, a public instrumentality of the Commonwealth created by Chapter 773 of the Acts of 1960 of the Commonwealth, as amended, the Worcester City Campus Corporation ("WCCC"), a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code of 1986, and the University of Massachusetts Amherst Foundation, Inc. (the "UMass Amherst Foundation"), a tax-exempt organization that was established in 2003.

The purposes of UMBA are to provide dormitories, dining commons and other buildings and structures for use by the University and other entities associated with the University and to issue bonds to finance such projects. The University created WCCC in 1992 to purchase various assets of Worcester City Hospital, to operate as a real estate holding company, and to foster and promote the growth, progress, and general welfare of the University's Worcester Campus and all of its locations. The subsidiaries of WCCC include Worcester Campus Services, Inc. ("WCS") and U Health Solutions, Inc. ("UHS") (formerly Public Sector Partners, Inc. ("PSP")). WCS has 12 real estate holding company subsidiaries. Through its Board of Directors, the UMass Amherst Foundation leads and supports private fundraising on behalf of UMass Amherst faculty, students and facilities.

The University's discretely presented component units are the University of Massachusetts Foundation, Inc. (the "Foundation") and the University of Massachusetts Dartmouth Foundation, Inc. (the "Dartmouth Foundation"). These foundations are tax-exempt organizations related to the University and were established to foster and promote the growth, progress and general welfare of the University and to solicit, receive and administer gifts and donations for such purposes. The Foundation manages the majority of the University's endowments, including the endowment of the UMass Amherst Foundation. Separate financial statements are presented for the Foundation and the Dartmouth Foundation.

GOVERNANCE

Under the General Laws of the Commonwealth (the "General Laws"), the University is governed by a Board of Trustees (the body herein called the "University Trustees" or the "Board of Trustees of the University") under the coordinating authority of the Commonwealth's Department of Higher Education ("DHE") (successor to the Commonwealth Board of Higher Education). The day-to-day operations of the University are directed by a team of administrative officers of the University, the chief executive officer being the President of the University (the "President").

The General Laws give the University Trustees the authority to govern the University and to appoint the President, the Chancellors (the senior administrative officers of each campus) and other officers and members of the professional staff. The General Laws also grant to the University Trustees the legal right to establish and manage non-appropriated funds, including, for example, tuition, certain student fees, grants and contracts, and funds used to support certain self-sufficient operations within the University. See "UNIVERSITY REVENUES AND

BUDGETING" below. The University Trustees consist of 19 voting members and three non-voting members. Seventeen voting members of the University Trustees are appointed by the Governor of the Commonwealth (the "Governor"). One of these appointees is the Secretary of Education, as mandated by Chapter 27 of the Acts of 2008 and at least five of those appointed must be alumni of the University and one must be a representative of organized labor. Two of the voting members are full-time students of the University and three additional full-time students act as non-voting members. The student members are elected annually from each of the five campuses and the two voting student positions are rotated annually among the members representing the five campuses. The University Trustees, except for the student members, serve five-year staggered terms, and are eligible for reappointment for an additional five-year term.

The President is responsible for implementing the policies of the University Trustees and for providing leadership for the activities and operations of the University. The President's Office is responsible for the development of academic and financial policies, overall coordination of University activities, and certain University-wide operational activities, including Internal Audit, the General Counsel's office, the Treasurer's and Controller's functions, Information Systems and Human Resources.

Department of Higher Education

The University is subject to the coordinating authority of the DHE, which has the statutory responsibility to develop, foster and advocate for the public higher education system in Massachusetts (which consists of the University, nine state universities, and 15 community colleges), to review and establish tuition at the state universities and the community colleges, to approve changes in academic programs at these institutions, and to collaborate with the public institutions of higher education in order to identify and define institutional missions.

The Board of the DHE consists of 13 voting members; one of whom is the Secretary of Education, nine members appointed by the Governor reflecting regional geographic representation and three members chosen to represent public institutions of higher education. Of the members appointed by the Governor, at least one must be a representative of organized labor, one must be a representative of the business community and one must be a full-time undergraduate student at a public institution of higher education. Of the members chosen to represent public institutions of higher education, one must be a member of the Board of Trustees of the University as voted by the University Trustees, one must be a member of a board of trustees of a state university chosen by vote of the chairs of the boards of trustees of each of the state universities, and one must be a member of a board of trustees of a community college chosen by vote of the chairs of the boards of trustees of each of the community colleges. Three of the DHE members appointed by the Governor are appointed for terms coterminous with that of the Governor. The undergraduate members of the Board of the DHE are appointed annually. The remaining members are appointed to serve five-year terms. The chairperson of the Board of the DHE is selected by the Governor.

Board of Trustees

The current members and officers of the University Trustees, their original appointment dates and the expiration dates of their respective current terms are set forth below. The term expiration date is typically September 1 of the applicable year; however, University Trustees generally continue to serve until a successor University Trustee is appointed.

Name and Position; Month and Year Initially Appointed	Current Term Expiration Date
Robert J. Manning, *Board of Trustees Chair,* Swampscott *Appointed August 2015* Chairman and Co-CEO, MFS Investment Management	2021

R. Norman Peters, Esq., *Board of Trustees Vice Chair,* Paxton *Appointed September 2009* Partner, Peters & Sowyrda	2019
Mary L. Burns, Lowell *Appointed December 2016* Principal, Splash Media Group Boston, LLC	2021
Robert Epstein, Boston *Appointed September 2015* President & CEO, Horizon Beverage Group	2020
David G. Fubini, Brookline *Appointed April 2013* Senior Lecturer, Harvard Business School	2018
Maria D. Furman, Boston *Appointed November 2009* Former Managing Director and Bond Portfolio Manager of Standish Mellon Asset Management (retired)	2019
Stephen R. Karam, Fall River *Appointed September 2017* Principal, Karam Financial Group	2022
Brian J. Madigan, Braintree *Non-voting Student Member, Appointed April 2018* University of Massachusetts, Lowell	2019
Katherine E. Mallet, Worcester *Non-voting Student Member, Appointed April 2018* University of Massachusetts, Medical School	2019
Jiya Nair, Shrewsbury *Non-voting Student Member, Appointed April 2018* University of Massachusetts, Amherst	2019
Michael O'Brien, Southborough *Appointed December 2016* Vice President, WinnCompanies	2021
Noreen C. Okwara, M.D., Lowell *Appointed September 2018* Internal Medicine Resident, Brigham & Women's Hospital	2023
Kerri Osterhaus-Houle, M.D., Hudson *Appointed September 2007* Partner, Women's Health of Central Massachusetts, PC	2018
Imari K. Paris Jeffries, M.Ed., M.A., Boston *Appointed December 2016* Executive Director, Parenting Journey	2021
James A. Peyser, MALD, Milton *Appointed January 2015* Secretary of Education, Executive Office of Education Commonwealth of Massachusetts	*Serves ex-officio*
Silavong Phimmasone, Springfield *Voting Student Member, Appointed April 2018* University of Massachusetts, Dartmouth	2019

Elizabeth D. Scheibel, South Hadley *Appointed November 2016* Principal/Consultant, Scheibel Associates	2021
Sara Tariq, Braintree *Voting Student Member, Appointed April 2018* University of Massachusetts, Boston	2019
Henry M. Thomas, III, J.D., Springfield *Appointed September 2007* President and CEO, Urban League of Springfield, Inc.	2017
Steven A. Tolman, Brighton *Appointed September 2017* President, Massachusetts AFL-CIO	2022
Victor Woolridge, Springfield *Appointed November 2009* Vice President, Barings	2019
Charles F. Wu, MBA, Newton *Appointed December 2016* Senior Lecturer, Harvard Business School Founding Partner, BayNorth Capital, LLC	2021

Administrative Officers

The following is a list of the current administrative officers of the University.

Martin T. Meehan, J.D.

Martin T. Meehan, J.D., began his term as President of the University on July 1, 2015. Mr. Meehan was previously the Chancellor of the Lowell Campus since July 2007. Prior to that, Mr. Meehan represented the Fifth Congressional District of Massachusetts in the U.S. House of Representatives since 1993. He has also served as the First Assistant District Attorney for Middlesex County from 1991 to 1992. Mr. Meehan was also the Director of Public Affairs for the Massachusetts Secretary of the Commonwealth and the Deputy Secretary of State for Securities and Corporations from 1986 to 1990. Mr. Meehan earned his B.S. in Education and Political Science from the University of Massachusetts, Lowell, a Master's degree in Public Administration from Suffolk University and a J.D. degree from Suffolk University Law School. He holds honorary degrees from Suffolk University, Green Mountain College in Vermont and Shenkar College of Engineering & Design in Israel.

James R. Julian, Jr., J.D., Executive Vice President and Chief Operating Officer

James R. Julian, Jr., J.D., has been the Executive Vice President at the University since January 1996. Prior to joining the University, he served as Chief of Staff and Counsel for the former Massachusetts Senate President, William M. Bulger, from 1991 to 1996. He holds a B.S. degree in Political Science from Suffolk University and a J.D. degree from the New England School of Law.

Lisa A. Calise, Senior Vice President for Administration & Finance and Treasurer

Lisa A. Calise was appointed to the position of Senior Vice President for Administration & Finance and Treasurer in February 2017. Ms. Calise was most recently the Chief Financial Officer at Perkins School for the Blind, focusing on global services and education for those living with blindness and deafblindness. Before joining Perkins in 2010, Ms. Calise served the City of Boston for over a decade, most recently as the Director of Administration and Finance, and previously as Chief Financial Officer and Collector-Treasurer and Budget Director, implementing efficiency improvements and managing the City's finances through challenging economic times. Prior to coming to Boston, Ms. Calise served in the White House Office of Management and Budget as a budget examiner. Ms. Calise recently served as a member of both the MBTA Finance and Management Control Board and MassDOT Board. Ms. Calise obtained a B.A. degree from Boston College and a Master's Degree in Public Management from the University of Maryland.

Kumble R. Subbaswamy, Ph.D., Chancellor, Amherst Campus

Kumble R. Subbaswamy, Ph.D., became the Chancellor of the Amherst Campus in July 2012. Dr. Subbaswamy previously served as provost at the University of Kentucky since 2006. He joined the University of Kentucky's physics faculty in 1978 after serving as a post-doctoral fellow at the University of California, Irvine. During his first 18 years at the University of Kentucky, he served as Associate Dean of Arts and Sciences and as chair of the Department of Physics and Astronomy. Dr. Subbaswamy was also Dean of the College of Arts and Sciences at the University of Miami from 1997 to 2000, when he left to become Dean of Arts and Sciences at Indiana University in Bloomington, where he served until 2006. Dr. Subbaswamy holds a B.S. degree in Physics from Bangalore University, an M.S. degree in Physics from Delhi University and a Ph.D. degree in Physics from Indiana University.

Katherine S. Newman, Ph.D., Interim Chancellor, Boston Campus

Katherine S. Newman, Ph.D., was appointed interim chancellor of the Boston Campus effective July 1, 2018. Previously, Dr. Newman was the Senior Vice President for Academic Affairs for the University System. She previously served as Provost and Senior Vice Chancellor for Academic Affairs and Torrey Little Professor of Sociology at UMass Amherst from 2014 to 2017, and as the James B. Knapp Dean of the Arts and Sciences at Johns Hopkins University from 2010 to 2014. Prior to becoming the Dean at Johns Hopkins, Dr. Newman was the Forbes Class of 1941 Professor of Sociology and Public Affairs at Princeton and Director of the Institute for International and Regional Studies, the founding Dean of Social Science at the Radcliffe Institute of Advanced Study and the director of Harvard's Multidisciplinary Program on Inequality and Social Policy. She taught for 16 years in the Department of Anthropology at Columbia University and for two years in the School of Law at the University of California Berkeley. Dr. Newman holds a bachelor's degree in Philosophy and Sociology from the University of California, San Diego, and a Ph.D. in Anthropology from the University of California, Berkeley.

Robert E. Johnson, Ph.D., Chancellor, Dartmouth Campus

Robert E. Johnson, Ph.D., became chancellor of the University of Massachusetts Dartmouth on July 1, 2017. Prior to his appointment, Dr. Johnson served as President of Becker College in Worcester, MA for six years. Prior to becoming Becker College's president, Dr. Johnson served as Senior Vice President of Sinclair Community College, Vice President of Enrollment Management at the University of Dayton, Vice Provost at Oakland University, and Executive Director of Enrollment Management at Central State University. Dr. Johnson has previously served as a member of the Massachusetts Board of Higher Education, vice chair of the Massachusetts Technology Collaborative and chair of the Worcester Regional Chamber of Commerce. Dr. Johnson holds a bachelor's degree in Economics from Morehouse College, a Master's degree in Education Administration from the University of Cincinnati, and a Ph. D. in Higher Education Administration from Touro University International.

Jacqueline Moloney, Ed. D., Chancellor, Lowell Campus

Jacqueline Moloney, Ed.D, was appointed Chancellor of the Lowell Campus in August 2015. Previously, Dr. Moloney served as Executive Vice Chancellor of the Lowell campus since 2007. Prior to becoming Executive Vice Chancellor, Dr. Moloney served as Dean of the Division of Online and Continuing Education at UMass Lowell since 1994 and Executive in Residence for UMassOnline since 2000. Dr. Moloney also served as Dean of University College and Director of the Centers for Learning at UMass Lowell from 1990 to 1994. Dr. Moloney received a B.S. degree in Sociology from UMass Lowell, an M.A. degree in Social Psychology from Goddard College, and an Ed.D. degree from UMass Lowell.

Michael F. Collins, M.D., Chancellor, Worcester Campus and Senior Vice President for Health Sciences

Michael F. Collins, M.D., was appointed Chancellor of the Worcester Campus, where he also serves as professor of quantitative health sciences and medicine, on September 26, 2008. Dr. Collins served as interim Chancellor of the Worcester Campus from June 2007 to September 2008. In June 2007, Dr. Collins was appointed Senior Vice President for Health Sciences at the University of Massachusetts. Dr. Collins served as Chancellor of the UMass Boston Campus from 2005 through 2007. Prior to joining the University of Massachusetts, Dr. Collins served as President and Chief Executive Officer of Caritas Christi Health Care from 1994 to 2004 and from 1994 to 2001 he served as President of St. Elizabeth's Medical Center in Brighton, a university academic medical center affiliated with Tufts University School of Medicine. A board certified physician in internal medicine and a Fellow of the American College of Physicians, Dr. Collins has held a number of faculty and academic leadership positions over the course of his career. At Texas Tech University Health Sciences Center, his posts included Assistant Professor of Internal Medicine and Assistant Dean for Patient Care Resources. At Tufts University, he served as Clinical Professor of Internal Medicine and Associate Dean of Government and Medical Affairs in the School of Medicine and as a senior fellow at the Jonathan M. Tisch College of Citizenship and Public Service. Dr. Collins received a B.A. degree from the College of the Holy Cross and earned an M.D. degree from Tufts University School of Medicine.

Faculty and Staff

The University had 5,784 faculty members for Fall 2018, including 4,179 full-time faculty. Of the total faculty (excluding Worcester faculty), 35.5% were tenured, 15.0% were on track for tenure and the remaining 49.5% were not on tenure track. In addition, the University had 11,957 staff members for Fall 2018, of which 93.9% were full-time. The University faculty has received some of the world's most prestigious awards and honors, including the MacArthur Fellowship, the Pulitzer Prize, the National Book Award and the Nobel Prize. The University faculty also includes National Science Foundation grant winners and Fulbright Scholars. The University student FTE to faculty FTE ratios, excluding continuing education, are 17:1, 16:1, 16:1 and 17:1 for the Amherst, Boston, Dartmouth and Lowell campuses, respectively. The Worcester Campus ratio is not presented because the delivery of graduate medical education is not comparable to that of campuses offering a traditional range of undergraduate and graduate programs.

STRATEGIC INITIATIVES

Under the leadership of President Meehan and the University Trustees, the University is engaged in a series of strategic initiatives identified as a result of an interactive, collaborative process between the President's Office and campus leadership. The strategic initiatives acknowledge the unique strengths of each of the campuses and recognize the important role of the University in supporting the Commonwealth's economic success. The initiatives are as follows:

- *Accountability* – The University has set benchmarks and peer comparisons for each of the five UMass campuses and specific goals have been set for each campus Chancellor.

- *Expanding Research and Development* – The University participates as a member of the Mass Green High Performance Computing Center providing increased capacity for research and created the UMass Innovation Institute to expand the University's capacity for applied research.

- *Fundraising* – The University is developing and focusing its fundraising efforts across all five campuses.

- *Stewards of Resources* – The University continues to increase cost efficiency in providing educational services to students.

- *Efficient and Effective* – The University has been charged by the University Trustees to find ways to achieve the same or better results through more efficient and effective means.

- *Excellence* – The University continues to enhance its reputation and rankings, providing the Commonwealth with a high-quality public education. UMass is the No. 1 public university in New England and one of the 35 best public universities in the nation according to the *Times Higher Education World University Rankings* (2019) and is one of the few university systems in the country to have all of its undergraduate campuses ranked National Universities by *U.S. News & World Report* (2019).

- *Quality* – The University continues to admit high-quality students and strives to increase the academic profiles of all five campuses. The Fall 2018 incoming class is among the strongest in University history, with average SAT scores of 1296 and 1233, and average high school GPAs of 3.90 and 3.60 at the Amherst and Lowell Campuses, respectively. In addition, UMass faculty includes Nobel Laureate and Pulitzer Prize winners, members of the National Academy of Sciences, an American Book Award winner and Fulbright, Guggenheim, MacArthur and Mellon fellows.

- *Student Success* – The University continues to review policies and other best practices that focus on ways to improve student output measures. Since Fall 2011, one-year retention rates have increased from 83.1% to 84.3% while six-year graduation rates have increased from 58.2% to 68.8%.

- *Shared Services* – The President's Council recently approved a comprehensive Shared Services Plan. The plan includes the establishment of a Unified Procurement Services Team which will provide procurement and accounts payable services to all campuses. Through the unification of resources and modernization of processes, the plan is expected to bring significant operational improvements and cost reduction.

- *Capital Planning* – The Board recently approved a revised Capital Policy in light of the evolving spectrum of alternative procurement structures being considered by the University. Through the addition of a project screening, an options analysis, and a third Board approval step, the revised policy allows for more informed selection, delivery, and approval of alternative procurement projects.

- *Financial Reserves* – The Board recently approved a University Reserve Policy which provides for consistent definitions and guides the size and use of reserves across the University. Maintaining adequate reserves is critical to the long-term financial health of the University and will help mitigate unforeseen events and maintain strong credit ratings.

ACADEMIC PROGRAMS AND ACCREDITATION

The University offers a broad spectrum of academic programs, granting Bachelor of Arts degrees in over 60 fields, Bachelor of Science degrees in over 50 fields and bachelor's degrees in a number of other areas, including Fine Arts and Business Administration. Master of Arts degrees are granted in more than 25 fields, Master of Science degrees in over 45 academic fields and a variety of other master's degrees are granted in specialized areas including Education, Teaching, Business Administration and Public Health. In addition, the University grants Doctor of Philosophy degrees in over 50 fields, as well as Doctor of Education, Doctor of Science, Doctor of Engineering, Doctor of Audiology, Doctor of Nursing Practice, Doctor of Physical Therapy, Juris Doctor and Doctor of Medicine degrees. The academic resources of the University are also accessible to part-time students, to local, national and international businesses and to the general community through the continuing education programs.

Each campus of the University is accredited by NECHE, the major accrediting body for institutions of higher education in New England. The Amherst, Boston, Dartmouth, Lowell and Worcester Campuses are accredited through 2018, 2025, 2020, 2023 and 2020, respectively. The Amherst campus completed its comprehensive self-study in August 2018 and the NECHE visiting team was on campus in October 2018. The NECHE Commission will meet in April 2019, at which point the Amherst campus is expected to receive full reaccreditation. The Medical School at the Worcester Campus is a member of the Association of American Medical Colleges and was given full accreditation through the 2019-2020 academic year by the LCME, the major accrediting body for programs leading to the M.D. degree. On December 6, 2016, the Law School at the Dartmouth Campus received full accreditation from the ABA. In addition to the foregoing, individual schools and academic programs are accredited by the appropriate agencies in their particular fields.

The University is also an institutional member of numerous organizations of higher learning and professional societies, including, among others, the Association of American Colleges, the Association of Public and Land-Grant Universities, the American Council on Education, the American Association of Colleges for Teacher Education, the American Association of Colleges of Nursing, the Council of Colleges of Arts and Sciences and the New England Board of Higher Education.

ENROLLMENT

Admission to the University is open to residents and non-residents of the Commonwealth on a competitive basis. Massachusetts residents accounted for 82.7% and 53.0% of the University's total undergraduate and graduate enrollment, respectively, during Fall 2018.

For Fall 2018, total full-time equivalent enrollment at the University (including continuing education) was 65,310, representing an increase of 4.8% over the five-year period.

Total Full-Time Equivalent Enrollment, Fall 2014-2018

Enrollment Type	2014	2015	2016	2017	2018
Undergraduate	49,725	50,816	51,209	51,642	52,646
Graduate	12,576	12,517	12,769	12,889	12,664
Total	62,301	63,333	63,978	64,531	65,310

Head Count Enrollment

The following tables show opening head count enrollment as of the University's Fall semester for each of the five campuses since 2014.

Total Headcount Enrollment

Enrollment Type	2014	2015	2016	2017	2018
In-state undergraduate	45,312	45,817	46,784	46,924	47,200
Out-of-state undergraduate	10,080	10,441	10,077	9,905	9,869
In-state graduate	9,220	9,172	9,232	9,351	9,344
Out-of-state graduate	8,177	8,314	8,403	8,392	8,292
Total	72,789	73,744	74,496	74,572	74,705

Amherst Campus

Enrollment Type	2014	2015	2016	2017	2018
In-state undergraduate	16,949	17,277	17,833	17,846	17,879
Out-of-state undergraduate	5,303	5,471	5,540	5,542	5,636
In-state graduate	2,260	2,282	2,308	2,423	2,515
Out-of-state graduate	4,123	4,239	4,356	4,529	4,563
Total	28,635	29,269	30,037	30,340	30,593

Boston Campus

Enrollment Type	2014	2015	2016	2017	2018
In-state undergraduate	10,734	10,866	10,765	10,720	10,871
Out-of-state undergraduate	1,966	2,083	2,082	1,945	1,833
In-state graduate	2,698	2,638	2,544	2,415	2,230
Out-of-state graduate	1,358	1,443	1,456	1,335	1,230
Total	16,756	17,030	16,847	16,415	16,164

Dartmouth Campus

Enrollment Type	2014	2015	2016	2017	2018
In-state undergraduate	6,939	6,762	6,394	6,142	6,107
Out-of-state undergraduate	515	533	605	621	734
In-state graduate	979	939	957	1,018	1,064
Out-of-state graduate	678	682	691	625	608
Total	9,111	8,916	8,647	8,406	8,513

Lowell Campus

Enrollment Type	2014	2015	2016	2017	2018
In-state undergraduate	10,690	10,912	11,792	12,216	12,343
Out-of-state undergraduate	2,296	2,354	1,850	1,797	1,666
In-state graduate	2,451	2,508	2,614	2,714	2,721
Out-of-state graduate	1,747	1,676	1,601	1,589	1,520
Total	17,184	17,450	17,857	18,316	18,250

Worcester Campus

Enrollment Type	2014	2015	2016	2017	2018
Medical School	508	515	543	565	617
Other	595	564	565	530	568
Total[++]	1,103	1,079	1,108	1,095	1,185

[++]Does not include the head count of registrants in the various continuing medical education programs offered at the Worcester Campus.

From Fall 2017 to Fall 2018, total new freshmen enrollees increased by approximately 9.1% for the system as a whole, while total new transfer enrollees decreased by 5.0% for the system as a whole, based on headcount. The number of total new freshmen enrollees reflected a 6.3% increase in the size of the entering class at the Amherst Campus, a 23.1% increase in new freshmen at the Boston Campus, a 6.6% increase at the Dartmouth Campus, and a 4.5% increase at the Lowell Campus. The number of total new transfer enrollees reflected an 8.5% decrease at the Amherst Campus, a 14.2% decrease at the Boston Campus, a 19.0% increase at the Dartmouth Campus, and a 0.8% decrease at the Lowell Campus.

The University saw an increase of approximately 4.0% in freshmen applications in Fall 2018 compared to Fall 2017. The increase in total freshmen applications included a 0.7% decrease at the Amherst Campus, a 13.3%

increase at the Boston Campus, a 9.3% increase at the Dartmouth Campus, and a 9.1% increase at the Lowell Campus. Transfer applications included an 18.0% increase at the Amherst Campus, an 8.4% decrease at the Boston Campus, a 43.4% increase at the Dartmouth Campus, and a 3.3% decrease at the Lowell Campus.

The following tables provide aggregate data for the campuses (except the Worcester Campus) on University applications, acceptances and matriculations for first year undergraduates and for transfer students.

First Year Applicants, Acceptances and Matriculants, Fall 2014-2018

Fiscal Year	2014	2015	2016	2017	2018
Applications Received	62,497	67,602	70,025	71,495	74,333
Number of Acceptances	40,347	41,582	43,604	46,334	49,584
Percent of Applicants Accepted	65%	62%	62%	65%	67%
Number of Matriculants	9,339	9,377	9,343	9,925	10,832
Percent Matriculated of Those Accepted	23%	23%	21%	21%	22%

Transfer Student Applicants, Acceptances and Matriculants, Fall 2014-2018

Fiscal Year	2014	2015	2016	2017	2018
Applications Received	10,048	9,961	9,971	9,980	10,900
Number of Acceptances	7,988	7,727	7,818	8,001	7,815
Percent of Applicants Accepted	79%	78%	78%	80%	72%
Number of Matriculants	4,893	4,869	4,746	4,777	4,538
Percent Matriculated of Those Accepted	61%	63%	61%	60%	58%

The following tables show the most currently available retention and graduation rates for undergraduate freshmen entering the University. The level and changes in retention and graduation rates reflect the diversity of the entering students.

One-Year Retention Rates - Fall Term (%)

Fiscal Year	2014	2015	2016	2017	2018
Range of Campus Averages	79-90	75-91	73-91	74-91	71-91

Six-Year Graduation Rates (%)

Fiscal Year	2014	2015	2016	2017	2018
Year of Entry	2008	2009	2010	2011	2012
Graduation After 6 Years - Range of Campus Averages+	42-76	42-78	45-77	48-77	48-80

+The low-end averages of the University data result from the Boston Campus, which focuses on the needs of non-traditional students.

The following table shows the average Scholastic Aptitude Test ("SAT") scores for entering University undergraduate freshmen.

SAT Scores for Incoming Freshmen

Academic Year	2013-2014*	2014-2015*	2015-2016*	2016-2017*	2017-2018*
Range of Campus Averages	1029-1218	1029-1226	1022-1225	1095-1268	1084-1296

*Combined Mathematics and Critical Reasoning scores.

Degrees Awarded

The University awards four levels of degrees: associate's, bachelor's, master's and doctoral/professional degrees. Trends in University degrees and certificates awarded for the past five years are shown in the following table.

Trends in Degrees Awarded

Academic Year	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Associate's/Certificate	472	538	508	578	653
Bachelor's	11,544	11,875	12,125	12,754	13,091
Master's/CAGS+	4,385	4,679	4,578	4,755	4,827
Doctorate/Professional	773	759	812	845	841

+CAGS means Certificate of Advanced Graduate Studies.

TUITION AND FEES

The following tables show tuition and mandatory fees for full-time graduate and undergraduate students in effect at the Amherst, Boston, Dartmouth, Lowell and Worcester Campuses for fiscal years 2015 through 2019.

AMHERST CAMPUS

Tuition & Mandatory Fees: FY 2015-2019

	Actual 2015[1]	Actual 2016[2]	Actual 2017[3]	Actual 2018[4]	Actual 2019[5]
TUITION					
Undergraduate (MA resident)	$1,714	$1,714	$14,590	$15,030	$15,406
Undergraduate (non-resident)	9,937	9,937	31,823	33,096	34,089
Graduate (MA resident)	2,640	2,640	13,524	13,930	14,348
Graduate (non-resident)	9,937	9,937	29,644	30,533	31,449
OTHER MANDATORY FEES					
Undergraduate (MA resident)	$11,544	$12,457	$381	$381	$481
Undergraduate (non-resident)	18,876	20,567	381	381	481
Graduate (MA resident)	11,411	12,114	2,089	2,157	2,176
Graduate (non-resident)	18,609	20,037	2,089	2,157	2,176
TOTAL TUITION & MANDATORY FEES					
Undergraduate (MA resident)	$13,258	$14,171	$14,971	$15,411	$15,887
Undergraduate (non-resident)	28,813	30,504	32,204	33,477	34,570
Graduate (MA resident)	14,051	14,754	15,613	16,087	16,524
Graduate (non-resident)	28,546	29,974	31,733	32,690	33,625
DORMITORY RESIDENTS ONLY					
Average Room & Board	$10,957	$11,503	$11,897	$12,258	$12,626
TUITION, MANDATORY FEES, ROOM & BOARD					
Undergraduate (MA resident)	$24,215	$25,674	$26,868	$27,669	$28,513
Undergraduate (non-resident)	39,770	42,007	44,101	45,735	47,196
Graduate (MA resident)	25,008	26,257	27,510	28,345	29,150
Graduate (non-resident)	39,503	41,477	43,630	44,948	46,251

[1] Reflects the tuition and mandatory curriculum fee freeze for resident undergraduates as supported by the second year of the 50/50 Initiative. See “UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations.”

[2] Includes an increase in fees approved by the University Trustees on June 17, 2015.

[3] Reflects the restructuring of tuition and fees enabled by the tuition retention legislation and includes an increase in tuition approved by the University Trustees on July 14, 2016. See “UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations.”

[4] Includes an increase in tuition approved by the University Trustees on July 17, 2017.

[5] Includes an increase in tuition approved by the University Trustees on July 13, 2018.

BOSTON CAMPUS

Tuition & Mandatory Fees: FY 2015- 2019

	Actual 2015[1]	Actual 2016[2]	Actual 2017[3]	Actual 2018[4]	Actual 2019[5]
TUITION					
Undergraduate (MA resident)	$1,714	$1,714	$13,110	$13,503	$13,841
Undergraduate (non-resident)	9,758	9,758	31,698	32,660	33,640
Graduate (MA resident)	2,590	2,590	16,863	17,375	17,896
Graduate (non-resident)	9,758	9,758	32,913	33,915	34,932
OTHER MANDATORY FEES					
Undergraduate (MA resident)	$10,252	$10,968	$325	$325	$326
Undergraduate (non-resident)	18,632	20,162	325	325	326
Graduate (MA resident)	12,428	13,525	355	355	355
Graduate (non-resident)	19,334	21,357	355	355	355
TOTAL TUITION & MANDATORY FEES					
Undergraduate (MA resident)	$11,966	$12,682	$13,435	$13,828	$14,167
Undergraduate (non-resident)	28,390	29,920	32,023	32,985	33,966
Graduate (MA resident)	15,018	16,115	17,218	17,730	18,251
Graduate (non-resident)	29,092	31,115	33,268	34,270	35,287
DORMITORY RESIDENTS ONLY					
Average Room & Board (Undergraduate only)					$14,858
TUITION, MANDATORY FEES, ROOM & BOARD					
Undergraduate (MA resident)					$29,025
Undergraduate (non-resident)					48,824

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[1] Reflects the tuition and mandatory curriculum fee freeze for resident undergraduates as supported by the second year of the 50/50 Initiative. See “UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations.”

[2] Includes an increase in fees approved by the University Trustees on June 17, 2015.

[3] Reflects the restructuring of tuition and fees enabled by the tuition retention legislation and includes an increase in tuition approved by the University Trustees on July 14, 2016. See “UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations.”

[4] Includes an increase in tuition approved by the University Trustees on July 17, 2017.

[5]Includes an increase in tuition approved by the University Trustees on July 13, 2018.

DARTMOUTH CAMPUS

Tuition & Mandatory Fees: FY 2015-2019

	Actual 2015[1]	Actual 2016[2]	Actual 2017[3]	Actual 2018[4]	Actual 2019[5]
TUITION					
Undergraduate (MA resident)	$1,417	$1,417	$12,783	$13,166	$13,496
Undergraduate (non-resident)	8,099	8,099	27,068	27,880	28,716
Graduate (MA resident)	2,071	2,071	14,999	15,449	15,912
Graduate (non-resident)	8,099	8,099	27,068	27,880	28,716
Graduate Law School (MA resident)	2,071	2,071	26,241	27,016	27,826
Graduate Law School (non-resident)	8,099	8,099	34,393	35,413	36,475
OTHER MANDATORY FEES					
Undergraduate (MA resident)	$10,264	$11,171	$405	$405	$425
Undergraduate (non-resident)	16,520	18,074	405	405	425
Graduate (MA resident)	11,881	12,902	405	405	425
Graduate (non-resident)	16,520	18,074	405	405	425
Graduate Law School (MA resident)	21,631	22,470	405	405	425
Graduate Law School (non-resident)	23,295	24,194	405	405	425
TOTAL TUITION & MANDATORY FEES					
Undergraduate (MA resident)	$11,681	$12,588	$13,188	$13,571	$13,921
Undergraduate (non-resident)	24,619	26,173	27,473	28,285	29,141
Graduate (MA resident)	13,952	14,973	15,404	15,854	16,337
Graduate (non-resident)	24,619	26,173	27,473	28,285	29,141
Graduate Law School (MA resident)	23,702	24,541	26,646	27,421	28,251
Graduate Law School (non-resident)	31,394	32,293	34,798	35,818	36,900
DORMITORY RESIDENTS ONLY					
Average Room & Board	$11,435	$11,622	$12,296	$12,753	$13,299
TUITION, MANDATORY FEES, ROOM & BOARD					
Undergraduate (MA resident)	$23,116	$24,210	$25,484	$26,324	$27,220
Undergraduate (non-resident)	36,054	37,795	39,769	41,038	42,440
Graduate (MA resident)	25,387	26,595	27,700	28,607	29,636
Graduate (non-resident)	36,054	37,795	39,769	41,038	42,440
Graduate Law School (MA resident)	35,137	36,163	38,942	40,174	41,550
Graduate Law School (non-resident)	42,829	43,915	47,094	48,571	50,199

[1] Reflects the tuition and mandatory curriculum fee freeze for resident undergraduates as supported by the second year of the 50/50 Initiative. See "UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations."

[2] Includes an increase in fees approved by the University Trustees on June 17, 2015.

[3] Reflects the restructuring of tuition and fees enabled by the tuition retention legislation and includes an increase in tuition approved by the University Trustees on July 14, 2016. See "UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations."

[4] Includes an increase in tuition approved by the University Trustees on July 17, 2017.

[5] Includes an increase in tuition approved by the University Trustees on July 13, 2018.

LOWELL CAMPUS
Tuition & Mandatory Fees: FY 2015-2019

	Actual 2015[1]	Actual 2016[2]	Actual 2017[3]	Actual 2018[4]	Actual 2019[5]
TUITION					
Undergraduate (MA resident)	$1,454	$1,454	$13,932	$14,350	$14,710
Undergraduate (non-resident)	8,567	8,567	30,500	31,415	32,357
Graduate (MA resident)[+]	1,637	1,637	14,304	14,590	14,590
Graduate (non-resident)[+]	6,425	6,425	25,853	26,370	26,370
OTHER MANDATORY FEES					
Undergraduate (MA resident)	$10,993	$11,973	$375	$450	$470
Undergraduate (non-resident)	18,833	20,558	375	450	470
Graduate (MA resident)[++]	11,162	12,162	375	450	470
Graduate (non-resident)[++]	16,553	18,053	375	450	470
TOTAL TUITION & MANDATORY FEES					
Undergraduate (MA resident)	$12,447	$13,427	$14,307	$14,800	$15,180
Undergraduate (non-resident)	27,400	29,125	30,875	31,865	32,827
Graduate (MA resident)	12,799	13,799	14,679	15,040	15,060
Graduate (non-resident)	22,978	24,478	26,228	26,820	26,840
DORMITORY RESIDENTS ONLY					
Average Room & Board	$11,278	$11,670	$12,073	$12,495	$12,748
TUITION, MANDATORY FEES, ROOM & BOARD					
Undergraduate (MA resident)	$23,725	$25,097	$26,380	$27,295	$27,928
Undergraduate (non-resident)	38,678	40,795	42,948	44,360	45,576
Graduate (MA resident)	24,077	25,469	26,752	27,535	27,808
Graduate (non-resident)	34,256	36,148	38,301	39,315	39,588

[1] Reflects the tuition and mandatory curriculum fee freeze for resident undergraduates as supported by the second year of the 50/50 Initiative. See "UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations."
[2] Includes an increase in fees approved by the University Trustees on June 17, 2015.
[3] Reflects the restructuring of tuition and fees enabled by the tuition retention legislation and includes an increase in tuition approved by the University Trustees on July 14, 2016. See "UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations."
[4] Includes an increase in tuition approved by the University Trustees on July 17, 2017.
[5] Includes an increase in tuition approved by the University Trustees on July 13, 2018.
[+] Graduate tuition charges at UMass Lowell are on a 9-credit load basis.
[++] Graduate fee charges at UMass Lowell are on a 9-credit load basis.

WORCESTER CAMPUS

Tuition & Mandatory Fees: FY 2015-2019

	Actual 2015[1]	Actual 2016[2]	Actual 2017[3]	Actual 2018[4]	Actual 2019[5]
TUITION					
Medical School (resident – class of '18 and prior)	$8,352	$8,352	$25,842	$28,426	-
Medical School (resident - class of '19 and beyond)	-	8,352	33,600	34,600	$35,500
Medical School (non-resident)	-	-	59,400	59,400	61,050
Graduate School of Nursing (MA resident)	2,640	2,640	9,900	13,500	13,870
Graduate School of Biomedical Sciences (MA resident)	2,640	2,640	6,424	13,930	14,300
Graduate School of Nursing (non-resident)	9,856	9,856	14,850	18,450	18,960
Graduate School of Biomedical Sciences (non-resident)	9,856	9,856	13,640	30,533	31,400
OTHER MANDATORY FEES					
Medical School (resident – class of '18 and prior)	$14,998	$17,158	$2,057	$2,078	-
Medical School (resident - class of '19 and beyond)	-	25,665	2,057	2,078	$2,276
Medical School (non-resident)	-	58,517	2,057	2,078	2,276
Graduate School of Nursing (resident and non-resident)	8,330	8,354	1,257	1,278	1,356
Graduate School of Biomedical Sciences (resident and non-resident)	4,302	4,326	932	953	1,031
TOTAL TUITION & MANDATORY FEES					
Medical School (resident – class of '18 and prior)	$23,350	$25,510	$27,899	$30,504	-
Medical School (resident - class of '19 and beyond)	-	34,017	35,657	36,678	$37,776
Medical School (non-resident)	-	58,517	61,457	61,478	63,326
Graduate School of Nursing (MA resident)	10,970	10,994	11,157	14,778	15,226
Graduate School of Biomedical Sciences (MA resident)	6,942	6,966	7,356	14,883	15,331
Graduate School of Nursing (non-resident)	18,186	18,210	16,107	19,728	20,316
Graduate School of Biomedical Sciences (non-resident)	14,158	14,182	14,572	31,486	32,431

[1] Includes an increase in fees approved by the University Trustees on June 18, 2014.
[2] Includes an increase in fees approved by the University Trustees on June 17, 2015.
[3] Reflects the restructuring of tuition and fees enabled by the tuition retention legislation and includes an increase in tuition approved by the University Trustees on July 14, 2016. See "UNIVERSITY REVENUES AND BUDGETING - Appropriated Funds - Annual Appropriations."
[4] Includes an increase in tuition approved by the University Trustees on June 14, 2017.
[5] Includes an increase in tuition approved by the University Trustees on June 20, 2018.

Student Financial Aid

Eligible University students receive financial aid packages primarily awarded from the federal government, with varying combinations of grants and scholarships, loans and part-time employment. Grants and scholarships represent financial aid that does not require repayment by the student. The primary federal grants and scholarships awarded to eligible University students were Federal Pell Grants of approximately $78.4 million and Federal Supplemental Education Opportunity Grants of approximately $3.1 million for fiscal year 2018. New loans processed by the University for eligible students under federal student loan programs and federally guaranteed loan programs totaled approximately $380.6 million for fiscal year 2018. Eligible University students also received approximately $5.0 million through the Federal Work-Study Program for fiscal year 2018.

UNIVERSITY REVENUES AND BUDGETING

In general, the University receives revenues from multiple sources: Commonwealth appropriations, student fees and self-supporting activities for which fees are charged to cover the cost of providing the service, and federal and state contracts. In fiscal year 2018, Commonwealth appropriations provided approximately 23% of all operating and non-operating revenues of the University (not including University Related Organizations), tuition and fees accounted for approximately 27% of all operating and non-operating revenues and other non-appropriated funds (including grants and contracts, auxiliary enterprises and other operating revenues) provided the remaining 50%.

The University prepares annual financial statements in accordance with generally accepted accounting principles on an accrual basis. The financial statements of the University as of June 30, 2018 and June 30, 2017 have been audited by Grant Thornton LLP, independent certified public accountants. The audited financial statements of the University should be read in their entirety, including the footnotes and the Management Discussion and Analysis attached thereto.

Budget Process

The University's fiscal year, like that of the Commonwealth, is from July 1 through June 30. A key source of University revenues is the annual state appropriation determined in the Commonwealth's annual budget process. This process begins approximately one year in advance of the commencement of each fiscal year. The University prepares its consolidated state budget request and forwards it to the Governor and the House and Senate Committees on Ways and Means. A copy of the University's request is also forwarded to the DHE, which incorporates the University's request in whole or in part into its state budget request for the entire public higher education system. The Governor makes funding recommendations to the state legislature (the "Legislature"). The Legislature in turn appropriates funds through its annual budget and other appropriating acts to the University Trustees, who distribute the funds to the five campuses. The Commonwealth budget process, however, is only one of several ongoing budgetary and review processes that culminate in the presentation to the University Trustees of the overall annual University operating budget.

Appropriated Funds

Tuition Retention

Massachusetts had historically been an anomaly in higher education because of the way it charged students to attend the University. In Massachusetts, mandatory curriculum fees made up the bulk of the cost of attending the University, rather than tuition. Tuition, which had not increased in over two decades, was set by the Massachusetts Board of Higher Education and was generally remitted to the Commonwealth's General Fund as a user fee. In fiscal year 2016, the University remitted approximately $30.5 million in tuition collected from in-state students. Fees, which had previously accounted for the majority of student charges, were set by the University Trustees and were retained by the University to fund its operations. The fees have fluctuated over the years as the level of state support provided in the state budget has changed. Over time, this led to a high fee, low tuition billing model that was antiquated and confusing.

In July 2015, the Legislature passed and the Governor signed into law provisions in the fiscal year 2016 state budget that would give the University the tools to adopt a new system of billing that conforms to best practices in higher education and is consistent with the rest of the nation. The ability for the University to retain tuition, referred to as "Tuition Retention," is the main provision of the law that allowed the University to rationalize and restructure its tuition and fees in a way that is transparent and consistent with its peer institutions.

Fiscal year 2017 reflects the first year of full Tuition Retention. This was an important step toward making the University more accountable and transparent to students, their families, Legislators and other stakeholders by showing student charges in a way that alleviates the confusion that had previously existed between tuition and mandatory fees.

Annual Appropriations

The following tables detail the University's appropriations received from the Commonwealth for fiscal years 2015-2019 and the calculation of total Commonwealth support reported in the financial statements for fiscal years 2014-2018. Table A details the University's base maintenance appropriation as provided for in the annual budget of the Commonwealth for fiscal years 2015 through 2019. An explanation of the legislative appropriation process by fiscal year is described in detail below. Table B details the total Commonwealth support received by the University from all sources for fiscal years 2014 through 2018, and is reflected in the University's financial statements.

TABLE A

Commonwealth Appropriations by Fiscal Year

Years Ended June 30*
($ millions)

Commonwealth Appropriations	2015 Budget	2016 Budget	2017 Budget+	2018 Budget	2019 Budget
UMass Base Appropriation	$519.0	$531.8	$508.3	$513.5	$519.2
Collective Bargaining Costs	2.2	10.9	0	0	22.9
9C Budget Reductions	(7.8)	0	0	0	0
Total UMass Base State Appropriation	$513.4	$542.7	$508.3	$513.5	$542.1

*Totals may not add due to rounding.
+ The 2017 appropriation amount was the result of a reduction related to the Tuition Retention Legislation passed as part of the fiscal year 2016 budget. With the University now able to retain approximately $30.5 million in tuition, the state appropriation was reduced by a corresponding amount in order to ensure that Tuition Retention is cost-neutral to both the University and the Commonwealth.

The Commonwealth pays the fringe benefit cost for those University employees who are paid from Commonwealth appropriations. Therefore, such fringe benefit support is added to the "State Appropriations" financial statement line item as presented in the table below. The University pays the Commonwealth for the fringe benefit cost of the employees paid from funding sources other than Commonwealth appropriations. The University includes tuition collected in the line item in its financial statements captioned "Tuition and Fees" under "Combined Statements of Revenue, Expenses and Changes in Net Position" and prior to 2017 removed the equal amount from the "State Appropriations" line item through the netting process presented in the following table.

TABLE B

Years Ended June 30
($ thousands)

Fiscal Year	2014	2015	2016	2017	2018
Gross Commonwealth Appropriations	$486,656	$516,794	$546,953	$512,900	$528,868
Plus: Fringe Benefits	141,881	159,403	178,032	207,917	223,026
Less: Tuition Remitted	(34,325)	(31,055)	(30,583)	0	0
Less: Mandatory Waivers	(23,594)	(23,942)	(24,653)	0	0
Net Commonwealth Appropriations	$570,618	$621,200	$669,749	$720,817	$751,894

The fiscal year 2014 budget approved in July 2013 included a new funding model pursuant to which the Commonwealth's appropriations are set at an amount expected to cover approximately 50% of the cost to educate Massachusetts undergraduate students at the University (the "50/50 Initiative"). The 50/50 Initiative required an increase in the Commonwealth's base state appropriation of $39.1 million in each of fiscal year 2014 and 2015.

This investment, along with additional fringe support of $10.8 million provided the University with $100 million in additional appropriations over fiscal years 2014 and 2015. The Governor and the Legislature embraced the 50/50 Initiative for the fiscal year 2014 budget, and provided the increased funding which allowed the University to freeze undergraduate tuition and mandatory fees for Massachusetts residents for the 2013-2014 academic year. The 50/50 Initiative had an immediate and meaningful impact on thousands of Massachusetts residents as their undergraduate tuition and mandatory curriculum fees did not increase in the 2013-2014 academic year. It is expected to provide such undergraduate students with long-term relief by allowing them to graduate and enter the workforce with less student debt. The total base state appropriation for fiscal year 2014 was $478.9 million.

The fiscal year 2015 budget approved in July 2014 supported the second year of the 50/50 Initiative by increasing the University's base appropriation to $519.0 million. With the approval of the Commonwealth's fiscal year 2015 budget and the corresponding increase in appropriations for the University, the University continued the implementation of the 50/50 Initiative. At its June 18, 2014 Board Meeting, the University's Trustees approved the freezing of tuition and mandatory curriculum fees for in-state undergraduate students for the 2014-2015 academic year.

On February 3, 2015, Governor Baker exercised his 9C Authority to address a projected $765 million shortfall in the Commonwealth's fiscal year 2015 budget, by proposing legislation to make certain budgetary reductions. The final bill, which was signed by the Governor on February 13, 2015, reduced the University's fiscal year 2015 base appropriation of $519.0 million by approximately $7.8 million to $511.2 million. The University absorbed these reductions into its operations for fiscal year 2015. The University requested funding to account for the first year of collective bargaining increases with parameters set by the Commonwealth's administration with a total first year cost of $13.1 million. Supplemental funding was supported in Chapter 10 of the Acts of 2015 for $2.2 million of the total need.

The fiscal year 2016 budget approved in July 2015 included a base state appropriation of $531.8 million, representing an increase of 2.5% over the original fiscal year 2015 amount. The original 2016 base appropriation did not include funding for the fiscal year 2015 or fiscal year 2016 collective bargaining increases and fell short of the University's request of $578 million. Given the level of state funding, the University did not continue to freeze tuition and fees for fiscal year 2016. On June 17, 2015, the University Board of Trustees approved a 5% tuition and mandatory fee increase for in-state undergraduate students. Supplemental funding for collective bargaining was subsequently supported in Chapter 70 of the Acts of 2016 for $10.9 million, satisfying the remaining need for the first year cost of the collective bargaining increases.

The fiscal year 2017 budget approved in July 2016 included a base state appropriation of $508.3 million. During FY2016 supplemental funding was provided in support of collective bargaining; this funding was not fully carried into the base appropriation for FY2017 which resulted in underfunding of collective bargaining. The 2017 appropriation amount was also the result of a reduction related to the Tuition Retention Legislation passed as part of the fiscal year 2016 budget. With the University now being able to retain approximately $30.51 million in tuition, the state appropriation was reduced by a corresponding amount in order to ensure that Tuition Retention is cost-neutral to both the University and the Commonwealth. With flat state appropriations and no additional funds for the second or third years of collective bargaining increases, the University Board of Trustees approved an average increase to tuition and mandatory fees of 5.6% for in-state undergraduates at a special meeting on July 14, 2016.

The fiscal year 2018 budget approved in July 2017 included a base state appropriation of $513.5 million, representing an increase of 1.0% over the fiscal 2017 appropriation. The budget did not include a specific reserve or funding for collective bargaining as the parameters were not yet available. Subsequent to the approval of the state budget, bargaining parameters were established for the fiscal year 2018 – 2020 period; this was ultimately funded during fiscal year 2019. With the base appropriation falling short of the University's funding request, the Board of Trustees approved an average increase to tuition and mandatory fees of 3.1% at a special meeting on July 17, 2017.

The fiscal year 2019 budget approved in July 2018 included a base state appropriation of $519.2 million, representing an increase of 1.1% over the fiscal 2018 appropriation. The state budget included a collective bargaining reserve however that reserve was short of the total needed to fund all contracts under negotiations (not limited to the University). Working closely with the Administration, the University secured a commitment to fund $11.3 million for the retroactive adjustment for fiscal year 2018; of that amount, $10.9 million has been transferred to date with the remaining $339 thousand pending the completion of certain contracts. Additionally, $22.9 million was committed for fiscal year 2019 with $14.3 million transferred to date. Of the remaining fiscal year 2019 amount to be transferred, $8.2 million is pending the passage of a supplemental budget that was filed in early February.

The University has submitted its budget request to the Administration for fiscal year 2020. UMass is requesting a base appropriation of $568.3 million, which assumes that the base appropriation will include the value of collective bargaining secured in fiscal year 2019 ($22.9 million), will fund the incremental value of collective bargaining for fiscal year 2020 ($11.8 million), and requests additional funding for fixed cost increases of the University ($14.4 million). The fiscal year 2020 budget process is currently underway. On January 23, 2019, the Governor released his budget recommendations, which included $558.0 million in base appropriations for the University. This amount represents the requested collective bargaining amounts plus a 1.0% increase to assist with fixed costs. The House and Senate continue to develop their recommendations, which are expected in April and May, respectively.

Management of Non-Appropriated Funds

All non-appropriated funds are managed and grouped for budgetary purposes into several trust funds. Non-appropriated funds are funds derived by the University from revenue sources other than Commonwealth appropriations and include, for example, student fees, gifts, grants, contracts and sponsored programs. The University Trustees establish and collect certain student fees and charges, including charges for room and board. Non-appropriated funds are retained by the University. Approximately 77% of the University's operating and non-operating revenues for fiscal year 2018 were non-appropriated.

University trust funds are financial accounts that are established by the University Trustees under authority granted by the Legislature in connection with self-supporting operations, such as student services, parking and certain research and public service activities. Revenues received from these self-supporting activities are expended by law for the respective purposes for which each trust fund was established. The University Trustees exercise oversight and control over these funds through official policy guidelines, annual budget review and approval and periodic internal audits of certain accounts.

The University's financial operations consist of two major expense categories: Educational and General and Auxiliary Enterprises. The Educational and General expense budget includes research, academic programs, public service programs, student services programs, academic and institutional support programs, physical plant operations and financial aid. These activities are funded from student tuition and fees, Commonwealth and Federal appropriations, and grants and contracts. Auxiliary Enterprises are a set of self-sufficient services ancillary to the general educational mission of the University. These include such items as dining and residence halls, student health services and parking facilities. The Auxiliary Enterprises budget is a revenue-based trust fund. No assurance can be given that future trust fund revenues will continue to be sufficient to support self-amortizing projects or other Auxiliary Enterprises. The University reviews fees annually with the goal of having the Auxiliary Enterprises budget be self-sufficient.

Responding to a Challenging Fiscal Environment

The University continues to benefit from the increased demand for its educational services. The University's growing reputation, combined with difficult economic conditions in the Commonwealth, have resulted in continued growth in student enrollment and the associated revenue growth from student charges, at all of the University's campuses. In addition, the University benefits from having diverse revenue streams. Grant and contract revenues have grown consistently over the years and the University anticipates continued growth in this area. Modest increases in room and board rates are also expected to generate revenues for auxiliary operations. Additionally, the University's online presence continues to expand. For fiscal year 2018, UMassOnline achieved an approximate 8% increase in revenue and an approximate 4% increase in enrollment. Compared with the previous year, revenues increased from approximately $105 million to approximately $113 million.

Understanding that the current fiscal environment poses significant challenges for the University and its students, the responsibility to be a good steward of limited resources is taken seriously. The University, through its Board of Trustees, created a permanent Task Force on Efficiencies and Effectiveness charged with helping to ensure that improving quality through more efficient and effective operations continues to be a priority for the University. The Task Force, along with the President's Office and the campuses, is working to promote a more standardized approach for cross-campus collaboration and oversight of the entire effort, track and report progress, and quantify the benefits to the University and its campuses. Over the last few years the University has achieved measureable savings and efficiencies and expects current efforts to yield additional savings going forward.

The University continues to focus on improving its competitive position. The University opened the first-ever student dormitories at UMass Boston in September 2018, achieving a long-held goal of providing UMass Boston students with an on-campus residential option. The student housing complex accommodates UMass Boston freshmen and transfer students and was built via an innovative public-private partnership.

Basis of Presentation

The financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America as prescribed by the Governmental Accounting Standards Board ("GASB") using the economic resources measurement focus and the accrual basis of accounting. These statements are reported on a combined basis and all intra-University transactions are eliminated.

Operating revenues consist of tuition and fees, grants and contracts, sales and services of educational activities (including royalties from licensing agreements) and Auxiliary Enterprise revenues. Operating expenses include salaries, wages, fringe benefits, utilities, subcontracts on grants and contracts, supplies and services and depreciation and amortization. All other revenues and expenses of the University are reported as non-operating revenues and expenses including state general appropriations, non-capital gifts, short term investment income, endowment income used in operations, interest expenses and capital additions and deductions. Capital items represent all other changes in long term plant and endowment net assets. Revenues are recognized when earned and expenses are recognized when incurred with the exception of revenue earned on certain public service activities. Restricted grant revenue is recognized only when all eligibility requirements have been met, that is to the extent grant revenues are expended or in the case of fixed price contracts, when the contract terms are met or completed. Contributions, including unconditional promises to give (pledges) for non-endowment or non-capital purposes, are recognized as revenues in the period received. Promises of additions to non-expendable endowments are not recognized until cash or other assets are received. Conditional promises to give are not recognized until they become unconditional, that is when the conditions on which they depend are substantially met. When an expense or outlay is incurred for which both restricted and unrestricted net assets are available, the University applies restricted net assets first.

The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and judgments that affect the reported amounts of assets and liabilities, as well as disclosures of contingencies at the date of the financial statements and the revenues and expenditures recognized during the reporting period. Significant estimates include the accrual for employee compensated absences, the accrual for workers' compensation liability, the allowance for doubtful accounts, valuation of certain investments and depreciation expense. Actual results could differ from those estimates.

The University reports its financial statements as a business-type activity ("BTA") under GASB Statement No. 35, *Basic Financial Statements - and Management's Discussion and Analysis - for Public Colleges and Universities* ("GASB 35"). BTAs are defined as those that are financed in whole or in part by fees charged to external parties for goods or services.

In order to ensure observance of limitations and restrictions placed on the use of available resources, the accounts of the University are maintained internally in accordance with the principles of "fund accounting". This is the procedure by which resources for various purposes are maintained in separate funds in accordance with the activities or objectives specified. GASB 35 requires that external financial statements to be reported on a consolidated basis and establishes standards for external financial reporting by public colleges and universities that resources be classified into the following net asset categories:

- **Net investment in capital assets:** Capital assets, at historical cost, or fair market value on date of gift, net of accumulated depreciation and outstanding principal balances of debt attributable to the acquisition, construction or improvement of those assets.

- **Restricted Nonexpendable:** Net assets subject to externally imposed stipulations that they be maintained permanently by the University.

- **Restricted Expendable:** Net assets whose use by the University is subject to externally imposed stipulations. Such assets include restricted grants and contracts, the accumulated net gains/losses on true endowment funds, as well as restricted funds loaned to students, restricted gifts and endowment income and other similar restricted funds.

- **Unrestricted:** Net assets that are not subject to externally imposed stipulations. Substantially all unrestricted net assets are designated to support academic, research, Auxiliary Enterprises or unrestricted funds functioning as endowments or are committed to capital construction projects.

Revenues are reported net of discounts and allowances. As a result, student financial aid expenditures are reported as an allowance against tuition and fees revenue while stipends and other payments made directly to students are recorded as scholarship and fellowship expenditures on the statement of revenues, expenses and other changes to net assets and are included in supplies and services on the statement of cash flows. Discounts and allowances for tuition and fees and Auxiliary Enterprises are calculated using the Alternate Method.

In 2015, the University adopted the provisions of GASB Statement No. 68, *Accounting and Financial Reporting for Retirement Benefits – an amendment of GASB Statement No. 27* ("GASB 68"). GASB 68 addresses accounting and financial reporting for pensions that are provided to the employees of state and local governments through pension plans that are administered through trusts that have certain characteristics and establishes standards for measuring and recognizing liabilities, deferred outflows of resources, deferred inflows of resources, and expenditures. The implementation of GASB 68 resulted in a cumulative effect adjustment of ($238,906) to the net position in the 2015 Statement of Revenues, Expenses, and Changes in Net Position as of July 1, 2014 for the recording of pensions.

In 2018, the University adopted the provisions of GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* ("GASB 75"). The statement supersedes GASB statement No. 45 and establishes new requirements for calculating and reporting the University's postemployment benefits. The implementation of GASB 75 resulted in a cumulative effect adjustment of ($742,982) to the net position in the 2018 Statement of Revenues, Expenses, and Changes in Net Position as of July 1, 2017. The application of GASB 75 was recorded effective in the beginning of fiscal year 2018 because this was the earliest date that was practical based on available information.

SUMMARY OF OPERATIONS*

University
Combined and Condensed Statement of Net Position

As of June 30 ($ thousands)

	2014	2015	2016	2017	2018
ASSETS					
Current Assets	$ 592,750	$ 692,679	$ 677,927	$ 742,482	$918,685
Noncurrent Assets					
Capital Assets, Net	4,064,786	4,333,761	4,615,776	4,854,110	5,075,476
All Other Noncurrent Assets	1,543,391	1,501,421	1,294,028	1,404,203	1,291,309
Total Assets	**$6,200,927**	**$6,527,861**	**$6,587,731**	**$7,000,795**	**$7,285,470**
DEFERRED OUTFLOWS OF RESOURCES	**$123,567**	**$178,410**	**$293,432**	**$275,725**	**$341,335**
LIABILITIES					
Current Liabilities	$ 674,330	$ 856,460	$ 774,837	$ 622,084	$ 934,525
Noncurrent Liabilities	2,831,869	3,133,710	3,294,183	3,562,485	4,161,911
Total Liabilities	**$3,506,199**	**$3,990,170**	**$4,069,020**	**$4,184,569**	**$5,096,436**
DEFERRED INFLOWS OF RESOURCES	**$-**	**$48,753**	**$12,050**	**$37,671**	**$141,485**
NET POSITION					
Net Investment in Capital Assets	$1,800,767	$1,887,941	$2,013,966	$2,208,370	$2,288,599
Restricted					
Nonexpendable	17,387	18,378	18,384	27,443	28,022
Expendable	174,530	169,591	218,272	201,710	222,343
Unrestricted	825,611	591,438	549,471	616,757	(150,080)
Total Net Position	**$2,818,295**	**$2,667,348**	**$2,800,093**	**$3,054,280**	**$2,388,884**

* Derived from the Annual Audited Financial Report for Fiscal Years 2014-2018. The University's financial statements include prior year comparative information. Certain prior year amounts have been reclassified to conform with the current year presentation. These reclassifications have no effect on total net assets.

University
Combined Statement of Revenues, Expenses and Changes in Net Position

For The Years Ended June 30 ($ thousands)

REVENUES	**2014**	**2015**	**2016**	**2017**	**2018**
Operating Revenues					
Tuition and Fees*	$ 740,116	$ 765,218	$ 826,815	$ 847,832	$874,826
Grants and Contracts	511,694	510,741	528,352	560,081	560,990
Sales & Service, Educational Activities	21,792	25,601	27,500	28,910	30,591
Auxiliary Enterprises	349,485	362,193	383,281	400,822	416,733
Other Operating Revenues					
Sales & Service, Independent Operations	44,296	48,368	47,613	79,261	68,497
Sales & Service, Public Service Activities	448,478	295,429	476,831	418,726	381,018
Other	93,418	105,234	113,104	104,957	136,159
Total Operating Revenues	**$2,209,279**	**$2,112,784**	**$2,403,496**	**$2,440,589**	**$2,468,814**

EXPENSES	**2014**	**2015**	**2016**	**2017**	**2018**
Operating Expenses					
Educational and General					
Instruction	$ 690,635	$ 712,430	$ 794,691	$ 824,042	$876,235
Research	407,425	433,586	434,213	447,370	471,135
Public Service	77,985	72,910	71,457	68,083	78,238
Academic Support	151,000	167,582	181,057	177,173	187,495
Student Services	119,295	127,988	141,915	151,033	156,934
Institutional Support	219,920	237,212	248,379	247,740	271,535
Operation and Maintenance of Capital Assets	214,972	217,913	228,406	240,501	255,825
Depreciation and Amortization	204,233	221,043	240,865	245,300	261,417
Scholarships and Fellowships	49,242	49,300	44,645	47,710	50,410
Auxiliary Enterprises	265,080	273,680	297,089	306,850	313,741
Other Expenditures					
Independent Operations	44,861	40,961	47,930	57,276	52,211
Public Service Activities	365,252	227,692	410,106	345,875	325,216
Total Operating Expenses	**$2,809,900**	**$2,782,297**	**$3,140,753**	**$3,158,953**	**$3,300,392**
Operating Loss	**($600,621)**	**($669,513)**	**($737,257)**	**($718,364)**	**($831,578)**

* Net of scholarship allowances of $310,106 at June 30, 2018, $288,708 at June 30, 2017, $244,025 at June 30, 2016, $212,469 at June 30, 2015, and $201,186 at June 30, 2014.

(continued)

NONOPERATING REVENUES/(EXPENSES)	2014	2015	2016	2017	2018
Federal Appropriations	$7,020	$6,619	$6,827	$6,602	$6,688
State Appropriations	570,618	621,200	669,748	720,817	751,894
Gifts	29,013	30,351	42,415	26,253	39,022
Investment Income	86,685	29,579	29,381	31,567	37,622
Unrealized Gain (Loss) on Investments		(11,327)	(7.633)	15,466	5,558
Endowment Income	16,642				
Endowment Income Distributed for Operations		23,362	24,740	26,877	26,742
Interest on Indebtedness	(89,496)	(100,332)	(105,276)	(110,069)	(115,851)
Non-operating Federal Grants	74,279	76,539	75,743	74,050	81,590
Other Non-operating Income	1,046	2,927	1,540	17,085	1,118
Net Non-operating Revenues	**$695,807**	**$678,918**	**$737,485**	**$808,648**	**$834,383**
Income/(Loss) Before Other Revenues, Expenses, Gains and Losses	**$95,186**	**$9,405**	**$228**	**$90,284**	**$2,805**
Capital Appropriations	$112,132	$62,582	$121,298	$121,380	$67,437
Capital Grants, Contracts and Gifts	22,237	55,823	54,244	29,080	8,732
Endowment Return, Net of Amount Used for Operations		(12,166)	(28,958)	21,278	8,166
Disposal of Plant Facilities	(6,198)	(12,120)	(10,462)	(4,274)	(6,695)
Other Deductions	(19,418)	(15,565)	(3,605)	(3,561)	(2,859)
Total Other Revenues, Expenses, Gains and Losses	**$108,753**	**$78,554**	**$132,517**	**$163,903**	**$74,781**
Total Increase in Net Position	**$203,939**	**$87,959**	**$132,745**	**$254,187**	**$77,586**
NET POSITION					
Net Position at Beginning of Year	$2,614,356	$2,818,295	$2,667,348	$2,800,093	$3,054,280
Cumulative effect of adoption of GASB 68		(238,906)			
Cumulative effect of adoption of GASB 75					(742,982)
Net Position at Beginning of Year, Adjusted	$2,614,356	$2,579,389	$2,667,348	$2,800,093	$2,311,298
Net Position at End of Year	**$2,818,295**	**$2,667,348**	**$2,800,093**	**$3,054,280**	**$2,388,884**

SUMMARY OF FINANCIAL RESULTS, FISCAL YEARS 2017 THROUGH 2018

The following is a summary of the University's financial results for fiscal years 2017 through 2018.

Fiscal Year 2018

Financial Highlights

The University's net position (not including University Related Organizations) decreased approximately $665.4 million from $3.1 billion in fiscal year 2017 to $2.4 billion in fiscal year 2018 due to the cumulative effect of the adoption of GASB 75.

The University expended approximately $255.8 million on operation and maintenance of capital assets during fiscal year 2018.

Summary of Assets and Liabilities

At June 30, 2018, the University's total assets (not including University Related Organizations) were approximately $7.3 billion, an increase of approximately $284.7 million over the approximately $7.0 billion in assets recorded in fiscal year 2017. The University's largest asset continues to be its net capital assets of $5.1 billion at June 30, 2018 ($4.9 billion in fiscal year 2017). Other significant assets include current and noncurrent investments.

University liabilities (not including University Related Organizations) totaled approximately $5.1 billion at June 30, 2018, an increase of approximately $911.9 million compared to the approximately $4.2 billion in liabilities in fiscal year 2017.

The University's current assets of approximately $918.7 million in fiscal year 2018 were below the current liabilities of approximately $934.5 million, as the current ratio was 0.98 dollars in assets to every one dollar in liabilities. In fiscal year 2017, the current ratio was 1.19 (approximately $742.5 million in current assets and $622.1 million in current liabilities).

The University's unrestricted and restricted expendable net assets totaled approximately $72.3 million, which represents approximately 2% of total operating expenditures of approximately $3.34 billion during fiscal year 2018.

In fiscal year 2018, the University's unrestricted net assets totaled approximately ($150.1) million, after taking into account the impact of two GASB standards related to pensions and other post-employment benefits. These standards required recording the University's share of the Commonwealth's unfunded liabilities. In 2018, total unrestricted net position of 981.0 million was offset by (339.5) million in unfunded pension liability and (791.5) in unfunded other postretirement benefits liability, giving rise to the (150.1) million net unrestricted net position. Substantially all unrestricted net assets are designated to support academic, research, auxiliary enterprises or unrestricted funds functioning as endowments, or are committed to capital construction projects.

Summary of Operating Revenues and Operating Expenditures

The University's total operating revenues for fiscal year 2018 were approximately $2.5 billion. This represents an increase of approximately $28.2 million over the approximately $2.4 billion in operating revenues in fiscal year 2017. The most significant sources of revenue for the University are tuition and fees, grants and contracts, auxiliary enterprises and public service activities at the Worcester Campus. Tuition and fees, grants and contracts, auxiliary enterprises and all other operating revenue (which includes the above referenced public service activities) represent 35%, 23%, 17% and 25%, respectively, of total operating revenues.

In fiscal year 2018, University operating expenditures, including depreciation and amortization of approximately $261.4 million, totaled approximately $3.3 billion. Of this total, approximately $1.8 billion or 54% was used to support the academic core activities of the University, including approximately $471.1 million in research.

State Appropriations

In fiscal year 2018, state appropriations represented approximately 23% of all operating and non-operating revenues. The level of state support is a key factor influencing the University's overall financial condition. Although the state appropriation is unrestricted revenue, nearly all of the state appropriation supports payroll and benefits for University employees.

In fiscal year 2018, the state appropriation increased approximately $31.1 million over fiscal year 2017 amounts.

Fiscal Year 2017

Financial Highlights

The University's net position (not including University Related Organizations) increased approximately $254.2 million from $2.8 billion in fiscal year 2016 to $3.1 billion in fiscal year 2017.

The University expended approximately $240.5 million on plant operations and maintenance activities during fiscal year 2017.

Summary of Assets and Liabilities

At June 30, 2017, the University's total assets (not including University Related Organizations) were approximately $7.0 billion, an increase of approximately $413.1 million over the approximately $6.6 billion in assets recorded in fiscal year 2016. The University's largest asset continues to be its net capital assets of $4.9 billion at June 30, 2017 ($4.6 billion in fiscal year 2016). Other significant assets include current and noncurrent investments.

University liabilities (not including University Related Organizations) totaled approximately $4.2 billion at June 30, 2017, an increase of approximately $115.5 million compared to the approximately $4.1 billion in liabilities in fiscal year 2016.

The University's current assets of approximately $742.5 million in fiscal year 2017 were above the current liabilities of approximately $622.1 million, as the current ratio was 1.19 dollars in assets to every one dollar in liabilities. In fiscal year 2016, the current ratio was 0.87 (approximately $677.9 million in current assets and $774.8 million in current liabilities).

The University's unrestricted and restricted expendable net assets totaled approximately $818.5 million, which represents approximately 26% of total operating expenditures of approximately $3.2 billion during fiscal year 2017.

In fiscal year 2017, the University's unrestricted net assets totaled approximately $616.8 million. Substantially all unrestricted net assets are designated to support academic, research, auxiliary enterprises or unrestricted funds functioning as endowments, or are committed to capital construction projects.

Summary of Operating Revenues and Operating Expenditures

The University's total operating revenues for fiscal year 2017 were approximately $2.4 billion. This represents an increase of approximately $37.1 million over the approximately $2.4 billion in operating revenues in fiscal year 2016. The most significant sources of revenue for the University are tuition and fees, grants and contracts, auxiliary enterprises and public service activities at the Worcester Campus. Tuition and fees, grants and contracts, auxiliary enterprises and all other operating revenue (which includes the above referenced public service activities) represent 35%, 23%, 16% and 26%, respectively, of total operating revenues.

In fiscal year 2017, University operating expenditures, including depreciation and amortization of approximately $245.3 million, totaled approximately $3.2 billion. Of this total, approximately $1.7 billion or 53% was used to support the academic core activities of the University, including approximately $447.4 million in research.

State Appropriations

In fiscal year 2017, state appropriations represented approximately 22% of all operating and non-operating revenues. The level of state support is a key factor influencing the University's overall financial condition.

Although the state appropriation is unrestricted revenue, nearly all of the state appropriation supports payroll and benefits for University employees.

In fiscal year 2017, the state appropriation increased approximately $51.1 million over fiscal year 2016 amounts.

Endowment and Fundraising

The University's endowment assets, which are held by the Foundation, have increased to approximately $842.9 million at June 30, 2018 from approximately $792.3 million at June 30, 2017. The University raised approximately $120.7 million in gifts, pledges, gifts-in-kind and private research grants in fiscal year 2018. The number of endowed chairs has grown from four in 1995 to approximately 109 in 2018, enhancing the University's academic reputation.

The total investment return for fiscal year 2018, including realized and unrealized gains and losses was a net gain of approximately $47.8 million. The endowment funds for all five of the University's campuses are commingled into a pooled investment fund and are tracked by the Foundation using unit value accounting. The Foundation employs a market value unit method of accounting, whereby participating endowment funds enter and withdraw from the pooled investment fund based on monthly unit values. Changes in market value and monthly income are allocated proportionately to each endowment fund participant. The effective spending rate for Foundation endowment funds was 3.3% for fiscal year 2018, which represents approximately 1.0% of the University's total operating and non-operating revenues.

The following details the University endowment assets at June 30:

University Endowment Assets
($ thousands)

2014	2015	2016	2017	2018
$743,710	$739,606	$707,246	$792,278	$842,858

CURRENT AND FUTURE CAPITAL PLANS

In September 2018, the University Trustees reviewed and approved a five-year capital plan for fiscal years 2019-2023, including projects already in process with prior approval of the University Trustees. The University generally has funded its capital plans through a combination of funds received from University operations, bonds issued by UMBA, bonds issued by MDFA, Commonwealth appropriations and private fund raising.

The University must follow certain procedures for state capital spending as defined by the Commonwealth's Executive Office for Administration and Finance ("EOAF"). Such spending may be financed through the issuance of Commonwealth general or special obligation bonds or other designated revenue, including transfers from budgeted funds. The Commonwealth's Division of Capital Asset Management and Maintenance ("DCAMM") manages a five-year capital-spending plan, which is approved by the Commonwealth's Secretary of Administration and Finance. The University works closely with DCAMM to ensure that the priorities of the University are included in the five-year capital plan for state funding.

In addition, EOAF must approve any project that is financed through UMBA and will verify that it has received approval by the University Trustees and included in the University's Capital Plan.

The University Trustees, University administration, and campus leadership have identified capital issues as instrumental to the University's goal of continuing to improve educational quality at all five campuses by enhancing academic achievement and student experience. Following a period of limited investment in the University's capital assets in the 1980s and 1990s, the University has invested more than $4 billion in capital projects between fiscal years 2005 and 2018. Given the average age of the University's campus buildings, a significant need to maintain and upgrade capital assets is expected over the next decade. The University's administration works closely with each of the campuses in developing the capital plan to reflect the needs and goals of each of the campuses. To further improve project planning and implementation across the University, the University administration and UMBA have collaborated with campus leadership to design an integrated project assessment and tracking process. Furthermore, within budgetary limitations and programmatic requirements, the University is making a concerted effort to incorporate the principles of energy efficiency and sustainability in all its capital projects.

In 2016, the Baker Administration launched a multi-phased strategic planning effort with multiple work groups including Economic Development, Workforce Development, and Higher Education. The focus of the Higher Education work group was to develop a strategic framework for Higher Education Capital Planning. The work group conducted multiple regional planning workshops to develop a shared understanding of state-wide issues and to solicit input around criteria, principles, and metrics for future capital investment. The resulting methodology places a high priority on deferred maintenance and the repair and renovation of existing space. Higher Education institutions are required to submit project proposals which undergo a multi-step review process and must align to Commonwealth priorities. The new methodology for project selection was utilized to develop the fiscal year 2019 state capital plan that was released in May 2018. The plan included funding for four key areas of capital investment, including critical repairs, critical infrastructure, new major projects, and readiness determination projects. The Science and Engineering Building Renovation project at UMass Dartmouth was chosen for $25 million of funding as a new major project. The Commonwealth also committed to a total of $76 million in critical repair funding for the University over the next five years, which will aid in addressing the University's deferred maintenance needs.

Addressing deferred maintenance remains a priority within the University's 2019-2023 capital plan. In 2015, the University hired Sightlines to conduct a Building Portfolio Solutions analysis in order to ensure that deferred maintenance was being consistently reported across all campuses and to develop a strategy for addressing deferred maintenance at the University. This analysis, now complete, will be the basis for recommending projects as part of the University capital planning process outlined in the University Trustee policy.

The projects within the capital plan are organized by approval status, per University Trustee policy:

Approval of the Preliminary Campus Estimate – Preliminary approval is granted to a project that meets established criteria. Preliminary approval is one of two required Board votes and allows a campus to proceed with a project. The campus will work with UMBA and other professionals to complete all the necessary studies and designs and develop a more complete project scope and cost estimate.

Full Project Approval – Full Project Approval is granted to a project that has completed the UMBA review process and has a confirmed project cost estimated. Once a project has reached the study phase or has completed the UMBA project review, it is eligible for Full Project Approval by the President and/or the Board depending on project costs. A project cannot proceed to the design phase unless it has secured the Full Project Approval.

The following table summarizes the most recent quarterly update to the 2019-2023 five-year capital plan, by approval status:

University Campus	Preliminary Approval	Full Project Approval	Total Approved
Amherst	$386,050,000	$508,800,000	$894,850,000
Boston	$0	$635,212,693	$635,212,693
Dartmouth	$54,436,421	$216,078,138	$270,514,559
Lowell	$18,500,000	$151,400,000	$169,900,000
Worcester	$26,340,000	$112,000,000	$138,340,000
Total	**$485,326,421**	**$1,623,490,831**	**$2,108,817,252**

Source: Quarterly Approved Project List update to the Five-Year Capital Plan as of November 2018.

INDEBTEDNESS OF THE UNIVERSITY

The University is obligated, under various contractual arrangements, to make payments on indebtedness issued on its behalf, including indebtedness issued by UMBA and MDFA, as described below.

Bonds Issued by UMBA

UMBA was created as a body politic and corporate and a public instrumentality of the Commonwealth for the general purpose of aiding and contributing to the performance of the educational and other purposes of the University by providing dormitories, dining commons and other buildings and structures for the use of the University, its students, staff and their dependents and for lease to certain other entities related to the University, all in accordance with UMBA's enabling legislation.

As of June 30, 2018, UMBA had outstanding bonds (exclusive of commercial paper) of approximately $2.8 billion for which the University is contractually obligated to provide for the payment of debt service or act as UMBA's agent to collect rates, rents, fees and other charges. Such bonds, like the University's MDFA bonds described below, are not subject to acceleration. See below under "Annual Debt Service on UMBA and MDFA Bonds" for the annual debt service on such bonds in each year. UMBA's bonds are secured by and payable from, in addition to other moneys, all available funds of the University, including trust funds and other funds administered by the University as gifts, grants or trusts, or as provided in the University enabling act. Further, the University is obligated under a contract with UMBA to cause to be available each year sufficient accumulated unrestricted funds to pay such costs. Such amounts for the last five fiscal years are set forth in the below table under "Spendable Cash and Investments." As described below, previously such accumulated unrestricted funds were measured by reference, most recently, to the University's "Unrestricted Net Assets" and previously, to "Expendable Fund Balance" in the financial statements. Changes in accounting rules resulted in "Unrestricted Net Assets" not sufficiently representing actual accumulated unrestricted funds available to pay debt service on UMBA bonds, so the table was restated to reflect "Spendable Cash and Investments." For details about the amounts represented in such table, see the footnote thereto below.

Interest Rate Swap Agreements

UMBA has entered into three separate interest rate swap agreements (the "Swaps") under which UMBA pays a fixed rate and receives a floating rate. The Swaps hedge four series of outstanding variable rate bonds of UMBA, the Project Revenue Bonds, Senior Series 2008-1 (the "Series 2008-1 Bonds"), Facilities Revenue Bonds, Senior Series 2008-A (the "Series 2008-A Bonds"), Project Revenue Bonds, Senior Series 2011-1 (the "Series 2011-1 Bonds") and Project Revenue Bonds, Senior Series 2011-2 (the "Series 2011-2 Bonds" and collectively with the Series 2011-1 Bonds, the "Series 2011 Bonds"). The Swap for the Series 2008-1 Bonds is with UBS AG, and UMBA pays an amount equal to 3.4% per annum of the notional amount and receives the floating rate based on 70% of one-month LIBOR. The Swap for the Series 2008-A Bonds is with Deutsche Bank AG and UMBA pays an amount equal to 3.4% per annum of the notional amount and receives a floating rate based on 70% of one-month LIBOR. The Swap for the Series 2011 Bonds is with Citibank, N.A. and UMBA pays an amount equal to 3.5% per annum of the notional amount and receives the floating rate based on 60% of one-month LIBOR plus 0.2%.

The Swaps are subject to periodic "mark-to-market" valuations and may have a negative impact on the financial statements of UMBA and the University. In addition, the counterparty to each Swap may be able to terminate its respective Swap upon certain events of default under such Swap, in which case UMBA could be required to make a material termination payment to the counterparty, which payment is a contractual obligation of the University to UMBA. In addition, UMBA and the University may be exposed to basis risk (imperfect correlation between the floating rates paid on the applicable bonds and received under the related swap). With respect to the Swap for the Series 2011 Bonds, UMBA and the University would be required to post collateral in certain market situations if the ratings on the Series 2011 Bonds fell to "A2" or below by Moody's or "A" or below by S&P.

Letters of Credit and Liquidity Facilities

The Series 2008-A bonds, the Series 2008-1 bonds and the Series 2011-1 bonds are variable rate demand obligations subject to put by the holders thereof and are supported by standby bond purchase agreements. The standby bond purchase agreements with Barclays Bank PLC supporting the 2008-A and 2008-1 bonds expire on July 6, 2022. The standby bond purchase agreement with Wells Fargo Bank, N.A. that supports the Series 2011-1 Bonds expires on July 9, 2019.

Commercial Paper

In August 2013, UMBA established a commercial paper program, consisting of its $125 million Commercial Paper Notes, Series 2013 A (the "Series 2013A Notes"), supported by an irrevocable letter of credit provided by State Street Bank and Trust Company, which expired on August 12, 2016, and its $75 million Commercial Paper Notes, Series 2013 B (the "Series 2013B Notes") secured by a standby liquidity facility provided by U.S. Bank N.A., which expired on August 12, 2016. The letter of credit was replaced with a standby liquidity facility agreement that expires in August 12, 2019. The standby liquidity facility provided by U.S. Bank N.A. was extended in fiscal year 2016 and now expires on August 12, 2019. UMBA may issue notes under either series on a taxable or tax-exempt basis to further UMBA's and the University's efforts to establish a "just in time" borrowing program to fund the University's capital plan as needed during construction periods. Such notes are secured under the Trust Agreement dated as of November 1, 2000, between UMBA and U.S. Bank N.A., as successor trustee, and a contract with the University and are repayable from the proceeds of rollover commercial paper notes, funds advanced under the liquidity facilities, bonds to be issued by UMBA in the future or available funds of the University. As of June 30, 2018, UMBA had $64,535,000 of commercial paper outstanding.

Bonds Issued by the Massachusetts Development Finance Agency

As of June 30, 2018, MDFA has outstanding bonds of approximately $52.7 million, for which the University is contractually obligated to pay debt service.

Annual Debt Service on UMBA and MDFA Bonds

The table on the following page sets forth the principal and interest due on bonds issued by UMBA and the MDFA on behalf of the University as of June 30, 2018, on a fiscal year basis.

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Annual Debt Service on UMBA and MDFA Bonds as of June 30, 2018

Fiscal Year Ending June 30	Outstanding UMBA Bonds[1]	Outstanding MDFA Bonds	Total[1][2]
2019	$228,172,452	$3,620,945	$231,793,396
2020	228,049,125	3,982,242	232,031,367
2021	227,947,373	4,005,795	231,953,168
2022	216,373,187	3,950,203	220,323,389
2023	216,544,486	3,941,785	220,486,271
2024	218,361,579	3,931,980	222,293,560
2025	202,916,913	2,930,800	205,847,714
2026	205,685,950	3,140,395	208,826,346
2027	201,321,838	2,803,591	204,125,429
2028	199,973,841	2,696,400	202,670,241
2029	193,148,918	2,700,900	195,849,818
2030	181,674,605	2,697,900	184,372,505
2031	164,904,255	22,347,400	187,251,655
2032	165,303,579	1,994,300	167,297,879
2033	156,877,222	1,988,600	158,865,822
2034	140,883,314	1,985,200	142,868,514
2035	155,591,488	1,983,900	157,575,388
2036	168,972,573	-	168,972,573
2037	168,038,916	-	168,038,916
2038	160,159,110	-	160,159,110
2039	165,950,351	-	165,950,351
2040	139,101,906	-	139,101,906
2041	137,625,372	-	137,625,372
2042	107,751,514	-	107,751,514
2043	107,756,457	-	107,756,457
2044	102,330,239	-	102,330,239
2045	77,185,003	-	77,185,003
2046	42,818,581	-	42,818,581
2047	20,939,200	-	20,939,200
2048	20,935,500	-	20,935,500

(1) Assumes the fixed rate payable under the Swaps with respect to UMBA's outstanding variable rate bonds and excludes the subsidy amount expected to be received in connection with UMBA's outstanding "Build America Bonds" issued under ARRA. See "Bonds Issued by UMBA –*Interest Rate Swap Agreements*" herein for a description of the Swaps.

(2) Totals may not add due to rounding.

Spendable Cash and Investments

The following table sets spendable cash and investments in fiscal years 2014-2018. Spendable cash and investments reflects the available funds that can be used to pay debt service on the University indebtedness.

Fiscal Year	**2014**	**2015**	**2016**	**2017**	**2018**
Spendable Cash and Investments ($ in thousands)*	$1,182,333	$1,231,909	$1,115,142	$1,264,764	$1,446,094

* The amounts shown above in the table are the sum of University cash and investments less debt service reserve funds, plus Foundation cash and investments plus pledges receivable reported in permanently restricted net assets, less University permanently restricted net assets, less Foundation permanently restricted net assets.

Additional Indebtedness

Under the terms of the trust agreements and financing agreements securing the above-referenced indebtedness issued by UMBA, the University may, without limit, issue additional indebtedness or request UMBA or MDFA to issue additional indebtedness on behalf of the University so long as such indebtedness is payable from all funds of the University permitted by law to be applied thereto. With certain exceptions described below, the University may not pledge, or permit to exist any lien on, any of its funds or revenues. The University may request UMBA to issue additional indebtedness on behalf of the University that is not payable from all funds of the University permitted by law to be applied thereto, provided: (i) the additional indebtedness is secured by (a) pledged revenues derived from the project or projects being financed, (b) new or increased student fees whether imposed by the University or UMBA, (c) existing pledged revenues, or (d) any combination of the foregoing; and (ii) the maximum annual debt service on all revenue indebtedness then outstanding, including the proposed additional indebtedness, does not exceed 10% of the amount shown in the then most recent audited financial statements of the University as total available revenues. Indebtedness of the University may not be subject to acceleration.

Capitalized Leases

At June 30, 2018, the University had $2.3 million in outstanding capital lease obligations.

INSURANCE

The University, as an agency of the Commonwealth, is self-insured for property loss exposure, subject to appropriation from the Legislature. However, properties owned by UMBA located on a campus of the University, such as the Mullins Center, dining commons and most dormitories, are insured by UMBA. In addition, certain properties owned by other University Related Organizations and leased to the University are insured by the related organization. The University's liability for damages to third parties as a result of negligence by University employees is limited under Chapter 258 of the General Laws. The University maintains certain liability insurance policies, including Commercial General Liability, leased Automotive Liability, Directors and Officers and Comprehensive Crime policies. Employees of the University are covered for Worker's Compensation protection under Chapter 152 of the General Laws.

TECHNOLOGICAL INITIATIVES

The University campuses and the President's Office have undertaken a variety of planning and organizing activities designed to establish project structures, roles and responsibilities and collaborative plans and processes for technology improvements at the University. The University has implemented system-wide human resources/payroll, financial, e-procurement and grants management systems, which it will continue to update. It has also implemented Student Information Systems to support the processes of admissions and recruiting, maintaining student records and student financials, and awarding and processing financial aid. These systems are expected to continue to enhance business functions by further consolidating processing, streamlining operations and increasing utilization through new features and self-service offerings. A major focus in fiscal year 2018 was adherence to accessibility standards and ADA compliance. There is continued focus on modern self-service capabilities and digital transformation, including planning for the migration of applications and data to the cloud. The University also continues to invest in data analytics to improve its understanding of areas such as financial spend and student outcomes and to enable better decision making.

The University is investing in information security initiatives to enhance the ability to protect its constituent's data and to minimize risk and liability. Cybersecurity awareness training is a current focus area as every member of the University community has a role to play in protecting information. The University is also investing in new digital integration capabilities to address current and future application and data sharing needs across the system. This capability will make it easier to securely and effectively leverage the information stored across many disparate applications across all five campuses and the President's Office while ensuring data integrity and proper data stewardship.

In 2015, the University completed the implementation of UMassnet, the next generation wide area network spanning and connecting all UMass campuses across the state. This network is a carrier class optical network spanning over 500 fiber span miles with 10gb/100gb bandwidth. This transformational project is enabling technologies at the University such as Virtual Desktop Infrastructure (VDI), video, lecture capture, unified communications, high performance computing, and campus data center optimization. The University continues to invest in maintaining this network as well as enhancing and expanding where needed.

The University is a participant in a consortium of academic institutions and government and business leaders that constructed and operates the Massachusetts Green High Performance Computing Center ("MGHPCC") in Holyoke, Massachusetts. The cutting-edge, research-oriented facility relies on hydroelectric power and is intended to encourage economic development in the region and serve as a vehicle for collaboration between key participants while establishing Massachusetts as a global leader in the application and development of next generation computing technologies. In addition to the University, academic partners include the Massachusetts Institute of Technology, Boston University, Harvard University, and Northeastern University, and key business participants include Cisco Systems and EMC Corporation.

In production for five years, the MGHPCC and the partnership model used to create it has received national recognition. The consortium has experienced continued success securing multi-institutional federal research awards. For example, the Commonwealth Computational Cloud for Data Driven Biology, funded by a grant from the Massachusetts Life Sciences Center, supports life sciences innovation, research, development and commercialization projects with near term prospects for commercialization. Within UMass, a shared high performance computing environment now supports the work of over 1,020 researchers in over 346 labs across five campuses. The consortium is developing plans for "Day 2" expansion as members reach capacity in existing space. The University continues to make creative use of the resource to deliver results that could not have been delivered otherwise.

UMassOnline has engaged in several technology initiatives that have resulted in immediate and long-term positive implications to the University's internal and external constituents. These include updates to the core Learning Management System (Blackboard Learn), improvements in data processing from Student Information Systems, and additional features added to Blackboard Collaborate to support synchronous and asynchronous distance learning throughout the UMassOnline Course offerings. In addition to our LMS, UMassOnline has made significant improvements to UMassOnline.net, by creating a degree finder that caters to each individual potential student, putting them in touch with the advisors that can help them complete their application process and assist in decision making to ensure that the learner is in the right program that fits their needs. UMassOnline continues to support the mission of the five-campus system by assisting in revenue-generating projects to enhance the online learner experience.

UMassOnline has continued to partner with the UMass Donahue Institute to provide Learning Management System services to several programs, including the Massachusetts Department of Housing and Community

Development (DHCD) Board Member Training and Civic Initiatives, and the Office of the Attorney General among others.

LITIGATION

The University is a defendant in various lawsuits; however, University management is of the opinion that the ultimate outcome of any such litigation will not have any material effect on the financial position or financial results of the University.

EMPLOYEE RELATIONS

The University employs 17,741 full and part-time faculty, professional and clerical and maintenance support staff, of which 10,842 are covered by collective bargaining units (not including post-doctoral employees, certain contract employees, graduate employees and undergraduate resident assistants). Of those covered, 3,673 are faculty, 3,208 are professional staff, 3,780 are clerical and maintenance support staff and 181 are police officers. In total, the University currently has approximately 41 collective bargaining units (including two post-doctoral employee units, three graduate employee units and one undergraduate resident assistants unit). The University has successfully renegotiated the great majority of its bargaining agreements for a three year period which will expire on June 30, 2020. Employees covered by University collective bargaining units cannot strike under Massachusetts law.

In general, University employees are covered by a contributory Massachusetts retirement system set up by Chapter 32 of the General Laws, the State Employees' Retirement System ("SERS" or "State Retirement Plan"). The State Retirement Plan is a defined benefit plan that provides retirement benefits based upon age at retirement, years and months of service and the average of the highest three to five consecutive years of base salary. As an alternative to SERS, eligible employees have the option of participating in the Commonwealth's Optional Retirement Program (the "ORP"). The ORP is a defined contribution plan, administered by the DHE. Eligibility for participation in the ORP was expanded by Chapter 68, Section 44 of the Acts of 2011. Employees can also participate in various optional supplemental retirement programs, such as the University of Massachusetts 403(b) Elective Deferral Savings Plan and the Commonwealth's 457(b) Deferred Compensation Plan. Employees generally are eligible to participate in various fringe benefit plans such as the dependent care assistance program and the health, dental, life and disability insurance plans. The majority of these benefits are sponsored by the Commonwealth. However, the University does sponsor a smaller subset of benefits for employees of the Worcester Campus, including dental and vision plans as well as life and long-term disability plans.

UNIVERSITY OF MASSACHUSETTS

By: /s/ Lisa A. Calise
Senior Vice President for
Administration & Finance
and Treasurer

APPENDIX B
FINANCIAL STATEMENTS OF THE AUTHORITY

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Financial Statements and Report of
Independent Certified Public Accountants

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY

(A Component Unit of the University of Massachusetts)

June 30, 2018 and 2017

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY
(A Component Unit of the University of Massachusetts)

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REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

Members of the Board
University of Massachusetts Building Authority

Report on the financial statements

We have audited the accompanying financial statements of the University of Massachusetts Building Authority (the "Authority"), a component unit of the University of Massachusetts, as of and for the years ended June 30, 2018 and 2017, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

Management's responsibility for the financial statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the University of Massachusetts Building Authority as of June 30, 2018 and 2017, and the respective changes in financial position and, where applicable, cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other matters

Required supplementary information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis ("MD&A") as listed in the accompanying table of contents be presented to supplement the basic financial statements. Such information, although not a required part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. This required supplementary information is the responsibility of management. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America. These limited procedures consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the MD&A information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Grant Thornton LLP

Boston, Massachusetts
December 17, 2018

This section of the annual financial statements of the University of Massachusetts Building Authority (the "Authority") presents a discussion and analysis of the Authority's financial activity for the fiscal years ended June 30, 2018 and 2017. This discussion and analysis has been prepared by management and should be read in conjunction with the Authority's financial statements and related note disclosures, which follow.

INTRODUCTION

The Authority is an independent body politic and corporate and a public instrumentality of the Commonwealth of Massachusetts (the "Commonwealth"), which was created by Chapter 773 of the Acts of 1960 of the Commonwealth, as amended (the "Enabling Act"). The Authority was created with the general purposes of providing dormitories, dining commons and other buildings and structures for use by the University of Massachusetts (the "University"), its students, staff and their dependents and other entities associated with the University as specified in the Enabling Act, as requested by authority of the Trustees of the University (the "Trustees").

The Authority is empowered to acquire, construct, remove, demolish, add to, alter, enlarge, reconstruct, remodel and do other work upon any building or structure and to provide and install furnishings, furniture, machinery, equipment, approaches, driveways, walkways, parking areas, planting, landscaping and other facilities therein. The Enabling Act authorizes the Authority to acquire property from the Commonwealth or others (but the Authority has no eminent domain power), to rent or lease as lessor or lessee any portion of a project, to operate projects, to employ experts and other persons, to enter into contracts, to borrow money to finance and refinance projects it undertakes, and to issue and sell its revenue bonds and notes which are payable solely from its revenues. The Authority's assets and projects are located on all five campuses of the University. The 11 members of the Authority are appointed by the Governor. Five of the members must be Trustees. Two of the other members must be graduates of the University. Non-trustee members serve terms of approximately six years. Trustee members serve as long as they are Trustees. Members whose terms expire continue as members until they are reappointed or replaced.

FINANCIAL HIGHLIGHTS

- The net position of the Authority continued to grow, reaching $1.22 billion in fiscal year 2018 compared to $1.06 billion in fiscal year 2017.
- Taking advantage of a continuing environment of historically low interest rates, the Authority issued $37.7 million of Project Revenue Bonds, Series 2018-1, to finance a portion of the purchase of Mount Ida College assets. The new borrowing was issued with a coupon rate of 2% through June 26, 2028, and from June 27, 2028 to maturity, the rate will be equal to the Municipal Market Data 15-Year AAA GO Rate plus 25 basis points on the date of the reset, with an average life of 15.7 years. The Authority also issued $64.5 million in commercial paper with interest rates ranging from 0.95% to 1.69% in fiscal 2018.
- Capital spending and contributed construction assets totaled $415 million in fiscal year 2018, representing a $38.1 million increase compared to fiscal year 2017. A majority of the capital spending in fiscal year 2018 relates to continued investments in new buildings and renovation projects, which include: buildings and land on the campus formerly owned by Mount Ida College, the Physical Science Building, research laboratory improvements, new faculty hire renovations and Fitout and Backfill Projects for the Life Sciences Laboratory at the Amherst Campus; the Utility Corridor and Roadway Relocation Project, Parking Garage, Dining Commons, and Clark Roof and Envelope Replacement at the Boston Campus; School of Marine Sciences & Technology and Classroom

Teaching Labs & Learning Space Improvements at the Dartmouth Campus; and the Perkins Place, Fox Hall Elevator Modernization, Pasteur Hall, Coburn Hall, and Perry Hall Renovations at the Lowell Campus.

MANAGEMENT'S DISCUSSION AND ANALYSIS

This discussion and analysis is intended to serve as an introduction to the Authority's basic financial statements. The Authority's financial statements comprise two primary components: 1) the financial statements and 2) the notes to the financial statements.

The Financial Statements

The accompanying financial statements are designed to provide readers with a broad overview of the Authority's finances and are comprised of three basic statements.

The *statements of net position* present information on all of the Authority's assets, deferred outflows, and liabilities, with the difference reported as net position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the Authority is improving or deteriorating.

The *statements of revenues, expenses and changes in net position* present information that shows how the Authority's net position changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of related cash flows. Thus, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods (e.g., the payments to vendors after year-end for services prior to year-end).

The *statements of cash flows* are reported on the direct method. The direct method of cash flow reporting portrays net cash flows from operations as major classes of operating receipts (e.g., income from contracts) and disbursements (e.g., cash paid to vendors for services), as well as capital and related financing and, noncapital financing, if any, and investing activities.

The financial statements can be found on pages 11 to 14 of this report.

The Authority's financial statements report its activities as business-type, in accordance with generally accepted accounting principles in the United States for government entities, using the economic resources measurement focus, and the full accrual basis of accounting.

The Authority is a blended component unit of the University. Therefore, the results of the Authority's operations, its net position, and its cash flows are included in the University's financial statements.

Notes to the Financial Statements

The notes provide additional information that is essential to a full understanding of the data provided in the financial statements. The notes provide information regarding the accounting policies the Authority has adopted as well as additional details of certain amounts contained in the financial statements.

The notes to the financial statements can be found on pages 15 to 40 of this report.

Financial Analysis

As noted earlier, over time the Authority's net position may serve as a useful indicator of the Authority's financial position. In the case of the Authority, assets and deferred outflows exceeded liabilities by $1.2 billion at the close of the most recent fiscal year.

A portion of the Authority's net position reflects its investment in capital assets (e.g. buildings, equipment and furnishings) less any related debt used to acquire those assets that is still outstanding for the most recent fiscal year. The Authority uses these capital assets to provide services to students, faculty and administration; consequently, these assets are not available for future spending. Although the Authority's investment in capital assets is reported net of related debt, it should be noted that the resources needed to repay this debt must be provided from other sources, since the capital assets themselves cannot be used to liquidate these liabilities. The Authority's primary sources of funds used to repay the debt are receipts related to the Authority's financial contracts with the University. These contracts generally call for the Authority to bill and collect all revenue from the projects and remit to the Trustee under the Authority's trust agreements (the "Bond Trustee") funds sufficient to cover debt service on its bonds, its costs of operations, and its financial obligations with respect to the projects.

The University of Massachusetts Building Authority's net position (in thousands) is as follows:

	June 30, 2018	June 30, 2017	June 30, 2016
Current assets	$ 93,810	$ 100,116	$ 86,174
Non-current assets	4,247,624	4,091,133	3,770,032
Total assets	4,341,434	4,191,249	3,856,206
Deferred outflows of resources	85,305	108,914	136,910
Current liabilities	510,750	277,914	409,795
Non-current liabilities	2,691,374	2,964,268	2,629,511
Total liabilities	3,202,124	3,242,182	3,039,306
Net position			
Net investment in capital assets	1,146,035	993,142	891,768
Restricted	75,637	62,791	59,270
Unrestricted (deficit)	2,941	2,048	2,772
Total net position	$ 1,224,614	$ 1,057,980	$ 953,810

Current assets decreased by $6.3 million in fiscal year 2018 compared to 2017 primarily due to a decrease in intergovernmental receivables of $17.4 million offset by an increase to cash of $9.1 million and $2.0 million of other increases. Current assets increased by $13.9 million in fiscal year 2017 compared to 2016 primarily due to an increase in intergovernmental receivables of $9.7 million.

Non-current assets increased $156.5 million in fiscal year 2018 compared to fiscal year 2017 due to additional spending on new and existing projects of $430.4 million partially offset by depreciation of $127.7 million and a decrease in restricted cash of $133.4 million also due to spending on new and existing projects. Non-current assets increased $321.1 million in fiscal year 2017 compared to fiscal year 2016 due to additional spending on new and existing projects of $376.9 million partially offset by a decrease in restricted cash of $47 million. In fiscal year 2017, the Authority, capitalizing on low interest rates, refunded $78.7 million of Worcester City Campus Corporation ("WCCC") campus debt; $67.8 million of the increase in non-current assets represents the accounts receivable from WCCC for the amounts due to the Authority related to this transaction.

Deferred outflows of resources totaled $85.3, million, $108.9 million, and $136.9 million at the end of fiscal year 2018, 2017, and 2016, respectively. These amounts relate to the Authority's effective hedging relationship related to its outstanding interest rate swap agreements ("swaps"). In accordance with GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments* ("GASB No. 53"), the Authority is able to defer the related changes in fair value as a deferred outflow at year-end.

Current liabilities increased in fiscal year 2018 compared to 2017 by $232.8 million primarily due to a increase of $176.8 million of the current portion of bonds payable. The increase in the current portion of bonds payable is primarily due to the timing of the renewal of the liquidity facility that supports the 2008-1 and 2008-A variable rate bonds that are reported as a current liability in fiscal year 2018.

Non-current liabilities decreased in fiscal year 2018 compared to 2017 by $272.9 million primarily due to the timing of the renewal of a liquidity facility that supports the 2008-1 and 2008-A variable rate bonds that are reported as a current liability in fiscal year 2018 but were part of non-current liabilities in fiscal year 2017. During fiscal year 2018, the Authority issued $37.7 million of new debt. This decrease in long term debt includes principal payments of $92.2 million, bond premium amortization of $10.4 million and the shift of $181.3 million to current liabilities for the 2008-1 and 2008-A variable rate bonds as noted above. During fiscal year 2017, the Authority issued $372.3 million of new debt and $56.0 million of new bond premiums. This increase in long term debt was offset by a $122.1 million decrease in the bonds payable associated with the partial refunding of the 2008-2 and 2009-1 bonds, principal payments of $85.8 million, bond premium amortization of $8.6 million and the reclass of $125.0 million to current liabilities for the 2011-1 variable rate bonds.

Net investment in capital assets represents capital assets, net of accumulated depreciation and reduced by outstanding balances for bonds, notes, and other debt, as well as deferred outflows of resources and deferred inflows of resources, if any, that are attributable to the acquisition, construction, or improvement of those assets or related debt.

Restricted net position represents funds primarily restricted for capital projects and debt service. Capital project restricted net assets are funds primarily provided by debt financing for the completion of University projects. The debt service restricted component of net position represents the funds primarily provided as additional collateral to the bond holders (e.g. debt service reserve funds).

Unrestricted net position represents those funds that are not subject to restrictions, or for which restrictions have expired. In 2018, the Authority reported a $2.9 million surplus in the unrestricted component of net position, a $0.9 million increase from fiscal year 2017, primarily due to increased interest income. In 2017, the Authority reported a $2.0 million surplus in the unrestricted component of net position, a $0.7 million decrease from fiscal year 2016, primarily due to the reclassing of certain fixed assets as a capital lease.

The Authority's changes in net position (in thousands) are presented in the table below for the years ended June 30:

	2018	2017	2016
Operating revenues:			
Financing income and fees for services	$ 225,376	$ 213,101	$ 208,557
Interest income and interest subsidies, net	23,105	19,849	16,726
Total operating revenues	248,481	232,950	225,283
Operating expenses:			
Facility operating costs	15,209	12,944	7,366
Interest expense	117,313	108,321	101,058
Depreciation and amortization	127,653	115,651	108,849
General and administrative expenses	3,242	5,190	3,783
Total operating expenses	263,416	242,106	221,056
Net operating income (loss)	(14,935)	(9,157)	4,227
Total non-operating income (expenses)	(795)	-	(525)
Total capital contributions	182,364	113,327	84,976
Change in net position	166,634	104,170	88,678
Net position at the beginning of the year	1,057,980	953,810	865,132
Net position at the end of the year	$ 1,224,614	$ 1,057,980	$ 953,810

Financing income and fees for services are primarily related to contracts the Authority has with the University. The Authority has entered into various contracts with the University, acting by and through the Trustees, related to the management of certain Authority projects and the payment to the Authority of certain fees and operating costs. The Authority fixes fees, rents, rates and other charges for the use of its projects in amounts sufficient to provide for the debt service and other payments related to the Authority's obligations and for the Authority's operating expenses. These contracts generally call for the Trustees to bill and collect all revenue derived from the projects and remit to the Authority or to the trustee under the Authority's trust agreements funds sufficient to cover debt service on its bonds, its costs of operations, and its financial obligations with respect to the projects the amounts fluctuate based on the debt service requirements of the Authority bonds in any particular year. Revenue increased by $12.3 million and $4.5 million in fiscal year 2018 and 2017 compared to the respective prior fiscal years primarily as a result of increases in annual debt service. The increases are largely due to new debt service payments on the 2017 bond issues. The bonds were issued mid-year in fiscal year 2017 so revenues increase for the portion of the new debt that was paid in that year. In fiscal year 2018 the 2017 bonds were outstanding for a full year compared to the half year in 2017.

Interest income and Interest subsidy - United States Government relates to revenue associated with the interest rate subsidy provided by the United States Government related to the Authority's issuance of bonds under the Build America Bond ("BAB") program. Under the program, the Federal Government provides a direct 35% subsidy of the interest rate paid to bondholders. The interest paid to bondholders is based on the taxable, rather than the tax-exempt, debt market and the interest received by the bondholders is fully taxable to them. Revenue associated with this program remained relatively consistent in fiscal years 2018, 2017 and 2016.

During fiscal year 2013, the federal government implemented automatic budget cuts imposed through sequestration required pursuant to the Budget Control Act of 2011. As a result, the Authority's November 1st and May 1st original subsidy payments related to the Senior Series 2009-2 Project Revenue Build America Bonds and the Senior Series 2010-2 Project Revenue Build America Bonds were reduced by 6.6% and 6.9% in fiscal years 2018 and 2017, respectively. This reduction accounts for the $0.9 million decrease in Interest Subsidy Revenue in fiscal year 2018 compared to the original 35% subsidy.

Facility operating costs primarily reflect the operating costs of the UMass Club, certain operating costs of the Authority, rental expenses and expenses paid by the Authority out of reserves for maintenance of Authority-owned buildings. Facility operating costs increased in fiscal year 2018 compared to fiscal year 2017 due to an increase in Authority operating costs and utilities as well as the impairment of certain previously capitalized related to two projects discontinued on the Boston campus.

Interest expense represents interest paid to the holders of Authority issued debt. In fiscal year 2018 interest expense increased by $9.0 million over fiscal year 2017 primarily due to a full year of interest on the bond series issued in 2017 and interest expense related to the 2018-1 and commercial paper debt issuances as well as a reduction in capitalized interest. In fiscal year 2017 interest expense increased by $7.3 million over fiscal year 2016 primarily due to an increase of $164 million in total bonds payable during fiscal year 2017, and an increase in associated interest expense due to the 2017-1 and 2017-2 debt issuances. (See Note 6 for more information on the fiscal year 2018 debt issue).

Depreciation and amortization increased by $12.0 million in fiscal year 2018 compared to fiscal year 2017 and $6.8 million in fiscal year 2017 versus 2016 as additional new capital assets were placed into service during those years.

Non-operating income (expense) was $0.8 million in fiscal year 2018 and zero in fiscal year 2017. In fiscal year 2018, the Authority disposed of assets on the Lowell campus. There were no disposals in 2017.

Capital contributions represent certain grants and gifts provided to the Authority for capital construction at the five campuses. During fiscal year 2018, the Authority received grants totaling $52.9 million from the Commonwealth. These grants were used as follows: $21.4 million of Division of Capital Asset Management and Maintenance ("DCAMM") funds for the Physical Science Building and $0.5 million for an academic classroom building at the Amherst Campus, and $6 million for the substructure demolition quadrangle development (out of $78 million committed) and $25.0 million in support of a capital infrastructure project, both on the Boston campus.

In fiscal year 2017, the Authority received grants totaling $62.3 million from the Commonwealth. These grants were used as follows: $7.6 million of DCAMM funds for the Lowell and Amherst campuses, $25 million to fund a capital infrastructure project, "Road and Transportation Improvements at UMass Boston", located on the Boston campus, and $29.7 million to fund the School of Marine Science & Technology ("SMAST") project located at Dartmouth.

CAPITAL ASSETS OF THE AUTHORITY

The Authority's investment in capital assets as of June 30, 2018 and 2017 amounted to $3.6 billion and $3.3 billion, net of accumulated depreciation. This investment in capital assets included land, buildings, improvements, furnishings, equipment and construction in progress. Net capital assets increased by $305.2 million or 9.2% in fiscal year 2018 as capital improvements and construction in progress outpaced depreciation expenses:

- Buildings and building components increased by $171.6 million, net of accumulated depreciation, in fiscal year 2018. The increase was primarily due to placing in service newly constructed and renovations of existing buildings on the Amherst, Boston, Dartmouth, and Lowell campuses. During fiscal year 2018, equipment and furniture decreased by $4.9 million, net of accumulated depreciation, primarily due to fewer new improvements.

- Construction in progress ("CIP") increased $22.7 million in fiscal year 2018 as several major projects will be completed and transferred to depreciable property in FY19. Projects with significant progress, some of which were completed during fiscal year 2018 included: Physical Science Building, Isenberg School of Management Addition and Renovation, and Mount Ida Acquisition at the Amherst campus; SMAST Facility at the Dartmouth campus: and the Pullchino Tong Business Building at the Lowell campus. Significant projects that remained under construction at the end of fiscal year 2018 included; Parking Garage, Dining Hall and Utility Corridor and Roadway Relocation projects at the Boston campus; Perry Hall renovation and expansion and Pasteur Hall at the Lowell campus; and Isenberg School of Management addition and renovation at the Amherst campus.

DEBT OF THE AUTHORITY

The Authority carries debt in the form of bond obligations. This debt was $3.0 billion and $3.0 billion at June 30, 2018 and 2017, respectively. The decrease of $68.5 million in fiscal year 2018 is primarily attributable to $92.2 million of principal payments, and the issuance of $37.7 million of new bonds, as further described below.

During Fiscal Year 2018, the Authority issued $64.5 million in commercial paper to finance projects at the Lowell campus and a portion of the purchase of Mount Ida assets for the Amherst campus. The Commercial Paper matured or will mature at various dates ranging from 34 to 97 days and interest is payable at maturity. The interest rates range from 0.95% to 1.69%.

On June 27, 2018, the Authority issued $37.7 million of Project Revenue Bonds, Series 2018-1 to finance a portion of the purchase of Mount Ida assets. The coupon rate on the Series 2018-1 bonds is 2% through June 26, 2028, and from that date to maturity, the rate will be equal to the Municipal Market Data 15-Year AAA GO Rate plus 25 basis points on the date of the reset.

The amount of bond obligation guaranteed by the Commonwealth on bonds outstanding Series 2008-A and 2011-2 was $113.5 million and $115.3 million at June 30, 2018 and June 30, 2017, respectively. Refer to Note 9 of the financial statements for more information.

As of June 30, 2018, the ratings assigned to the Authority's bonds are as follows: Aa2 by Moody's Investor Services, AA by Fitch Ratings, and AA- by Standard and Poor's Investor Services.

THE UNIVERSITY OF MASSACHUSETTS CLUB

The Authority operates the University of Massachusetts Club (the "Club"). The Club is a private club open to membership for alumni, faculty, staff and friends of the University and is located on the 32nd floor of One Beacon in Boston, Massachusetts. As of August 1, 2015, the Club was managed by the not-for-profit organization University Services, Inc. More information can be found on the Club's web site, www.umassclub.com.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the Authority's finances for all those with an interest in them. Questions concerning any information provided in this report or requests for additional financial information should be addressed to the Chief Financial Officer, University of Massachusetts Building Authority, One Beacon Street, 31st Floor, and Boston, Massachusetts 02108. Additional information on the Authority can be found on its web site, www.umassba.net.

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY
(A Component Unit of the University of Massachusetts)
Statements of Net Position
As of June 30, 2018 and 2017

	2018	2017
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents (Notes 3 and 4)	$ 26,734,660	$ 17,612,667
Accounts receivable, net of allowance of $343 at June 30, 2018 and $33,092 at June 30, 2017	946,331	834,279
Intergovernmental receivables		
Massachusetts Life Sciences Center	3,106,124	21,919,437
United States Government	2,156,579	2,149,982
University of Massachusetts	46,392,456	44,998,073
WCCC loan receivable - current portion	9,205,000	8,315,000
EMKI lease receivable - current portion	3,543,372	2,636,306
Prepaid expenses and other current assets	1,725,244	1,650,624
Total current assets	93,809,766	100,116,368
NON-CURRENT ASSETS		
Restricted		
Cash and cash equivalents (Notes 3 and 4)	281,302,191	414,737,160
Investments (Notes 3 and 4)	5,318,056	5,318,056
WCCC loan receivable - non-current portion	229,798,043	241,386,207
EMKI lease receivable - non-current portion	117,113,941	120,657,313
Capital assets, net of accumulated depreciation (Note 5)	3,612,983,103	3,307,782,136
Other assets	1,108,412	1,251,715
Total non-current assets	4,247,623,745	4,091,132,587
Total assets	4,341,433,511	4,191,248,955
DEFERRED OUTFLOWS OF RESOURCES		
Loss on debt refunding	66,418,305	71,145,455
Fair value of interest rate swap agreements	18,886,262	37,768,068
Total deferred outflows of resources	85,304,567	108,913,523
Total assets and deferred outflows of resources	$ 4,426,738,078	$ 4,300,162,478
LIABILITIES		
CURRENT LIABILITIES		
Accounts payable	$ 33,853,778	$ 48,839,254
Retainage payable to contractors	12,378,032	12,270,979
Bonds payable, current portion (Note 6)	364,122,357	187,300,000
Commercial paper notes (Note 7)	64,535,000	-
Accrued bond interest payable	22,016,556	22,431,065
Unearned Interest Income - EMKI	2,812,728	2,834,952
Other liabilities	11,032,009	4,237,688
Total current liabilities	510,750,459	277,913,938
NON-CURRENT LIABILITIES		
Bonds payable, net of current portion, and unamortized bond premium (Note 6)	2,603,451,011	2,848,761,906
Derivative instruments - interest rate swap agreements (Note 6)	41,602,183	61,840,721
Unearned Interest Income, net of current - EMKI	36,055,946	39,124,048
Other liabilities	10,264,391	14,541,445
Total non-current liabilities	2,691,373,531	2,964,268,120
Total liabilities	3,202,123,990	3,242,182,058
NET POSITION		
Net investment in capital assets	1,146,035,382	993,141,974
Restricted for		
Capital projects	10,358,091	998,713
Debt service	65,279,125	61,792,118
Unrestricted	2,941,490	2,047,614
Total net position	$ 1,224,614,087	$ 1,057,980,419

The accompanying notes are an integral part of these financial statements.

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY
(A Component Unit of the University of Massachusetts)
Statements of Revenues, Expenses and Changes in Net Position
For the years ended June 30, 2018 and 2017

	2018	2017
OPERATING REVENUE		
Financing income and fees for services	$ 225,376,311	$ 213,101,241
Interest income	10,179,212	6,950,291
Interest subsidy - United States Government	12,925,292	12,898,243
Total operating revenues	248,480,815	232,949,775
OPERATING EXPENSES		
Facility operating costs	15,208,766	12,943,714
Interest expense	117,312,924	108,321,336
Depreciation	127,652,553	115,651,498
Insurance	1,444,374	1,283,907
Professional fees	1,656,910	3,784,670
Office, administration and miscellaneous	140,615	121,290
Total operating expenses	263,416,142	242,106,415
Net operating loss	(14,935,327)	(9,156,640)
NON-OPERATING REVENUES		
Gain (loss) on disposal or sale of assets	(795,104)	-
Total non-operating income	(795,104)	-
CAPITAL CONTRIBUTIONS		
University of Massachusetts (Note 8)	126,189,961	28,024,460
Massachusetts Life Sciences Center	3,282,307	23,012,984
Commonwealth of Massachusetts	52,891,831	62,289,288
Total capital contributions	182,364,099	113,326,732
Change in net position	166,633,668	104,170,092
Net position at beginning of year	1,057,980,419	953,810,327
Net position at end of year	$ 1,224,614,087	$ 1,057,980,419

The accompanying notes are an integral part of these financial statements.

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY
(A Component Unit of the University of Massachusetts)
Statements of Cash Flows
For the years ended June 30, 2018 and 2017

	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES		
Cash received from financing income, fees for services and other income	$ 239,758,140	$ 214,685,866
Cash from U.S. Government	12,918,695	12,897,914
Sales from investments	5,732,154	4,111,275
Payments to bondholders	(132,712,594)	(128,054,150)
Payments to vendors and suppliers	(13,196,414)	(14,329,009)
Payments of salaries and benefits	(4,523,014)	(3,354,114)
Net cash provided by operating activities	107,976,967	85,957,782
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES		
Capital asset expenditures	(305,342,338)	(365,699,937)
Repayment of bond principal	(92,780,938)	(86,374,542)
Repayment of commercial paper obligations	-	(25,000,000)
Bond issuance expenses paid	(129,908)	(620,430)
Proceeds from commercial paper	64,535,000	20,000,000
Proceeds from capital contribution	63,778,242	107,604,002
Proceeds from bond obligations	37,650,000	184,640,000
Proceeds from premium	-	32,026,157
Net cash used for capital and related financing activities	(232,289,942)	(133,424,750)
Net decrease in cash and cash equivalents	(124,312,976)	(47,466,968)
Cash and cash equivalents - beginning of year	432,349,827	479,816,795
Cash and cash equivalents - end of year	$ 308,036,851	$ 432,349,827

The accompanying notes are an integral part of these financial statements.

UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY
(A Component Unit of the University of Massachusetts)
Statements of Cash Flows - continued
For the years ended June 30, 2018 and 2017

	2018	2017
Reconciliation of operating loss to net cash provided by operating activities		
Net operating loss	$ (14,935,327)	$ (13,944,640)
Adjustments to reconcile net operating loss to net cash provided by operating activities		
Capitalized interest	(11,582,698)	(20,412,235)
Depreciation and amortization	118,926,646	118,401,757
Effect of non-cash transactions	(143,311)	(157,989)
Change in bad debt reserve	(32,748)	(64,264)
Changes in operating assets and liabilities		
(Increase) decrease in		
Prepaid expenses and other current assets	(74,620)	1,504,625
Accounts receivable	17,530,404	1,933,805
Other assets	143,303	455,517
Increase (decrease) in		
Accounts payable - non-construction related	(45,791)	1,129,161
Accrued bond interest payable	(414,509)	1,813,446
Accounts receivable (University billing)	(1,394,383)	(4,701,400)
Net cash provided by operating activities	$ 107,976,967	$ 85,957,782
Supplemental disclosure of cash flow information		
Non-cash capital and related financing activities		
Capital assets acquired and included in accounts and retainage payable and other liabilities	$ 54,393,295	$ 62,430,818
Capital assets transferred from Amherst campus and the Commonwealth of Massachusetts, as part of capital contribution	$ 54,792,272	$ 78,238
In fiscal year 2017, the Authority issued Project and Refunding revenue bonds to refund certain debt issued in 2008 and 2009, as described in the Note 6 of the financial statements.	$ -	$ 219,706,157

The accompanying notes are an integral part of these financial statements.

1. OPERATIONS OF THE AUTHORITY

The University of Massachusetts Building Authority (the "Authority" or "UMBA") is a body politic and corporate and a public instrumentality of The Commonwealth of Massachusetts (the "Commonwealth"). The Authority was created by Chapter 773 of the Acts of 1960 of the Commonwealth, as amended (the "Enabling Act"). The purposes of the Authority are to provide dormitories, dining commons and other buildings and structures for use by the University of Massachusetts (the "University"), its students, staff and their dependents and other entities associated with the University as requested by authority of the Trustees of the University (the "Trustees").

The Enabling Act provides that the Authority shall have eleven members, five of whom shall also be trustees of the University. Members of the Authority are appointed by the Governor of the Commonwealth. Non-trustee members serve terms of approximately six years while trustee members serve until they are no longer trustees of the University. Members whose terms have expired continue to be members until reappointed or replaced.

The major functions of the Authority include the issuance of bonds to finance projects requested by the Trustees; the planning and construction or renovations related to those projects; the setting and collection of fees, rents, rates and other charges related to such projects; debt service administration; and maintenance and repair of its projects. In conjunction with its financings, the Authority has entered into contracts with the Commonwealth, acting by and through the Trustees, with respect to its projects that provide for payments for debt service and other costs of the financings as well as the operating costs of the Authority and its projects.

As stated in the Enabling Act, the Authority may sell bonds and notes, in either a public or private sale, at a price and with such terms as it may determine are in the best interest of the Authority, provided that the bonds of each issue mature no later than fifty years from their date and the sale and terms thereof have been approved by the Treasurer and Receiver-General and the Secretary of Administration and Finance of the Commonwealth or their designees.

The Authority is a component unit of the University of Massachusetts which is a component unit of the Commonwealth of Massachusetts and is exempt from federal and state income tax under the doctrine of intergovernmental tax immunity found in the U.S. Constitution. The Authority qualifies as a public charity under Section 170(b)(1)(A)(iv) of the Internal Revenue Code. Accordingly, no provision for income taxes has been recorded in the accompanying financial statements.

The Authority's financial statements are included in the University's financial statements as a blended component unit.

The financial statements of the Authority have been prepared in conformity with accounting principles generally accepted in the United States of America ("US GAAP") as applied to governmental units. The Governmental Accounting Standards Board ("GASB") is the accepted standard setting body for establishing governmental accounting and financial reporting principles. The Authority's significant accounting policies are described in Note 3.

Basis of Accounting

The Authority's financial statements have been prepared using the economic resources measurement focus and the accrual basis of accounting.

2. WORKING CAPITAL OF THE AUTHORITY

As of June 30, 2018 and 2017, the Authority had a working capital deficiency of $416.9 million and $177.8 million, respectively. However, as stated in the various contracts between the Authority and the University, the University is required to provide necessary funding to the Authority to meet its obligations through June 30, 2018 and beyond.

3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Under the economic resources measurement focus, the Authority distinguishes operating revenues and expenses from non-operating revenues and expenses. Operating revenues and expenses result primarily from providing, operating and maintaining Authority facilities for use by the University. The principal sources of operating revenues include financing income, which represents amounts needed for debt service and related expenses received from the University, income on investments held for capital construction and debt service requirements, and fees charged to the University for services. Operating expenses for the Authority include the interest expense on bonds and commercial paper, facility operating costs, depreciation of capital assets, professional fees and other administrative costs. All revenues and expenses not categorized as operating revenues and expenses are reported as non-operating.

Under the accrual basis of accounting, revenues are recorded when earned and expenses are recorded when the liability is incurred, regardless of when the related cash flow takes place.

Use of Estimates

The preparation of financial statements in conformity with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Restricted Assets

Certain proceeds of the Authority's bonds, as well as certain resources set aside for their repayment, are classified as restricted assets in the accompanying Statements of Net Position because their use is limited by bond trust agreements.

The following sets forth the restricted cash and cash equivalent and investment balances as of June 30:

	2018	2017
Restricted cash and cash equivalents:		
Capital projects fund	$ 269,180,856	$ 401,788,074
Debt service fund	12,121,335	12,949,086
Total restricted cash and cash equivalents	$ 281,302,191	$ 414,737,160
Restricted investments:		
Debt service fund	$ 5,318,056	$ 5,318,056
Total restricted investments	$ 5,318,056	$ 5,318,056

Capital Assets and Depreciation

Property, plant and equipment are stated at cost on the date of acquisition, or at fair market value if contributed. Construction in progress is included as a capital asset. Construction in progress is stated at cost, which includes direct construction costs and other expenditures related to construction including capitalized interest, if any. All construction costs related to projects which are not yet completed are charged to construction in progress until such time as the projects are completed and placed in operation.

Depreciation is computed using the straight-line method over the estimated useful lives of the assets from the date the property is placed in operation. Land is not depreciated. The useful lives applicable to the Authority are as follows:

Buildings	15 to 50 years
Building, leasehold and land improvements	3 to 20 years
Equipment	4 to 10 years
Furnishings	3 to 10 years

Capitalized Interest

The Authority capitalizes interest costs incurred during the construction period of qualifying property assets. The amount of capitalized interest costs consists of all interest costs of the borrowing relating to the qualifying assets less any related interest earned from the date of the borrowing until the assets are ready for their intended use. Interest capitalized during the years ended June 30, 2018 and 2017, totaled $11.6 million and $20.4 million, respectively, net of interest income of $1.3 million and $1.2 million, respectively.

Cash and Cash Equivalents

Cash and cash equivalents include cash balances maintained in checking accounts, overnight repurchase agreements and amounts held in permitted money market mutual funds with an original maturity date of three months or less.

Investments

Investments in marketable securities are stated at fair value.

Investments in repurchase agreements are non-participating interest earning investment contracts and are recorded at cost. These repurchase agreements are secured by cash or investments with a fair market value between 100% and 105% of the repurchase price, depending on the type of asset used as security and the specific repurchase agreement. These repurchase agreements can be redeemed at any time for the repurchase price provided the redemption proceeds are used for a purpose permitted by the respective repurchase agreement.

Realized and unrealized gains (losses) on investments, if any, include the net changes in the fair value of investments.

Net Position

Net position is reported in three categories:

<u>Net investment in capital assets</u> - This category consists of capital assets, net of accumulated depreciation and reduced by outstanding balances for bonds, notes and other debt, as well as deferred outflows of resources that are attributed to the acquisition, construction or improvement of those assets.

<u>Restricted component of net position</u> - This category consists of assets whose use is restricted either through external restrictions imposed by creditors, grantors, contributors and the like, or through restrictions imposed by law through constitutional provisions or enabling legislation. Capital project restricted assets are funds primarily provided by debt financing for the completion of University projects. Debt service restricted assets are funds primarily provided as additional collateral to the bond holders (e.g. debt service reserve funds).

<u>Unrestricted component of net position</u> - This category consists of net assets which do not meet the definition of the two preceding categories, and are available to support the Authority's operations.

Grants and Capital Contributions

Capital contributions are generally grants for capital asset acquisition, facility development and long-term planning studies, and are reported in the accompanying statements of revenues, expenses and changes in net position after non-operating revenues and expenses as capital contributions when such items are capitalized. Non-capital grants are recognized as non-operating revenue. Revenue from these grants and similar items are recognized as respective expenditures are incurred.

Insurance

The Owner-controlled Consolidated Insurance Program ("OCIP") was established to provide insurance coverage for contractors on selected Authority capital projects. This program provides workers' compensation and general liability insurance coverage for most contractors working on projects in the program. The program has a deductible component that is funded by the Authority. The deductible component is limited on both a per-occurrence basis and an aggregate basis for all OCIP-covered projects by stop-loss insurance.

This exposure is partially secured by and paid out of an escrow trust fund set up for this purpose as a requirement of the stop-loss insurer. The total deductible exposure, plus unpaid OCIP-related insurance premiums and expenses committed to the OCIP, is addressed by the Authority with an OCIP reserve of $2.4 million and $5.4 million as of June 30, 2018 and June 30, 2017, respectively, which is presented as Other Liabilities in the accompanying Statements of Net Position.

Post-retirement Benefits

The Commonwealth of Massachusetts is statutorily responsible for the pension benefits for members of the State Employees' Retirement System ("SERS"), including employees of the University. The Authority's staff is employed by the Commonwealth through the University, and as such, the Authority's employees can participate in SERS, a single employer defined benefit public retirement system, covering substantially all employees of the Commonwealth and certain employees of independent authorities and agencies. The University makes contributions on behalf of the employees through a fringe benefit charge assessed by the Commonwealth. SERS does not issue stand-alone financial statements; however, SERS financial information is contained in the Commonwealth Comprehensive Annual Financial Report and can be obtained by contacting the State Comptroller, One Ashburton Place, 9th floor, Boston, MA 02108.

Revenue Recognition

The Authority's major revenue source is the financing income and fees for services that are primarily related to contracts with the University. The Authority has entered into various contracts with the University, acting by and through the Trustees, related to the management of certain authority projects and the payment to the Authority of certain fees and operating costs. The Authority fixes fees, rents, rates and other charges for the use of its projects in amounts sufficient to provide for the debt service and other payments related to the Authority's obligations and for the Authority's operating expenses. These contracts generally call for the Trustees to bill and collect all revenue derived from the projects and remit to the Authority or to the trustee under the Authority's trust agreements funds sufficient to cover debt service on its bonds, its costs of operations, and its financial obligations with respect to the projects. Revenue is recognized when earned consistent with the accrual basis of accounting and is included in financing income and fees for services line item on the Statement of Revenues, Expenses and Changes in Net Position.

The Authority records revenue associated with the interest rate subsidy provided by the United States Government related to the Authority's issuance of bonds under the Build America Bond ("BAB") program. Under the program, the Government provides a direct 35% subsidy of the interest rate paid to bondholders. During fiscal year 2013, the federal government implemented automatic budget cuts imposed through sequestration required pursuant to the Budget Control Act of 2011. As a result, in fiscal year 2018, the Authority's November 1, 2017 and May 1, 2018 original subsidy payments related to the Senior Series 2009-2 Project Revenue Build America Bonds and the Senior Series 2010-2 Project Revenue Build America Bonds were reduced by 6.6%. In fiscal year 2017, the Authority's November 1, 2016 and May 1, 2017 original subsidy payments related to the Senior Series 2009-2 Project Revenue Build America Bonds and the Senior Series 2010-2 Project Revenue Build America Bonds were reduced by 6.9%. This reduction was $0.9 million in fiscal year 2018 and $1.0 million in fiscal year 2017.

Reclassifications

During fiscal year 2018 management identified that the lease with the Edward M Kennedy Institute should be reported as a capital lease. This immaterial error was corrected in the year ended June 30, 2017, as follows:

	As Reported	Adjustments	As Adjusted
CURRENT ASSETS			
EMKI Lease Receivable - Current	$ -	$ 2,636,306	$ 2,636,306
NON-CURRENT ASSETS			
Capital assets, net of accumulated depreciation	3,384,583,875	(76,801,739)	3,307,782,136
EMKI Lease Receivable - Non Current	-	120,657,313	120,657,313
LIABILITIES			
CURRENT LIABILITIES			
Unearned Interest Income EMKI	-	(2,834,952)	(2,834,952)
NON-CURRENT LIABILITIES			
Unearned Interest Income	-	(39,124,048)	(39,124,048)
Other Liabilities	14,540,774	671	14,541,445
NET POSITION			
Net investment in capital assets	992,917,423	224,551	993,141,974
Unrestricted	(2,260,043)	4,307,657	2,047,614
Net position at beginning of year	954,066,119	(255,792)	953,810,327
Net position at end of year	1,053,448,211	4,532,208	1,057,980,419
OPERATING REVENUE			
Financing income and fees for services	215,493,319	(2,392,078)	213,101,241
Interest income	4,138,816	2,811,475	6,950,291
OPERATING EXPENSES			
Depreciation	120,020,101	(4,368,603)	115,651,498

In the opinion of management, these changes do not have a material impact on the previously issued 2017 and prior financial statements.

4. CASH DEPOSITS AND INVESTMENTS

Cash Deposits - Custodial Credit Risk

The Authority holds a majority of its cash and cash equivalents in high quality money market mutual funds that invest in securities that are permitted investments under the Authority's Enabling Act or in money market mutual funds that have been specifically permitted by state legislation.

The Authority's cash and cash equivalents held on deposit consisted of the following as of June 30:

	2018	2017
Cash	$ 4,606,496	$ 5,552,854
Permitted money market accounts	303,430,355	426,796,973
Total cash and cash equivalents	$ 308,036,851	$ 432,349,827

Custodial credit risk is the risk that, in the event of a bank failure, the Authority will not be able to recover its deposits or will not be able to recover collateral securities that are in the possession of an outside party. The Authority does not have a deposit policy for custodial credit risk. As of June 30, 2018 and 2017, the bank balances of uninsured deposits totaled $4.4 million and $5.1 million, respectively. For purposes of disclosure under GASB Statement No. 40, *Deposit and Investment Risk Disclosures*, money market accounts investing in debt securities are considered investments and therefore, are included in the investment disclosures that follow.

Investments

As of June 30, 2018, the Authority's investments consisted of the following:

	Investment Maturities (in Years)		
	Total	Less than 1	1 to 5
Investment type			
Debt securities:			
Repurchase agreements	$ 5,318,056	$ -	$ 5,318,056
Money market accounts	303,430,355	303,430,355	-
Total	$ 308,748,411	$ 303,430,355	$ 5,318,056

As of June 30, 2017, the Authority's investments consisted of the following:

	Investment Maturities (in Years)		
	Total	Less than 1	1 to 5
Investment type			
Debt securities:			
Repurchase agreements	$ 5,318,056	$ -	$ 5,318,056
Money market accounts	426,796,973	426,796,973	-
Total	$ 432,115,029	$ 426,796,973	$ 5,318,056

Because money market funds are highly liquid, they are presented as investments with maturities of less than one year.

Interest Rate Risk

The Authority has a formal investment policy that establishes minimum credit quality of certain instruments, outlines investment procedures, and provides for periodic reporting. Generally, the Authority holds its investments until maturity.

Credit Risk

Credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. The risk is measured by the assignment of a rating by a nationally recognized statistical rating organization.

The Enabling Act specifies the permitted investments of the Authority. These permitted investments include direct obligations of or obligations which are unconditionally guaranteed by the United States of America ("Treasuries"), obligations of an agency or organization created pursuant to an act of Congress of the United States as an agency or instrumentality thereof ("Agencies"), time deposits or certificates of deposits fully secured by Treasuries or Agencies, and Treasuries and Agencies subject to repurchase agreements. Other legislation allows the Authority to invest in the Massachusetts Municipal Depository Trust (the "MMDT"), a money market account sponsored by the Treasurer of the Commonwealth and managed by Federated Investors, Inc. Additionally, in accordance with the Authority investment policy, the Authority's Bond Trustee may invest some of the Authority's funds in money market accounts, permitted and collateralized by Treasuries.

No credit risk disclosures are required under GASB No. 40 relating to the Authority's investment in Treasuries. The Authority's investments in repurchase agreements are not rated but are fully collateralized by Treasuries and Agencies. MMDT is unrated.

Investments - Custodial Credit Risk

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, a government will not be able to recover the value of the investment or collateral securities that are in the possession of an outside party. The Authority's Enabling Act does not contain legal or policy requirements that would limit the exposure to custodial credit risk, except that interest-bearing time deposits or certificates of deposit of banking institutions or trust companies must be continuously and fully secured by Treasuries or Agencies.

Custodial credit risk generally applies only to direct investments in marketable securities. Custodial credit risk does not apply to indirect investment in securities through the use of mutual funds or government investment pools, such as MMDT. Direct investments in marketable securities are held by the Authority's Bond Trustee as the Authority's agent. In accordance with the Authority's repurchase agreements, collateral for the agreements is held in segregated accounts with market values between 100% and 105% of the repurchase price, depending on the type of asset used as security and the specific repurchase agreement.

Concentrations of Credit Risk

The Authority does not place a credit limit on the amount it may invest in any one issuer. As of June 30, 2018, the Authority had 98.3% of its investments in MMDT. As of June 30, 2017, the Authority had 98.8% of its investments in MMDT.

Fair Value Measurements

GASB No. 72, "*Fair Value measurements and Application*" sets forth the framework for measuring fair value. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as follows:

Level 1 - Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that the Authority has the ability to access.

Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly and include:

- quoted prices for similar assets or liabilities in active markets;
- quoted prices for identical or similar assets or liabilities in inactive markets;
- inputs other than quoted prices that are observable for the asset or liability;
- inputs that are derived principally from or corroborated by observable market data by correlation or other means.

Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value measurement. Unobservable inputs are developed based on the best information available in the circumstances and may include the Authority's own data.

The following tables present the investments carried at fair value, as of June 30, by the valuation hierarchy defined above:

	Fair Value Measurements as of June 30, 2018			
	Level 1	**Level 2**	**Level 3**	**Total**
Investment type:				
Debt securities:				
Repurchase agreements	$ -	$ 5,318,056	$ -	$ 5,318,056
Money market accounts	303,430,355	-	-	303,430,355
Total	$ 303,430,355	$ 5,318,056	$ -	$ 308,748,411

	Fair Value Measurements as of June 30, 2017			
	Level 1	**Level 2**	**Level 3**	**Total**
Investment type:				
Debt securities:				
Repurchase agreements	$ -	$ 5,318,056	$ -	$ 5,318,056
Money market accounts	426,796,973	-	-	426,796,973
Total	$ 426,796,973	$ 5,318,056	$ -	$ 432,115,029

5. CAPITAL ASSETS

A summary of changes in capital assets follows:

	Balance June 30, 2016	Additions/ (Transfers)	Balance June 30, 2017	Additions/ (Transfers)	Balance June 30, 2018
Land	$ 37,104,492	$ 21,949,865	$ 59,054,357	$ 57,503,161	$ 116,557,518
Buildings	2,505,413,122	366,912,657	2,872,325,779	257,776,437	3,130,102,215
Building and land improvements	595,440,159	20,159,101	615,599,260	90,378,466	705,977,726
Equipment and furnishings	51,568,052	29,610,704	81,178,756	2,035,729	83,214,486
Construction in progress	541,714,311	(61,924,723)	479,789,588	22,693,947	502,483,536
Subtotal	3,731,240,136	376,707,604	4,107,947,741	430,387,740	4,538,335,480
Less: accumulated depreciation					
Buildings	(469,466,370)	(79,815,544)	(549,281,914)	(86,179,453)	(635,461,367)
Building and land improvements	(188,993,702)	(30,233,473)	(219,227,175)	(32,085,343)	(251,312,518)
Equipment and furnishings	(26,221,908)	(5,434,607)	(31,656,516)	(6,921,977)	(38,578,493)
Subtotal	(684,681,981)	(115,483,624)	(800,165,605)	(125,186,773)	(925,352,378)
Total capital assets, net	$3,046,558,156	$ 261,223,980	$3,307,782,136	$ 305,200,967	$ 3,612,983,103

During the years ended June 30, 2018 and 2017, the Authority charged $2.8 million and $2.4 million, respectively to facility costs related to certain capital projects that were discontinued at the Boston campus.

The Authority has outstanding purchase commitments with contractors for the construction of certain facilities as of June 30, 2018 and 2017 of $116.6 million and $283.7 million respectively.

6. BONDS PAYABLE

The following is a summary of bond transactions for the years ended June 30, 2018 and 2017:

	Bonds Payable	Unamortized Original Issue Premiums	Total
Beginning balance - July 1, 2016	$ 2,706,705,000	$ 122,146,350	$ 2,828,851,350
Issuances	372,320,000	55,987,318	428,307,318
Refundings	(122,075,000)	(2,126,023)	(124,201,023)
Payments/amortization	(85,775,000)	(11,120,740)	(96,895,740)
Ending balance - June 30, 2017	2,871,175,000	$ 164,886,905	3,036,061,905
Less: Due within one year			(187,300,000)
Non-current balance			$ 2,848,761,905
Beginning balance - July 1, 2017	$ 2,871,175,000	$ 164,886,905	$ 3,036,061,905
Issuances	37,650,000	-	37,650,000
Payments/amortization	(92,245,000)	(13,893,537)	(106,138,537)
Ending balance - June 30, 2018	$ 2,816,580,000	$ 150,993,368	2,967,573,368
Less: Due within one year			(364,122,357)
Non-current balance			$ 2,603,451,011

Aggregate annual maturities of principal and interest on long-term debt as of June 30, 2018 are as follows:

	Principal	Interest*	Total
Year Ending June 30,			
2019	$ 98,105,000	$ 117,072,561	$ 215,177,561
2020	101,790,000	113,264,234	215,054,234
2021	105,610,000	109,342,482	214,952,482
2022	98,055,000	105,427,528	203,482,528
2023	102,250,000	101,619,096	203,869,096
2024-2028	522,205,000	449,494,887	971,699,887
2029-2033	475,320,000	346,970,541	822,290,541
2034-2038	527,285,000	245,392,049	772,677,049
2039-2043	541,515,000	113,966,498	655,481,498
2044-2048	244,445,000	19,763,523	264,208,523
	$ 2,816,580,000	$ 1,722,313,399	$ 4,538,893,399

* These interest payments are presented net of the interest rate subsidy provided by the United States Government related to the Authority's issuance of bonds under the Build America Bond ("BAB") program. Under the BAB program, the Government provides a direct subsidy of the interest rate paid to bondholders up to 35%. The Authority's November 1, 2017, and May 1, 2018 subsidy payments related to the Senior Series 2009-2 Project Revenue Build America Bonds and the Senior Series 2010-2 Project Revenue Build America Bonds were 32.69% and 32.59%, respectively. For Fiscal Year 2019 through Fiscal Year 2041, the estimated subsidy reflected in the table above is 32.83%

The Authority classifies variable rate bonds subject to remarketing as current, unless supported by liquidity arrangements such as lines of credit or standby bond purchase agreements that extend beyond the following fiscal year. For fiscal 2018, the 2008-1 and 2008-A variable rate bonds, with a combined outstanding principal balance of $181,265,000, are classified as a current debt obligation due to the supporting liquidity facility expiring in April 2019. In the event that variable rate bonds are put back to the Authority by the debt holder, management believes that the Authority's strong credit rating will ensure that the bonds will be remarketed within a reasonable period of time. As a result, these variable rate bonds are listed in the table above at their original maturities. The 2011-2 window bonds with a principal outstanding balance of $95,055,000 have no supporting liquidity facility and therefore are classified as a current debt obligation.

The following is a summary of bonds outstanding for the years ended June 30, 2018 and 2017 (bond amounts in thousands):

Bond Description	Outstanding June 30, 2018	Outstanding June 30, 2017	Interest Rate	Maturity Year	Amount Issued	Insured	Commonwealth Guaranteed (Note 9)	Callable	Call Date Beginning
Project Revenue Bonds, Senior Series 2008-1	$ 163,115	$ 171,430	Variable	2038	$ 232,545	No	No	At Par	Anytime
Project Revenue Bonds, Senior Series 2008-2	-	3,065	4.00% to 5.00%	2038	120,560	FSA (Partial)	No	At Par	May-18
Project Revenue Bonds, Senior Series 2008-A	18,150	19,145	Variable	2038	26,580	No	Yes	At Par	Anytime
Project Revenue Bonds, Senior Series 2009-1	15,285	28,400	3.00% to 5.00%	2039	247,810	No	No	At Par	May-19
Project Revenue Bonds, Senior Series 2009-2 (Federally Taxable - Build America Bonds - Direct Pay to Issuer)	271,855	271,855	6.423% to 6.573%	2039	271,855	No	No	At Par	May-18
Project Revenue Bonds, Senior Series 2009-3 (Federally Taxable)	25,100	25,685	5.823% to 6.173%	2039	28,570	No	No	*	Anytime
Project Revenue Bonds, Senior Series 2010-1	45,485	59,230	5.000%	2020	118,985	No	No	No	-
Project Revenue Bonds, Senior Series 2010-2 (Federally Taxable - Build America Bonds - Direct Pay to Issuer)	430,320	430,320	3.80% to 5.45%	2040	430,320	No	No	*	Anytime

* These series of bonds are callable at the Make-Whole Redemption Price which equals the greater of the outstanding principal balance or the present value of the scheduled future principal and interest payments, which payments are discounted at the Treasury Rate plus 25 basis points (2009 Series Bonds) or 30 basis points (2010 Series Bonds).

Bond Description	Outstanding June 30, 2018	Outstanding June 30, 2017	Interest Rate	Maturity Year	Amount Issued	Insured	Commonwealth Guaranteed (Note 9)	Callable	Call Date Beginning
Project Revenue Bonds, Senior Series 2010-3 (Federally Taxable)	$ 2,675	$ 2,730	5.75%	2040	$ 3,005	No	No	*	Anytime
Refunding Revenue Bonds, Senior Series 2011-1	124,990	126,540	Variable	2034	135,040	No	No	At Par	Anytime
Refunding Revenue Bonds, Senior Series 2011-2	95,055	96,115	Variable	2034	101,700	No	Yes	At Par	Anytime
Project Revenue Bonds, Senior Series 2013-1	193,745	198,655	2.00% to 5.00%	2043	212,585	No	No	At Par	Nov-22
Project Revenue Bonds, Senior Series 2013-2 (Federally Taxable)	62,825	65,090	0.43% to 2.686%	2043	71,970	No	No	At Par	Nov-23
Project and Refunding Revenue Bonds, Senior Series 2013-3	24,640	24,640	4.0% to 5.0%	2043	24,640	No	No	At Par	May-23
Project Revenue Bonds, Senior Series 2014-1	292,490	293,015	3% to 5.0%	2044	293,890	No	No	At Par	Nov-24
Project Revenue Bonds, Senior Series 2014-2	5,750	8,555	.44% to 2.1%	2019	14,085	No	No	*	Anytime
Refunding Revenue Bonds, Senior Series 2014-4	92,095	122,125	.20% to 3.381%	2025	157,855	No	No	*	Anytime

* These series of bonds are callable at the Make-Whole Redemption Price which equals the greater of the outstanding principal balance or the present value of the scheduled future principal and interest payments, which payments are discounted at the Treasury Rate plus 25 basis points (2009 Series Bonds) or 30 basis points (2010 Series Bonds).

Bond Description	Outstanding June 30, 2018	Outstanding June 30, 2017	Interest Rate	Maturity Year	Amount Issued	Insured	Commonwealth Guaranteed (Note 9)	Callable	Call Date Beginning
Refunding Revenue Bonds, Senior Series 2014-3	$ 58,160	$ 61,640	2.00% to 5.00%	2029	$ 67,635	No	No	At Par	Nov-24
Project Revenue Bonds, Senior Series 2015-1	298,795	298,795	4.00% to 5.00%	2036	298,795	No	No	At Par	Nov-25
Refunding Revenue Bonds Senior Series 2015-2	189,000	191,825	3.00% to 5.00%	2036	191,825	No	No	At Par	Nov-25
Refunding Revenue Bonds Senior Series 2017-1	165,130	165,130	3.25% to 3.77%	2047	165,130	No	No	At Par	Nov-27
Refunding Revenue Bonds Senior Series 2017-2	19,510	19,510	1.58% to 3.37%	2027	19,510	No	No	No	-
Refunding Revenue Bonds Senior Series 2017-3	184,760	187,680	3.00% to 5.00%	2038	187,680	No	No	At Par	Nov-27
Project Revenue Bonds, Senior Series 2018-1	37,650	-	2.00% to 2.93%	2043	75,000	No	No	At Par	Jun-18
Total	$ 2,816,580	$ 2,871,175							

* = These series of bonds are callable at the Make-Whole Redemption Price which equals the greater of the outstanding principal balance or the present value of the scheduled future principal and interest payments, which payments are discounted at the Treasury Rate plus 25 basis points (2009 Series Bonds) or 30 basis points (2010 Series Bonds).

Variable Rate Bonds

On April 15, 2016, the Authority entered into a standby purchase agreement with Barclays Bank PLC ("Barclays") for the 2008-1 bonds which requires Barclays to purchase bonds that are tendered and not remarketed. Under the terms of the Barclays standby bond purchase agreement, the Authority is required to pay Barclays in quarterly installments a facility fee in the amount of 29 basis points (or higher, under certain circumstances) of the commitment amount. In fiscal years 2018 and 2017, the Authority incurred fees in connection with the Barclays agreement in the amount of $584,025 and $672,942, respectively. The agreement expires on April 22, 2019 and may be extended if a mutual interest exists between the Authority and Barclays.

The 2008-A bonds are supported by a standby bond purchase agreement with Barclays which requires Barclays to purchase bonds that are tendered and not remarketed. Under the terms of the Barclays standby bond purchase agreement, the Authority was required to pay Barclays in quarterly installments a facility fee in the amount of 32.5 basis points (or higher, under certain circumstances) of the commitment amount. The agreement expired in April 2016. The Authority and Barclays executed a first amendment to the agreement and extended the agreement until April 15, 2019. Under the first amendment to the standby purchase agreement, the Authority is required to pay Barclays in quarterly installments a facility fee in the amount of 27.5 basis points (or higher, under certain circumstances) of the initial commitment and may be extended if a mutual interest exists between both the Authority and Barclays. Fees incurred by the Authority in connection with the Barclays agreement totaled $73,575 and $83,533 for the years ended June 30, 2018 and June 30, 2017, respectively.

The 2011-1 bonds are supported by a standby bond purchase agreement with Wells Fargo Bank, N.A. ("Wells") which requires Wells to purchase bonds tendered and not remarketed in an amount not to exceed the principal on the bonds plus accrued interest up to 185 days at an annual interest rate not to exceed 12 percent. Under the agreement, the Authority was required to pay Wells in quarterly installments a facility fee in the amount of 40 basis points (or higher, under certain circumstances) of the initial commitment. The initial commitment under the agreement was set at $143,253,392 and was subject to adjustment from time to time in accordance with the provisions of the agreement. The standby bond purchase agreement expired on June 9, 2014. The Authority and Wells executed a first amendment to the standby bond purchase agreement to extend the agreement until June 9, 2017. Under the first amendment to the standby purchase agreement, the Authority is required to pay Wells in quarterly installments a facility fee in the amount of 25 basis points (or higher, under certain circumstances) of the initial commitment. The initial commitment under the first amendment to the standby bond purchase agreement was set at $139,063,145 and is subject to adjustment from time to time in accordance with the provisions of the agreement. On May 17, 2017, the agreement was extended with Wells until June 9, 2019. The facility fee under the extended agreement is 32 basis points. On June 29, 2018, the agreement was extended with Wells until July 9, 2019. The facility fee under the extended agreement is 32 basis points. Fees incurred by the Authority in connection with the Wells agreement totaled $434,357and $435,176 for the years ended June 30, 2018 and 2017, respectively.

Window Bonds

In fiscal year 2011, the Authority issued its 2011-2 bonds in a variable rate Window Bond mode. As with the Authority's other variable rate bonds, the Window Bondholders can tender the bonds at any time. However, unlike the Authority's other variable rate bonds, where the bondholders will receive payment on any tendered bonds 7 days from the tender, Window Bondholders are not required to receive funds for the tender until after a 30 day remarketing period and an additional 180 day funding window period. Due to this 210 day funding period, the Authority is not required to obtain any type of liquidity support for the 2011-2 bonds and the bonds are considered supported with self-liquidity. Window Bondholders receive an interest rate on the Window Bonds at a fixed spread over the Securities Industry and Financial Markets Association Municipal Swap IndexTM ("SIFMA"). The initial spread to the SIFMA index is 9 basis points.

Bond Refundings

There was no refunding of bonds in fiscal year 2018.

In fiscal year 2017, the Authority issued $187,680,000 of Refunding Revenue Senior Series 2017-3 Bonds which advance refunded $77.3 million of the WCCC Series 2007-E and 2007-F Bonds and $8.3 million of Lowell bonds issued under the Massachusetts Health and Academic Facilities Authority (MHEFA) Series 2007-D. The Series 2017-3 bonds also refunded $57.0 million of the Authority's 2008-2 bonds and $65.0 million of the Authority's 2009-1 bonds. The Authority deposited into trust accounts funds sufficient to provide for all future debt service payments on the refunded bonds until the bonds are called. These advanced refunded bonds are considered defeased and, accordingly, the liability for the bonds payable and the assets held to repay the debt are not recorded in the Authority's financial statements.

In connection with the Authority's refundings, the Authority recorded a difference between the reacquisition price and the net carrying amount of the refunded debt of $5,765,590. This balance is being reported as a component of deferred outflows, loss on debt refunding, and will be amortized as an increase in interest expense over the remaining term of the original life of the refunded bonds. These refundings reduced the Authority's debt service payments in future years by $30,157,463 and resulted in an economic gain (the present value of the savings) of $21,403,862.

Bond Premium and Issuance Expenses

In fiscal year 2017, the Authority received premiums at issuance totaling $55,987,318. The Authority amortizes the premiums received as a reduction of interest expense over the life of the respective bond issue. No premiums were received for the 2018-1 bonds.

In connection with the Authority's bond issues, the Authority incurred certain issuance costs associated with the bond offerings. In fiscal year 2018 issuance costs were $129,908 and in fiscal year 2017, these costs amounted $2,334,834 and were expensed in accordance with the provisions of GASB Statement No. *65, Items Previously Reported as Assets and Liabilities.*

Interest Rate Swaps

The Authority uses derivative instruments to manage the impact of interest rate changes on its cash flows and net position by mitigating its exposure to certain market risks associated with operations, and does not use derivative instruments for trading or speculative purposes.

The Authority's contracts are evaluated pursuant to GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments* ("GASB No. 53") to determine whether they meet the definition of derivative instruments, and if so, whether they effectively hedge the expected cash flows associated with interest rate risk exposures. The Authority applies hedge accounting for derivative instruments that are deemed effective hedges and under GASB No. 53 are referred to as hedging derivative instruments. Under hedge accounting, changes in the fair value of a hedging derivative instrument are reported as a deferred inflow or deferred outflow in the Statement of Net Position until the contract is settled or terminated.

All settlement payments or receipts for hedging derivative instruments are recorded as interest expense in the period settled.

The Authority's hedging derivative instruments at June 30, 2018 and 2017 were as follows:

	Derivative Instruments - Liability June 30, 2017	Net Change in Liability	Derivative Instruments - Liability June 30, 2018	Type of Hedge	Financial Statement Classification for Changes in Liability
Series 2008-1 Swap	$ (25,266,776)	$ 8,690,332	$ (16,576,444)	Cash Flow	Non-current liability
Series 2008-A Swap	(2,883,584)	953,242	(1,930,342)	Cash Flow	Non-current liability
Series 2006-1 Swap	(33,690,361)	10,594,964	(23,095,397)	Cash Flow	Non-current liability
Total	$ (61,840,721)	$ 20,238,538	$ (41,602,183)		

The terms of the Authority's financial derivative instruments that were outstanding at June 30, 2018 are summarized in the table below:

	Type	Effective Date	Termination Date	Rate Authority Pays	Authority Receives	Original Notional Value
Series 2008-1 Swap	Synthetic Fixed	May 1, 2008	May 1, 2038	3.388 %	70% of 1-Month LIBOR	$ 232,545,000
Series 2008-A Swap	Synthetic Fixed	Nov 13, 2008	May 1, 2038	3.378 %	70% of 1-Month LIBOR	26,580,000
Series 2006-1 Swap	Synthetic Fixed	Apr. 20, 2006	Nov. 1, 2034	3.482 %	60% of 3-Month LIBOR + .18%	243,830,000

Fair values - GASB 72 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between swap counterparties at the measurement date, which includes the non-performance risk. The Authority engaged an independent party to perform the valuations. The expected swap cash flows are calculated using the zero-coupon discounting method which takes into consideration the prevailing interest rate environment, the specific terms and conditions of a given transaction, and assumes that the current forward rates implied by the yield curve are the market's best estimate of future spot interest rates. The income approach is then used to obtain the fair value of the swaps, where future amounts (the expected swap cash flows) are converted to a single current (discounted) amount, using a rate of return that takes into account the relative risk of non-performance associated with the cash flows, and time value of money. Where applicable under the income approach, the option pricing model technique, such as the Black-Derman-Toy model, or other appropriate option pricing model is used.

As the interest rate swaps are valued using the LIBOR swap rate observed at commonly quoted intervals for the full term of the swaps, the measurement results in the swap fair values being categorized as Level 2.

As of June 30, 2018 and 2017, the Authority's swaps had a negative fair value of $41,602,183 and $61,840,721, respectively, and as such are presented as noncurrent liabilities.

Credit risk - As of June 30, 2018 and 2017, the Authority was not exposed to credit risk on the swaps as the fair value was negative. Since changes in interest rates affect the fair values of swap agreements, it is possible that the swap agreements with negative fair values become positive which would expose the Authority to credit risk. To mitigate the potential for credit risk, when a counterparty has a positive fair value and if the counterparty's credit quality falls below A3/A/A, the fair value of the swap will be fully collateralized by the counterparty with U.S. Government Securities or U.S. Government Agency Securities. Collateral posted by the counterparty will be held by a third-party custodian.

The credit ratings for the Authority's counterparties at June 30, 2018 are as follows:

	Credit Ratings		
	Moody's	**S&P**	**Fitch**
UBS AG	Aa3	A+	AA-
Deutsche Bank AG	A3	BBB+	A-
Citibank NA	A1	A+	A+

Basis risk - The Authority is exposed to basis risk on its pay-fixed interest rate swaps because the variable-rate payment received by the Authority (a percent of LIBOR) on these hedging derivative instruments is based on indexes other than the actual interest rates the Authority pays on its hedged variable rate debt. Should the relationship between LIBOR and the actual variable rate interest payments on the bonds converge, the expected cost savings may not materialize. The terms of the related hedging fixed rate swap transactions are summarized in the chart at the top of this page.

Termination risk - The Authority's swaps are governed under the International Swap Dealers Association Master Agreement (the "Master Agreement"), which includes standard termination events, such as failure to pay and bankruptcy. Additionally, the Master Agreement was amended so that the swap may be terminated by the Authority if the counterparty's credit quality rating falls below certain levels or the counterparty fails to have a rating. Further, the swap may be terminated by the counterparties if the long-term, unsecured, unenhanced senior debt rating of any bonds issued by the Authority is withdrawn, suspended or falls below certain levels or the Authority fails to have a rating. The Authority or the counterparties may terminate the swaps if the other party fails to perform under the terms of the contract. The Authority may also terminate the swaps at its option. If the swap is terminated, the variable-rate bonds would no longer carry a synthetic fixed interest rate and the Authority's interest payment will be based solely upon the rate required by the related bonds as issued. When a termination event occurs, a mark-to-market (or "fair market value") calculation is performed to determine whether the Authority is owed or must pay cash to close out the swap position. A negative fair value means the Authority would incur a loss and need to make a termination payment to settle the swap position. A positive fair value means the Authority would realize a gain and receive a termination payment in settlement of the swap position.

Contingencies - All of the Authority's swaps include provisions that require the Authority to post collateral in the event its credit rating falls below certain levels. In the event the Authority is rated A2 by Moody's Investors Service or A by Standard & Poor's, the Authority would need to post collateral equal to amounts above the fair value of its swaps in liability positions above $10,000,000. In the event the Authority is not rated or rated below A3 by Moody's Investors Service or below A- by Standard & Poor's, the Authority must post collateral in the amount of the fair value of the swaps in liability positions. The collateral posted is to be in the form of cash obligations guaranteed by the U.S. Treasury, or negotiable debt obligations issued by the Federal Home Loan Mortgage Association or the Federal National Mortgage Association. If the Authority does not post collateral, the derivative instrument may be terminated by the counterparty. The Authority's credit rating is Aa2 from Moody's Investors Service, AA from Fitch Ratings, and AA- from Standard and Poor's at June 30, 2018; therefore, no collateral was required to be posted.

Termination of hedge accounting - In June of 2011, the Authority undertook an advance refunding of the 2008-3 and 2008-4 variable rate bonds hedged by the Series 2006-1 Swap. As part of the refunding, the Series 2006-1 swap was re-assigned to a new underlying notional (the 2011-1 and 2011-2 Bonds) with identical terms. This refunding and reassignment effectively terminated the original hedge. At June 30, 2011, the Series 2006-1 Swap was considered a hedging derivative instrument. In accordance with GASB No. 53, at the time of a termination event related to an advance refunding of the hedged debt, the balance of the amounts in deferred outflows is to be included in the net carrying amount of the refunded debt for the purposes of calculating the deferred loss on refunding. The balance of the deferred outflows that was included in the net carrying amount of the refunded debt at the time of the refunding was $22,200,000. The change in fair value of the Series 2006-1 Swap from the refunding date to June 30, 2017 is reported as a deferred outflow as the swap was determined to be effective at June 30, 2017.

Swap payments and associated debt. Using rates as of June 30, 2018, the debt service requirements of the variable-rate debt and net swap payments, assuming current interest rates remain the same for their term, were as follows:

	Consolidated Summary			
	Variable Rate Debt		Interest Rate Swap	
Fiscal Year Ending June 30,	**Principal**	**Interest**	**Net**	**Total**
2019	$ 12,215,000	$ 6,073,031	$ 7,645,043	$ 25,933,074
2020	12,720,000	5,884,928	7,409,365	26,014,293
2021	28,390,000	5,575,589	7,020,180	40,985,769
2022	29,545,000	5,139,865	6,470,971	41,155,835
2023	33,915,000	4,662,733	5,869,404	44,447,136
2024 - 2028	155,640,000	16,102,142	20,258,607	192,000,749
2029 - 2033	112,390,000	5,579,047	7,010,901	124,979,948
2034 - 2038	16,495,000	373,150	468,681	17,336,831
2039 - 2043	-	-	-	-
Total	$ 401,310,000	$ 49,390,483	$ 62,153,153	$ 512,853,635

As actual rates vary, variable-rate bond interest payments and net swap payments will vary.

7. COMMERCIAL PAPER

The maximum aggregate principal amount of commercial paper which may be outstanding at one time is $200,000,000. The $125,000,000 Commercial Paper Notes, Series 2013-A, were secured by an irrevocable letter of credit ("LOC") provided by State Street Bank and Trust Company ("State Street") which expired on August 12, 2016. The letter of credit was replaced with a standby liquidity facility agreement that expires on August 12, 2019. The remaining $75,000,000 Commercial Paper Notes, Series 2013-B are secured by a standby liquidity facility agreement provided by U.S. Bank National Association, which was extended in fiscal year 2016 and now expires on August 12, 2019.

The following is a summary of commercial paper issues for the years ended June 30, 2018 and 2017:

	Balance June 30, 2017	Issues	Repayments	Balance June 30, 2018
Commercial paper series 2013-A tax exempt	$ -	$64,535,000	$ -	$ 64,535,000
Commercial paper series 2013-B	-	-	-	-
	$ -	$64,535,000	$ -	$ 64,535,000

	Balance June 30, 2016	Issues	Repayments	Balance June 30, 2017
Commercial paper series 2013-A tax exempt	$ 5,000,000	$ -	$ (5,000,000)	$ -
Commercial paper series 2013-B tax exempt	-	20,000,000	(20,000,000)	-
Commercial paper series 2013-A taxable	-	-	-	-
	$ 5,000,000	$ 20,000,000	$ (25,000,000)	$ -

The Authority incurred fees of $472,914 and $494,991 for fiscal years 2018 and 2017, respectively, associated with the State Street LOC. Fees in connection with the U.S. Bank National Association Standby Liquidity Facility Agreement amounted to $260,794 and $260,793, respectively, for fiscal year 2018 and fiscal year 2017.

8. GRANTS FROM THE UNIVERSITY OF MASSACHUSETTS AND THE COMMONWEALTH OF MASSACHUSETTS

During fiscal year 2018, the Authority received grants totaling $52.9 million from the Commonwealth. These grants were used as follows: $27.9 million of Division of Capital Asset Management and Maintenance ("DCAMM") funds for the Lowell and Amherst campuses, $25 million to fund a capital infrastructure project, "Road and Transportation Improvements" at UMass Boston.

The Authority also recorded in fiscal years 2018 and 2017, $96.7 million and $0.5 million, respectively, of construction costs incurred by the Commonwealth Capital Asset Management Division in connection with an on-going construction projects at the Lowell and Amherst campuses.

As per the Authority's policy, these grants are shown in the Statements of Revenues, Expenses and Changes in Net Position as a capital contribution.

9. GUARANTY OF THE COMMONWEALTH OF MASSACHUSETTS

Section 10 of the Enabling Act authorizes the Commonwealth, acting by and through the Trustees, to enter into contracts with the Authority for state financial assistance in the form of a guaranty by the Commonwealth of the payment of the principal and interest as they become due and payable up to a maximum of $200,000,000 principal amount of outstanding bonds and notes of the Authority. The full faith and credit of the Commonwealth are pledged for the payment of the guaranty. As is generally the case with other full faith and credit obligations of the Commonwealth, funds with which to honor such guaranty would be provided by appropriation. The amount of bond obligation guaranteed by the Commonwealth was $113.2 million and $115.3 million at June 30, 2018 and June 30, 2017, respectively.

10. PUBLIC PRIVATE PARTNERSHIP

On November 8, 2016, the Authority entered into an agreement whereby the Authority sub-leased property on the University of Massachusetts Boston campus to Provident Commonwealth Educational Resources, Inc. (PCER), a Massachusetts not-for-profit corporation. The land is ground-leased to the Authority by the Commonwealth. PCER has engaged a contractor to construct a 1,082-bed student housing facility on the site (the "Project"). The Authority sub-leased the property to PCER for a term of 40 years (2056), with the property reverting to the Authority when the lease terminates. Commencing approximately one year following the completion of the project in August 2018, the annual rental amount payable to the Authority under the ground lease will be $1.025 million. Unpaid annual rent shall accrue and shall be paid in the future to the extent sufficient monies are available. The first ground lease payment is anticipated to be recognized a year following completion of the project, which would be fiscal 2020, and therefore no revenue associated with this projected has been reported in the fiscal 2017 or fiscal year 2018 financial statements.

The Project was financed with $130.08 million of revenue bonds issued on October 26, 2016 (Series 2016 Bonds) by the Massachusetts Development Finance Agency ("MassDevelopment") pursuant to a Loan and Trust Agreement between MassDevelopment and PCER. The Authority, University nor UMass Boston have pledged revenues to secure the payment of the Series 2016 bonds or have any obligation with respect to payment of the Series 2016 bonds.

Pursuant to the Dining Facility Sublease dated November 8, 2016 between PCER, as sub-lessor and the Authority, as sub-lessee, PCER leased the dining facility, located within the Project, to the Authority and the Authority shall operate or cause to be operated the dining facility. The University funded the construction costs of the dining facility through debt issued by the Authority. This lease only relates to the operations and maintenance of the dining facility.

Management evaluated the relevant applicability of relevant GASB guidance (including GASB Statement No. 39, *Determining Whether Certain Organizations Are Component Units*, Statement No. 60, *Accounting for Financial Reporting for Service Concession Arrangements*, and Statement No. 61, *The Financial Reporting Entity: Omnibus*) against the underlying agreements and indentures and has concluded that the associated debt should not be recognized on the financial statements of the Authority.

Note 14, Subsequent Events provides information about a similar transaction on the Dartmouth campus that closed on November 14, 2018.

11. COMMITMENTS AND CONTINGENCIES

The Authority has executed long-term leases with the Commonwealth, acting by and through the Trustees, covering the land on which facilities owned by the Authority are located on the University's campuses. These leases call for nominal annual payments to the Commonwealth. Certain of these leases renew automatically for subsequent five or ten year periods unless the Authority notifies the University that it does not wish to renew. Other leases require the Authority to notify the University of its desire to renew. As of June 30, 2018, all leases with the Commonwealth were in good standing and any leases requiring action by the Authority during the year to facilitate their renewals were properly renewed.

As provided in the Enabling Act, each of the above-referenced leases also terminates when the Authority no longer has any bonds outstanding, at which time all Authority property becomes the property of the Commonwealth.

On April 1, 2014, the Authority entered into a lease, as lessee, with Massachusetts Mutual Life Insurance Company, as lessor, for space at Tower Square, 1500 Main Street, Springfield, Massachusetts to be used by the University primarily as classroom space for its Springfield Satellite campus. The lease began August 1, 2014 and ends July 31, 2019.

On July 17, 2014, the Authority entered into a lease, as lessee, with One Beacon Street Limited Partnership, as lessor, for space at One Beacon Street, Boston, Massachusetts to be used primarily as office space by the Authority, the UMASS Club and the University. The lease began on July 15, 2015 and ends December 31, 2030. The lease commencement date was November 1, 2015 and included an initial four month period of no rental payments.

For the years ended June 30, 2018 and 2017, lease operating costs were $3,893,658 and $2,893,349, respectively, which are included in facility operating costs in the accompanying Statements of Revenues, Expenses and Changes in Net Position.

Future payments (excluding Lessor's costs and taxes and including the base rent escalation of $2 per square foot for every other year) under the lease agreements are as follows:

Year Ending June 30,	
2019	$ 2,122,226
2020	2,139,004
2021	2,180,561
2022	2,222,117
2023	2,263,673
2024 and thereafter	18,118,697
	$ 29,046,277

The Authority is a defendant in a lawsuit and is subject to various contractual matters; however, Authority management is of the opinion that the ultimate outcome of all litigation or potential contractual obligations will not have a material effect on the financial position, financial results or cash flows of the Authority.

12. THE UNIVERSITY OF MASSACHUSETTS CLUB

The University of Massachusetts Club (the "Club") is managed by the not for profit organization University Services, Inc. The Authority did not provide operating support in fiscal 2018 or in fiscal 2017.

13. RELATED PARTY TRANSACTIONS

The following table details the amounts due to the various campuses of the University at June 30, which were recorded as part of accounts payable and other liabilities in the statements of net position:

	2018	2017
Campus		
Amherst Campus	$ 162,320	$ 1,039,013
Boston Campus	1,728	1,212,128
Dartmouth Campus	4,138,835	4,455,047
Lowell Campus	303,933	3,541,051
Total	$ 4,606,817	$ 10,247,239

In July 2014, March 2015 and January 2017, the Authority issued debt to refund certain portions of outstanding debt of Worcester City Campus Corporation ("WCCC"). Notes payables from WCCC are presented within bonds payable balances with offsetting loan receivable from WCCC. The current and non-current balance of the outstanding WCCC loan receivable amounted to $9.2 million and $229.8 million as of June 30, 2018 and $8.3 million and $241.4 million as of June 30, 2017.

14. SUBSEQUENT EVENT

Subsequent to year-end, the Authority issued $38.4 million of Series 2013-A commercial paper to be used for funding of approved capital projects at the Lowell, Amherst and Dartmouth campuses. The commercial paper is expected to be repaid with proceeds from the Authority's next long-term bond financing.

On November 14, 2018, the Authority entered into an agreement whereby the Authority sub-leased property on the University of Massachusetts Dartmouth campus to Provident Commonwealth Educational Resources II Inc., a Massachusetts not-for-profit corporation. The land is leased to the Authority by the Commonwealth. Provident Commonwealth Educational Resources II Inc. will engage a contractor to construct a 1,210-bed student housing facility on the site. The Authority will sub-lease the property to Provident Commonwealth Educational Resources II Inc. for a term of approximately 45 years. Commencing with the first lease year of the lease following the completion of the project (estimated completion is August 2020), the annual rental amount payable to the Authority under the ground lease will be $0.625 million.

Pursuant to the Dining Facility Sublease dated November 14, 2018 between Provident Commonwealth Educational Resources II Inc., as sub-lessor and the Building Authority, as sub-lessee, the Provident Commonwealth Educational Resources II Inc. shall lease the dining facility, located within the residential hall, to the Campus and shall operate the Dining Facility or cause it to be operated.

For purposes of determining the effects of subsequent events on these financial statements, management has evaluated events subsequent to June 30, 2018 and through December 17, 2018, the date on which the financial statements were available to be issued and, determined that there were no matters requiring recognition or disclosure to the accompanying financial statements.

APPENDIX C

FINANCIAL STATEMENTS OF THE UNIVERSITY

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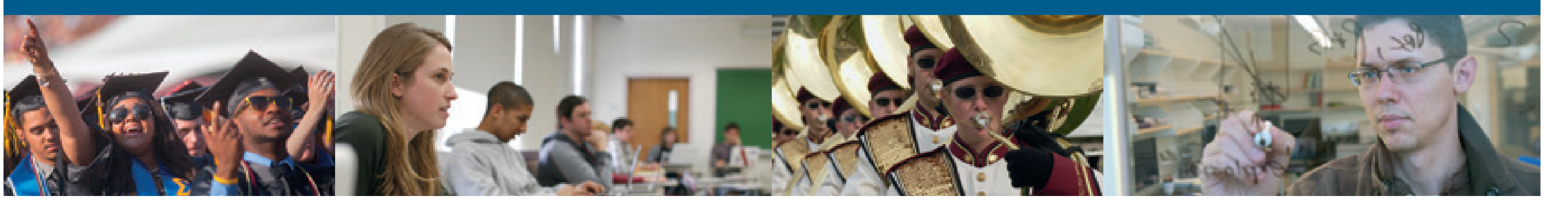
University of Massachusetts

ANNUAL FINANCIAL REPORT

2018



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University of Massachusetts

ANNUAL FINANCIAL REPORT

UNIVERSITY ADMINISTRATION

As of August 2018

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January 8, 2019

I am pleased to present the annual financial report of the University of Massachusetts, which details the university's financial position and activities over the past year and highlights our commitment to fiscal management and accountability.

Last year, UMass continued its ascension into the top-tier of public research universities and increased its impact in the Commonwealth and beyond.

Enrollment surpassed 74,500 students, a new high, and we graduated our largest class in history, with nearly 18,000 students earning degrees. Our research portfolio rose to a record $670 million — behind only Harvard and MIT in the state — with research concentrated in areas critical to the Commonwealth's economy. And for the third year in a row, *U.S. News & World Report* differentiated UMass by making us one of the only university systems in the country with all of its undergraduate campuses nationally ranked universities.

These incredible achievements are the result of the hard work and dedication of countless individuals across our five campuses, and they're a clear indication that we are fulfilling our mission to provide an accessible, world-class education that transforms lives.

But as we continue to grow and achieve new levels of success, we must remain sharply focused on affordability, which is critical to our mission and our position in an increasingly competitive higher education marketplace.

To that end, we have taken extensive measures to increase transparency, establish frameworks for financial accountability and be good stewards. We have implemented a series of efficiency and effectiveness projects to save nearly $300 million over 10 years. And we are focused on several key areas to ensure we remain affordable for students of all backgrounds, including expanding our digital education offerings, forming new partnerships with businesses and nonprofits, and increasing our financial aid endowment to provide more scholarships for deserving students.

These efforts have already distinguished UMass as a well-managed university. This past May, Moody's affirmed the university's Aa2 credit rating and revised the university's outlook from negative to stable, citing strong management, improvement in fiscal oversight and healthy student demand.

I am proud of what we've achieved this year, and I'm confident that as a university community we are ready to face the opportunities and challenges that lie ahead. Together, we will ensure UMass continues to fulfill its critical mission of access, opportunity and service to the Commonwealth.

Martin T. Meehan
President

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REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS

Board of Trustees of the
University of Massachusetts

Report on the financial statements

We have audited the accompanying financial statements of the business-type activities and the aggregate discretely presented component units of the University of Massachusetts (the "University"), an enterprise fund of the Commonwealth of Massachusetts, as of and for the years ended June 30, 2018 and 2017, and the related notes to the financial statements, which collectively comprise the University's basic financial statements as listed in the table of contents.

Management's responsibility for the financial statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the University's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the business-type activities and the aggregate discretely presented component units of the University of Massachusetts as of June 30, 2018 and 2017, and the respective changes in financial position and, where applicable, cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other matters

Required supplementary information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis on pages 6 through 15 and the Schedule of the University's Proportionate Share of the Net Pension Liability and the Schedule of the University's Contribution of the Massachusetts State Employees' Retirement System on page 47 be presented to supplement the basic financial statements. Such information, although not a required part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. This required supplementary information is the responsibility of management. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America. These limited procedures consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Emphasis of Matter

The financial statements of the University are intended to present the financial position, the changes in financial position and cash flows that are attributable to the transactions of the University. They do not purpose to, and do not present fairly the position of the Commonwealth of Massachusetts as of June 30, 2018 and 2017, the changes in its financial position, or where applicable, its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

As discussed in Note 1 of the financial statements, the University adopted new accounting guidance effective July 1, 2017 related to postemployment benefits other than pensions. Our opinion is not modified with respect to this matter.

Other reporting required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report, dated January 8, 2019, on our consideration of the University's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the University's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the University's internal control over financial reporting and compliance.

Grant Thornton LLP

Boston, Massachusetts
January 8, 2019

Management's Discussion and Analysis (unaudited)

June 30, 2018

Introduction

This Management's Discussion and Analysis provides an overview of the financial position and activities of the University of Massachusetts (the University or UMass) for the fiscal years ended June 30, 2018 and 2017, and should be read in conjunction with the accompanying financial statements and notes. The financial statements, notes and this discussion are the responsibility of management.

The University of Massachusetts was established in 1863 as the Massachusetts Agricultural College, located at Amherst. Since then it has grown into a five-campus system that is nationally and internationally known for the quality of its academic programs and the scope and excellence of its faculty research. From Nobel Prize-winning gene-silencing research to research in such areas as renewable energy, nanotechnology, cybersecurity, life sciences and marine science, the University of Massachusetts is expanding the boundaries of knowledge and opening doors of discovery that benefit the Commonwealth of Massachusetts (Commonwealth), the nation and the world. UMass consistently ranks as one of the best universities in the world and as one of the most innovative.

UMass Amherst, founded in 1863, is the flagship of the five-campus UMass system. True to its land-grant roots, UMass Amherst is engaged in research and creative work in all fields and is classified by the Carnegie Foundation for the Advancement of Teaching as a doctoral university with the "highest research activity". Major areas of emphasis include climate science, food science, alternative energy, nano manufacturing, polymer science, computer science and linguistics. Consistently rated as a "Top Producer of Fulbright Students," UMass Amherst is ranked 26th among the nation's top public universities by *U.S. News & World Report* in 2018.

UMass Boston is nationally recognized as a model of excellence for urban public research universities. Located on Boston Harbor, it is the metropolitan area's only public research university. UMass Boston's distinguished intellectual contributions span the social sciences, education, health and wellness, and has a student population that represents 150 countries. UMass Boston is committed to educating people from modest-income backgrounds, first-generation college students and those from urban areas here and abroad.

UMass Dartmouth distinguishes itself as a vibrant university dedicated to engaged learning and innovative research resulting in personal and lifelong student success. Located on 710 acres on the South Coast of Massachusetts, UMass Dartmouth ranks in the top 1 percent nationwide on the President's National Community Service Honor Roll and among Washington Monthly's national Top 25 in contribution to the public good. UMass Dartmouth offers students high-quality academic programs through majors and professional and doctoral programs, including the state's only public law school.

UMass Lowell, a nationally recognized doctoral university, is the 10th fastest growing university in the country, according to the Chronicle of Higher Education. National recognition of the campus is on the rise. *U.S. News & World Report* ranks UMass Lowell No. 157 in the National Universities Rankings, with programs support workforce and economic development through innovation, entrepreneurship and public-private partnerships. The university prepares students emphasizing experiential learning through cooperative education, service and research.

UMass Medical School (UMMS), founded in 1962 and situated in Worcester, is the Commonwealth's only public medical school and serves as the University's Nobel-prize winning health sciences campus. Consistently ranked in the top 10 percent for primary care training, UMMS has remained true to its founding mission while also becoming globally recognized in biomedical research. UMMS has three graduate schools—School of Medicine, Graduate School of Biomedical Sciences and Graduate School of Nursing. Unique among all medical schools, UMMS is also home to Commonwealth Medicine, a health care consulting division that partners with states in delivering health services to vulnerable populations, and MassBiologics, the only non-profit, FDA-licensed vaccine manufacturer in the nation.

UMassOnline, the University of Massachusetts' nationally acclaimed online education consortium, features more than 1,500 online courses and 150 online certificate and degree programs from the five UMass campuses. Since its founding in 2001, UMassOnline continues to grow, with 67,000 course enrollments across the five campuses. UMassOnline students can pursue an associate's, bachelor's, master's or doctoral degree in a variety of in-demand subject areas, including liberal arts, education, management, nursing, public health and information technology. Online students learn from the same world-class instructors as students who study on campus, and they receive an identical degree. UMassOnline programs consistently earn high rankings in *U.S. News & World Report* and GetEducated.com.

Financial Highlights

The University's income before other revenues, expenses, gains, and losses was $2.8 million for fiscal year 2018. Excluding the impact on operating expenses for both Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* (GASB 75) and GASB 68, *Accounting and Reporting for Pensions* (GASB 68), the, the University's income before other revenues, expenses, gains, and losses was $78.7 million.

From fiscal year 2017 to fiscal year 2018, the University's operating revenues increased by $28.2 million driven by an increase in tuition & fees and auxiliary revenue from both a rate increase and enrollment increases. Grant revenues increased due to new government and private grant activity. Operating expenses increased by $141.0 million primarily driven by the impact of recording postemployment benefit expenses in connection with the adoption of GASB 75, a collective bargaining rate increase, a state fringe rate increase and depreciation associated with the University's capital plan. Non-operating revenues increased $25.7 million primarily attributed to an increase in state appropriations and strong investment performance.

The University's combined net position decreased $665.4 million from $3.1 billion in fiscal year 2017 to $2.4 billion in fiscal year 2018. This decrease is primarily a result of the University's implementation of GASB 75. In addition to the expenses recorded in 2018 related to OPEB, the implementation of this standard resulted in a reduction of $743.0 million to the beginning net position in the 2018 Statement of Revenues, Expenses, and Changes in Net Position as of July 1, 2017. The application of GASB 75 was recorded at the beginning of fiscal year 2018 because this was the earliest date for which recognition was practical, based on available information.

Using the Annual Financial Report

The University's financial statements are prepared in accordance with U.S. generally accepted accounting principles as prescribed by GASB, which establishes financial reporting standards for public colleges and universities. The University's significant accounting policies are summarized in Note 1 of the accompanying financial statements, including further information on the financial reporting entity.

This report includes the University's Statements of Net Position, Statements of Revenues, Expenses and Changes in Net Position and the Statements of Cash Flows for the fiscal years ended June 30, 2018 and 2017. The University's net position (the difference between assets and liabilities) is one indicator of the University's financial health. Over time, increases or decreases in net position are indicators of the improvement or erosion of an institution's financial health when considered together with non-financial factors such as enrollment levels and the condition of the facilities.

The Statements of Net Position include all assets and liabilities, as well as deferred inflows and outflows of resources of the University. Net position is further broken down into three categories: net investment in capital assets, restricted and unrestricted. Amounts reported in net investment in capital assets represent the historical cost of property and equipment, reduced by the balance of related debt outstanding and depreciation expense charged over the years. Net position is reported as restricted when constraints are imposed by third parties, such as donors or enabling legislation. Restricted net position is either non-expendable, as in the case of endowment gifts to be held in perpetuity, or expendable, as in the case of funds to be spent on scholarships and research. All other assets are unrestricted; however, they may be committed for use under contract or designation by the Board of Trustees. Note 15 to the accompanying financial statements depicts the designations of unrestricted net position at June 30, 2018.

The Statements of Revenues, Expenses and Changes in Net Position present the revenues earned and expenses incurred during the year. Activities are reported as either operating or non-operating, as prescribed by GASB. According to the GASB definitions, operating revenues and expenses include tuition and fees, grant and contract activity, auxiliary enterprises and activity for the general operations of the institution not including appropriations from state and federal sources. Non-operating revenues and expenses include appropriations, capital grants and contracts, endowment gifts, investment income, and non-operating federal grants (such as Pell grants). With a public university's dependency on support from the state, Pell grants, and gifts, it is common for institutions to have operating expenses exceed operating revenues. This is because the financial reporting model prescribed by GASB classifies state and federal appropriations, Pell grants, and gifts as non-operating revenues. Due to the materiality of the state appropriations upon which the University relies, these appropriation amounts are included in certain analysis throughout this MD&A as operating revenue. The utilization of long-lived assets, referred to as capital assets, is reflected in the financial statements as depreciation expense, which amortizes the cost of a capital asset over its expected useful life.

Another important factor to consider when evaluating financial viability is the University's ability to meet financial obligations as they mature. The Statements of Cash Flows present information related to cash inflows and outflows summarized by operating, capital and non-capital, financing and investing activities.

Reporting Entity

The financial statements of the University include financial activities of the following blended component units: the University of Massachusetts Building Authority (Building Authority), Worcester City Campus Corporation (WCCC) and Subsidiary, and the University of Massachusetts Amherst Foundation. Separate Statements of Financial Position and Statements of Activities are presented in this report for the University's discretely presented component units, the University of Massachusetts Foundation, Inc., and the University of Massachusetts Dartmouth Foundation, Inc. The statements for these entities are presented in accordance with Financial Accounting Standards Board (FASB) standards, which differ from GASB standards in certain areas such as reporting of pledges to endowment and net position.

Net Position

Condensed statements of net position at June 30, 2018, 2017, and 2016, respectively, are presented on page 9.

As of June 30, 2018, total net position was $2.4 billion. The University's largest asset continues to be its capital assets, net of accumulated depreciation, of $5.1 billion at June 30, 2018, $4.9 billion at June 30, 2017 and $4.6 billion at June 30, 2016.

Liabilities totaled $5.1 billion at June 30, 2018, an increase of $1.0 billion over fiscal year 2017. Long-term liabilities represent 82% of total liabilities at June 30, 2018, primarily consisting of $2.6 billion of long-term debt and $1.2 billion of pension and other postemployment benefit (OPEB) liabilities. With the adoption of GASB 75, the University was required to recognize $817.4 million related to OPEB obligations.

The University's current assets as of June 30, 2018 of $918.7 million were less than current liabilities of $934.5 million, and as a result the current ratio was $0.98 in assets to every one dollar in liabilities. This is due to an increase of the current portion of long-term liabilities. As of June 30, 2017, current assets of $742.5 million were greater than current liabilities of $622.1 million, resulting in a current ratio of $1.19. As of June 30, 2016, current assets of $677.9 million were less than current liabilities of $774.8 million, resulting in a current ratio of $0.86.

Revenues, Expenses, and Changes in Net Position

Condensed statements of revenues, expenses, and changes in net position for the three years ended June 30, 2018 are presented on page 9.

CONDENSED STATEMENTS OF NET POSITION

As of June 30, 2018, 2017, and 2016 ($ in thousands)	2018	2017	2016
Assets			
Current assets	$ 918,685	$ 742,482	$ 677,927
Noncurrent assets			
Capital assets, net	5,075,476	4,854,110	4,615,776
All other noncurrent assets	1,291,309	1,404,203	1,294,028
Total assets	7,285,470	7,000,795	6,587,731
Deferred Outflows of Resources	341,335	275,725	293,432
Liabilities			
Current liabilities	934,525	622,084	774,837
Noncurrent liabilities	4,161,911	3,562,485	3,294,183
Total liabilities	5,096,436	4,184,569	4,069,020
Defered Inflows of Resources	141,485	37,671	12,050
Net Position			
Net investment in capital assets	2,288,599	2,208,370	2,013,966
Restricted:			
Nonexpendable	28,022	27,443	18,384
Expendable	222,343	201,710	218,272
Unrestricted	(150,080)	616,757	549,471
Total Net Position	**$2,388,884**	**$3,054,280**	**$2,800,093**

CONDENSED STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

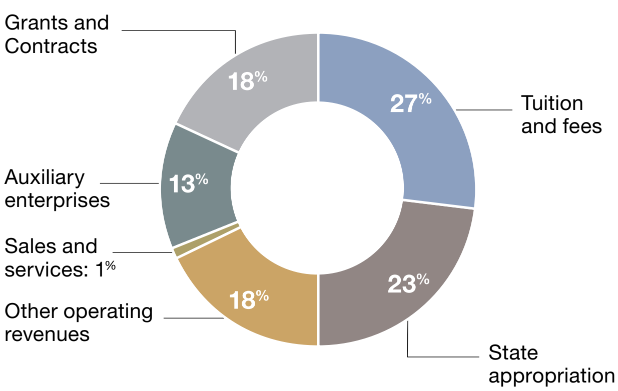
As of June 30, 2018, 2017, 2016 ($ in thousands)	2018	2017	2016
Operating Revenues			
Tuition and fees, net of scholarships	$ 874,826	$ 847,832	$ 826,815
Grants and contracts	560,990	560,081	528,352
Auxiliary enterprises	416,733	400,822	383,281
Other operating revenues	616,265	631,854	665,048
Total operating revenues	2,468,814	2,440,589	2,403,496
Operating Expenses	3,300,392	3,158,953	3,140,753
Operating Loss	(831,578)	(718,364)	(737,257)
Nonoperating Revenues (Expenses)			
Federal appropriations	6,688	6,602	6,827
State appropriations	751,894	720,817	669,748
Interest on indebtedness	(115,851)	(110,069)	(105,276)
Nonoperating federal grants	81,590	74,050	75,743
Other nonoperating income	110,062	117,248	90,443
Total nonoperating revenues (expenses)	834,383	808,648	737,485
Income Before Other Reveneus, Expenses, Gains and Losses	2,805	90,284	228
Other Revenues, Expenses, Gains And Losses			
Capital appropriations, grants and other sources	76,169	150,460	172,557
Disposal of plant facilities	(6,695)	(4,274)	(10,462)
Other additions (deductions)	5,307	17,717	(29,578)
Total other revenues, expenses, gains, and losses	74,781	163,903	132,517
Total Increase In Net Position	77,586	254,187	132,745
Net Position			
Net position at the beginning of the year	3,054,280	2,800,093	2,667,348
Cumulative effect of adopting GASB 75*	(742,982)	-	-
Net position at the beginning of the year, restated	2,311,298	2,800,093	2,667,348
Net position at the end of the year	**$2,388,884**	**$3,054,280**	**$2,800,093**

* Refer to Note 13 of the accompanying financial statements for further discussion related to the adoption of GASB 75

Operating revenues and expenses

While not classified on the financial statements as operating revenue, state appropriations serve as a primary source for funding the core mission of the University. State appropriation revenue, described in detail below, is used almost exclusively to fund payroll for University employees, and as such is considered as operating revenue for management's planning and analysis purposes. Total operating revenues for fiscal year 2018, including state appropriations, increased $59.3 million (1.9%) from $3.2 billion in fiscal year 2017. Total operating revenues in fiscal year 2017, including state appropriations, increased $88.2 million (2.9%) from $3.1 billion in fiscal year 2016.

FISCAL YEAR 2018 OPERATING REVENUES (including State Appropriations)



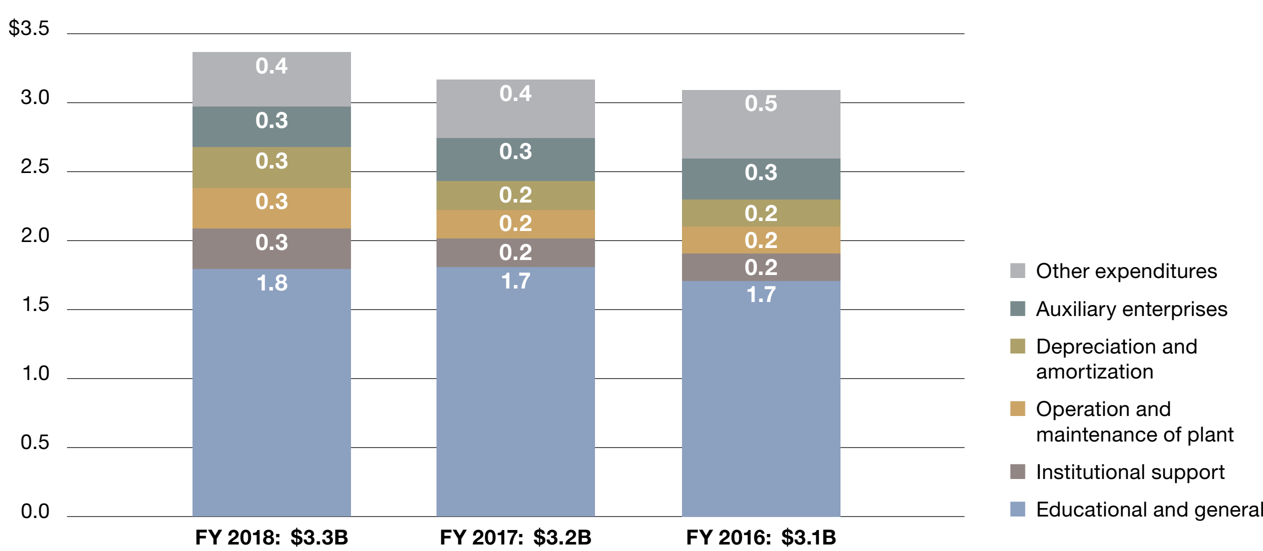
As noted in the fiscal year 2018 operating revenues chart below, the most significant sources of operating revenue for the University in fiscal year 2018 were tuition and fees, grants and contracts, and State appropriations.

Other operating revenues include revenues related to public service activities and consist largely of sales and services provided to third parties by UMMS through its Commonwealth Medicine (CWM) programs. These programs provide public consulting and services in health care financing, administration and policy to federal, state and local agencies and not-for-profit health and policy organizations. In addition to CWM activities, public service activities also include revenue received by UMMS for educational services it provides to its clinical affiliate UMass Memorial Health Care, Inc. (UMass Memorial) as required by the enabling legislation enacted by the Commonwealth in 1997. Public service activities expenditures also include payments made to the Commonwealth pursuant to requirements of legislation enacted by the State Legislature of Massachusetts.

In fiscal year 2018, operating expenses, including depreciation and amortization, totaled $3.3 billion, as compared to $3.2 billion in 2017 and $3.1 billion in 2016. Of this total, $1.8 billion or 55% was used to support the academic core activities of the University, including $471.4 million in research. The education and general portion in the three year operating expenses chart below represents expenses in the following functional categories: instruction, research, public service, academic support, student services and scholarships and fellowships.

THREE YEAR OPERATING EXPENSES

($ in billions)



State Appropriations

In fiscal year 2018, State appropriations represented approximately 23% of all operating and non-operating revenues. The level of state support is a key factor influencing the University's overall financial condition. Although the state appropriation is unrestricted revenue, nearly 100% of the state appropriation supports payroll and benefits for University employees. In addition to the direct state appropriation there are several smaller appropriations that add to the total state support for the University such as the Star Store lease at the Dartmouth campus and the Springfield Satellite Center, among others. While these smaller line items are in support of campus specific programs and do not support general University operations, they are included in the State appropriations line in the accompanying financial statements, and in the State appropriations line in the table below.

The Commonwealth pays the fringe benefits for University employees paid from state appropriations. Therefore, such fringe benefit support is added to the State appropriations financial statement line item in the accompanying Statements of Revenues, Expenses and Change in Net Position. The University pays the Commonwealth for the fringe benefit cost of the employees paid from funding sources other than Commonwealth operating appropriations (details of the payment are referenced in Note 11 to the accompanying financial statements). These amounts are not included in the State appropriations.

The University's State appropriation including fringe benefits increased in fiscal year 2018 by $31.1 million from fiscal year 2017, due to a slightly higher level of state appropriation support and an increase in related fringe benefit support. The difference between 2017 and 2016 is mainly based on a change in the accounting treatment of mandatory waivers and tuition remitted as a result of full tuition retention implemented in fiscal year 2017. The passage of this legislation allowed for

100% of tuition to be retained by the University. Beginning in fiscal year 2017, the State appropriation decreased to reflect the reduction in appropriation to offset the tuition that previously was remitted to the State. These changes served to have a net zero impact on both the State funding and the University's operating budget.

The table below details the State appropriations for the fiscal years ended June 30, 2018, 2017, and 2016 and highlights the change as a result of full tuition retention in 2017. The State appropriations are primarily utilized by the University to fund payroll.

STATE APPROPRIATIONS—
Change as a Result of Full Tuition Retention

($ in thousands)	FY 2018	FY 2017	FY 2016
State appropriations	$ 528,868	$ 512,900	$ 546,952
Plus: fringe benefits	223,026	207,917	178,032
	751,894	720,817	724,984
Less: mandatory waivers	-	-	(24,653)
Less: tuition remitted	-	-	(30,583)
Commonwealth support, net	**$751,894**	**$720,817**	**$669,748**

Capital Appropriations

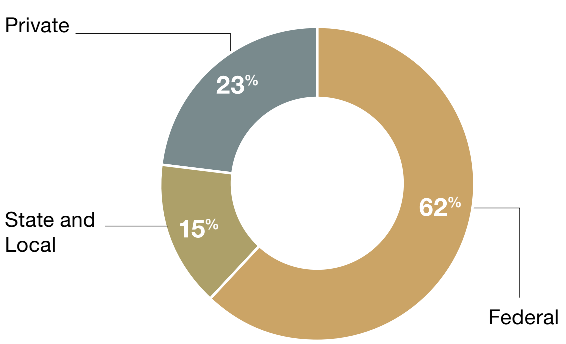
The University faces a financial challenge to maintain and upgrade its capital assets including its infrastructure, buildings and grounds. In order to have a successful capital program, the University must rely on a combination of revenue sources to fund its capital investment. In fiscal year 2018, 2017 and 2016, the capital support provided to the University through appropriations and grants from the Commonwealth was $67.4 million, $121.4 million and $121.3 million, respectively. Beginning in fiscal year 2008, this funding was attributed to the Commonwealth's Division of Capital Asset Management ("DCAM") which funded several large capital projects through the State's Higher Education Bond Bill and Life Sciences Bond Bill, and funds projects on each of the campuses. More recently, state funding has significantly decreased as a result of the implementation of a new capital planning process coordinated by the Executive Office of Education. Funding for this new process is focused on deferred maintenance and as a result the University has changed its funding model for capital investments in new projects, including debt financing and exploring public private partnerships.

Grant and Contract Revenue

Among Massachusetts colleges and universities, the University ranks third in research and development expenditures, behind only MIT and Harvard. Most research at the University is externally funded, with the federal government providing a majority of the funding through the National Institutes of Health, the National Science Foundation, and other agencies.

Collectively, UMass Amherst and UMass Medical School account for approximately 75% of the total research enterprise. The chart below details the University's grant and contract revenues by source for the year ended June 30, 2018.

GRANT AND CONTRACT REVENUE



Discretely Presented Component Units

The University's financial statements include the financial information of the University's discretely presented component units, the University of Massachusetts Foundation, Inc. (UMF) and the University of Massachusetts Dartmouth Foundation, Inc. (UMDF). Further information about these foundations can be found in Note 1 to the accompanying financial statements. Additionally, the individual financial statements of each foundation can be obtained by contacting the foundations directly: jmurphy@umassp.edu for UMF and giving@umassd.edu for UMDF.

University of Massachusetts Foundation, Inc.

UMF was established in 1950 to foster and promote the growth, progress and general welfare of the University, and to solicit, receive and administer gifts and donations for such purposes. UMF maintains a portion of the University's investment portfolio, predominantly the endowment and the quasi-endowment investments. The total portfolio held at UMF as of June 30, 2018, 2017 and 2016 was $871.9 million, $819.7 million and $734.2 million, respectively.

University of Massachusetts Dartmouth Foundation, Inc.

UMDF was established in 1973 to raise funds for the development and improvement of the academic and educational environment for students at the Dartmouth campus and the continued engagement of its alumni. In addition to holding investments for the University, UMF holds a significant portion of the UMDF investments. The total portfolio held by UMDF at June 30, 2018, 2017 and 2016 was $54.8 million, $53.1 million and $52.7 million, of which the majority is invested with UMF.

Tuition and Fees

For academic year 2017–2018, tuition was raised an average of 3.1% for in-state undergraduate students. For academic year 2016–2017, tuition was raised on average 5.6%. Affordability continues to be a priority of the University and increases in fees are considered in conjunction with State support on an annual basis.

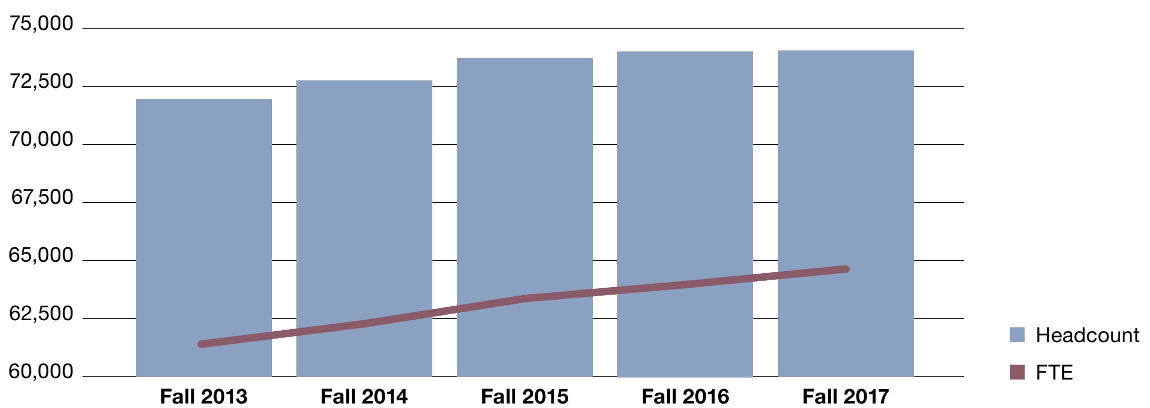
Enrollment

As shown in the table on page 14, total enrollment in the fall of 2017 was 64,530 FTE (74,572 headcount students), an increase of 0.9% over the previous year's enrollment of 63,977 FTE (74,496 headcount students). Enrollment in the fall of 2015 was 63,333 FTE (73,744 headcount students). The five year enrollment growth of 5.2% is meaningful as other institutions of higher education have seen declining enrollments over this period. This growth is consistent with the University's efforts to increase its reach across the Commonwealth and to recruit non-resident students, and is reflective of the quality education provided by the University of Massachusetts.

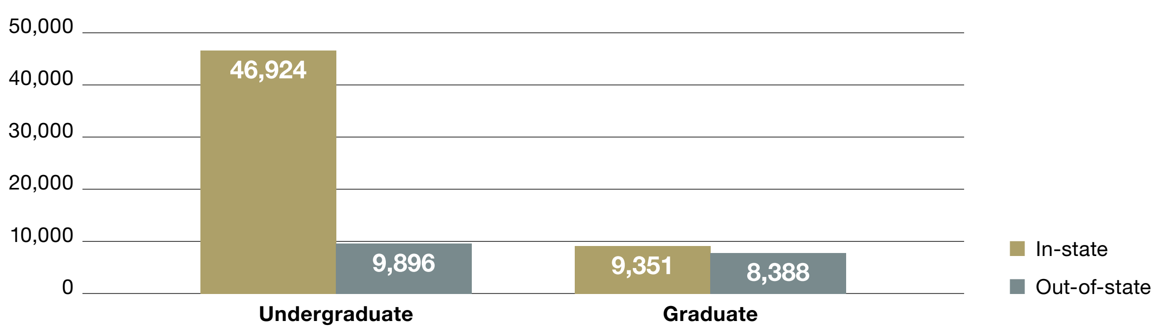
Admission to the University is open to residents of the Commonwealth and non-residents on a competitive basis. For the fall 2017 semester, Massachusetts residents accounted for 82.6% of the University's total undergraduate enrollment. Refer to the table below for detail on the fall 2017 enrollment.

The online learning consortium of the University, UMassOnline, has shown significant growth in enrollments, course offerings and revenue generation benefiting the campuses and raising the profile of the University. UMassOnline provides marketing and technology support for UMass' online offerings that enable students, professionals, and lifelong learners to take courses anywhere, anytime. For fiscal year 2018, UMassOnline and the Continuing Education units at the five campuses collaboratively generated tuition revenue of $113.2 million and supported 78,404 course enrollments, an increase of 7.9% for revenue and an increase of 3.8% for course enrollments as compared to fiscal year 2017. For fiscal year 2017, UMassOnline generated tuition revenue of $104.9 million and supported 75,565 course enrollments, an increase of 9.2% for revenue and an increase of 6.6% for course enrollments as compared to fiscal year 2016.

TOTAL ENROLLMENT



FALL 2017 ENROLLMENT BY TYPE



Long-Term Debt

The University had outstanding long-term debt of $3.1 billion at June 30, 2018, 2017 and 2016. The principal issuer of the University's debt is the Building Authority. Additional issuers utilized by the University include Massachusetts Health and Educational Facilities Authority (MHEFA) and WCCC. Long-term debt is the University's largest liability as of June 30, 2018. For further details on outstanding balances with each issuer, refer to Note 9 of the accompanying financial statements.

The debt financed through the Building Authority is being used for construction and renovation of residence halls and general education buildings, replacement of core infrastructure, and construction of academic, laboratory, and research facilities. The proceeds from the UMass MHEFA bonds were used to create an internal revolving loan program and to fund the construction of two new campus centers at the Boston and Lowell campuses (funded jointly with the Commonwealth).

University Rating

The University is relying on a carefully planned and executed debt strategy to support master and strategic planning at the campuses and for the University as a whole. Bonds issued by the University of Massachusetts and the University of Massachusetts Building Authority are rated AA, Aa2 and AA- as rated by Fitch, Moody's and Standard & Poor's rating agencies, respectively.

During fiscal year 2018, Moody's revised the University's outlook from negative to stable citing the University's strong management team, steady enrollment, positive operating performance, growth in financial resources and manageable plans for future borrowing. The Moody's rating exceeds some of the University's peer public research universities in New England. The stable outlook for the University is also notable because Moody's revised its rating for the higher education industry to negative in December 2017, noting that negative rating actions are more likely on average in the higher education sector.

Limitations on Additional Indebtedness

The University may, without limit, issue additional indebtedness or request the Building Authority to issue additional indebtedness on behalf of the University so long as such indebtedness is payable from all available funds of the University. As noted in the Board of Trustee policy, each campus' outstanding debt cannot exceed 8% of total operating expenditures.

The Building Authority is authorized by its enabling act to issue bonds with the unconditional guarantee of the Commonwealth

for the punctual payment of the interest and principal payments on the guaranteed bonds. The full faith and credit of the Commonwealth are pledged for the performance of its guarantee. The enabling act, as amended, presently limits to $200.0 million the total principal amount of notes and bonds of the Building Authority that may be Commonwealth guaranteed and outstanding at any one time. The amount of bond obligations guaranteed by the Commonwealth at June 30, 2018, 2017 and 2016 was $113.5 million, $115.3 million and $117.4 million, respectively.

Capital Plan

A majority of the capital spending during fiscal year 2018 related to continued investments in new buildings and renovation projects. In September 2018, the University's Trustees approved a five-year update to its capital plan for fiscal years 2019–2023, with $2.1 billion of projects approved to continue or commence over the next 24 months. The University generally has funded its capital plans through a combination of funding received from University operations, bonds issued by the Building Authority and MHEFA, Commonwealth appropriations, and private fundraising.

The University's five-year capital plan for fiscal years 2019–2023 includes major projects that were previously approved by the University Trustees in prior-year capital plans. In recent years, the University enhanced its policy regarding the approval of capital projects to ensure a clear process and to provide for multiple reviews during the process so that the President's Office, Building Authority and the Board of Trustees (the Board) are actively involved. Since the capital program requires significant investment, the President's office and the Board wanted to ensure that the proper steps were in place for reviewing and approving projects so that the University continues to live within its current capital and debt policies.

Factors Impacting Future Periods

There are a number of issues of University-wide importance that directly impact the financial operations of the University. Many of these issues, such as improving academic quality, realizing strong financial results, investing in capital assets, expanding fundraising capacity, operating more efficiently, being the most effective University for students and the Commonwealth given the available resources, and measuring performance are ongoing activities of continuous importance to the Board of Trustees and University leadership that impact the financial and budget planning each year. Student enrollment, the level of state support, the impact of collectively bargained wage increases, and the ability of student-fee supported activities to meet inflationary pressures determine the limits of program expansion, new initiatives and strategic investments, as well as the ability of the University to meet its core mission and ongoing operational needs.

Contacting the University

This financial report is designed to provide the University, the Commonwealth, the public and other interested parties with an overview of the financial results of the University and an explanation of the University's financial condition. If you have any questions about this report or require additional information, please contact the University Controller, Barbara Cevallos, at (617) 287-6017 or by email at bcevallos@umassp.edu.

STATEMENTS OF NET POSITION

As of June 30, 2018 and 2017 ($ in thousands)	2018	2017
Assets		
Current assets		
Cash and cash equivalents	$ 88,463	$ 92,344
Cash held by state treasurer	14,689	15,114
Accounts receivable, net	310,371	316,075
Short-term investments	470,139	286,171
Other current assets	35,023	32,778
Total current assets	918,685	742,482
Noncurrent assets		
Cash held by state treasurer	8,009	7,599
Deposits with bond trustees	319,228	438,585
Accounts receivable, net	64,251	62,121
Long-term investments	775,294	766,392
Other assets	124,527	129,506
Capital assets, net	5,075,476	4,854,110
Total noncurrent assets	6,366,785	6,258,313
Total assets	**7,285,470**	**7,000,795**
Deferred Outflows of Resources	**341,335**	**275,725**
Liabilities		
Current liabilities		
Accounts payable and accrued expenses	336,077	306,463
Unearned revenues and advances	59,323	52,503
Long-term debt, current portion	445,035	207,424
Other current liabilities	94,090	55,694
Total current liabilities	934,525	622,084
Noncurrent liabilities		
Unearned revenues and advances	120,990	60,702
Long-term debt	2,644,033	2,886,927
Derivative instruments, interest rate swaps	41,602	61,839
Net pension liability	420,234	429,871
Net other postemployment benefits liability	817,357	-
Other long-term liabilities	117,695	123,146
Total noncurrent liabilities	4,161,911	3,562,485
Total liabilities	**5,096,436**	**4,184,569**
Deferred Inflows of Resources	**141,485**	**37,671**
Net Position		
Net investment in capital assets	2,288,599	2,208,370
Restricted:		
Nonexpendable	28,022	27,443
Expendable	222,343	201,710
Unrestricted	(150,080)	616,757
Total net position	**$ 2,388,884**	**$ 3,054,280**

See accompanying notes to the financial statements.

STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

For The Years Ended June 30, 2018 and 2017 ($ in thousands)	2018	2017
Revenues		
Operating Revenues		
Tuition and fees (net of scholarship allowances of $310,106 at June 30, 2018 and $288,708 at June 30, 2017)	$ 874,826	$ 847,832
Grants and contracts	560,990	560,081
Sales and services, educational activities	30,591	28,910
Auxiliary enterprises	416,733	400,822
Other operating revenues:		
Sales and services, independent operations	68,497	79,261
Sales and services, public service activities	381,018	418,726
Other	136,159	104,957
Total operating revenues	**2,468,814**	**2,440,589**
Expenses		
Operating expenses		
Educational and general		
Instruction	876,235	824,042
Research	471,135	447,370
Public service	78,238	68,083
Academic support	187,495	177,173
Student services	156,934	151,033
Institutional support	271,535	247,740
Operation and maintenance of capital assets	255,825	240,501
Depreciation and amortization	261,417	245,300
Scholarships and fellowships	50,410	47,710
Auxiliary enterprises	313,741	306,850
Other expenditures		
Independent operations	52,211	57,276
Public service activities	325,216	345,875
Total operating expenses	**3,300,392**	**3,158,953**
Operating loss	**(831,578)**	**(718,364)**
Nonoperating Revenues (Expenses)		
Federal appropriations	6,688	6,602
State appropriations	751,894	720,817
Gifts	39,022	26,253
Investment income	37,622	31,567
Unrealized gain on investments	5,558	15,466
Endowment income distributed for operations	26,742	26,877
Interest on indebtedness	(115,851)	(110,069)
Nonoperating federal grants	81,590	74,050
Other nonoperating income	1,118	17,085
Net nonoperating revenues	**834,383**	**808,648**
Income before other revenues, expenses, gains, and losses	**2,805**	**90,284**
Other Revenues, Expenses, Gains and Losses		
Capital appropriations	67,437	121,380
Capital grants, contracts and gifts	8,732	29,080
Endowment return, net of amount used for operations	8,166	21,278
Disposal of plant facilities	(6,695)	(4,274)
Other deductions	(2,859)	(3,561)
Total other revenues, expenses, gains, and losses	**74,781**	**163,903**
Total increase in net position	**77,586**	**254,187**
Net Position		
Net position at beginning of year	3,054,280	2,800,093
Cummulative effect of adopting GASB 75	(742,982)	-
Net position at beginning of year, adjusted	2,311,298	2,800,093
Net position at end of year	**$ 2,388,884**	**$ 3,054,280**

See accompanying notes to the financial statements.

STATEMENTS OF CASH FLOWS

For The Years Ended June 30, 2018 and 2017 ($ in thousands)	2018	2017
Cash Flows from Operating Activities		
Tuition and fees	$ 974,631	$ 852,889
Grants and contracts	569,408	814,018
Payments to suppliers	(848,595)	(1,131,219)
Payments to employees	(1,690,799)	(1,461,100)
Payments for benefits	(402,823)	(401,143)
Payments for scholarships and fellowships	(50,402)	(47,675)
Loans issued to students and employees	(8,068)	(8,105)
Collections of loans to students and employees	8,751	6,989
Auxiliary enterprises	416,628	357,968
Sales and services, educational	30,573	25,118
Sales and services, independent operations	68,497	76,221
Sales and services, public service activities	394,927	428,012
Other receipts, net	194,419	-
Net cash used for operating activities	**(342,853)**	**(488,027)**
Cash Flows from Noncapital Financing Activities		
State appropriations	751,894	720,817
Federal appropriations	6,688	6,602
Grants, contracts and gifts for other than capital purposes	38,809	32,856
Nonoperating federal grants	81,590	74,050
Student organization agency transactions	1,549	155
Net cash provided by noncapital financing activities	**880,530**	**834,480**
Cash Flows from Capital and Other Financing Activities		
Proceeds from capital debt	105,380	236,666
Bond issuance costs paid	-	(620)
Capital appropriations	67,437	121,333
Capital grants, contracts and gifts	8,945	9,332
Purchases of capital assets and construction	(487,912)	(475,488)
Principal paid on capital debt and leases	(96,325)	(120,353)
Interest paid on capital debt and leases	(125,825)	(115,201)
Net cash used for capital financing activities	**(528,300)**	**(344,331)**
Cash Flows from Investing Activities		
Proceeds from sales and maturities of investments	1,244,020	1,124,176
Interest on investments	19,774	10,605
Purchases of investments	(1,396,424)	(1,187,713)
Net cash used for investing activities	**(132,630)**	**(52,932)**
Net Decrease in Cash and Cash Equivalents	(123,253)	(50,810)
Cash and cash equivalents: beginning of the year	**553,642**	**604,452**
Cash and cash equivalents: end of the year	**430,389**	**553,642**
Reconciliation of Operating Loss to Net Cash Used by Operating Activities		
Operating loss	(831,578)	(718,364)
Adjustments to reconcile loss to net cash used by operating activities:		
Depreciation and amortization expense	261,417	245,300
Changes in assets and liabilities:		
Accounts receivable, net	3,574	(33,994)
Other assets	2,734	44,153
Accounts payable and accrued expenses	41,749	(26,041)
Unearned revenues and advances	67,108	11,846
Other liabilities	33,411	(46,969)
Pension liability	(9,637)	21,453
Other postemployment benefits liability	74,375	-
Changes in deferred outflows related to employee benefits	(89,820)	(11,032)
Changes in deferred inflows	103,814	25,621
Net cash used for operating activities	**(342,853)**	**(488,027)**
Supplemental Disclosure of Noncash Activities		
Bonds issued to refund existing debt	-	130,325
Assets acquired and included in accounts payable and other liabilities	49,110	60,853
Donated assets	1,727	85,632
Accrued interest and bond issuance costs	22,305	22,696

See accompanying notes to the financial statements.

COMPONENT UNITS STATEMENTS OF FINANCIAL POSITION

As of June 30, 2018 and 2017 ($ in thousands)	2018	2017
Assets		
Cash	$ 1,153	$ 1,424
Bequests receivable	399	963
Pledges receivable, net	25,180	24,960
Investments of the Foundation and held on behalf of the University	1,223,596	1,165,270
Prepaid expenses and other assets	2,592	2,576
Land, property, plant and equipment, net	16,906	17,332
Total assets	**1,269,826**	**1,212,525**
Liabilities and Net Assets		
Liabilities		
Accounts payable and accrued expenses	448	74
Deferred revenue	1,049	1,162
Obligations to beneficiaries of split-interest agreements	2,384	2,764
Assets held on behalf of others	678,890	660,074
Total liabilities	**682,771**	**664,074**
Net assets		
Unrestricted	33,993	40,589
Temporarily restricted	119,694	99,883
Permanently restricted	433,368	407,979
Total net assets	**587,055**	**548,451**
Total liabilities and net assets	**$ 1,269,826**	**$ 1,212,525**

COMPONENT UNITS STATEMENTS OF ACTIVITIES

For The Years Ended June 30, 2018 (with summarized financial information for the year ended June 30, 2017) ($ in thousands)	Unrestricted	Temporarily Restricted	Permanently Restricted	Total 2018	Total 2017
Support and Revenue					
Gifts, bequests and grants	$ 552	$ 6,056	$ 24,995	$ 31,603	$ 43,573
Other contributions	946	515	509	1,970	3,199
Total investment income, including net gains (losses) - net of fees	36,000	28,998	(283)	64,715	109,274
Investment management fee	11,022	-	-	11,022	10,010
Other income	51	236	36	323	301
Net assets released from restrictions	15,783	(15,783)	-	-	-
Total support and revenue	**64,354**	**20,022**	**25,257**	**109,633**	**166,357**
Expenses					
Distributions to the University	30,846	-	-	30,846	31,161
University program support	10,084	-	-	10,084	11,037
Fundraising support	6,210	-	-	6,210	5,684
Administrative and general	3,122	-	-	3,122	2,611
Total expenses	**50,262**	-	-	**50,262**	**50,493**
Excess of support and revenue over expenses	**14,092**	**20,022**	**25,257**	**59,371**	**115,864**
Less: amounts held on behalf of the University	(18,697)	-	-	(18,697)	(38,633)
Less: amounts held on behalf of EMKI	(1,683)	-	-	(1,683)	(489)
Transfers to (from) other funds	(89)	(43)	132	-	-
Change in value of split interest agreements	(387)	-	-	(387)	(737)
Adjustment for underwater endowments	168	(168)	-	-	-
Change in net assets	**(6,596)**	**19,811**	**25,389**	**38,604**	**76,005**
Net assets, beginning of year	40,589	99,883	407,979	548,451	472,446
Net assets, end of year	**$ 33,993**	**$ 119,694**	**$ 433,368**	**$ 587,055**	**$ 548,451**

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Notes to Consolidated Financial Statements

1. Summary of Significant Accounting Policies

Reporting entity

The financial statements herein present the financial position, results of operations, changes in net position, and cash flows of the University of Massachusetts (University), a federal land grant institution. The financial statements of the University include the campuses of Amherst, Boston, Dartmouth, Lowell, Medical School, and the President's Office of the University, Worcester City Campus Corporation (WCCC), the University of Massachusetts Amherst Foundation (UMass Amherst Foundation), as well as the University of Massachusetts Building Authority (Building Authority).

The Building Authority is a public instrumentality of the Commonwealth of Massachusetts (Commonwealth) created by Chapter 773 of the Acts of 1960 (referred to as the Enabling Act), whose purpose is to provide dormitories, dining commons, and other buildings and structures for use by the University. WCCC is a tax exempt organization founded to support research and real property activities for the University. The UMass Amherst Foundation was established in 2003 to support private fundraising on behalf of the faculty and students of the Amherst campus. These component units are included in the financial statements of the University because of the significance and exclusivity of their financial relationships with the University.

The University also includes the financial information of the University's discretely presented component units, the University of Massachusetts Foundation, Inc. (UMF) and the University of Massachusetts Dartmouth Foundation, Inc. (UMDF). These foundations are related tax-exempt organizations founded to foster and promote the growth, progress and general welfare of the University. These foundations are Massachusetts not-for-profit organizations legally separate from the University but included in the financial statements due to the nature and significance of their financial relationship with the University. These foundations are separately presented as an aggregate component unit on page 19 of these financial statements in accordance with accounting and reporting requirements prescribed by the Financial Accounting Standards Board (FASB). All of the financial data for these organizations was derived from each entity's individual audited financial statements, each having a fiscal year end of June 30. In these financial statements, UMF and UMDF are collectively known as The Foundation. Refer to Note 4 which includes the Foundation agency funds held on behalf of the University.

The separately audited financial statements of the component units noted above may be obtained from the various entities, or by contacting the University Controller, bcevallos@umassp.edu, for component unit contact information.

The University is a business-type activity of the Commonwealth. The financial balances and activities included in these financial statements are, therefore, also included in the Commonwealth's comprehensive annual financial report.

Basis of presentation

The accompanying financial statements have been prepared in accordance with U.S. generally accepted accounting principles (GAAP) as prescribed by the Governmental Accounting Standards Board (GASB) using the economic resources measurement focus and the accrual basis of accounting. These financial statements are reported on a combined basis, and all intra-University transactions are eliminated.

Pursuant to GASB Statement No. 35, *Basic Financial Statements and Management's Discussion and Analysis-for Public Colleges and Universities* (GASB 35), the University's activities are considered to be a single business-type activity and accordingly, are reported in a single column in the financial statements. Business-type activities are those that are financed in whole or part by funds received by external parties for goods or services.

On the Statement of Revenues, Expenses and Changes in Net Position, the University's operating activities consist of tuition and fees, grants and contracts, sales and services and auxiliary enterprise revenues. Operating expenses include, among other items, payroll, fringe benefits, utilities, supplies and services, depreciation, and amortization. Nonoperating revenues or expenses are those in which the University receives or gives value without directly giving or receiving equal value, such as State and Federal appropriations, Federal Pell grants, private gifts, and investment income. Revenues are recognized when earned and expenses are recognized when incurred with the exception of revenue earned on certain public service activities. Restricted grant revenue is recognized only when all eligibility requirements have been met. The University applies restricted net assets first when an expense or outlay is incurred for purposes for which both restricted and unrestricted net assets are available.

Net position

GASB 35 establishes standards for external financial reporting by public colleges and universities that resources be classified into the following net position categories:

- **Invested in capital assets, net of related debt:** Capital assets, at historical cost or fair market value on date of gift, net of accumulated depreciation and outstanding principal balances of debt attributable to the acquisition, construction or improvement of those assets.
- **Restricted nonexpendable:** Resources subject to externally imposed stipulations that they be maintained permanently by the University.
- **Restricted expendable:** Resources whose use by the University is subject to externally imposed stipulations. Such assets include restricted grants and contracts, the accumulated net gains/losses on true endowment funds, as well as restricted funds loaned to students, restricted gifts and endowment income, and other similar restricted funds.
- **Unrestricted:** The net position that is not subject to externally imposed restrictions governing their use are classified as unrestricted net position. The University's unrestricted net position may be designated for specific purposes by management or the Board of Trustees. Substantially all of the University's unrestricted net position is designated to support academic and research initiatives or programs, auxiliary enterprises, quasi-endowments, or commitments to capital construction projects. Note 15 describes these designations in more detail.

Cash and cash equivalents

Cash and cash equivalents consist primarily of demand deposit accounts, savings accounts, and money market accounts with an original maturity of three months or less.

Accounts receivable, net

Accounts receivable consists of receivables for tuition and fees, grants and contracts, student loans, Commonwealth Medicine, and pledges. The University establishes an allowance for receivables based on management's expectation regarding the collection of the receivable and the University's historical experience for collections.

The University receives unconditional promises to give through private donations or pledges from corporations, foundations, alumni and other supporters of the University. Revenue is recognized when a pledge is received and all eligibility requirements, including time and purpose requirements, are met. These pledges have been recorded as pledges receivable on the Statement of Net Position and as non-endowment gift revenues or capital gift revenue on the Statement of Revenues, Expenses, and Changes in Net Position, at the present value of the estimated future cash flows. Since the University cannot fulfill the time requirement for pledges to endowments until the gift is received, pledges to endowments are not reported. Because of uncertainties with regard to their realizability and valuation, bequests and other conditional promises are not recorded.

Investments

Investments are measured and recorded at fair value. Short-term investments consist of deposits with original maturities of less than one year and are available for current use. Securities received as a gift are recorded at estimated fair value at the date of the gift. Investment income includes dividends and interest income and is recognized on the accrual basis. In computing realized gains and losses, cost is determined on a specific identification basis.

Endowment

The University of Massachusetts Foundation, Inc. (Foundation) maintains and administers the University's endowment assets and Intermediate Term Investment Fund (ITIF). The Foundation utilizes the pooled investment concept whereby all invested funds are included in one investment pool, unless otherwise required by the donor.

Pooled investment funds will receive an annual distribution, based on the endowment fund's average market value for the preceding twelve quarters on a one year lag. Only quarters with funds on deposit are included in the average. In addition, a prudence rule is utilized, limiting spending from a particular endowment fund to be no lower than 93% of its carrying value. The actual spending rate approved for the years ended June 30, 2018 and 2017 was 4%.

Inventories

The University inventories consist of books, general merchandise, central stores, vaccines, and operating supplies which are carried at the lower of cost (first-in, first-out and average cost methods) or market value. Inventory balances are included within other current assets on the Statements of Net Position.

Capital assets

Capital assets are stated at cost on the date of acquisition or, in the case of gifts, fair value upon date of donation. Net interest costs incurred during the construction period for major capital projects are capitalized. Repairs and maintenance costs are expensed as incurred, whereas major improvements that extend the estimated useful lives of the assets are capitalized as additions to capital assets. The University does not capitalize works of art, historical treasures or library books.

The University capitalizes assets with useful lives greater than one year and acquisition costs greater than or equal to $5,000. The University computes depreciation using the straight-line method over the asset's useful life and applies a half year convention in the year the asset is acquired or placed in service. Land is not depreciated.

In the table to the right is the range of useful lives for the University's depreciable assets:

Depreciable Asset	Useful Life
Land improvements	20 years
Buildings	20–50 years
Building improvements	3–20 years
Equipment, furniture and IT infrastructure	3–15 years
Software	5 years

The University leases various facilities and equipment through capital leases. Facilities and equipment under capital leases are recorded at the present value of future minimum lease payments.

Deferred outflows of resources

Deferred outflows of resources are the consumption of assets or increase in liabilities that are applicable to future reporting periods and are reported in a separate section of the Statements of Net Position.

The University's deferred outflows consist of:

- The difference between the reacquisition price and the carrying value of refunded revenue bonds. These amounts are to be recognized as a component of interest expense over the shorter of the remaining life of the refunded bonds or the life of the new bonds.
- The accumulated change in the fair value of hedging derivatives. This change is recorded to offset the value of the University's interest-rate swap liabilities which qualify for treatment as an effective hedge based on historic interest flows.
- The deferral of the impact of assumption changes and investment losses that increase the pension and other postemployment benefits liabilities. These amounts are recognized as a component of operating expenses in future reporting periods.

Compensated absences

Employees earn the right to be compensated during absences for annual vacation leave and sick leave. Within the Statements of Net Position, a liability is recorded for vacation and sick leave benefits earned as of the fiscal year-end. The recorded liability is classified as current and noncurrent based on the amount estimated to be paid to eligible employees in one year and beyond one year, respectively, on the Statements of Net Position.

Unearned revenue and advances

Unearned revenue consists of amounts billed or received in advance of the University providing goods or services. Unearned revenue is subsequently recognized as qualifying expenses are incurred and therefore the revenue is earned.

In addition, certain loans to students are administered by the University with funding primarily supported by the federal government. The University's Statements of Net Position include both the notes receivable and the related federal refundable loan liability, representing federal capital contributions owed upon termination of the program.

Deferred inflows of resources

Deferred inflows of resources are the acquisition of assets or reduction of liabilities that are applicable to future reporting periods and are reported in a separate section of the Statements of Net Position.

The University's deferred inflows consist of:

- Experience gains that reduce the pension and other postemployment benefits liabilities to be recognized as a component of operating expenses in future reporting periods.

Tuition and fees, net of scholarship allowances

Student tuition and fees, housing, dining, and other similar auxiliary revenues are reported net of any related scholarships and fellowships applied to student accounts. However, scholarships and fellowships paid directly to students are separately reported as scholarships and fellowships expenses.

Grants and contracts

The University receives monies from federal and state government agencies under grants and contracts for research and other activities including medical service reimbursements. The University records a receivable and corresponding revenue for grants and contracts and capital appropriations at the point all eligibility requirements (e.g. allowable costs are incurred) are met.

The University records the recovery of indirect costs applicable to research programs and other activities which provide for the full or partial reimbursement of such costs, as revenue. Recovery of indirect costs for the years ended June 30, 2018 and 2017 was $131.4 million and $131.6 million, respectively, and is a component of grants and contracts revenue on the Statements of Revenues, Expenses, and Changes in Net Position.

Auxiliary enterprises

An auxiliary enterprise is an entity that exists to furnish a service to students, faculty or staff acting in a personal capacity, and that charges a fee for the use of goods and services.

Other operating revenues and expenditures: sales and services, public service activities

Public service activities consist largely of sales and services provided to third parties by the UMass Medical School under its Commonwealth Medicine (CWM) programs, which provide public consulting and services in health care financing, administration and policy to federal, state and local agencies and not-for-profit health and policy organizations. Included in this category of activities are CWM revenues of $226.2 million and $296.0 million for the years ended June 30, 2018 and 2017, respectively. Included in expenditures are CWM expenditures of $173.6 million and $253.0 million for the years ended June 30, 2018 and 2017, respectively.

Public Service Activities also include payments received by the Medical School for educational services it provides to its clinical affiliate, UMass Memorial Hospital, as required by the enabling legislation enacted by the Commonwealth in 1997. Educational services revenues included in public service revenues were $171.7 million and $140.0 million for the years ended June 30, 2018 and 2017, respectively. Finally, Public Service Activity expenditures include payments made to the Commonwealth of $154.7 million and $96.5 million for the years ended June 30, 2018 and 2017, pursuant to requirements of legislation enacted by the Commonwealth.

Fringe benefits for current employees and postemployment obligations: pension and non-pension

The University participates in the Commonwealth's fringe benefit programs, including active employee and postemployment health insurance, unemployment compensation, pension, and workers' compensation benefits. Health insurance and pension costs for active employees and retirees are paid through a fringe benefit rate charged to the University by the Commonwealth. Workers' compensation costs are assessed separately based on actual University experience.

Pursuant to the provisions of Paragraph(e), Section 5 of Chapter 163 of the Acts of 1997 and consistent with the September 22, 1992 Memorandum of Understanding between the Commonwealth's Executive Office of Administration and Finance and the University of Massachusetts, the University's Medical School campus has assumed the obligation for the cost of fringe benefits provided by the Commonwealth to University Medical School employees (other than those employees paid from state appropriated funds) for all periods on or after July 1, 1989. The Medical School determines the actual costs for the health insurance benefits and actuarially calculates the incurred service costs for pensions and retiree health insurance.

Use of estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the dates of the financial statements, and the reported amounts of revenues and expenses during the reporting periods. Actual results could differ from these estimates. The most significant areas that require management estimates relate to valuation of certain investments and derivative instruments, useful lives and related depreciation of capital assets, and accruals for pension and other postemployment related benefits.

Income tax status

The University and the Building Authority are component units of the Commonwealth and are exempt from Federal and state income tax under the doctrine of intergovernmental tax immunity found in the U.S. Constitution. The University qualifies as a public charity eligible to receive charitable contributions under Section 170(b)(1)(A)(ii) of the Internal Revenue Code, as amended (the Code). The Building Authority qualifies as a public charity under Section 170(b)(1)(A)(iv) of the Code.

WCCC, UMF and UMDF are organizations described in Section 501(c)(3) of the Code, and are generally exempt from income taxes pursuant to Section 501(a) of the Code. WCCC, UMF and UMDF are required to assess uncertain tax positions and have determined that there were no such positions that are material to the financial statements as of June 30, 2018 and 2017, respectively.

Newly implemented accounting standards

Effective for fiscal year 2018, the University adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions.* The Statement supersedes GASB Statement No. 45 and establishes new requirements for calculating and reporting the University's postemployment benefits. The implementation of GASB 75 resulted in a cumulative effect adjustment of $743.0 million to the beginning net position of the 2018 Statement of Revenues, Expenses, and Changes in Net Position as of July 1, 2017 for the recording of the obligation associated with postemployment benefits other than pensions. The application of GASB 75 was recorded effective in the beginning of fiscal year 2018 because this was the earliest date for which was practical based on available information.

Effective for fiscal year 2018, GASB issued Statement No. 86, *Certain Debt Extinguishment Issues*, to improve consistency in accounting and financial reporting for in-substance defeasance of debt. This Statement also improves accounting and financial reporting for prepaid insurance on debt that is extinguished and notes to financial statements for debt that is defeased in substance. Adoption of this standard is reflected in the required disclosures surrounding debt in fiscal year 2018, with no material impact to those disclosures.

Effective for fiscal year 2018, GASB issued Statement No. 81, *Irrevocable Split-Interest Agreements*, which intends to improve accounting and financial reporting for irrevocable split-interest agreements by providing recognition and measurement guidance for beneficiaries of these type of agreements. Adoption of this standard had no effect on the University's financial statements.

Reclassifications

Certain reclassifications were made in prior year to conform to current year presentation.

2. Cash Held by State Treasurer

Accounts payable, accrued salaries and outlays for future capital projects to be funded from state-appropriated funds totaled $22.7 million at June 30, 2018 and June 30, 2017. The University has recorded a comparable amount of cash held by the State Treasurer for the benefit of the University, which will be subsequently utilized to pay for such liabilities. The cash is held in the State Treasurer's pooled cash account. The Commonwealth requires all bank deposits in excess of insurance coverage by the FDIC to be collateralized with a perfected pledge of eligible collateral. Eligible collateral must be pledged in an amount equal to 102% of the amount of the deposits that exceed FDIC insurance. Sufficient collateral to cover total Commonwealth deposits in excess of the FDIC insured amount must be pledged and held in safekeeping by a custodian that is approved by and under the control of the Treasurer and Receiver - General.

3. Deposits with Bond Trustees

Deposits with bond trustees primarily consist of unspent bond proceeds, amounts held for the future payment of debt service on such borrowings and designated funds from the Building Authority. At June 30, 2018 and 2017, there was $319.2 million and $438.6 million, respectively, held by trustees related to the Building Authority.

Pursuant to Trust Agreements between the Building Authority and its bond trustees, all funds deposited with those trustees shall be continuously maintained for the benefit of the Building Authority and Registered owners of the Bonds.

All investments shall be held with a bank or trust company approved by the Trustees and the Building Authority, as custodians, or in such other manner as may be required or permitted by applicable state and Federal laws and regulations. Investments shall consist of direct obligations of, or obligations which are unconditionally guaranteed by the United States of America, or any other agency or corporation which has been created pursuant to an act of Congress of the United States as an agency or instrumentality thereof; or other marketable securities eligible as collateral for the deposit of trust funds under regulations of the Comptroller of the Currency having a market value not less than the amount of such deposit. Direct obligations of, or obligations which are unconditionally guaranteed by the United States of America or any other agency or corporation which has been created pursuant to an act of Congress of the United States as an agency or instrumentality thereof, may be subject to repurchase upon demand by the owner pursuant to a repurchase agreement with a bank or trust company.

Custodial Credit Risk – Custodial credit risk is the risk that, in the event of a failure of the counterparty, the University would not be able to recover the value of its deposits and cash equivalents that were in the possession of an outside party. The Building Authority holds a majority of its cash and cash equivalents in high quality money market mutual funds that invest in securities that are permitted investments under the Building Authority's Enabling Act or in money market mutual funds that have been specifically permitted by state legislation.

For the years ending June 30, 2018 and 2017, the Building Authority's cash and cash equivalents consisted of the following ($ in thousands):

	2018	2017
Cash	$ 4,093	$ 5,553
Permitted Money Market Accounts	303,431	426,797
Total Cash and Cash Equivalents	**$ 307,524**	**$ 432,350**

Deposits are exposed to custodial risk if they are uninsured and uncollateralized. The University does not have a deposit policy for custodial credit risk. As of June 30, 2018 and June 30, 2017, the bank balances of uninsured deposits totaled $4.4 million and $5.1 million, respectively.

Custodial credit risk generally applies only to direct investments in marketable securities. Custodial credit risk does not apply to indirect investment in securities through the use of mutual funds or government investment pools, such as Massachusetts Municipal Depository Trust (MMDT), a money market account sponsored by the Treasurer of the Commonwealth and managed by Federated Investors, Inc. Direct investments in marketable securities are held by the Building Authority's Bond Trustee as the Building Authority's agent. In accordance with the Building Authority's repurchase agreements, collateral for the agreements is held in segregated accounts with market values between 100% and 105% of the repurchase price, depending on the type of asset used as security and the specific repurchase agreement.

Concentration of Credit Risk – Concentration of credit risk is assumed to arise when the amount of deposits or investments that the University has with one issuer exceeds 5% or more of the total value of the University's investments or deposits. The Building Authority places no limit on the amount it may invest in any one issuer. As of June 30, 2018 and 2017, the Building Authority had 98.3% and 98.8% of its investments in MMDT, respectively.

Credit Risk – Debt securities are subject to credit risk, which is the chance that an issuer will fail to pay interest or principal in a timely manner, or that negative perceptions of the issuer's ability to make these payments will cause security prices to decline. These circumstances may arise due to a variety of factors such as financial weakness, bankruptcy, litigation and/or adverse political developments. Certain debt securities, primarily obligations of the U.S. government or those explicitly guaranteed by the U.S. government, are not considered to have credit risk. Credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. The risk is measured by the assignment of a rating by a nationally recognized statistical rating organization.

Interest Rate Risk – Interest rate risk is the risk that changes in interest rates over time will adversely affect the fair value of an investment. The Building Authority has a formal investment policy that establishes minimum credit quality of certain instruments, outlines investment procedures, and provides for periodic reporting. Generally, the Building Authority holds its investments until maturity.

4. Investments

The investment portfolio of the University reflected on the Statements of Net Position for the year ended June 30, 2018 and 2017, respectively, includes the following:

	2018	2017
Short-term investments	$ 470,139	$ 286,171
Long-term investments	775,294	766,392
Total	**$1,245,433**	**$1,052,563**

Investment policies are established by the Board of Trustees of the University (the Board). The goals of these policies are to preserve capital, provide liquidity, and generate investment income. The University has statutory authority under Massachusetts General Laws Chapter 75 to collect, manage, and disburse trust funds of the University. The Foundation holds investments on behalf of the University. In the table below, these investments are identified as Foundation Agency Funds.

The endowment and similar investment holdings of the University, Foundation Agency Funds, and the Foundation, as of June 30, 2018 and 2017, respectively are summarized below ($ in thousands):

	University		Foundation	
	2018	2017	2018	2017
Cash and cash equivalents	$ 118,491	$ 65,303	$ 30,545	$ 29,477
Money market and other investments	321,900	199,000	4,430	6,265
Fixed income investments	135,852	139,294	4,662	4,643
Pooled investments - Fund I	-	-	528,921	488,163
Commercial ventures and intellectual property	1,994	1,674	-	-
Annuity life income funds	15,833	14,657	3,675	4,087
	$ 594,070	**$ 419,928**	**$ 572,233**	**$ 532,635**
Foundation agency funds:				
Pooled investments - Fund I	341,464	331,524	341,464	331,524
Pooled investments - Fund II	309,899	301,111	309,899	301,111
Total	**$1,245,433**	**$1,052,563**	**$1,223,596**	**$1,165,270**

Investments held at the Foundation within Fund I represent the University's endowment funds. These funds include both donor-restricted endowments and quasi-endowments. Investments held at the Foundation within Fund II represent a portion of the operating cash balance of the University that has been transferred to the Foundation for investment purposes.

Custodial Credit Risk – Investment securities are exposed to custodial credit risk if they are uninsured or not registered in the name of the University and are held by either the counterparty or the counterparty's trust department or agent but not in the University's name.

The University maintains depository, payroll, disbursement, receipt, and imprest accounts. In addition to bank account deposits, the University held money market instruments which are classified as investments. Interest bearing and money market accounts carry Federal Deposit Insurance Corporation (FDIC) insurance up to $250,000 per account. None of the accounts are collateralized above the FDIC insured amounts.

Within the University endowment and similar investment holdings table above, the carrying amounts of bank balances with uninsured or uncollateralized deposits were $450.1 million and $293.9 million, at June 30, 2018 and 2017, respectively.

The University held non-money market investments with a carrying and fair market value of $811.1 million and $778.0 million at June 30, 2018 and 2017, respectively. In the event of negligence due to the University's custodian and/or investment manager(s), it is expected that the investment balances would be fully recovered. However, these amounts are subject to both interest rate risk and credit risk.

Concentration of Credit Risk – As of June 30, 2018 and 2017, there is no concentration of investments from one issuer equal or greater than 5% of the portfolio. Investments issued or guaranteed by the U.S. government, as well as investments in mutual funds and other pooled investments are excluded from consideration when evaluating concentration risk.

Credit Risk – The University's Investment Policy and Guidelines Statement allows each portfolio manager full discretion within the parameters of the investment guidelines specific to that manager. Nationally recognized statistical rating organizations, such as Standards & Poor's (S&P) assign credit ratings to security issues and issuers that indicate a measure of potential credit risk to investors.

The table below presents the rated debt investments at fair value by credit quality of the University's investment portfolio as of June 30, 2018 ($ in thousands):

	S&P quality ratings								
	AAA	AA	A	BBB	BB	B	<B	Unrated	Total
Debt securities									
US treasury securities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 44,611	$ 44,611
Government agency bonds	-	-	-	-	-	-	-	351	351
Asset backed securities	11,763	-	167	389	-	-	-	5,333	17,652
Commercial mortgage-backed securities	298	-	-	-	-	-	-	6,966	7,264
Government issued commercial mortgage-backed securities	-	-	-	-	-	-	-	122	122
Government mortgage-backed securities	-	-	-	-	-	-	-	3,772	3,772
Non-government backed CMO's	640	-	-	-	-	-	-	799	1,439
Corporate bonds	561	4,119	28,168	29,328	314	-	-	763	63,253
Municipal and provincial bonds	412	731	405	647	-	-	-	-	2,195
Other fixed income	69,199	18,373	16,452	22,319	7,658	2,451	276	8,049	144,777
Total debt securities	$ 82,873	$ 23,223	$ 45,192	$ 52,683	$7,972	$ 2,451	$276	$ 70,766	$285,436

The table below presents the rated debt investments at fair value by credit quality of the University's investment portfolio as of June 30, 2017 ($ in thousands):

	S&P quality ratings								
	AAA	AA	A	BBB	BB	B	<B	Unrated	Total
Debt securities									
US treasury securities	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 48,919	$ 48,919
Government agency bonds	-	-	-	-	-	-	-	432	432
Asset backed securities	14,381	-	179	-	-	-	-	6,011	20,571
Commercial mortgage-backed securities	1,119	-	-	-	-	-	-	4,652	5,771
Government issued commercial mortgage-backed securities	-	-	-	-	-	-	-	253	253
Government mortgage-backed securities	-	-	-	-	-	-	-	3,047	3,047
Non-government backed CMO's	-	-	-	-	-	-	-	885	885
Corporate bonds	743	3,178	23,812	34,950	196	-	-	1,250	64,129
Municipal and provincial bonds	425	1,773	460	1,491	-	-	-	-	4,149
Other fixed income	61,128	25,099	18,617	27,621	13,038	5,683	1,225	8,944	161,355
Total debt securities	$77,796	$30,050	$43,068	$64,062	$13,234	$ 5,683	$1,225	$74,393	$309,511

Interest Rate Risk – The University's Investment Policy and Guidelines Statement establishes targets for the preferred duration of the fixed income component of the investment portfolio by asset class by limiting investments through targeted allocations to different asset classes.

The following table presents the fair value by investment maturity of the rated debt investments component of the University's investment portfolio as of June 30, 2018 ($ in thousands):

	Investment maturity (in years)				
	Less than 1	1 to 5	6 to 10	More than 10	Total
Debt securities					
US treasury securities	$ -	$ 39,226	$ 5,385	$ -	$ 44,611
Government agency bonds	-	351	-	-	351
Asset backed securities	4,960	12,525	167	-	17,652
Commercial mortgage-backed securities	529	5,797	938	-	7,264
Government issued commercial mortgage-backed securities	122	-	-	-	122
Government mortgage-backed securities	446	3,326	-	-	3,772
Non-government backed CMO's	640	799	-	-	1,439
Corporate bonds	15,131	45,172	2,527	423	63,253
Municipal and provincial bonds	2,051	144	-	-	2,195
Other fixed income	27,843	90,162	19,541	7,231	144,777
Total debt securities	**$ 51,722**	**$197,502**	**$ 28,558**	**$ 7,654**	**$ 285,436**

The following table presents the fair value by investment maturity of the rated debt investments component of the University's investment portfolio as of June 30, 2017 ($ in thousands):

	Investment maturity (in years)				
	Less than 1	1 to 5	6 to 10	More than 10	Total
Debt securities					
US treasury securities	$ -	$ 44,383	$ 4,536	$ -	$ 48,919
Government agency bonds	296	136	-	-	432
Asset backed securities	10,194	10,198	179	-	20,571
Commercial mortgage-backed securities	1,671	4,100	-	-	5,771
Government issued commercial mortgage-backed securities	23	230	-	-	253
Government mortgage-backed securities	425	2,622	-	-	3,047
Non-government backed CMO's	-	885	-	-	885
Corporate bonds	18,784	40,626	4,307	412	64,129
Municipal and provincial bonds	4,003	146	-	-	4,149
Other fixed income	24,751	81,212	44,488	10,904	161,355
Total debt securities	**$ 60,147**	**$184,538**	**$ 53,510**	**$ 11,316**	**$ 309,511**

Fair Value Measurement – GASB Statement No. 72, *Fair Value Measurement and Application*, establishes general principles for measuring fair value and requires enhanced disclosures about fair value measurements of certain assets and liabilities, such as investments and interest-rate swaps. Fair value represents the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. GASB 72 requires that the University categorize these assets and liabilities measured at fair value using a three-tiered hierarchy based on the valuation methodologies employed.

The hierarchy is defined as follows:

Level 1 – Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that are available at the measurement date.

Level 2 – Inputs to the valuation methodology include:
- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in inactive markets;
- Inputs other than quoted prices that are observable for the asset or liability;
- Inputs that are derived principally from or corroborated by observable market data by correlation or other means.

Level 3 – Inputs to the valuation methodology are unobservable and significant to the fair value measurement. Unobservable inputs reflect the University's own assumptions about the inputs market participants would use in pricing the asset or liability (including assumption about risk). Unobservable inputs are developed based on the best information available in the circumstances and may include the University's own data.

When available, quoted prices are used to determine fair value. When quoted prices in active markets are available, investments are classified within Level 1 of the fair value hierarchy. The University's Level 1 investments primarily consist of investments in U.S. Treasury obligations, equity securities, and mutual funds. When quoted prices in active markets are not available, fair values are based on evaluated prices received from the University's custodian of investments in conjunction with a third party service provider and are reported within Level 2 of the fair value hierarchy. The inputs for Level 2 include, but are not limited to, pricing models such as benchmarking yields, reported trades, broker-dealer quotes, issuer spreads and benchmarking securities, among others. The University's Level 2 investments primarily consist of investments in U.S. government and agency obligations, asset-backed securities, and corporate debt securities that did not trade on the University's fiscal year end date.

As a practical expedient to estimate the fair value of the University's interests, certain investments in commingled funds and limited partnerships are reported at the net asset value (NAV) determined by the fund managers. Because these investments are not readily marketable, their estimated fair values may differ from the values that would have been assigned had a ready market for such investments existed, and such differences could be material. As of June 30, 2018 and 2017, the University had no plans or intentions to sell such investments at amounts different from NAV.

The following table summarizes the fair value of the University's investments by type as of June 30, 2018 ($ in thousands):

	Investments measured at NAV	Investments classified in the fair value hierarchy			
		Level 1	Level 2	Level 3	Total
Cash equivalents					
Money market funds	$ -	$ 503,288	$ -	$ -	$ 503,288
Certificates of deposit	-	48	-	-	48
Debt securities					
US treasury securities	-	44,611	-	-	44,611
Government agency bonds	-	-	351	-	351
Asset backed securities	-	-	17,652	-	17,652
Commercial mortgage-backed securities	-	-	7,264	-	7,264
Government issued commercial mortgage-backed securities	-	-	122	-	122
Government mortgage-backed securities	-	-	3,772	-	3,772
Non-government backed CMO's	-	-	1,439	-	1,439
Corporate bonds	-	-	63,209	44	63,253
Municipal and provincial bonds	-	-	2,195	-	2,195
Other fixed income	-	110,652	34,125	-	144,777
Total debt securities	**-**	**155,263**	**130,129**	**44**	**285,436**
Equity securities					
Domestic equities	-	120,875	-	1,384	122,259
International equities	-	106,955	-	-	106,955
Total equity securities	**-**	**227,830**	**-**	**1,384**	**229,214**
Alternative investments					
Multi-strategy hedge funds					
Equity	69,885	-	-	-	69,885
Long/short	19,971	-	-	-	19,971
Fixed income	34,798	-	-	-	34,798
Absolute return	40,213	-	-	-	40,213
Real assets	11,689	-	-	-	11,689
Private equity	8,652	-	-	-	8,652
Private debt	19,462	-	-	-	19,462
Private real estate	4,762	-	-	-	4,762
Total alternative investments	**209,432**	-	-	-	**209,432**
Other securities	-	18,015	-	-	18,015
Total investments	**$209,432**	**$904,444**	**$130,129**	**$1,428**	**$1,245,433**

The following table presents unfunded commitments, redemption frequency and notice period for investments that have been valued using NAV as a practical expedient as of June 30, 2018 ($ in thousands):

	NAV	Unfunded commitments	Redemption frequency	Notice period
Alternative investments				
Multi-strategy hedge funds				
Equity	$ 69,885	$ -	daily to quarterly	01–60 days
Long/short	19,971	-	quarterly to not eligible	30–95 days
Fixed income	34,798	-	annual to not eligible	60–days
Absolute return	40,213	-	daily to annual	01–65 days
Real assets	11,689	-	annual	90 days
Private equity	8,652	18,573	temporarily illiquid	(1)
Private debt	19,462	12,408	temporarily illiquid	(1)
Private real estate	4,762	4,170	temporarily illiquid	(1)
Total	**$ 209,432**	**$ 35,151**		

(1) As noted above, the University has made commitments to various private equity, private debt and private real etate partnerships. The University expects these funds to be called over the next 1-5 years. Liquidity is expected to be received in the next 1-9 years.

The following table summarizes the fair value of the University's investments by type as of June 30, 2017 ($ in thousands):

	Investments measured at NAV	Investments classified in the fair value hierarchy			
		Level 1	Level 2	Level 3	Total
Cash equivalents					
Money market funds	$ -	$ 285,380	$ -	$ -	$ 285,380
Certificates of deposit	-	10,500	-	-	10,500
Debt securities					
US treasury securities	-	48,919	-	-	48,919
Government agency bonds	-	-	432	-	432
Asset backed securities	-	-	20,571	-	20,571
Commercial mortgage-backed securities	-	-	5,771	-	5,771
Government issued commercial mortgage-backed securities	-	-	253	-	253
Government mortgage-backed securities	-	-	3,047	-	3,047
Non-government backed CMO's	-	-	885	-	885
Corporate bonds	-	-	63,892	237	64,129
Municipal and provincial bonds	-	-	4,149	-	4,149
Other fixed income	-	147,948	13,407	-	161,355
Total debt securities	-	**196,867**	**112,407**	**237**	**309,511**
Equity securities					
Domestic equities	-	94,729	-	1,250	95,979
International equities	-	128,458	-	-	128,458
Total equity securities	-	**223,187**	-	**1,250**	**224,437**
Alternative investments					
Multi-strategy hedge funds					
Equity	46,681	-	-	-	46,681
Long/short	12,640	-	-	-	12,640
Fixed income	48,196	-	-	-	48,196
Absolute return	50,623	-	-	-	50,623
Real assets	11,784	-	-	-	11,784
Private equity	3,402	-	-	-	3,402
Private debt	19,221	-	-	-	19,221
Private real estate	3,829	-	-	-	3,829
Total alternative investments	**196,376**	-	-	-	**196,376**
Other securities	-	26,359	-	-	26,359
Total Investments	**$196,376**	**$742,293**	**$112,407**	**$1,487**	**$1,052,563**

The following table presents unfunded commitments, redemption frequency and notice period for investments that have been valued using NAV as a practical expedient as of June 30, 2017 ($ in thousands):

	Fair value	Unfunded commitments	Redemption frequency	Notice period
Alternative investments				
Multi-strategy hedge funds				
Equity	$ 46,681	$ -	quarterly to not eligible	45–60 days
Long/short	12,640	-	quarterly to annual	30–95 days
Fixed income	48,196	-	quarterly to not eligible	30–60 days
Absolute return	50,623	-	quarterly to not eligible	01–65 days
Real assets	11,784	-	annual	150 days
Private equity	3,402	18,089	temporarily illiquid	(1)
Private debt	19,221	15,847	temporarily illiquid	(1)
Private real estate	3,829	5,060	temporarily illiquid	(1)
Total	**$ 196,376**	**$ 38,996**		

(1) As noted above, the University has made commitments to various private equity, private debt and private real etate partnerships. The University expects these funds to be called over the next 1-5 years. Liquidity is expected to be received in the next 1-9 years.

5. Accounts Receivable, Net

Accounts receivable as of June 30, 2018 and 2017 are as follows ($ in thousands):

	2018	2017
Student tuition and fees	$ 60,454	$ 58,065
Student loans	62,462	63,660
Pledges receivable	25,199	20,437
Grants and contracts	94,235	94,583
Commonwealth Medicine	64,690	76,093
UMass Memorial	42,157	33,818
Other receivables	55,983	60,304
	405,180	**406,960**
Less: allowance for doubtful accounts and discount to present value for pledges	(30,558)	(28,764)
Accounts receivable, net	**$ 374,622**	**$ 378,196**

The receivable from UMass Memorial, which is uncollateralized, represents a potential concentration of credit risk for the University. The receivable from UMass Memorial represents 11.3% and 8.9% of total accounts receivable for the University at June 30, 2018 and 2017, respectively.

6. UMass Memorial Medical Center

The University has granted UMass Memorial Medical Center (UMass Memorial) the right to occupy portions of the University's Medical School campus facilities for a period of 99 years. As part of the ongoing agreement, UMass Memorial has agreed to share responsibility for various capital and operating expenses relating to the occupied premises. UMass Memorial also contributes to capital improvements to shared facilities.

In addition, UMass Memorial has agreed to make certain payments to the University, including an annual fee of $12.0 million, adjusted for inflation as necessary, for 99 years as long as the University continues to operate a medical school, and a participation payment based on a percentage of the net operating income of UMass Memorial. The University recognizes revenue when the participation payments are received.

The University is reimbursed by, and reimburses UMass Memorial for shared services, cross-funded employees, and other agreed upon activities provided and purchased. For the years ended June 30, 2018 and 2017, the reimbursements for services provided to

UMass Memorial were $140.5 million and $147.7 million, respectively. Included in these amounts are payroll paid by the University on behalf of UMass Memorial in an agency capacity in the amount of $85.5 million and $89.2 million for the years ended June 30, 2018 and 2017, respectively. As of June 30, 2018 and 2017, the University has recorded a receivable in the amount of $42.2 million and $33.8 million, respectively from UMass Memorial which includes $29.6 million and $22.0 million, respectively, in payroll and related fringe charges. The University has recorded a payable of $4.5 million and $4.4 million at June 30, 2018 and 2017, respectively, primarily for cross-funded payroll.

7. Capital Assets

The following table represents the University's capital assets activity for the years ended June 30, 2018 and 2017 ($ in thousands):

	2016	Additions	Retirements/ Adjustments	2017	Additions	Retirements/ Adjustments	2018
Land	$ 84,161	$ 14,394	$ (895)	$ 97,660	$ 68,771	$ (1,063)	$ 165,368
Buildings and improvements	5,611,906	456,132	(12,432)	6,055,606	444,250	(991)	6,498,865
Software	136,503	4,272	(29,737)	111,038	10,224	(8,078)	113,184
Equipment and furniture	651,947	79,975	(46,856)	685,066	52,453	(37,626)	699,893
Library books	65,978	-	(5,834)	60,144	-	(6,570)	53,574
	6,550,495	**554,773**	**(95,754)**	**7,009,514**	**575,698**	**(54,328)**	**7,530,884**
Accumulated depreciation	(2,690,595)	(245,300)	82,907	(2,852,988)	(261,417)	37,509	(3,076,896)
	3,859,900	**309,473**	**(12,847)**	**4,156,526**	**314,281**	**(16,819)**	**4,453,988**
Construction in progress	674,705	478,566	(455,687)	697,584	407,191	(483,287)	621,488
Total capital assets	**$4,534,605**	**$788,039**	**$(468,534)**	**$4,854,110**	**$721,472**	**$(500,106)**	**$5,075,476**

The University purchased the capital assets of Mount Ida College in May 2018 for $75.0 million. The assets have been allocated between land and construction in progress at June 30, 2018.

The University has capitalized interest on borrowings, net of interest earned on related debt reserve funds, during the construction period of major capital projects. Capitalized interest is added to the cost of the underlying assets being constructed, and is amortized over the useful lives of the assets. For the years ended June 30, 2018 and 2017, the University capitalized net interest costs of $11.6 million and $20.5 million, respectively.

8. Leases

The University leases certain equipment and facilities under operating leases with terms exceeding one year, which are cancelable at the University's option with 30 day notice. The rent expense related to these operating leases amounted to $20.6 million and $24.6 million for the years ended June 30, 2018 and 2017, respectively. The leases primarily relate to telecommunications, software, and co-generation systems. The University also leases space to third party tenants. During the years ended June 30, 2018 and 2017, the amount reported as rental income was $20.5 million and $18.9 million, respectively.

The following presents a schedule of future minimum payments under non-cancelable leases for the next five years and in subsequent five-year periods for the University as of June 30, 2018 ($ in thousands):

Fiscal year end	Operating lease payments
2019	$ 25,471
2020	23,879
2021	21,805
2022	18,931
2023	15,059
2024 and thereafter	131,687
Total payments	**$ 236,832**

9. Long-Term Debt

The following table represents the outstanding long-term debt as of June 30, 2018, and the related activity during the fiscal year ($ in thousands):

	Original borrowing	Maturity date	Interest rate	As of July 1, 2017	Additions	Reductions	As of June 30, 2018
Building Authority							
Series 2008-A	$ 26,580	2038	variable	$ 19,145	$ -	$ (995)	$ 18,150
Series 2008-1	232,545	2038	variable	171,430	-	(8,315)	163,115
Series 2008-2	120,560	2038	4.0–5.0%	3,065	-	(3,065)	-
Series 2009-1	247,810	2039	3.0–5.0%	28,400	-	(13,115)	15,285
Series 2009-2	271,855	2039	6.4–6.6%	271,855	-	-	271,855
Series 2009-3	28,570	2039	5.8–6.2%	25,685	-	(585)	25,100
Series 2010-1	118,985	2020	5.0%	59,230	-	(13,745)	45,485
Series 2010-2	430,320	2040	3.8–5.5%	430,320	-	-	430,320
Series 2010-3	3,005	2040	5.8%	2,730	-	(55)	2,675
Series 2011-1	135,040	2034	variable	126,540	-	(1,550)	124,990
Series 2011-2	101,700	2034	variable	96,115	-	(1,060)	95,055
Series 2013-1	212,585	2043	2.0–5.0%	198,655	-	(4,910)	193,745
Series 2013-2	71,970	2043	0.4–2.7%	65,090	-	(2,265)	62,825
Series 2013-3	24,640	2043	4.0–5.0%	24,640	-	-	24,640
Series 2014-1	293,890	2044	3.0–5.0%	293,015	-	(525)	292,490
Series 2014-2	14,085	2019	0.4–2.1%	8,555	-	(2,805)	5,750
Series 2014-4	157,855	2025	0.2–3.4%	122,125	-	(30,030)	92,095
Series 2014-3	67,635	2029	2.0–5.0%	61,640	-	(3,480)	58,160
Series 2015-1	298,795	2036	4.0–5.0%	298,795	-	-	298,795
Series 2015-2	191,825	2036	3.0–5.0%	191,825	-	(2,825)	189,000
Series 2017-1	165,130	2047	3.3–3.8%	165,130	-	-	165,130
Series 2017-2	19,510	2027	1.6–3.4%	19,510	-	-	19,510
Series 2017-3	35,945	2038	3.0–5.0%	187,680	-	(2,920)	184,760
Series 2018-1	75,000	2043	2.0–2.9%	-	37,650	-	37,650
Unamortized bond premium				164,887	-	(14,188)	150,699
				3,036,062	**37,650**	**(106,433)**	**2,967,279**
HEFA/MDFA							
Series A	20,000	2030	variable	20,000	-	-	20,000
Series 2011	29,970	2034	2.5–4.0%	25,925	-	(1,045)	24,880
Unamortized bond premium				870	-	(53)	817
				46,795	-	**(1,098)**	**45,697**
WCCC HEFA/MDFA							
Series 2005-D	99,325	2029	5.0–5.3%	715	-	(100)	615
Series 2011	10,495	2023	2.0–5.0%	6,690	-	(830)	5,860
Unamortized bond premium				624	-	(98)	526
				8,029	-	**(1,028)**	**7,001**
MDFA							
Clean renewable Energy bonds	1,625	2027	3.50%	956	-	(96)	860
Total bonds payable				**3,091,842**	**37,650**	**(108,655)**	**3,020,837**
Notes and commercial paper				1,917	64,535	(483)	65,969
Capital lease obligations				592	3,195	(1,525)	2,262
Total long-term debt				**$ 3,094,351**	**$ 105,380**	**$ (110,663)**	**$ 3,089,068**

The following table represents the outstanding long-term debt as of June 30, 2017, and the related activity during the fiscal year ($ in thousands):

	As of July 1, 2016	Additions	Reductions	As of June 30, 2017
Building Authority				
Series 2004-1	$ 1,515	$ -	$ (1,515)	$ -
Series 2008-A	20,105	-	(960)	19,145
Series 2008-1	179,425	-	(7,995)	171,430
Series 2008-2	63,025	-	(59,960)	3,065
Series 2009-1	108,365	-	(79,965)	28,400
Series 2009-2	271,855	-	-	271,855
Series 2009-3	26,235	-	(550)	25,685
Series 2010-1	72,310	-	(13,080)	59,230
Series 2010-2	430,320	-	-	430,320
Series 2010-3	2,785	-	(55)	2,730
Series 2011-1	128,245	-	(1,705)	126,540
Series 2011-2	97,265	-	(1,150)	96,115
Series 2013-1	203,420	-	(4,765)	198,655
Series 2013-2	67,335	-	(2,245)	65,090
Series 2013-3	24,640	-	-	24,640
Series 2014-1	293,465	-	(450)	293,015
Series 2014-2	11,330	-	(2,775)	8,555
Series 2014-4	149,975	-	(27,850)	122,125
Series 2014-3	64,470	-	(2,830)	61,640
Series 2015-1	298,795	-	-	298,795
Series 2015-2	191,825	-	-	191,825
Series 2017-1	-	165,130	-	165,130
Series 2017-2	-	19,510	-	19,510
Series 2017-3	-	187,680	-	187,680
Unamortized bond premium	122,146	55,987	(13,246)	164,887
	2,828,851	**428,307**	**(221,096)**	**3,036,062**
HEFA/MDFA				
2000 Series A	20,000	-	-	20,000
2007 Series D	8,645	-	(8,645)	-
Series 2011	26,940	-	(1,015)	25,925
Unamortized bond premium	949	-	(79)	870
	56,534	-	**(9,739)**	**46,795**
WCCC HEFA/MDFA				
Series 2005-D	1,335	-	(620)	715
Series 2007-E	31,250	-	(31,250)	-
Series 2007-F	51,890	-	(51,890)	-
Series 2011	7,495	-	(805)	6,690
Unamortized bond premium	1,215	-	(591)	624
	93,185	-	**(85,156)**	**8,029**
MDFA				
Clean renewable energy bonds	1,052	-	(96)	956
Total bonds payable	**2,979,622**	**428,307**	**(316,087)**	**3,091,842**
Notes and commercial paper	2,433	-	(516)	1,917
Capital lease obligations	598	161	(167)	592
Total long-term debt	**$2,982,653**	**$ 428,468**	**$ (316,770)**	**$ 3,094,351**

Principal and interest, which is estimated using rates in effect at June 30, 2018, on long-term debt for the next five fiscal years and in subsequent five-year periods are as follows ($ in thousands):

Fiscal Year	Principal	Interest
2019	$ 100,270	$ 118,528
2020	103,930	115,106
2021	107,866	111,092
2022	100,356	107,078
2023	104,641	103,170
2024–2028	530,997	456,206
2029–2033	503,675	350,345
2034–2038	531,100	245,546
2039–2043	541,515	113,966
2044–2048	244,445	19,763
Total	**$ 2,868,795**	**$ 1,740,800**

In accordance with GASB 1, the University classifies variable rate bonds subject to remarketing as current, unless supported by liquidity arrangements such as lines of credit or standby bond purchase agreements, which could refinance the debt on a long-term basis. In the event that variable rate bonds are put back to the University by the debt holder, management believes that the University's strong credit rating will ensure that the bonds will be remarketed within a reasonable period of time. As a result, the University's variable rate bonds are listed in the table above at their original maturities.

Bond Premium and Issuance Expenses – During the year ended June 30, 2017, premiums received totaled $56.0 million. The University amortizes premiums received as a reduction of interest expense over the life of the respective bond issue. There were no new premiums received during the year ended June 30, 2018.

The University incurs certain costs associated with bond issuances. For the years ended June 30, 2018 and 2017, bond issuance costs amounted to $0.2 million and $2.3 million, respectively, and were expensed in accordance with the provisions of GASB Statement No. 65, *Items Previously Reported as Assets and Liabilities*.

Commercial Paper – The maximum aggregate principal amount of commercial paper the Building Authority may have outstanding at one time is $200.0 million. The Building Authority currently has standby liquidity facility agreements with State Street Bank and Trust Company for $125.0 million and with U.S. Bank National Association for $75.0 million. Each agreement expires on August 12, 2019. During the fiscal year 2018, the Building Authority issued $64.5 million of commercial paper and has an outstanding balance of $64.5 million as of June 30, 2018. The Building Authority incurred total fees of $0.7 million and $0.8 million for the years ending June 30, 2018 and 2017, respectively, associated with the use of commercial paper.

Bond Refundings – During the year ended June 30, 2017, the Building Authority issued $187.7 million of Refunding Revenue Senior Series 2017-3 Bonds which advance refunded $77.3 million of the WCCC bonds series, $57.0 million of the Building Authority's 2008-2 bonds and $65.0 million of the Building Authority's 2009-1 bonds. The Building Authority deposited into trust accounts funds sufficient to provide for all future debt service payments on the refunded bonds until the bonds are called. These advanced refunded bonds are considered defeased and, accordingly, the liability for the bonds and the assets held to repay the debt are not recorded in the Building Authority's financial statements.

In connection with the Building Authority's refundings, the Building Authority recorded a difference between the reacquisition price and the net carrying amount of the refunded debt of $5.8 million. This balance is being reported as a component of deferred outflows and will be amortized as an increase in interest expense over the remaining term of the original life of the refunded bonds. These refundings reduced the Building Authority's debt service payments in future years by $30.2 million and resulted in present value savings of $21.4 million as an economic gain.

During fiscal year ended June 30, 2017, the University refunded $10.4 million of MHEFA Revenue Bonds, University of Massachusetts Issue Series D. The proceeds from this issuance were used to advance refund a portion of the MHEFA Revenue Bonds, University of Massachusetts Issue, 2001 Series B (the Series B Bonds). These advance refunded bonds were defeased, and accordingly, the liability for the bonds and the assets held to repay the debt have not been included in the University's financial statements.

There was no refunding of bonds in the year ended June 30, 2018.

Interest Rate Swaps – The Building Authority uses derivative instruments to manage the impact of interest rate changes on its cash flows and net position by mitigating its exposure to certain market risks associated with operations, and does not use derivative instruments for trading or speculative purposes.

All interest rate swaps held by the Building Authority are cash flow hedges and considered to be synthetic fixed. The Building Authority's interest rate swaps at June 30, 2018 and 2017 are as follows ($ in thousands):

	Notional Value	As of July 1, 2017	Net Change	As of June 30, 2018	Effective Date	Term Date	Authority Pays	Authority Receives
Series 2008-1	$232,545	$ 25,267	$ (8,690)	$ 16,577	05/01/08	05/01/38	3.4%	70% of 1-Month LIBOR
Series 2008-A	26,580	2,884	(953)	1,931	11/13/08	05/01/38	3.4%	70% of 1-Month LIBOR
Series 2006-1	243,830	33,688	(10,594)	23,094	04/20/06	11/01/34	3.5%	60% of 3-Month LIBOR + .18%
Total		**$61,839**	**$(20,237)**	**$41,602**				

Swap payments and associated debt – Using rates as of June 30, 2018, the debt service requirements of the variable-rate debt and net swap payments, assuming current interest rates remain the same for their term, were as follows ($ in thousands):

Fiscal Year Ending June 30	Principal	Interest	Interest rate swaps, net	Total
2019	$ 12,215	$ 6,073	$ 7,645	$ 25,933
2020	12,720	5,885	7,409	26,014
2021	28,390	5,576	7,020	40,986
2022	29,545	5,140	6,471	41,156
2023	33,915	4,663	5,869	44,447
2024–2028	155,640	16,102	20,259	192,001
2029–2033	112,390	5,579	7,011	124,980
2034–2038	16,495	373	469	17,337
Total	**$401,310**	**$49,391**	**$62,153**	**$512,854**

	2018	2017
Change in fair value of interest rate swap	$ 18,887	$ 37,768
Loss on debt refundings	74,443	79,771

For the years ended June 30, 2018 and 2017, the amortization of the loss on debt refundings totaled $5.3 million and $6.8, respectively, which increases interest expenses.

10. Other Liabilities

During the years ended June 30, 2018 and 2017, the following changes occurred in other liabilities as recorded in the statements of net position ($ in thousands):

	2016	Additions	Reductions	2017	Additions	Reductions	2018
Compensated absences	$ 35,671	$ -	$ (5,276)	$ 30,395	$ 3,410	$ (2,249)	$ 31,556
Workers' compensation	12,160	-	(214)	11,946	233	(635)	11,544
Unearned revenues	23,936	24,257	(15,596)	32,597	73,697	(13,154)	93,140
Advances and deposits	27,705	799	(399)	28,105	490	(745)	27,850
Other liabilities	105,354	800	(25,349)	80,805	-	(6,210)	74,595

During the fiscal year 2018, the University received approximately $87.0 million from the sale of its royalty revenue stream related to a licensed product. This transaction resulted in an increase to current and non-current liabilities.

11. Fringe Benefits

During the years ended June 30, 2018 and 2017, the Commonwealth paid $358.1 million and $329.3 million, respectively, for the University's portion of fringe benefit costs which includes pension expense, health insurance for active employees and retirees, and terminal leave. Of this amount, the University reimbursed the Commonwealth $134.1 million and $123.8 million during the years ended June 30, 2018 and 2017, respectively. The remaining portion is included in revenue as state appropriations.

12. Pensions

The Massachusetts State Employees' Retirement System (MSERS) is a public employee retirement system (PERS) that administers a cost-sharing multi-employer defined benefit plan as defined by GASB Statement No. 67, *Financial Reporting for Pension Plans*, covering substantially all employees of the Commonwealth including University employees.

MSERS provides retirement, disability, survivor and death benefits to members and their beneficiaries. Massachusetts General Laws (MGL) establishes uniform benefit and contribution requirements for all contributory PERS. These requirements provide for superannuation retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For employees hired after April 1, 2012, retirement allowances are calculated on the basis of the last five years or any five consecutive years, whichever is greater in terms of compensation. Benefit payments are based upon a member's age, length of creditable service, and group creditable service, and group classification. The authority for amending these provisions rests with the Legislature.

The MSERS' funding policies have been established by Chapter 32 of MGL. The Legislature has the authority to amend these policies. The annuity portion of the MSERS retirement allowance is funded by employees, who contribute a percentage of their regular compensation. Costs of administering the plan are funded out of plan assets.

Member contributions for MSERS vary depending on the most recent date of membership:

Hire Date	% of Compensation
Prior to 1975	5% of regular compensation
1975 – 1983	7% of regular compensation
1984 – 6/30/1996	8% of regular compensation
7/1/1996 – present	9% of regular compensation except for State Police which is 12% of regular compensation
1979 – present	An additional 2% of regular compensation in excess of $30,000

In addition, members within this group who join the system on or after April 2, 2012 will have their withholding rate reduced to 6% after achieving 30 years of creditable service.

The University makes contributions on behalf of the employees through a fringe benefit charge assessed by the Commonwealth. The fringe benefit charge amounted to $107.4 million and $89.9 million for the years ended June 30, 2018 and 2017, respectively. Annual covered payroll was 75.9% and 75.8% of annual total payroll for the University for the years ended June 30, 2018 and 2017, respectively. Pension expense of $33.3 million and $26.3 million was included in the fringe charge for the years ended June 30, 2018 and 2017, respectively.

As allowable under the terms of GASB 68, the University has elected to measure the net pension liability one year prior to the fiscal year end reporting date. The net pension liability as of June 30, 2018 was determined based on a measurement date of June 30, 2017 from an actuarial valuation as of January 1, 2017 rolled forward to June 30, 2017. The net pension liability measured as of June 30, 2017 was determined based on a measurement date of June 30, 2016 from an actuarial valuation as of January 1, 2016 rolled forward to June 30, 2016. There are no significant changes known which would impact the total pension liability between the measurement date and the reporting date, other than typical plan experience.

Actuarial Assumptions – Significant actuarial assumptions used at each respective measurement date are as follows:

	June 30, 2017	June 30, 2016
Investment rate of return	7.50%	7.50%
Interest rate credited to the annuity savings fund	3.50%	3.50%
Cost of living increases on the first $13,000 per year	3.00%	3.00%
Salary increases*	4.0% to 9.0%	4.0% to 9.0%
Mortality rates		
Pre-retirement	RP-2014 Blue Collar Employees Scale MP-2016	RP-2000 Employees Scale BB base year 2015
Post-retirement	RP-2014 Blue Collar Healthy Annuitant Scale MP-2016	RP-2000 Healthy Annuitant Scale BB base year 2015
Disability	RP-2000 Healthy Annuitant Scale BB base year 2015	RP-2000 Healthy Annuitant Scale BB base year 2015

*Salary increases were based on analysis of past experiences depending on group and length of service

Chapter 176 of the Acts of 2011 created a one-time election for eligible members of the Optional Retirement Plan (ORP) to transfer to the State Employees' Retirement System (SERS) and purchase service for the period while members of the ORP.

For these actuarial valuations, experience studies were performed on February 27, 2014 and encompass the period January 1, 2006 to December 31, 2011.

Investment Allocation – Investment assets of MSERS are with the Pension Reserves Investment Trust (PRIT) Fund. The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future rates of return are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future rates of return by the target asset allocation percentage.

Best estimates of geometric rates of return for each major asset class included in the PRIT Fund's target asset allocation as of June 30, 2017 and 2016 are summarized in the following table:

	June 30, 2017		June 30, 2016	
	Target Allocation	Long-term Expected Real Rate of Return	Target Allocation	Long-term Expected Real Rate of Return
Asset Class				
Core Fixed Income	12.00%	1.10%	13.00%	1.60%
Global Equity	40.00%	5.00%	40.00%	6.90%
Hedge Funds	0.00%	3.60%	9.00%	4.00%
Portfolio Completion Strategies	13.00%	3.60%	4.00%	3.60%
Private Equity	11.00%	6.60%	10.00%	8.70%
Real Estate	10.00%	3.60%	10.00%	4.60%
Timber / Natural Resources	4.00%	3.20%	4.00%	5.40%
Value Added Fixed Income	10.00%	3.80%	10.00%	4.80%
Total	**100.00%**		**100.00%**	

Discount Rate – The discount rate used to measure the total pension liability was 7.50% at June 30, 2017 and 2016. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rates and the Commonwealth's contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rates. Based on those assumptions, the net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity Analysis – The following illustrates the impact a 1% change in the discount rate for the net pension liability at June 30, 2018 ($ in thousands):

Fiscal Year Ended	1% Decrease	Current Discount Rate 7.5%	1% Increase
June 30, 2018	$621,615	$420,234	$323,338

Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions – At June 30, 2018 and 2017, the University reported a liability of $420.2 million and $429.9 million, respectively, for its proportionate share of MSERS's net pension liability, respectively. The University's proportion of the net pension liability was based on a projection of the University's long-term share of contributions to the pension plan relative to the total projected contributions of all participating entities, actuarially determined.

The following table shows the components of pension expense for the years ended June 30, 2018 and 2017 ($ in thousands):

	2018	2017
Proportionate share of plan pension expense	$ 52,383	$ 58,723
Net amortization of deferred amounts from change in proportion	6,085	2,935
Employer contributions after measurement date	(28,292)	(25,618)
Pension expense	**$30,176**	**$36,040**

The University reported its proportionate share of MSERS's deferred outflows of resources and deferred inflows of resources related to pensions from the following sources as of June 30, 2018 and 2017 ($ in thousands):

	2018		2017	
	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources
Changes of assumptions	$ -	$ 43,732	$ -	$ 47,670
Changes in proportion due to internal allocation	28,949	36,532	37,464	34,668
Employer contributions after measurement date	-	28,292	-	25,618
Differences between expected and actual experience	11,434	16,248	-	20,418
Net difference between projected and actual investment earnings on pension plan investments	5,007	-	-	28,853
Changes in proportion from Commonwealth	150	1,440	207	958
Total	**$45,540**	**$126,244**	**$37,671**	**$158,185**

The net amounts of the University's balances of deferred outflows and inflows of resources related to pensions will be recognized in pension expense as follows:

Year Ended June 30	
2019	$ 16,098
2020	29,325
2021	13,310
2022	(7,018)
2023	697
Thereafter	-
Total	**$ 52,412**

Non-vested faculty and certain other employees of the University can opt out of MSERS and participate in a defined contribution plan, the ORP, administered by the Commonwealth's Department of Higher Education. As of June 30, 2018 and 2017, there were 1,687 and 1,674 University employees, respectively, participating in ORP. Employees contribute at the same rate as members in SERS and the Commonwealth matches 5% of employee contributions. The Commonwealth contributed $8.4 million and $7.2 million in 2018 and 2017, respectively. University employees contributed $17.4 million and $15.8 million in 2018 and 2017, respectively.

The MSERS and ORP retirement contributions of employees who become members of MSERS or ORP after January 1, 2011 are subject to a state compensation limit. Effective January 1, 2011, the University established a defined contribution plan, the University of Massachusetts 401(a) Retirement Gap Plan (Gap Plan). Employees with MSERS or ORP membership dates after January 1, 2011 are eligible to participate in for the Gap Plan. Eligible employees begin participation in the Gap Plan when their regular compensation exceeds the state compensation limit in effect for the plan year, at which point their contributions to MSERS or ORP are required to stop for the remainder of the plan year. Employee contributions to the Gap Plan are mandatory and at the same rate as MSERS and ORP; the University contributes 5%. As of June 30, 2018 and 2017, the plan assets were $3.4 million and $2.5 million, respectively.

13. Other Postemployment Benefits

The Commonwealth administers a single employer defined Postemployment Benefits Other Than Pensions (OPEB) Plan (the Plan). Benefits are managed by the Group Insurance Commission (GIC) and investments are managed by the Pension Reserves Investment Management Board (PRIM).

Benefits provided – Under Chapter 32A of the Massachusetts General Laws (MGL) the Commonwealth is required to provide certain health care and life insurance benefits for retired employees of the Commonwealth. Substantially all of the Commonwealth's employees may become eligible for these benefits if they reach retirement age while working for the Commonwealth. Eligible retirees are required to contribute a specified percentage of the health care/benefit costs, which are comparable to contributions required from employees.

Employer and employee contribution rates are set in MGL. The Commonwealth recognizes its share of the costs on an actuarial basis. As of June 30, 2017, retirees contribute between 0% - 20% of premium costs, depending on the date of hire.

As allowable under the terms of GASB 75, the University has elected to measure the total postemployment liability one year prior to the fiscal year end reporting date. The total OPEB liability as of June 30, 2018 was determined based on a measurement date of June 30, 2017 from an actuarial valuation as of January 1, 2017 rolled forward to June 30, 2017. There are no significant changes known which would impact the total postemployment liability between the measurement date and the reporting date, other than typical plan experience.

Actuarial Assumptions – Significant actuarial assumptions used at the 2017 measurement date are as follows:

Annual healthcare cost trend rates	
Medical	8.5% decreasing by 0.5% each year to an ultimate rate of 5.0% in 2024
Employer group waiver program	5.0%
Administrative costs	5.0%
Mortality rates	RP-2014 Blue Collar Employees projected with Scale MP-2016
Participation rates	100% of all retirees who currently have health care coverage will continue the same coverage, except the following: • retirees under the age of 65 with POS/PPO coversate switch to Indemnity at age 65 • retirees over the age of 65 with POS/PPO coverage switched to HMO Current retirees and spouses - Medicare coverage upon attainment of age 65 Future retirees - Medicare coverage upon attainment of age 65 80% of current and future contingent eligible participants will elect health care benefits at 65 or later Actives, upon retirement, take coverage, and are assumed to have the following coverage:

	Retirement Age	
	Under 65	Over 65
Indemnity	40.0%	85.0%
POS/PPO	50.0%	0.0%
HMO	10.0%	15.0%

Investment Allocation – Investment assets of the Plan are with the Pension Reserves Investment Trust (PRIT) Fund. The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best-estimate ranges of expected future rates of return are developed for each major asset class.

These ranges are combined to produce the long-term expected rate of return by weighting the expected future rates of return by the target asset allocation percentage.

Best estimates of geometric rates of return for each major asset class included in the PRIT Fund's target asset allocation as of June 30, 2017 and 2016 are summarized in the following table:

		Long-term Expected Real Rate of Return	
	Target Allocation	2017	2016
Asset Class			
Global equity	40.00%	5.0%	6.9%
Portfolio completion strategies	13.00%	3.6%	3.6%
Core fixed income	12.00%	1.1%	1.6%
Private equity	11.00%	6.6%	8.7%
Value added fixed income	10.00%	3.8%	4.8%
Real estate	10.00%	3.6%	4.6%
Timber/natural resources	4.00%	3.2%	5.4%
Hedge funds	0.00%	3.6%	4.0%
Total	**100.00%**		

Discount Rate – The discount rates used to measure the OPEB liability as of June 30, 2017 and 2016 were 3.63% and 2.88%, respectively. These rates were based on a blend of the Bond Buyer Index rates of 3.58% and 2.85%, respectively, as of the measurement dates June 30, 2017 and 2016 and the expected rates of return. The plan's fiduciary net position was not projected to be available to make all projected future benefit payments for current plan members. The projected "depletion date" when projected benefits are not covered by projected assets is 2023. Therefore, the long-term expected rate of return on plan investments of 7.50% per annum was not applied to all periods of projected benefit payments to determine the total OPEB liability as of June 30, 2017 and 2016.

Sensitivity Analysis of Discount – The following presents the net OPEB liability of the Commonwealth calculated using the discount rate, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1- percentage-point lower or 1-percentage-point higher than the current rate ($ in thousands):

Fiscal Year Ended	1% Decrease	Current Discount	1% Increase
June 30, 2017	$970,268	$817,357	$695,780

Sensitivity Analysis of Healthcare Cost Trend Rate – The following presents the net OPEB liability of the Commonwealth, as well as what the net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current healthcare cost trend rate ($ in thousands):

Fiscal Year Ended	1% Decrease	Current Rate	1% Increase
June 30, 2017	$676,259	$817,357	$1,003,033

OPEB Liabilities, OPEB Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB – In connection with the adoption of GASB 75, the University recorded $817.4 million as the proportionate share of the OPEB liability as of June 30, 2018 and the cumulative effect of the prior year's beginning balances of $743.0 million. The University's proportion of the net OPEB liability was based on a projection of the University's long-term share of contributions to the OPEB relative to the total projected contributions of all participating entities, actuarially determined.

The following table shows the components of OPEB expense for the year ended June 30, 2018 ($ in thousands):

	2018
Proportionate share of plan OPEB expense	$ 47,783
Net amortization of deferred amounts from change in proportion	357
Net amortization of deferred amounts from internal allocation change in proportion	20,591
Employer specific OPEB expenses	1,249
Employer contributions after measurement date	(21,421)
OPEB expense	**$48,559**

The University reported its proportionate share of deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources as of June 30, 2018 ($ in thousands):

	Deferred Inflows of Resources	Deferred Outflows of Resources
Changes of assumptions	$ 92,574	$ -
Changes in proportion due to internal allocation	-	98,629
Employer contributions after measurement date	-	21,421
Differences between expected and actual experience	1,880	-
Net difference between projected and actual investment earnings on OPEB plan investments	1,491	-
Changes in proportion from Commonwealth	-	1,711
Total	**$ 95,945**	**$ 121,761**

The difference between the University's balances of deferred outflows and inflows of resources related to OPEB will be recognized in OPEB expense as follows:

Year Ended June 30	
2019	$ (24)
2020	(24)
2021	(24)
2022	(24)
2023	4,491
Total	**$ 4,395**

14. Operating Expenses

The following table summarizes the University's operating expenses by natural and functional classification for the year ended June 30, 2018 ($ in thousands):

	Compensation and benefits	Supplies and services	Scholarships and fellowships	Depreciation and amortization	Interest	Total
Educational and general						
Instruction	$ 761,546	$ 114,689	$ -	$ -	$ -	$ 876,235
Research	282,123	189,012	-	-	-	471,135
Public service	63,995	14,243	-	-	-	78,238
Academic support	134,392	53,103	-	-	-	187,495
Student services	119,601	37,333	-	-	-	156,934
Institutional support	241,374	30,161	-	-	-	271,535
Operation and maintenance of plant	126,923	128,902	-	-	-	255,825
Depreciation and amortization	-	-		261,417	-	261,417
Scholarhips and fellowships	-	-	50,410	-	-	50,410
Auxiliary enterprises	146,623	167,118	-	-	-	313,741
Other expenditures						
Independent operations	24,854	27,357	-	-	-	52,211
Public service activities	83,260	241,956	-	-	-	325,216
Total operating expenses	**1,984,691**	**1,003,874**	**50,410**	**261,417**	-	**3,300,392**
Interest on indebtedness	-	-	-	-	115,851	115,851
Total operating expenses and interest	**$1,984,691**	**$1,003,874**	**$50,410**	**$261,417**	**$115,851**	**3,416,243**

The following table summarizes the University's operating expenses by natural and functional classification for the year ended June 30, 2017 ($ in thousands):

	Compensation and benefits	Supplies and services	Scholarships and fellowships	Depreciation and amortization	Interest	Total
Educational and general						
Instruction	$ 716,135	$ 107,907	$ -	$ -	$ -	$ 824,042
Research	273,638	173,732	-	-	-	447,370
Public service	58,381	9,702	-	-	-	68,083
Academic support	124,239	52,934	-	-	-	177,173
Student services	112,183	38,850	-	-	-	151,033
Institutional support	231,935	15,805	-	-	-	247,740
Operation and maintenance of plant	118,304	122,197	-	-	-	240,501
Depreciation and amortization	-	-		245,300	-	245,300
Scholarhips and fellowships	-	-	47,710	-	-	47,710
Auxiliary enterprises	142,438	164,412	-	-	-	306,850
Other expenditures						
Independent operations	23,854	33,422	-	-	-	57,276
Public service activities	88,452	257,423	-	-	-	345,875
Total operating expenses	**1,889,559**	**976,384**	**47,710**	**245,300**	-	**3,158,953**
Interest on indebtedness	-	-	-	-	110,069	110,069
Total operating expenses and interest	**$1,889,559**	**$976,384**	**$47,710**	**$245,300**	**$110,069**	**$3,269,022**

15. Unrestricted Net Position

The University adopted a reserve policy and standards in 2018. According to the policy, unrestricted net position is designated for certain purposes. Below are the designations used by the University, as described in the University's policy:

- **Unexpended plant and facilities –** funds designated for capital projects, equipment and the major renovations of all existing buildings including research, education and general, and auxiliary.
- **Auxiliary enterprises –** funds related to self-supporting activities which provide non-instructional support in the form of goods and services to students, faculty, and staff upon payment of a specific user charge or fee.
- **Education and general –** funds designated for operational requirements, academic initiatives, research, faculty recruitment, and University initiatives.
- **Quasi-endowment –** funds related to unrestricted resources invested in the Foundation's pooled endowment fund, intended to be invested for the long-term unless otherwise approved by the Board of Trustees or a designated authority.
- **Stabilization –** funds designated to provide budgetary stabilization for operations due to unforeseen and/or uncontrollable circumstances to ensure responsible long-term financial stability.
- **Other unrestricted –** funds undesignated for a specific use or purpose.

The following table summarizes the University's unrestricted net position as of June 30, 2018 ($ in thousands):

	2018
Unrestricted resources	
Unexpended plant and facilities	$ 267,319
Auxiliary enterprises	91,539
Education and general	244,472
Quasi-endowment	280,517
Stabilization	109,168
Other unrestricted	(12,024)
Subtotal	**980,991**
Unfunded portion of pension liabilities	(339,530)
Unfunded portion of postretirement benefits other than pension liabilities	(791,541)
Total unrestricted net position	**$(150,080)**

16. Commitments and Contingencies

The Building Authority, University, and WCCC have outstanding purchase commitments under construction contracts and real estate agreements of $120.7 million and $283.6 million at June 30, 2018 and 2017, respectively. In connection with investments in certain limited partnership agreements, the University has $35.2 million and $39.0 million in committed calls as of June 30, 2018 and 2017, respectively, which are scheduled to be funded over a number of years. The University has entered an Energy Performance Contract that is being managed by the Commonwealth's Division of Capital Asset Management (DCAM) under its Clean Energy Investment Program. This project includes 32 energy conservation measures. The installation costs will be incurred over 2 phases with Phase 1 being $18.0 million and Phase 2 being $13.5 million. The term of these transactions is 20 years. The University has a commitment to the Commonwealth for Clean Energy Investment Program Funds used through June 30, 2018 and 2017 of $26.1 million and $27.1 million, respectively.

The University, as an agency of the Commonwealth, is self-insured for property loss exposure, subject to appropriation from the state legislature. However, properties owned by the Building Authority located on a campus of the University, such as the Mullins Center, dining commons, and most dormitories, are insured by the Building Authority. The University and its employees are protected against tort claims through sovereign immunity under Chapter 258 of the Massachusetts General Laws. The University maintains certain liability insurance policies, including commercial general liability, leased automotive liability, directors and officers and comprehensive crime policies. Employees of the University are covered for Worker's Compensation protection under Chapter 152 of the Massachusetts General Laws. The University has recorded a liability for future expected costs of its workers' compensation claims of $14.7 million and $14.6 million as of June 30, 2018 and 2017, respectively. Estimated future payments related to such costs have been discounted at a rate of 4.0%.

The University is a defendant in various lawsuits and is subject to various contractual matters; however, University management is of the opinion that the ultimate outcome of all litigation or potential contractual obligations will not have a material effect on the financial position, financial results or cash flows of the University.

17. Subsequent Events

Subsequent to year-end, the University issued $38.4 million of Series 2013-A commercial paper to be used for funding of approved capital projects at the Lowell, Amherst and Dartmouth campuses. The commercial paper is expected to be repaid with proceeds from the University's next long-term bond financing.

On November 14, 2018, the University entered into an agreement whereby the University sub-leased property on the University of Massachusetts Dartmouth campus to Provident Commonwealth Educational Resources II Inc., a Massachusetts not-for-profit corporation. The land is leased to the University by the Commonwealth. Provident Commonwealth Educational Resources II Inc. will engage a contractor to construct a 1,210-bed student housing facility on the site. The University will sub-lease the property to Provident Commonwealth Educational Resources II Inc. for a term of approximately 45 years. Commencing with the first lease year of the lease following the completion of the project (estimated completion is August 2020), the annual rental amount payable to the University under the ground lease will be $0.6 million.

Pursuant to the Dining Facility Sublease dated November 14, 2018 between Provident Commonwealth Educational Resources II Inc., as sub-lessor and the University, as sub-lessee, the Provident Commonwealth Educational Resources II Inc. shall lease the dining facility, located within the residential hall, to the Campus and shall operate the Dining Facility or cause it to be operated.

For purposes of determining the effects of subsequent events on these financial statements, management has evaluated events subsequent to June 30, 2018 and through January 8, 2019, the date on which the financial statements were available to be issued and, determined that there were no matters requiring recognition or disclosure to the accompanying financial statements.

Required Supplementary Information (unaudited)

For the last ten years[1] ($ in thousands)

SCHEDULE OF THE UNIVERSITY'S PROPORTIONATE SHARE OF THE NET PENSION LIABILITY MASSACHUSETTS STATE EMPLOYEES' RETIREMENT SYSTEM

	6/30/2018	6/30/2017	6/30/2016	6/30/2015
University's proportion of the net pension liability	3.56%	3.39%	3.92%	3.49%
University's proportionate share of the net pension liability	$ 420,234	$ 429,871	$ 408,418	$ 237,134
University's covered-employee payroll	$1,168,661	$1,156,082	$1,139,719	$1,061,132
University's proportionate share of the net pension liability as a percentage of its covered-employee payroll	35.96%	37.18%	35.83%	22.35%
Plan fiduciary net position as a percentage of total pension liability	67.21%	63.48%	67.87%	76.32%

SCHEDULE OF THE UNIVERSITY'S CONTRIBUTIONS MASSACHUSETTS STATE EMPLOYEES' RETIREMENT SYSTEM

	6/30/2018	6/30/2017	6/30/2016	6/30/2015
Contractually required contribution	$28,292	$25,618	$22,386	$22,870
Contributrions in relation to the contractually required contribution	(28,292)	(25,618)	(22,386)	(22,870)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -
University's covered-employee payroll	$1,168,661	$1,156,082	$1,139,719	$1,061,132
Contributions as a percentage of covered-employee payroll	2.42%	2.22%	1.96%	2.16%

SCHEDULE OF THE UNIVERSITY'S PROPORTIONATE SHARE OF THE NET OTHER POSTEMPLOYMENT BENEFITS (OPEB) LIABILITY STATE RETIREES' BENEFIT TRUST

	6/30/2018
University's proportion of the net OPEB	4.13%
University's proportionate share of the net OPEB	$ 817,357
University's covered-employee payroll	$1,168,661
University's proportionate share of the net OPEB as a percentage of its covered-employee payroll	69.94%
Plan fiduciary net position as a percentage of total OPEB liability	4.80%

SCHEDULE OF THE UNIVERSITY'S CONTRIBUTIONS STATE RETIREES' BENEFIT TRUST

	6/30/2018
Contractually required contribution	$21,421
Contributrions in relation to the contractually required contribution	(21,421)
Contribution deficiency (excess)	$ -
University's covered-employee payroll	$1,168,661
Contributions as a percentage of covered-employee payroll	1.83%

1 Until a full ten year trend is compiled, the University is presenting only information for the years for which information is available.

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APPENDIX D

SUMMARY OF LEGAL DOCUMENTS

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SUMMARY OF CERTAIN PROVISIONS OF THE PROJECT TRUST AGREEMENT

The pledge and assignment made by the Authority in the Project Trust Agreement secures only bonds issued under the Project Trust Agreement and not bonds issued under any other Project Trust Agreement.

The following is a summary of certain provisions of the Project Trust Agreement. Such summary does not purport to be complete, and reference is made to the Project Trust Agreement for a complete statement of its provisions.

Definitions

Capitalized words or terms used in this Summary of Certain Provisions of the Project Trust Agreement and not defined shall have the meaning given to the applicable word or term elsewhere in this Official Statement.

"Account" shall mean any account created pursuant to the Agreement.

"Accreted Amount" shall mean, as of the date of computation and with respect to any Capital Appreciation Bond, the original principal amount of such Capital Appreciation Bond upon the initial issuance of the Series of Bonds of which such Bond is a part plus the interest accrued on such Bond compounded as provided in the applicable Series Resolution.

"Agreement," "Trust Agreement" or *"Project Trust Agreement"* shall mean the Trust Agreement dated as of November 1, 2000 between the Authority and State Street Bank and Trust Company, as Trustee (which has been succeeded as Trustee by U.S. Bank National Association), and each agreement supplemental thereto.

"Annual Series Requirement" as applied to a Series of Guaranteed Bonds shall mean one-twelfth of the largest amount of Principal and Interest Payments due on account of the Outstanding Guaranteed Bonds of such Series of Bonds in any calendar year after the calendar year in which such Series of Guaranteed Bonds was issued.

"Appropriations" shall mean amounts made available for expenditure by the University Trustees pursuant to appropriations or other spending authorizations in the Commonwealth's annual operating budgets, including without limitation supplementary and deficiency budgets and any tuition retention authorization, and amounts otherwise available for expenditure by the University Trustees.

"Architect" as applied to a Project shall mean the person or firm, if any, employed by the Authority as architect for such Project.

"Authorized Officer" shall mean the Chairman, Vice Chairman, Secretary-Treasurer, Assistant Secretary-Treasurer or Executive Director of the Authority or any other person so designated by resolution of the Authority.

"Bond" or *"Bonds"* shall mean any bond or bonds or all bonds, as the case may be, issued under the Agreement and authorized by a Series Resolution.

"*Business Day*" shall mean any day other than a Saturday, Sunday or day on which the New York Stock Exchange or banking institutions are authorized or required by law or executive order to be closed for commercial banking purposes in New York or Massachusetts, or in any city in which is located the designated corporate trust office of the Trustee.

"*Capital Appreciation Bond*" shall mean any Bond so identified in the Series Resolution applicable thereto and on which interest is compounded and is payable only at maturity or upon earlier redemption of such Bond.

"*Code*" shall mean the Internal Revenue Code of 1986, as amended. References to provisions of the Code include applicable successor provisions of the Code or applicable successor provisions of any recodification of the internal revenue laws of the United States.

"Commonwealth" shall mean The Commonwealth of Massachusetts.

"Commonwealth Guaranty" shall mean the guaranty by the Commonwealth pursuant to the Enabling Act of the payment of principal of and interest on Bonds so guaranteed. "Commonwealth Guaranty" shall not include a Credit Facility.

"Contract" shall mean the Second Amended and Restated Master Contract for Financial Assistance, Management and Services dated as of May 1, 2019 by and among the Authority, the University and the Commonwealth, as such Contract may be supplemented from time to time to make additional Projects and Authority bonds or notes subject to the terms thereof.

"Cost of the Project" as applied to a Project shall mean and include, without intending hereby to limit or restrict any definition of such term under the Enabling Act (as in effect on the date of the Agreement and as it may be amended from time to time), the cost, whenever incurred, of carrying out the Project and placing it in operation, including, but not limited to, the cost of construction of new buildings or structures and the cost of acquiring, adding to, altering, enlarging, leasing, reconstructing, remodeling and doing other work in or upon or respecting existing buildings and structures, if any, included in the Project, the cost of providing and installing in or in respect of any such building or structure furniture, furnishings, machinery, equipment, facilities, approaches, driveways, walkways, parking areas, planting and landscaping, the cost of leasing or otherwise acquiring land, other property, rights, easements and interests acquired for or in respect to any of the foregoing, the cost of demolishing or removing any buildings or structures on land so acquired or interests in which are so acquired and the cost of site preparation; the cost of architectural and engineering services, plans, specifications, surveys, estimates of cost and of revenues; other expenses necessary or incident to determining the feasibility or practicability of the Project; administrative expense, legal expense and such other expenses, including, but not limited to, the fees and expenses (including reasonable attorneys' fees and expenses) of the Trustee, fees and expenses of financial advisers and other experts, printing and advertising costs and the like, taxes and other governmental charges lawfully levied or assessed, the cost of preliminary architectural and engineering services, plans, specifications, surveys, estimates of cost and revenues, other expenses necessary or incident to determine the feasibility or practicability of other projects for which written requests shall have been made by authority of the University Trustees and premiums for policies of insurance, fidelity bonds and the like covering property and risks of and related to the Project, as may be necessary or incident

to the aforesaid, to the financing or refinancing thereof and to the issuance therefor of notes or Bonds or both under the provisions of the Enabling Act and interest for such period as the Authority may deem advisable but ending not later than eighteen months after the University Trustees shall have accepted the project for occupancy on money borrowed to pay all or part of the Cost of the Project.

"Counsel" shall mean an attorney or firm of attorneys admitted to practice law in the highest court of any state in the United States of America or in the District of Columbia.

"Counsel's Opinion" shall mean an opinion signed by an attorney or firm of attorneys (who may be general or special counsel to the Authority or bond counsel to the Authority) selected by the Authority and satisfactory to the Trustee.

"Credit Facility" shall mean any instrument, including without limitation a letter of credit, guaranty, standby loan commitment, insurance policy or surety bond, or any combination thereof, under which the Authority or the Trustee is entitled to receive moneys for the payment of one or more of principal of, Redemption Price of and interest on any Bond, fees and expenses of the Trustee, amounts payable from any reserve fund established pursuant to the Agreement, amounts for the replenishment of any reserve fund established pursuant to the Agreement, the purchase price of Bonds tendered pursuant to the applicable Series Resolution and any other amounts which the Authority or the Trustee is entitled to receive under such instrument. "Credit Facility" shall not include the Commonwealth Guaranty or Derivatives.

"Current Expenses" as applied to a Project shall mean and include (a) the fees and expenses (including reasonable attorneys′ fees and expenses) of the Trustee under the Agreement and of any escrow or like agent appointed by the Authority with respect to the payment of bonds or Bonds issued to finance the Project or to refund any bonds or Bonds issued for such purpose or for the purpose of refunding other refunding bonds or Bonds related to such Project, exclusive of such fees and expenses as are included in the Cost of the Project; (b) the rent, not included in the Cost of the Project, payable by the Authority under any lease of property included in the Project, as such lease may be amended or extended; (c) premiums (or accruals on account thereof), not included in the Cost of the Project, for policies of insurance maintained in force by the Authority with respect to the Project (or a proportionate part of such premiums in the event that a single policy or policies of insurance shall cover property or risks pertaining to more than one Project (or shall include one or more Other Projects) of the Authority); and (d) that portion of the general operating and administrative expenses of the Authority as the Authority shall deem properly allocable to the Project, which general operating and administrative expenses shall include, without limiting the generality of the foregoing, any amount required to be rebated by the Authority (or by any other entity with respect to moneys held by the Authority) to the United States of America by the Code or other applicable law and not provided by other moneys of the Authority available therefor, legal and other professional expenses of the Authority, expenses incurred under Section 207 of the Agreement and reasonable payments to governmental or other benefit or retirement funds for the benefit of its employees, provided, however, that the total amount which may be so allocated in any year shall not exceed such limitation, if any, as may be imposed by the Contract pertaining to the Project; but such term shall not include (x) Maintenance, Repair and Operating Expenses; (y) any reserves for extraordinary maintenance or repair of the Project or any allowance for depreciation, or (z) any deposits or transfers to the

credit of the special funds created by the Agreement and designated “Debt Service Fund,” “Rate Stabilization Fund,” “Section 10 Reserve Fund” and “Property Fund” or to the credit of any reserve fund created pursuant to the Agreement by a Series Resolution.

“Current Interest Bond” shall mean any Bond other than a Capital Appreciation Bond.

“Debt Service Reserve Fund” shall mean any fund established by a Series Resolution to provide a reserve for the payment of one or more of principal of, Sinking Fund Installments, premium and interest on a Series of Bonds and the purchase price of Bonds of such Series tendered pursuant to the applicable Series Resolution that is not a Section 10 Reserve Fund.

“Debt Service Reserve Requirement” shall mean, with respect to a Debt Service Reserve Fund, the Debt Service Reserve Requirement established for such Debt Service Reserve Fund by the Series Resolution creating such Debt Service Reserve Fund.

“Derivative” shall mean contracts that derive their value from the value, or changes in value, of another financial instrument or index and shall include without limitation (a) interest rate swaps, swaptions, forward swaps, interest rate caps, interest rate floors, options, puts, calls and other contracts to hedge payment, rate spread or similar exposure, (b) forwards and (c) contracts to exchange cash flows or a series of payments. “Derivative” shall not include a Credit Facility.

“Enabling Act” shall mean Chapter 773 of the Acts of 1960 of the Commonwealth, as amended.

“Engineer” as applied to a Project shall mean the person or firm, if any, employed by the Authority as engineer for such Project.

“Expendable Fund Balance” (see Unrestricted Net Assets).

“Facilities Trust Agreement” shall mean the Trust Agreement dated as of December 1, 2000 between the Authority and State Street Bank and Trust Company (which has been succeeded as Trustee by U.S. Bank National Association).

“Favorable Opinion of Bond Counsel” shall mean, with respect to any action relating to the Bonds the occurrence of which requires such an opinion, a written legal opinion of bond counsel to the Authority addressed to the Authority, the Trustee, the Insurer and the Remarketing Agent to the effect that such action is permitted under the applicable Series Resolution and the Trust Agreement and will not jeopardize the exclusion of interest on the Bonds from gross income for federal income tax purposes or the exemption from taxation of the Bonds, their transfer and the income therefrom, including any profit made on the sale thereof, provided by the Enabling Act.

“Fiscal Year” shall mean the twelve-month period beginning on each July 1, or any other twelve-month period designated by the Authority from time to time as its fiscal year.

"Fitch" shall mean Fitch Ratings, Inc., a corporation organized and existing under the laws of the State of Delaware, its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, *"Fitch"* shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority by notice to the Trustee, with the consent of the Insurer.

"Fixed Rate Bond" shall mean a Bond bearing interest at a rate fixed to the stated maturity of such Bond, including any such Bond the interest rate on which has been converted to a rate fixed to the maturity thereof from a rate that is subject to adjustment from time to time.

"Fund" shall mean any Fund created pursuant to the Agreement.

"Guaranteed Bonds" shall mean Bonds that are guaranteed by the Commonwealth Guaranty.

"interest" unless otherwise indicated, shall mean with respect to any Bond (a) the interest on any Current Interest Bond and (b) the interest on any Capital Appreciation Bond, which interest is expressed as the difference between the applicable Accreted Amount on any applicable date and the principal amount of such Capital Appreciation Bond on the date of initial issuance of the Series of Bonds of which such Capital Appreciation Bond is a part.

"interest rate," "rate of interest," "bear interest at the rate" or other like expressions shall mean the rate of interest on any Current Interest Bond and the rate (expressed as a yield to maturity) at which interest accrues on any Capital Appreciation Bond.

"Investment Obligations" shall mean and include any of the following: (a) direct obligations of, or obligations the payment of the principal of and interest on which are unconditionally guaranteed by, the United States of America; (b) obligations of the Federal National Mortgage Association, the Government National Mortgage Association, the Federal Financing Bank, the Federal Intermediate Credit Banks, Federal Banks for Cooperatives, Federal Land Banks, Federal Home Loan Banks, Farmers Home Administration and Federal Home Loan Mortgage Corporation, or of any other agency or corporation which has been or is hereafter created pursuant to an act of the Congress of the United States as an agency or instrumentality thereof; (c) interest-bearing time deposits or certificates of deposit of banking institutions or trust companies (including the Trustee) organized under the laws of any state of the United States or any national banking association, provided that such deposits or certificates shall be continuously and fully (i) insured by the Federal Deposit Insurance Corporation or any successor thereof, or (ii) secured by obligations described in clauses (a) and (b) having a market value, exclusive of accrued interest, at least equal to the aggregate amount of such deposits or certificates; (d) any of the securities described in clauses (a) and (b) which are subject to repurchase agreements with any bank or trust company organized under the laws of any state of the United States or any national banking association; (e) any other investment in which funds of the Authority are permitted from time to time to be invested by the Enabling Act; (f) the Massachusetts Municipal Depository Trust; and (g) any subcategories of any of the investments described in clauses (a), (b), (c), (d), (e) or (f) above that may be required by the issuer of a Credit Facility.

"Maintenance, Repair and Operating Expenses" as applied to a Project or Other Project shall mean and include any reasonable and necessary expenses for services, facilities, supplies, materials and utilities necessary for or incident to the maintenance, repair and operation of the Project or Other Project and the facilities and services provided thereby, billing and collecting fees, rents, rates and other charges for the use of the Project or Other Project or any room or accommodation therein or facility or service provided thereby and keeping books of account with respect to such maintenance, repair and operation. The term may also, if the Contract with respect to a Project or Other Project shall provide for application of Revenues therefrom to pay for the following costs, include the costs incurred in maintaining those activities which, and associations and organizations which, or the activities of which, are a part of the activities at the University and are subject to regulation by the University Trustees and which take place, use or are performed in a building or structure included in such Project or Other Project or are a part of a general program of the University including such activities, associations or organizations which take place, use or are performed in such building or structure. The term shall also include reserves for the foregoing expenses and costs if and to the extent that the Contract in effect with respect to a Project, if any, or a resolution of the Authority with respect to a Project or Other Project provides for such reserves. The term shall not include Current Expenses.

"MDFA Financing Agreements" means those certain financing agreements entered into between the University and the Massachusetts Health and Educational Facilities Authority and its successor, the Massachusetts Development Finance Agency ("HEFA") in connection with the issuance of bonds by HEFA the for the benefit of the University or portions thereof.

"Moody's" shall mean Moody's Investors Service, Inc., a corporation organized and existing under the laws of the State of Delaware, its successors and assigns and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, *"Moody's"* shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority by notice to the Trustee, with the consent of the Insurer.

"Multi-Series Debt Service Reserve Fund" shall have the same meaning as the term Debt Service Reserve Fund, except that a Multi-Series Debt Service Reserve Fund shall secure more than one Series of Bonds (and any one or more of such Series so secured may be issued at different times or under different Series Resolutions from one or more other such Series so secured).

"Multi-Series Debt Service Reserve Requirement" shall mean, with respect to a Multi-Series Debt Service Reserve Fund, the Multi-Series Debt Service Reserve Requirement established for such Multi-Series Debt Service Reserve Fund by the Series Resolution creating such Multi-Series Debt Service Reserve Fund.

"*Non-Guaranteed Bonds*" shall mean Bonds that are not guaranteed by the Commonwealth Guaranty.

"Other Project" shall have the same meaning as the word "Project" except that Other Project shall apply to a project with respect to which a Series of Bonds shall not have been issued under the Agreement.

"Outstanding," when used with reference to Bonds, shall mean, as of any date, Bonds theretofore or thereupon being authenticated and delivered under the Agreement except: (a) any Bonds cancelled by the Trustee or surrendered to the Trustee for cancellation at or prior to such date; (b) Bonds (or portions of Bonds) for the payment or redemption of which moneys, equal to the principal amount or Redemption Price thereof, as the case may be, with interest to the date of maturity or redemption date, shall be held in trust under the Agreement and set aside for such payment or redemption (whether at or prior to the maturity or redemption date), provided that if such Bonds (or portions of Bonds) are to be redeemed, notice of such redemption shall have been given in accordance with the Agreement or provision satisfactory to the Trustee shall have been made for the giving of such notice; (c) Bonds in lieu of or in substitution for which other Bonds shall have been authenticated and delivered pursuant to the Agreement; and (d) Bonds deemed to have been paid as provided in the Agreement.

"Person" shall include associations, corporations and other entities, including public bodies, as well as natural persons.

"Pledged Funds" shall mean one or both of (a) Trust Funds of the University pledged to secure (i) all or a portion of one or more Series of Bonds and (ii) the payment of other amounts specified in the Contract or other document by which such pledge is made as secured by such Trust Funds, and (b) Appropriations pledged to secure (i) all or a portion of one or more Series of Bonds and (ii) the payment of other amounts specified in the Contract or other document by which such pledge is made as secured by such Appropriations.

"principal" and *"principal amount,"* unless otherwise indicated, shall mean with respect to any Bond (a) the principal amount of any Current Interest Bond and (b) the principal amount on the date of initial issuance of the applicable Series of any Capital Appreciation Bond (and after such date of initial issuance the word "principal" and the term "principal amount" shall mean with respect to a Capital Appreciation Bond the portion of the applicable Accreted Amount not constituting interest). Without limiting the generality of the foregoing, when the word "principal" or the term "principal amount" is followed by a reference to the Accreted Amount, the word "principal" or the term "principal amount" shall mean the principal amount of any Current Interest Bond.

"principal" and the term *"principal amount"* shall mean, with respect to any obligation other than a Bond, any amount constituting principal, however expressed, of such obligation.

"Principal and Interest Payments" as applied to a Series of Bonds for a particular time period or as of a particular date shall mean the principal amount of and interest on the Bonds of such Series Outstanding which is due to be paid during such period or on such date, such amount to be determined in accordance with the following when applicable: if the Authority shall by the resolution authorizing the issue of a Series of Bonds authorize the issue of all or any of such Bonds as Term Bonds, such principal amount of Bonds as will be paid or prepaid from a Sinking Fund Installment shall be treated as if it matured on the date such Sinking Fund Installment is required to be made and not on the maturity date of such Bonds.

"Principal Office" or "principal office" shall mean, when used with respect to the Trustee, the principal corporate trust office of the Trustee in Boston, Massachusetts, or, if the

Trustee shall no longer perform its duties under the Trust Agreement at such office, the corporate trust office where at the applicable time the Trustee performs its duties under the Trust Agreement.

"Project" or *"Projects"* shall mean the construction of new buildings or structures and the acquisition, addition to, alteration, enlargement, reconstruction, remodeling and other work in or upon or respecting existing buildings or structures, the provision and installation therein or in respect thereof of furnishings, furniture, machinery, equipment, facilities, approaches, driveways, walkways, parking areas, planting and landscaping, the acquisition of land, other property, rights, easements and interests acquired for or in respect to any thereof, the demolition or removal of any buildings or structures, including buildings or structures owned by the Commonwealth, on land so acquired or interests in which are so acquired and site preparation, with respect to which a Series of Bonds shall be issued under the Agreement. The word shall also mean whenever appropriate such land, buildings or structures and such appurtenances.

"*purchaser"* shall mean the person or persons, one or more, named as the purchaser or purchasers of a Series of Bonds in the Series Resolution and any successors to its or their business. If a named or successor purchaser shall discontinue its business without a successor, the word thereafter shall mean the remaining purchaser or purchasers, whether named or successor.

"Record Date" shall mean, for each Series of Bonds, such date or dates as may be set forth as a Record Date in the applicable Series Resolution.

"Redemption Price" shall mean, (a) with respect to any Current Interest Bond, the principal amount thereof, plus the applicable premium, if any, payable upon redemption thereof pursuant to this Agreement and the applicable Series Resolution, and (b) with respect to any Capital Appreciation Bond, the Accreted Amount thereof on the redemption date, plus the applicable premium, if any, payable upon redemption thereof pursuant to the Agreement and the applicable Series Resolution.

"Registered Owner" shall mean the person shown from time to time as registered owner of a Bond in the books kept by the Trustee as Bond Registrar.

"Revenues" as applied to a Project shall mean (a) all moneys received or receivable by the Authority in payment of fees, rents, rates and other charges for the use and occupancy of, and for the services and facilities provided by, the Project including, without limitation, the moneys which the University Trustees are required to remit to the Authority or the Trustee under a Contract, and all other income derived by the Authority from the operation, ownership or control thereof. The word Revenues shall also include any other revenues or Secondary Revenues pledged as security for the Bonds. The word Revenues shall not include (a) Pledged Funds, (b) any amount paid or payable under the Commonwealth Guaranty or (c) any amount paid or payable under a Credit Facility or a Derivative.

"Secondary Revenues" shall mean all revenues received by the Authority from Other Projects or other property financed by bonds issued by the Authority under the Enabling Act under a trust agreement other than the Agreement which revenues are pledged under such trust

agreement, upon and after the payment in full of all bonds, including refunding bonds, issued under such trust agreement and of all other sums, if any, then payable to the trustee under the provisions of the trust agreement securing such bonds, or upon deposit by the Authority with such trustee of funds or securities sufficient and in trust to pay, or to provide for the payment when due, of such amounts.

"Section 10 Reserve Fund" shall mean the Section 10 Reserve Fund established by the Agreement.

"Section 19C Payments" shall mean any amount required by Section 19C of the Enabling Act to be paid by the Authority to the Treasurer and Receiver-General of the Commonwealth from Revenues.

"Senior Bonds" shall mean all Bonds of each Series that is a Senior Series.

"Senior Series" shall mean any Series designated as a Senior Series in the applicable Series Resolution.

"Series" shall mean the Bonds designated as a Series in a Series Resolution.

"Sinking Fund Installment" shall mean with respect to Bonds of any particular Series and maturity and any payment date on such Bonds, the principal amount thereof required to be redeemed prior to maturity on such payment date pursuant to the provisions of the applicable Series Resolution.

"S&P" shall mean Standard & Poor′s Global Ratings, its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, "S&P" shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority by notice to the Trustee.

"Special Record Date" shall have the meaning set forth in the Agreement.

"Specific Revenue Projects" shall mean such projects as designated by the Authority in the Contract for which specific fees will be set by the Authority.

"*Spendable Cash and Investments*" shall mean, effective May 1, 2019, the sum of University cash and investments less debt service reserve funds, plus University of Massachusetts Foundation, Inc. cash and investments plus pledges receivable reported in permanently restricted net assets, less University permanently restricted net assets, less University of Massachusetts Foundation, Inc. permanently restricted net assets; provided that in the event of future modifications to the University's financial statements that provide for a different presentation of such information, the University may further modify the definition of Spendable Cash and Investments.

"Subordinate Series" shall mean any Series designated as a Subordinate Series in the applicable Series Resolution.

"Term Bonds" shall mean Bonds subject to redemption prior to maturity by application of Sinking Fund Installments.

"Trustee" shall mean the Trustee appointed under the Agreement and its successor or successors.

"Trust Funds" shall mean any funds held by the University Trustees as trust funds under the provision of Section 11 of Chapter 75 of the Massachusetts General Laws and any funds administered by the University Trustees as gifts, grants or trusts under the provisions of clause (e) of the fifth paragraph of Section 1A of Chapter 75 of the Massachusetts General Laws.

"University" shall mean the University of Massachusetts continuing under Chapter 75 of the Massachusetts General Laws.

"University Trustees" shall mean the board of trustees established by and existing under Section 1A of Chapter 75 of the Massachusetts General Laws for the University or, if such board of trustees shall hereafter be abolished, the board, body, commission or other entity succeeding to the principal functions thereof or to which the powers given by said Chapter 75 with respect to the University shall be given by law.

"Unrestricted Net Assets" (previously known as *Expendable Fund Balance)* shall mean the accumulation of excess unrestricted revenues over expenditures with respect to the University for all prior years and for each current year from the unrestricted current fund, the quasi endowment fund, the unexpended unrestricted plant fund and the unrestricted renewal and replacement plant fund (as of May 1, 2019, the term Unrestricted Net Assets shall mean *"Spendable Cash and Investments"*).

"Variable Rate Bond" shall mean a Bond the interest rate on which is subject to adjustment from time to time and shall include but not be limited to a so-called "multi-modal" Bond, i.e. a Bond that provides that the intervals at which the interest rate on such Bond is adjusted may be changed from time to time.

PLEDGE AND ASSIGNMENT OF THE AUTHORITY PURSUANT TO THE AGREEMENT

Pursuant to the Agreement, the Authority assigns and pledges to the Trustee and grants to the Trustee a security interest in:

(a) all rights of the Authority, including such rights under any Contract, to receive all Revenues pledged under the Agreement;

(b) all moneys paid or payable for deposit in or on deposit in any Fund, Account or subaccount created under the Agreement, all investments received or receivable for deposit in or on deposit in any Fund, Account or subaccount created under the Agreement and all interest or other income on such investments paid or payable for deposit in or on deposit in any Fund, Account or subaccount created under the Agreement and all rights of the Authority to receive any such moneys, investments and interest or other income (except that moneys and securities on deposit in the Rebate Fund created under the Agreement and all interest or other income received thereon are held for the benefit of the United States of America and not for the benefit of the Registered Owners and do not secure the Bonds), subject to the application of amounts held in such Funds, Accounts and Subaccounts for the purposes and in the manner set forth in the Agreement;

(c) subject to clause (a) and clause (b) under "Particular Covenants - Payment of Lawful Charges" below, (i) the Revenues from each Project and (ii) the Revenues, including without limitation Secondary Revenues, derived from Other Projects and from such other property of the Authority, if any, as the Authority may hereafter designate by resolution; provided, however, that the assignment and pledge made by the Agreement of and the security interest granted by the Agreement in such Revenues from each Project and such Revenues, including Secondary Revenues, derived from Other Projects does not include any part thereof to be used for Current Expenses or reserves therefor, Maintenance, Repair and Operating Expenses or reserves therefor or Section 19C Payments or reserves therefor; and provided further that the assignment and pledge of and security interest in any such Secondary Revenues shall be, first, for (A) the reimbursement to the Commonwealth of any amounts theretofore paid by the Commonwealth on account of principal of or interest on any Guaranteed Bonds or other bonds of the Authority guaranteed by the Commonwealth under Section 10 of the Enabling Act and (B), if and only if the Commonwealth has made no such payments or has been reimbursed therefor, to the payment of the principal, interest and premium, if any, at maturity or upon redemption or purchase, for (1) all Bonds issued under the Agreement, or (2) all bonds of the Authority issued other than under the Agreement or (3) all such Bonds and bonds of the Authority, as the Authority may determine, at the time any Revenues from an Other Project become Secondary Revenues, by resolution approved by the University Trustees with a view to achieving reasonable uniformity in charges for like rooms, accommodations and services at the University, to the extent provided in the Agreement; and

(d) (i) all Pledged Funds paid or payable and all rights of the Authority to receive such Pledged Funds, (ii) all amounts paid or payable under the Commonwealth Guaranty with respect to Guaranteed Bonds and all rights of the Authority to receive such amounts, (iii) all amounts paid or payable under any Credit Facility and all rights of the Authority to receive such amounts and (iv) all amounts paid or payable under any Derivative and all rights of the Authority to receive such amounts.

The assignment and pledge made by the Agreement and the security interest granted by the Agreement shall be for the equal and proportionate benefit and security of all the present and future Registered Owners of the Bonds issued and to be issued under the Agreement, without preference, priority or distinction as to lien or otherwise, except as otherwise provided in the Agreement, of any one Bond over any other Bond, and that the Revenues, including any Secondary Revenues, pledged as security for the Bonds shall immediately be subject to the lien of such pledge for the benefit of the Trustee and the Registered Owners of the Outstanding Bonds as provided in the Agreement without any physical delivery thereof to the Trustee or any further act.

BONDS PERMITTED TO BE ISSUED UNDER THE AGREEMENT; VARIOUS PROVISIONS OF BONDS

(a) Any bonds the Authority is authorized by the Enabling Act to issue may be issued under the Agreement. The Bonds of each Series may be Fixed Rate Bonds or Variable Rate Bonds, as set forth in the applicable Series Resolution.

(b) As provided in the applicable Series Resolution:

(i) Bonds may be issued as Guaranteed Bonds or Non-Guaranteed Bonds, but Guaranteed Bonds and Non-Guaranteed Bonds shall not be issued as part of the same Series;

(ii) some or all of the Bonds of a Series may be secured by one or more Credit Facilities, and any such Credit Facility may be replaced;

(iii) Bonds may be issued as Current Interest Bonds or Capital Appreciation Bonds, and a Series of Bonds may combine both Current Interest Bonds and Capital Appreciation Bonds;

(iv) a Series of Bonds may be (A) a Senior Series, which Senior Series shall not be subordinate to any other Series and shall be issued on a parity with each other, if any Senior Series previously, contemporaneously or subsequently issued, or (B) a Subordinate Series;

(v) a Subordinate Series shall be subordinate to all Senior Series, may be of any level of subordination to other Subordinate Series previously, contemporaneously or subsequently issued and shall be on a parity with each other, if any, Subordinate Series of the same level previously, contemporaneously or subsequently issued; a Subordinate Series shall bear as part of its designation (in the form provided in the Agreement) whichever of the following is applicable: (A) "Subordinate Series Level 2," which Subordinate Series shall be (1) subordinate to each other, if any, Senior Series previously, contemporaneously or subsequently issued, (2) on a parity with each, if any, Subordinate Series Level 2 previously, contemporaneously or subsequently issued and (3) superior to each other, if any, Subordinate Series of a lower level previously, contemporaneously or subsequently issued, (B) "Subordinate Series Level 3," which Subordinate Series shall be (1) subordinate to each other, if any, Senior Series and Subordinate Series Level 2 previously, contemporaneously or subsequently issued, (2) on a parity with each other, if any, Subordinate Series Level 3 previously, contemporaneously or subsequently issued and (3) superior to each other, if any, Subordinate Series of a lower level previously, contemporaneously or subsequently issued or (C) "Subordinate Series Level 4" or "Subordinate Series Level 5" and so on in ascending numerical order depending on the level or subordination of such Subordinate Series, and each such Subordinate Series shall be subordinate to, on a parity with and superior to other Series depending on its level of subordination in accordance with the pattern described in (A) and (B) above;

(vi) a Subordinate Series may be any level of subordination, and a Subordinate Series of a given level may be issued after or before one or more Series of higher levels of subordination or one or more Senior Series are issued (and it is not necessary that any such Series of any higher level of subordination or any Senior Series shall ever be issued), but any such Subordinate Series shall not be subordinate to any Series but each Senior Series and each Subordinate Series of a higher level of subordination previously, contemporaneously or subsequently issued, (e.g., a Subordinate Series Level 4 may be issued after or before the issuance of a Senior Series or any or all of a Subordinate Series Level 2, Level 3 or Level 5, but a Subordinate Series Level 4 shall not be subordinated to any Series except Senior Series and Subordinate Series Level 2 and Subordinate Series Level 3);

(vii) the interest on a Series of Bonds may be excludable from or includable in gross income for federal income tax purposes;

(viii) a Series of Bonds may be secured by a Debt Service Reserve Fund or a Multi-Series Debt Service Reserve Fund, and all Guaranteed Bonds shall be secured by the Section 10 Reserve Fund as provided in the Agreement or by whatever reserve fund may be required by the Enabling Act as in existence at the time of the issuance of the applicable Series of Guaranteed Bonds; provided, that if at the time a Series of Guaranteed Bonds is issued under the Agreement the Enabling Act does not require any reserve fund for such Series, such Series shall not be required to be (but may be) secured by a reserve fund;

(ix) a Series of Bonds may be secured by Pledged Funds;

(x) the Authority may enter into one or more Derivatives with respect to a Series of Bonds in connection with the initial issuance thereof; provided, however, that the Authority may also enter into Derivatives with respect to a Series of Bonds after the initial issuance thereof if bond counsel to the Authority delivers an opinion to the effect that such action is permitted by the Enabling Act, would not adversely affect the interest of any Registered Owner and would not adversely affect the exclusion of the interest on the Bonds from gross income for federal income tax purposes; and

(xi) more than one Series of Bonds may be issued under a single Series Resolution,

(c) With respect to the Series of Bonds on a parity with each other:

If on any date one or more of principal, Sinking Fund Installments and interest are due on such Series of Bonds moneys in the applicable subaccount in the Interest Account, the Principal Account or the Sinking Fund Account are insufficient to pay any such amount in full, taking account of any amounts deposited in any such subaccount from the Property Fund or the Optional Redemption Account as permitted by the Agreement, but without regard to any amount drawn from any Debt Service Reserve Fund, Multi-Series Debt Service Reserve Fund or Section 10 Reserve Fund to pay all or a portion of such deficiency or any amount drawn under a Credit Facility to pay all or a portion of such deficiency, moneys in any such subaccount in which a deficiency exists shall be applied to the applicable amount due from such subaccount pro rata, without regard to any amounts to be applied to such deficiency with respect to one or more such Series from any Debt Service Reserve Fund, Multi-Series Debt Service Reserve Fund, Section 10 Reserve Fund or Credit Facility; provided, however, that (a) any deficiency in any such subaccount resulting from any amount due under a Derivative not being paid in full when due shall be allocated only to the payment due on the Series of Bonds to which such Derivative pertains and shall not cause a deficiency in the payment due on any other Series of Bonds, (b) any moneys that would have been applied in accordance with such pro rata application to any Bonds secured by a direct pay Credit Facility that in fact pays all principal of, Sinking Fund Installments and interest then due on such Bonds shall be applied to reimburse the issuer of such direct pay Credit Facility for (but not in excess of) the amount paid thereunder and (c) any moneys that would have been applied in accordance with such pro rata application to Bonds with respect to which all or a portion of the principal, Sinking Fund Installments or interest due on such Bonds was paid pursuant to a Derivative shall be applied pro rata to the payment of (i) any amount due from or on account of the Authority pursuant to such Derivative for any such payment of principal, Sinking Fund Installment or interest and (ii) the principal, Sinking Fund Installments or interest on such Bonds not paid pursuant to such Derivative.

(d) Each Guaranteed Bond shall have the Commonwealth Guaranty endorsed thereon in the form set forth in the applicable Series Resolution and duly executed by the manual or facsimile signature of an officer of the University Trustees and shall be entitled to the benefit of the pledge by the Commonwealth of its full faith and credit for its guaranty of the payment of the principal of and interest on such Bonds as the same become due and payable.

(e) As to any Bond, the Registered Owner thereof shall be deemed and regarded as the absolute owner thereof for all purposes and, except as otherwise provided by law, no one of the Authority, the Trustee or the Bond registrar shall be affected by any notice to the contrary. Payment of or on account of the principal or Redemption Price of and interest on any Bond shall be made only to or upon the order of the Registered Owner, registered assigns or the legal representative of the Registered Owner. All such payments shall be valid and effectual to satisfy and discharge the liability upon such Bond including the interest thereon to the extent of the sum or sums so paid.

(f) All Bonds paid, redeemed or purchased, either at or before maturity, shall be delivered to the Trustee when such payment, redemption or purchase is made, and such Bonds shall thereupon be cancelled. All Bonds cancelled under any of the provisions of the Agreement shall be held by the Trustee until the Agreement shall be discharged; provided, however, that Bonds so cancelled may at any time be destroyed by the Trustee, if the Trustee shall execute a certificate of destruction in duplicate describing the Bonds so destroyed, and one executed certificate shall be filed with the Executive Director of the Authority and the other executed certificate shall be retained by the Trustee.

REDEMPTION OF BONDS

Redemption of Bonds of any Series

If and to the extent that the Authority shall so provide in a Series Resolution, the Bonds of any Series authorized thereunder may be made redeemable, by application of Sinking Fund Installments or otherwise, at the option of the Authority, prior to their respective maturities either in whole or in part, on any date or dates as may be fixed in such Series Resolution, from any moneys that may be made available for such purpose, at the Redemption Price or Redemption Prices fixed by the Authority in such Series Resolution, together with the interest accrued thereon to the date fixed for redemption.

No optional redemption of less than all of the Outstanding Bonds may be made unless all interest accrued on all Outstanding Bonds to the redemption date shall have been paid or set aside for payment.

If the moneys made available from time to time for the purpose of redeeming Bonds (other than by Sinking Fund Installments) are not sufficient to redeem all of the Outstanding Bonds at the Redemption Prices then in effect, they shall be applied to Bonds of such Series, maturity and tenor as the Authority, in its discretion, may select, unless otherwise provided in any Series Resolution. If less than all the Bonds of a particular Series, maturity and tenor are to be redeemed, the particular Bonds and portions of Bonds of such Series, maturity and tenor to be redeemed shall be selected at random by the Trustee in such manner as the Trustee in its discretion may determine; provided, however, that any Bond may be redeemed in a principal amount equal to the minimum denomination in which it may be issued under the applicable Series Resolution or any integral multiple thereof and that, in selecting Bonds for redemption, the Trustee shall treat each Bond as representing that number of Bonds which is obtained by dividing the principal amount of each Bond by such minimum denomination.

Redemption Notice

The Trustee shall give notice of the redemption of any Bonds, specifying the date of redemption, the portions of the principal amounts thereof to be redeemed, the Redemption Price and any other matters specified in the applicable Series Resolution, by mailing, postage prepaid, not more than such number of days nor less than such number of days prior to the redemption date as shall be set forth in the applicable Series Resolution, copies thereof to the Registered Owners of any Bonds, or portions thereof, to be redeemed and to such other persons and at such times as may be set forth in the applicable Series Resolution; provided, however, that failure of any Registered Owner to receive such notice so mailed to such Registered Owner or any defect therein shall not affect the validity of proceedings for the redemption of any Bonds, and failure to mail such notice to any Registered Owner entitled thereto shall not affect the validity of the proceedings for the redemption of any Bonds as to which no such failure occurred. In case any Bond is to be redeemed in part only, the notice of redemption which relates to such Bond shall state also that on or after the redemption date, upon surrender of such Bond, a Bond or Bonds in aggregate principal amount equal to the unredeemed portion of such Bond will be issued described below under "Partial Redemptions."

Effect of Calling for Redemption

Notice having been given in the manner and under the conditions described above under "Redemption Notice," the Bonds or portions of Bonds so called for redemption shall, on the redemption date designated in such notice, become and be due and payable at the Redemption Price of such Bonds or portions of Bonds on such date. On the date so designated for redemption, notice having been given and moneys for payment of the Redemption Price of and interest accrued to the date of redemption on the Bonds so called for redemption being available therefor, interest on such Bonds shall cease to accrue, such Bonds or portions of Bonds shall cease to be entitled to any lien, benefit or security under the Agreement and the Registered Owners of such Bonds or portions of Bonds shall have no rights in respect thereof except to receive payment of the Redemption Price thereof upon presentation and surrender of the same and interest accrued thereon to the date of redemption and, to the extent described above in "Redemption Notice," to receive Bonds for any unredeemed portions of Bonds.

Partial Redemptions

In case part but not all of an Outstanding Bond shall be selected for redemption, the Registered Owner thereof or the attorney or legal representative of such Registered Owner shall present and surrender such Bond to the Trustee for payment of the Redemption Price of the principal amount thereof so called for redemption, and the Authority shall execute (and, if any such Bond is a Guaranteed Bond cause the guaranty of the Commonwealth to be endorsed on) and the Trustee shall authenticate and deliver to or upon the order of such Registered Owner or the attorney or legal representative of such Registered Owner, without charge therefor, for the unredeemed portion of the principal amount of the Bond so surrendered, a Bond or Bonds aggregating in principal amount said unredeemed portion.

ESTABLISHMENT AND APPLICATION OF FUNDS AND ACCOUNTS

Funds and Accounts

The Agreement establishes the following Funds, Accounts and subaccounts to be held by the Trustee:

(1) Note Payment Fund

(2) Construction Fund

(3) Preliminary Expense Fund

(4) Revenue Fund

(5) Debt Service Fund Interest Account:

Interest Account (and within the Interest Account a single subaccount with respect to all Senior Bonds, and if and when the first Subordinate Series of a given level is issued, a single subaccount with respect to all Bonds of any Subordinate Series of such level)

Principal Account (and within the Principal Account a single subaccount with respect to all Senior Bonds, and if and when the first Subordinate Series of a given level is issued, a single subaccount with respect to all Bonds of any Subordinate Series of such level)

Sinking Fund Account (and within the Sinking Fund Account a single subaccount with respect to all Senior Bonds, and if and when the first Subordinate Series of a given level is issued, a single subaccount with respect to all Bonds of any Subordinate Series of such level)

Optional Redemption Account

(6) Section 10 Reserve Fund

(7) Property Fund:

General Account

Insurance Proceeds Account

Capital Improvements Reserve Account (and within the Capital Improvements Reserve Account a separate subaccount for each Project or each group of Projects with respect to which the Authority by certificate of an Authorized Officer directs from time to time that a separate subaccount be established within the Capital Improvements Reserve Account)

Multi-Purpose Reserve Account

(8) Rate Stabilization Fund

(9) Rebate Fund

Other Funds, Accounts and subaccounts (including without limitation Accounts within the Funds established under the Agreement as set forth in the preceding paragraph and subaccounts within the Accounts established under the Agreement as set forth in the preceding paragraph) may from time to time be established under the Agreement as directed by a Series Resolution or other resolution of the Authority, and moneys shall be deposited in and disbursed from such Funds, Accounts and Subaccounts as provided in such Series Resolution or other resolution.

Without limiting the generality of the previous paragraph, a Series Resolution under which is issued one or more Series of Bonds subject to tender for purchase may establish an Account (a "Purchase Account") for each such Series into which moneys (which moneys may but need not include moneys in the Revenue Fund) shall be deposited as provided in such Series Resolution to be applied to the payment of the purchase price of Bonds of the applicable Series tendered as provided in the Series Resolution.

If a Series Resolution so provides, moneys (which moneys may but need not include Revenues) may be deposited in a Purchase Account prior to being deposited in the Revenue Fund or, if already on deposit in the Revenue Fund, prior to being deposited in the Debt Service Fund or in other Funds and Accounts as described below in "Revenue Fund." Moneys in a Purchase Account representing amounts received under a Credit Facility or under a Derivative or the proceeds of the remarketing of Bonds tendered for purchase as provided in the applicable Series Resolution shall be applied to pay the purchase price only of Bonds of the Series to which the applicable Purchase Account pertains. Other moneys in a Purchase Account shall be applied as follows: if, on any date on which such moneys in a Purchase Account are to be applied to pay the purchase price of Bonds of the Series to which such Purchase Account obtains, any one or more other Purchase Accounts pertaining to Bonds of the same level (e.g., Senior Series, Subordinate Series Level 2) does not contain sufficient moneys to pay the purchase price due on such date of Bonds to which such one or more other Purchase Accounts pertain, such moneys in all Purchase Accounts pertaining to Bonds of the same level shall be applied pro rata to the payment of the purchase price of such Bonds due on such date. In addition, if and to the extent permitted by the applicable Series Resolution, moneys in any Purchase Account may be applied to reimburse the issuer of a Credit Facility for amounts received by the Trustee pursuant to such Credit Facility to be applied to the payment of the purchase price upon tender as provided in the applicable Series Resolution of Bonds for which such Purchase Account was established or to pay any amount due from or on account of the Authority under a Derivative for payments made pursuant to such Derivative for the payment of the purchase price upon tender as provided in the applicable Series Resolution of Bonds for which such Purchase Account was established.

Note Payment Fund

For each Series of Bonds the proceeds of which are to be applied in whole or in part to the payment of notes of the Authority, deposits to the credit of the Note Payment Fund shall be made as required by the provisions of the applicable Series Resolution. Monies so deposited in the Note Payment Fund shall be held by the Trustee in trust and shall be applied to the payment of the notes referred to in the Series Resolution and, pending such application, shall be subject to a lien and charge in favor of the holders of the Bonds Outstanding under the Agreement until paid out or transferred as provided in the Agreement. Upon payment in full of such notes, the

Trustee shall withdraw any excess monies then on deposit in the Note Payment Fund and deposit or disburse the same as provided in the applicable Series Resolution.

Construction Fund

For each Series of Bonds the proceeds of which are to be applied in whole or in part to the Cost of a Project (or for moneys held under any other trust agreement entered into by the Authority to be applied to the Cost of a Project) there may be established within the Construction Fund a separate Account for each such Project (or for two or more or all of such Projects) to the credit of which such deposits shall be made as are required by the provisions of the applicable Series Resolution or other resolution of the Authority or as designated in a certificate of an Authorized Officer. Any moneys received, other than as Revenues, from any other source, including but not limited to all grants and loans received from the federal government or any agency thereof for or in aid of the planning, construction or financing of any such Project and all contributions of money, property, labor or other things of value available under the terms of any such grant or contribution, for the carrying out of such Project may also be deposited to the credit of the appropriate Account within the Construction Fund (or a subaccount therein) or otherwise be held in trust and be disbursed and applied, all as the Authority may determine.

The moneys in each such Account within the Construction Fund shall be held by the Trustee in trust and shall be applied to the payment of the Cost of the Project and, pending such application, shall be subject to a lien and charge in favor of the Registered Owners of the Outstanding Bonds of the Series the proceeds of which are on deposit in such Account until paid out or transferred as provided in the Agreement. The Agreement contains various requirements for disbursement of moneys from Accounts or subaccounts within the Construction Fund, including without limitation requisitions containing certifications with respect to the use of such moneys in accordance with applicable requirements of the Code.

The Trustee shall upon receipt of written instructions from an Authorized Officer (which instructions and any prior modification thereof may be modified from time to time by further written instructions of an Authorized Officer delivered to the Trustee) and without requisition from the Authority or other further authority than is contained herein, on such date or dates as may be specified in the most recent such instructions delivered by such Authorized Officer, withdraw from any Account within the Construction Fund such amounts as may therein be specified to be withdrawn on the applicable date for payment of interest on the Bonds then Outstanding and shall deposit such amount to the credit of the applicable subaccount in the Interest Account.

Preliminary Expense Fund

For each Series of Bonds from the proceeds of which an amount is specified in the Series Resolution authorizing such Series of Bonds to be applied to the cost of architectural and engineering services, plans, specifications, surveys, estimates of cost and of revenues and other expenses necessary or incident to determine the feasibility or practicability of projects for which written requests shall have been made by authority of the University Trustees, the amount so specified shall be deposited to the credit of the Preliminary Expense Fund. The moneys in the Preliminary Expense Fund shall be held by the Trustee in trust and, pending the application thereof, shall be subject to a lien and charge in favor of the Registered Owners of the Bonds from the proceeds of which such deposits were made until paid out or transferred as provided in the Agreement.

Upon receipt of a certificate of an Authorized Officer directing that all or a portion of the moneys in the Preliminary Expense Fund be transferred to any Account or Accounts with the Construction Fund, accompanied by an opinion of bond counsel to the Authority to the effect that such transfer is permitted by the Enabling Act and will not adversely affect the exclusion of interest on the Bonds from gross income for federal income tax purposes, the Trustee shall withdraw moneys then on deposit to the credit of the Preliminary Expense Fund in the amounts specified in such certificate and deposit the same to the credit of the appropriate Account or Accounts within the Construction Fund in the amount or amounts specified in such certificate.

Upon receipt of a certificate of an Authorized Officer stating that all or a portion of the moneys in the Preliminary Expense Fund are not needed either for the purposes specified in the first paragraph under "Preliminary Expense Fund" or for transfer to any Account or Accounts within the Construction Fund and directing the withdrawal of such moneys from the Preliminary Expense Fund for the payment or deposit for or other application to the purposes specified in such certificate, and upon receipt of an opinion of bond counsel to the Authority to the effect that the application of the moneys to be withdrawn to the purposes set forth in such certificate is permitted by the Enabling Act and will not adversely affect the exclusion of interest on the Bonds from gross income for federal income tax purposes, the Trustee shall withdraw from then the Preliminary Expense Fund the amount specified in such certificate and pay, deposit or apply the same as specified in such certificate.

Completion of a Project

When the construction of a Project the Cost of which shall have been paid in part or in whole from the proceeds of Bonds shall have been completed, or when for any other reason amounts on deposit in a particular Account within the Construction Fund are no longer needed to pay for the Cost of one or more Projects for which it was established, written notice thereof shall be promptly given to the Trustee by a certificate of an Authorized Officer. Any such notice with respect to the completion of a Project shall state the date of completion of the Project, the cost of the Project and the amount, if any, to be reserved for the payment of any remaining part of the Cost of the Project and the Cost of other Projects to be paid from such Account, and shall be accompanied by a Counsel's Opinion to the effect that there are no uncancelled mechanics', laborers', contractors' or materialmen's liens on any property pertaining to the Project in existence or on file in any public office where the same should be filed in order to be valid liens against any part of such property, and that, in the opinion of the signer, the time within which such liens can be created or filed has expired.

Upon receipt of such notice and, if applicable, such Counsel's Opinion, the balance in the applicable Account within the Construction Fund, not reserved by the Authority for the payment of any remaining part of the Cost of the Project or Projects, shall be withdrawn by the Trustee and applied or deposited as follows: (a) at the Authority's request, as set forth in such certificate, deposited in the amount set forth in such certificate to the credit of any other Account or Accounts existing within the Construction Fund for one or more Projects (including such an

Account established simultaneously with the giving of such notice) which the applicable Series of Bonds was issued to finance, if the Authority shall by a certificate of an Authorized Officer certify that the amounts then on deposit in such other Account or Accounts are not sufficient to pay in full the projected costs of the applicable Project or Projects and if such certificate is accompanied by an opinion of bond counsel to the Authority to the effect that such deposit of such moneys is permitted by the Enabling Act and will not adversely affect the exclusion of the interest on the Bonds from gross income for federal income tax purposes; (b) deposited or applied in the amounts and for the purposes as otherwise set forth in such certificate, provided that such certificate is accompanied by an opinion of bond counsel to the Authority to the effect that the deposit or application of such moneys as provided in such certificate is permitted by the Enabling Act and will not adversely affect the exclusion of the interest on the Bonds from gross income for federal income tax purposes and (c) so much thereof as is not deposited pursuant to (a) or (b) shall be deposited to the credit of the Optional Redemption Account.

Revenue Fund

All Revenues received by the Trustee shall be deposited in the Revenue Fund immediately upon receipt by the Trustee; provided, however, that Revenues designated in writing by an Authorized Officer to be applied to Current Expenses, Maintenance, Repair and Operating Expenses or Section 19C Payments may be deposited in any account of the Authority designated in writing by such Authorized Officer. The moneys in the Revenue Fund shall be held by the Trustee in trust and applied as provided below and, pending such application, so much thereof as is not held for Current Expenses or reserves therefor, Maintenance, Repair and Operating Expenses or reserves therefor or Section 19C Payments or reserves therefor shall be subject to a lien and charge in favor of the Registered Owners of the Bonds issued and Outstanding under the Agreement.

Payments from the Revenue Fund shall be made at any time for Current Expenses, Maintenance, Repair and Operating Expenses or Section 19C Payments pursuant to requisitions as provided in the Agreement.

On the fifteenth day of each month (or if such fifteenth day is not a business day, on the next succeeding business day), and again on the last business day of each month preceding an Interest Payment Date, and on each other date provided in any Series Resolution, the Trustee shall withdraw from the Revenue Fund all moneys held for the credit of the Revenue Fund on the day of such withdrawal in excess of the amount required on the date of such withdrawal as a reserve for Current Expenses, Maintenance, Repair and Operating Expenses and Section 19C Payments. The amount so required as a reserve for Current Expenses, Maintenance, Repair and Operating Expenses and Section 19C Payments shall be as directed by the Authority but not more than the excess of (a) the amount stated in the then current Annual Schedule for such Current Expenses, Maintenance, Repair and Operating Expenses and Section 19C Payments filed by the Authority with the Trustee as described below in "Particular Covenants - Annual Schedule of Projected Expenses," over (b) the aggregate of the payments made by the Trustee from the Revenue Fund on account of such amounts during the period commencing with the July 1 next preceding the applicable withdrawal pursuant to the preceding sentence and ending with the last day of the month preceding such withdrawal.

The Trustee shall deposit the moneys withdrawn from the Revenue Fund as aforesaid to the credit of the Accounts and Funds as follows:

First, with respect to the Senior Bonds, in the following order of priority:

(a) to the credit of the subaccount established for Senior Bonds in the Interest Account in the Debt Service Fund so much, or the whole if required, of the moneys so withdrawn from the Revenue Fund, until the amount on deposit in the such subaccount, plus any amount to be withdrawn from any Construction Fund as described above in the last paragraph in "Construction Fund" and deposited in such subaccount to be applied to the payment of interest due on any Series of Senior Bonds on the next following Interest Payment Date, shall equal (i) the interest payable on such Interest Payment Date on all Senior Bonds then Outstanding and (ii) the aggregate of all other amounts, if any, required to be on deposit in such subaccount on such Interest Payment Date by each Series Resolution containing such a requirement applicable to Outstanding Senior Bonds; provided, however, that no deposit need be made to the credit of such subaccount with respect to any amount of such interest payable pursuant to a Derivative;

(b) to the credit of the subaccount established for Senior Bonds in the Principal Account in the Debt Service Fund so much, or the whole if required, of the balance of the moneys so withdrawn from the Revenue Fund until the amount on deposit in such subaccount, (A) if the withdrawal is made during a six-month period next preceding a November 1, shall equal (i) the aggregate principal amount of Senior Bonds maturing on such November 1, plus (ii) one-half of the aggregate principal amount of Senior Bonds maturing on the next May 1, plus (iii) the aggregate of all other amounts, if any, required to be on deposit in such subaccount on such November 1 by each Series Resolution containing such a requirement applicable to Outstanding Senior Bonds, or (B) if the withdrawal is made during a six-month period preceding a May 1, shall equal (i) the aggregate principal amount of Senior Bonds maturing on such May 1, plus (ii) one-half of the aggregate principal amount of Senior Bonds maturing on the next November 1, plus (iii) the aggregate of all other amounts, if any, required to be on deposit in such subaccount on such May 1 by each Series Resolution continuing such a requirement applicable to Outstanding Senior Bonds;

(c) To the credit of the subaccount established for Senior Bonds in the Sinking Fund Account in the Debt Service Fund so much, or the whole if required, of the balance of moneys so withdrawn from the Revenue Fund until the amount, determined after taking into account as provided in the Agreement the principal amount of Term Bonds constituting Senior Bonds theretofore purchased, on deposit to the credit of such subaccount, (A) if the withdrawal is made during a six-month period next preceding a November 1, shall equal (i) the Sinking Fund Installments on Senior Bonds due on such November 1, plus (ii) one-half of the Sinking Fund Installments on Senior bonds due on the next May 1, plus (iii) the aggregate of all other amounts, if any required to be on deposit in such subaccount on such November 1, by each Series Resolution continuing such a requirement applicable to Outstanding Senior Bonds, or (B) if the withdrawal is made during a six-month period preceding a May 1, shall equal (i) the Sinking Fund Installments of Senior Bonds due on such May 1, plus (ii) one-half of the Sinking Fund Installments due on Senior Bonds on the next November 1, plus (iii) the aggregate of all other amounts, if any, required to be on deposit in such subaccount on such May 1 by each Series Resolution continuing such a requirement applicable to Outstanding Senior Bonds;

(d) in each calendar year commencing with the first full calendar year succeeding the calendar year in which the first Series of Guaranteed Bonds constituting Senior Bonds shall be issued under the Agreement, to the credit of the Section 10 Reserve Fund so much, or the whole if required, of the balance of the moneys so withdrawn from the Revenue Fund until the amount withdrawn and deposited to the credit of the Section 10 Reserve Fund in such calendar year shall equal the aggregate of the Annual Series Requirements in effect for such calendar year in respect of all Series of Guaranteed Bonds constituting Senior Bonds Outstanding on the first day of such calendar year, plus, or, at the option of the Authority, minus, as the case may be, the deficiency or excess of the amount on deposit to the credit of the Section 10 Reserve Fund on the first day of such calendar year, including in such amount interest accrued but unpaid on Investment Obligations in which such amount may then be invested, under or over the aggregate of all Annual Series Requirements in effect for prior calendar years in respect of such Guaranteed Bonds constituting Senior Bonds. No deposit need be made with respect to any Annual Series Requirement or portion thereof deposited pursuant to the applicable Series Resolution out of the proceeds of a Series of Guaranteed Bonds constituting Senior Bonds. If there shall have been any prior application of moneys held in the Section 10 Reserve Fund to the payment of principal of or Sinking Fund Installments or interest on Guaranteed Bonds constituting Senior Bonds, the amount of any deficiency in the amount thereafter on deposit to the credit of the Section 10 Reserve Fund resulting from such application shall be taken into account in computing the amount required to be deposited to the credit of the Section 10 Reserve Fund in any calendar year thereafter only to the extent that it is, in the judgment of the Authority, practicable to do so. The Annual Series Requirement as to any Series of Guaranteed Bonds shall be in effect for and only for the twelve calendar years next succeeding the calendar year in which Guaranteed Bonds of such Series were initially issued; for each calendar year thereafter on the first day of which Guaranteed Bonds of such Series shall be Outstanding, the aggregate of such prior Annual Series Requirements shall be included in the measure of the amount required to be on deposit to the credit of the Section 10 Reserve Fund with respect to such calendar year but no additional deposit shall be required with respect to such prior Annual Series Requirements except as may be required to restore any deficiency as aforesaid. If on the first day of any calendar year the amount on deposit in the Section 10 Reserve Fund equals or exceeds the sum of (i) the aggregate of all Annual Series Requirements in effect for prior calendar years, plus (ii) the Annual Series Requirements for such calendar year, in each case in respect of all Series of Guaranteed Bonds constituting Senior Bonds of which Guaranteed Bonds are Outstanding, no deposit need be made under this clause (d) with respect to Guaranteed Bonds constituting Senior Bonds;

(e) pro rata to the credit of each Debt Service Reserve Fund securing Senior Bonds and each Multi-Series Debt Service Reserve Fund securing Senior Bonds, (i) with respect to amounts other than amounts to replenish any withdrawal made for the payment of principal or Redemption Price of or interest on any Senior Bonds, so much, or the whole if required, of the balance of the moneys so withdrawn from the Revenue Fund until the amount deposited in each thereof in the fiscal year in which the applicable withdrawal from the Revenue Fund is made equals the amount, if any, required to be so deposited in such fiscal year by the one or more applicable Series Resolutions, and (ii) with respect to amounts to replenish any withdrawal made from any thereof for the payment of principal or Redemption Price of or Interest on any Senior Bonds, so much, or the whole if required, of the balance of the moneys so withdrawn from the

Revenue Fund, until the amount on deposit in each thereof from which any withdrawal for such purpose has been made, equals the applicable Debt Service Reserve Requirement or Multi-Series Debt Service Reserve Requirement, as the case may be, of each thereof;

Second, with respect to the Bonds, if any, of all Subordinate Series Level 2 ("Level 2 Bonds"), in the order of priority provided in First above (except that in depositing moneys under this Second, the term "Level 2 Bonds" shall be substituted for the term "Senior Bonds" in First above; and

Third, with respect to the Bonds, if any, of all Subordinate Series Level 3 ("Level 3 Bonds"), in the order of priority provided in First above (except that in depositing moneys under this third, the term "Level 3 Bonds" shall be substituted for the term "Senior Bonds" in First above;

and so on for the Bonds, if any, of each other Subordinate Series, in descending order, (i.e. Subordinate Series Level 4, and then Subordinate Series Level 5 and so on), substituting in each case the appropriate designation of the Bonds (e.g. "Level 4 Bonds" or "Level 5 Bonds") on account of which the deposit is being made for the term "Senior Bonds" in First above.

After deposits have been so made with respect to all Series of Bonds issued under the Agreement as provided above, the balance of moneys, if any, withdrawn from the Revenue Fund as aforesaid shall be deposited to the credit of the following Funds and Accounts in the following order of priority;

(f) so much, or the whole if required, of the balance of moneys so withdrawn from the Revenue Fund, to the credit of such Account or Accounts in the Property Fund as may have been established for any reserve or reserves mentioned below in clause (d) in "Particular Covenants - Rate Covenant," pro rata until the amount deposited in each such Account in the fiscal year in which the applicable withdrawal is made from the Revenue Fund equals the amount, if any, set forth in a certificate of an Authorized Officer to be deposited in such Account or Accounts during such fiscal year;

(g) so much, or the whole if required, of the balance of moneys so withdrawn from the Revenue Fund, to the credit of each other Account in the Property Fund (other than the Multi-Purpose Reserve Account), pro rata until the amount on deposit in each such Account in the fiscal year in which the applicable withdrawal is made from the Revenue Fund equals the amount, if any, set forth in a certificate of an Authorized Officer to be on deposit in such Account during such fiscal year;

(h) so much, or the whole, if required, of the balance of the moneys so withdrawn from the Revenue Fund, to the credit of the Multi-Purpose Reserve Account, until the amount deposited in such Account in the fiscal year in which the applicable withdrawal is made from the Revenue Fund equals the amount, if any, set forth in a certificate of an Authorized Officer to be deposited in such Account during such fiscal year; provided, that the Authority may also deposit in the Multi-Purpose Reserve Account from time to time any other moneys of the Authority not required to be otherwise deposited;

(i) to the credit of the Rate Stabilization Fund, so much, or the whole if required, of the balance of moneys so withdrawn from the Revenue Fund as may be specified from time to time in a certificate of an Authorized Officer; and

(j) the remainder, if any, to the credit of the Optional Redemption Account.

Debt Service Fund

The moneys in each Account in the Debt Service Fund shall be held in trust and applied as provided in the Agreement and in the applicable Series Resolution and, pending such application, are pledged to, and shall be subject to a lien and charge in favor of, the Registered Owners of the Bonds issued and Outstanding under the Agreement. The Trustee shall apply the moneys held from time to time for the credit of the Accounts in the Debt Service Fund as follows:

(a) as to moneys held in each subaccount in the Interest Account, to the payment of interest on the Bonds with respect to which the applicable subaccount was established, on or after the date when due to each Registered Owner of such Bonds as of the applicable Record Date or Special Record Date, as such interest becomes due and payable;

(b) as to moneys held in each subaccount in the Principal Account, to the payment, on or after the date when due, of the principal of all matured Bonds with respect to which the applicable subaccount was established;

(c) as to moneys held in each subaccount in the Sinking Fund Account, to the application on the due date of each Sinking Fund Installment to the redemption of the Term Bonds with respect to which the applicable subaccount was established, to the extent the same are then subject to redemption by application of Sinking Fund Installments, in the manner provided by the applicable Series Resolution and the Agreement and

(d) as to moneys held in the Optional Redemption Account, to the redemption or purchase of Bonds as provided below.

The Trustee upon the written direction of an Authorized Officer of the Authority shall apply moneys held in any subaccount in the Sinking Fund Account to the purchase of Term Bonds with respect to which the applicable subaccount was established whenever such Bonds may, with reasonable diligence, be purchasable at prices not exceeding the Redemption Price payable for such Bonds on the next Sinking Fund Installment due date for such Bonds; provided, however, that no such purchase shall be made within the period of forty-five (45) days next preceding the next Sinking Fund Installment due date for such Bonds.

The Trustee upon the written direction of an Authorized Officer of the Authority shall also apply moneys held in the Optional Redemption Account to the purchase, arranged as is mutually agreeable to the Trustee and the Authority, of Bonds then Outstanding at a price not to exceed (a) the Redemption Price payable to the holders of such Bonds on the next redemption date if such Bonds shall have been called for redemption on such date or (b) if such Bonds have not been called for redemption on such date, (i) the Redemption Price applicable on such date to

Bonds subject to optional redemption on such date, and (ii) as to Bonds not subject to optional redemption on such date, the Redemption Price applicable to such Bonds on the first date such Bonds are subject to optional redemption.

Notwithstanding the foregoing provision, no such purchase shall be made at any time when the amounts on deposit to the credit of the Interest Account, the Principal Account and the Sinking Fund Account are less then the amounts then respectively required to be on deposit therein, and provided further, that no such purchase of any Term Bond shall be made within the period of forty-five (45) days next preceding the next Sinking Fund Installment due date with respect to such Term Bond and no such purchase of any other Bond shall be made within the period of ten (10) days next preceding any date upon which notice of redemption of such Bonds is scheduled to be mailed.

The principal amount of all Term Bonds purchased as aforesaid shall be deemed to constitute deposits in the applicable subaccount in the Sinking Fund Account and shall be applied, first, against the amounts of such Sinking Fund Installments with respect to such Term Bonds theretofore due and not paid as the Authority shall designate by a certificate of an Authorized Officer, and second, against one or more such Sinking Fund Installments (including any portion of any such Sinking Fund Installment) not yet due as the Authority shall designate by a certificate of an Authorized Officer.

If a Series Resolution shall provide for the redemption at the option of the Authority of any Series of Bonds authorized thereunder, and if at any time on or after the earliest date specified in such Series Resolution for such redemption the amounts on deposit to the credit of the Interest Account, the Principal Account and the Sinking Fund Account shall be equal to or greater than the amounts then respectively required to be so on deposit with respect to any Series of which Bonds will be redeemed, and if the moneys held in the Optional Redemption Account shall equal or exceed (a) the Redemption Price of all Bonds theretofore called for redemption and not redeemed, plus (b) the Redemption Price payable at the next redemption date of Bonds in the aggregate principal amount or Accreted Amount equal to not less than the smallest authorized denomination of the Bonds subject to redemption, plus (c) all necessary and proper expenses to be incurred in connection with the redemption of Bonds on such date, the Trustee shall, if the Authority shall so direct by Certificate of an Authorized Officer (which certificate shall set forth the Series, maturities and principal amounts or Accreted Amounts of each maturity of the Bonds to be redeemed), call Bonds as set forth in such certificate for redemption on the next available redemption date; provided, however, that the aggregate principal amount and Accreted Amount of Bonds to be redeemed set forth in such certificate shall not be greater than the aggregate principal amount and Accreted Amount which will most nearly exhaust the moneys so held in the Optional Redemption Account; and provided further that Bonds shall not be designated for redemption in such certificate unless such Bonds are subject to redemption on the applicable redemption date. Such call and the redemption of Bonds and portions of Bonds so called shall be made pursuant to the provisions of the Agreement.

Interest on Bonds redeemed from moneys in the Optional Redemption Account shall be paid from moneys on deposit in the applicable subaccount in the Interest Account.

If on the date for application of moneys held in the Principal Account or in the Sinking Fund Account, the moneys so held are less then the amount required for application under whichever applies of clauses (b) or (c) of the first paragraph above in "Debt Service Fund," or if by a Certificate of an Authorized Officer the Authority directs that some or all of the moneys in the Optional Redemption Account be applied to the payment of principal or Sinking Fund Installments due on the Bonds, the Trustee shall apply moneys then held in the Optional Redemption Account (except such moneys as to which notice of redemption has already been given) by transfer to the Principal Account or to the Sinking Fund Account, as the case may be, to the extent of the deficiency therein or as directed by such certificate, whichever is applicable; provided that bond counsel to the Authority delivers an opinion to the effect that such application of such moneys is permitted by the Enabling Act and will not jeopardize the exclusion of interest or the Bonds from gross income for federal income tax purposes.

Notwithstanding any other provision of the Agreement, if and to the extent permitted by the applicable Series Resolution, (a) moneys in any subaccount in the Interest Account, Principal Account or Sinking Fund Account may be applied to reimburse the issuer of a Credit Facility for amounts received by the Trustee pursuant to such Credit Facility to be applied to the payment of, respectively, interest on, principal of or any Sinking Fund Installment on the Bonds for which such subaccount was established or to pay any amount due from or on account of the Authority under a Derivative for payments made pursuant to such Derivative to be applied to the payment of, respectively, interest on, principal of or any Sinking Fund Installment on the Bonds for which such subaccount was established, and (b) moneys in the Optional Redemption Account may be applied to reimburse the issuer of a Credit Facility for amounts received by the Trustee pursuant to such Credit Facility to be applied to the payment of all or any potion of the Redemption Price of Bonds redeemed on account of moneys in the Optional Redemption Account or to pay any amounts due from or on account of the Authority under any Derivative for payments pursuant to such Derivative to be applied to the payment of all or any portion of the Redemption Price of bonds redeemed on account of moneys in the Optional Redemption Account.

Section 10 Reserve Fund; Other Reserve Funds; Moneys Received Pursuant to the Commonwealth Guaranty or a Credit Facility; Pledged Funds

(a) The moneys in the Section 10 Reserve Fund shall be held in trust and applied as provided below and, pending such application, are pledged to, and shall be subject to a lien and charge in favor of, the Registered Owners of the Guaranteed Bonds Outstanding.

The Trustee shall apply the moneys held from time to time for the credit of the Section 10 Reserve Fund to the payment to the appropriate subaccount in the Debt Service Fund of an amount equal to the excess of (a) the aggregate of amounts required at any Interest Payment Date to pay interest then due on Guaranteed Bonds and, if such date is also a maturity date or a Sinking Fund Installment due date for any Guaranteed Bonds, the principal of all such Guaranteed Bonds then matured or the amount of the Sinking Fund Installment then due with respect to Guaranteed Bonds, as the case may be, over (b) moneys then held for the credit of the appropriate subaccount or subaccounts in the Debt Service Fund, after any transfer thereto from the Optional Redemption Account, or from the Property Fund or from the Rate Stabilization Fund or from all of the foregoing, and available for the payment of such interest, principal or Sinking Fund Installment, respectively. If moneys in the Section 10 Reserve Fund are insufficient to pay in full the amounts specified above, such moneys shall be paid, first, to Guaranteed Bonds constituting Senior Bonds, and second to Guaranteed Bonds constituting Level 2 Bonds, and third to Guaranteed Bonds constituting Level 3 Bonds, and so on in descending level of subordination. If moneys in the Section 10 Reserve Fund are insufficient to pay in full the amounts to be paid with respect to all Guaranteed Bonds constituting Senior Bonds, or all Guaranteed Bonds of any applicable level of subordination, such moneys shall be applied to all Guaranteed Bonds of all Senior Series or all Guaranteed Bonds of all Series of the applicable level of subordination, as the case may be, as described below in "Defaults; Remedies - Application of Funds."

If on the first day of any calendar year or at any other time the amount on deposit in the Section 10 Reserve Fund exceeds the aggregate of the Annual Series Requirements for the present year and all prior years with respect to all Guaranteed Bonds Outstanding, the Authority may by a certificate of an Authorized Officer direct that all or a portion of such excess (other than any part of such excess consisting of interest received and profits realized in excess of losses from investments of moneys held in the Section 10 Reserve Fund, which shall be applied as described below in "Security for Deposits and Investments of Funds - Investments") be withdrawn from the Section 10 Reserve Fund and deposited in the Revenue Fund to be applied to the payment of interest coming due in such year on such Guaranteed Bonds, provided that such certificate is accompanied by an opinion of bond counsel to the Authority that such application or payment is permitted by applicable law and will not adversely affect the exemption from gross income for federal income tax purposes of the interest on the Bonds.

At any time when the amount on deposit in the Section 10 Reserve Fund equals or exceeds (a) the aggregate of the twelve Annual Series Requirements to be in effect with respect to any particular Series of Guaranteed Bonds of which Bonds are then Outstanding plus (b) all Annual Series Requirements in effect for all prior years and for the then current year with respect to all Series of Guaranteed Bonds of which Bonds are Outstanding, and when such aggregate plus any other moneys held under the Agreement available for the purpose shall equal or exceed the aggregate amount required to pay in full the principal and Redemption Price of and interest on all Bonds of such particular Series then Outstanding (and, if the Bonds of such particular Series are to be redeemed, the necessary and proper expenses to be incurred in connection with such redemption), the Authority may by a certificate of an Authorized Officer direct the Trustee to apply to such payment an amount from the Section 10 Reserve Fund not exceeding such aggregate; provided, however that moneys "available for the purpose" as such phrase is used above in this paragraph shall mean, (x) as to moneys in the subaccounts applicable to such particular Series in the Interest Account, Principal Account and Sinking Fund Account, moneys in excess of the amount then required to be on deposit in each of such subaccounts with respect to all outstanding Guaranteed Bonds to which such subaccounts apply other than Guaranteed Bonds of such particular Series and (y) as to moneys in the Optional Redemption Account, any Account in the Property Fund and the Rate Stabilization Fund, moneys in any such Fund or Account described in a Certificate of an Authorized Officer to be so applied (such direction to be in accordance with the provisions of the Agreement with respect to the use of the moneys in any such Fund, Account or subaccount).

All deposits to the Section 10 Reserve Fund shall be apportioned if directed by a certificate of an Authorized Officer to separate Accounts to be created therein, one account for each Series of Guaranteed Bonds Outstanding (the "Section 10 Series Accounts"), for purposes of compliance by the Authority with the Code and to such subaccounts, as so directed, as are necessary or desirable to comply with the Code. The portion of each deposit attributed to the Account of a particular Series will be the proportion of the total deposit that the Annual Series Requirement for such Series bears to the aggregate Annual Series Requirements for all Series of Guaranteed Bonds of the same level (i.e., Senior Bonds, Subordinate Series Level 2, etc.).

Any withdrawal from the Section 10 Reserve Fund shall be made in portions taken from all Section 10 Series Accounts in such proportion from each such Account as each such Account bears to the total balance of the Section 10 Reserve Fund prior to the making of such withdrawal, unless otherwise directed by a certificate of an Authorized Officer accompanied by an opinion of bond counsel to the Authority to the effect that the instructions for withdrawal set forth in such certificate will not adversely affect the exclusion from gross income for federal tax purposes of the interest on the Bonds.

(b) Moneys in any Debt Service Reserve Fund or Multi-Series Debt Service Reserve Fund shall be applied as set forth in the one or more applicable Series Resolutions.

(c) Moneys received pursuant to the Commonwealth Guaranty shall be held in a separate Account and applied as promptly as practicable to the payment of principal and interest due on the Guaranteed Bonds on account of which such moneys were received.

(d) Moneys received by the Trustee pursuant to a Credit Facility shall be held in a separate Account and shall be applied as provided in the one or more applicable Series Resolutions or in such Credit Facility.

(e) Pledged Funds received by the Trustee shall be held in a separate Account and applied as provided in the one or more applicable Series Resolutions.

Property Fund

In addition to the Accounts and subaccounts established in the Property Fund described above in "Funds and Accounts," the Agreement establishes and authorizes to be established Accounts in the Property Fund for such reserves as the Authority may establish as described below in clause (d) in "Particular Covenants - Rate Covenant." Subject to the following paragraph, the Trustee shall credit all moneys deposited in the Property Fund to such Account therein (or, as to the Capital Improvements Reserve Account, to such subaccount or subaccounts therein) as the Authority may by certificate of an Authorized Officer direct and, in the absence of such a certificate, to the General Account.

The Trustee shall deposit in the Insurance Proceeds Account all proceeds of an insurance policy or policies upon any Project paid by reason of any insured casualty, except that if the Project to which the proceeds apply has not yet reached completion, such proceeds shall be deposited to the related Account of the Construction Fund; provided, that any such proceeds which are proceeds of "use or occupancy" insurance, so-called, or any other insurance providing for payments in place of income or for operating expenses, in either case as certified by an Authorized Officer, shall be deemed Revenues and be deposited to the credit of the Revenue Fund.

The moneys held in each Account in the Property Fund shall be held in trust and applied as provided below and, pending such application, are pledged to, and shall be subject to a lien and charge in favor of, the Registered Owners of the Bonds issued and Outstanding under the Agreement.

The Trustee shall apply the moneys held from time to time for the credit of each Account in the Property Fund as follows:

(a) as to any Account created for a reserve as described below in clause (d) in "Particular Covenants - Rate Covenants," to the payment from time to time of amounts as provided by the pertinent resolution of the Authority and for the purposes therein provided in accordance with a certificate of an Authorized Officer;

(b) as to the General Account, to the payment from time to time as deemed appropriate by the Authority of Maintenance, Repair and Operating Expenses of any Project not otherwise provided for;

(c) as to the Insurance Proceeds Account, to payment, in accordance with the provisions described below in "Particular Covenants - Insurance on Projects," for the repair, restoration or reconstruction of the damage or destruction on account of which the funds were received, or for the doing of such other work in respect of such Project as the Authority may determine in accordance with the provisions described below under "Particular Covenants - Insurance on Projects";

(d) as to any subaccount in the Capital Improvements Reserve Account, to the payment from time to time of the costs of capital improvements or capital repairs with respect to any Project to which the applicable subaccount pertains;

(e) as to the Multi-Purpose Reserve Account, to any lawful purpose for which the Authority may expend funds (and the Trustee may rely on a statement to such effect in the certificate of an Authorized Officer directing such application that the amounts set forth in such certificate will be so applied);

(f) to the extent of moneys so held in any Account in the Property Fund which are not the proceeds of any insurance policy or policies or investment earnings on such proceeds, to transfer to any one or more subaccounts in the Interest Account, the Principal Account or the Sinking Fund Account, one or more, as the case may be, in the Debt Service Fund if and to the extent that moneys held in any such subaccount on a date for application thereof, together with money available in the Rate Stabilization Fund, shall be less than the amount then required for application from such subaccount; and

(g) to the extent of moneys so held in any Account in the Property Fund which are not the proceeds of any insurance policy or policies or investment earnings on such proceeds, to the redemption of Bonds as may be directed from time to time by a certificate of an Authorized Officer.

The Authority may, by a certificate of an Authorized Officer approved by the University Trustees and accompanied by an opinion of bond counsel to the Authority to the effect that the instructions in such certificate are permitted by the Enabling Act and will not adversely affect the exclusion of the interest on the Bonds from gross income for federal income tax purposes, direct that amounts be transferred from any one or more subaccounts in the Capital Improvements Reserve Account to any other one or more subaccounts in the Capital Improvements Reserve Account or to one or more Capital Improvements Reserve Accounts or like accounts (or, if applicable, one or more subaccounts in any such Capital Improvements Reserve Account or like account) established under any other trust agreement under which the Authority has issued bonds).

Rate Stabilization Fund

Amounts shall be deposited in the Rate Stabilization Fund from the Revenue Fund in the Authority's discretion as provided in the Agreement in order to minimize the variation over time in the fees, rents, rates and other charges fixed in accordance with the provisions described below in "Particular Covenants - Rate Covenant." At any time, upon the direction of the Authority as evidenced by a Certificate of an Authorized Officer, amounts on deposit in the Rate Stabilization Fund may be withdrawn and deposited in the Revenue Fund or applied to the redemption of Bonds.

Notwithstanding the foregoing paragraph, if at any time the amounts on deposit and available therefor in the Debt Service Fund are insufficient to pay the principal and Redemption Price of and interest on the Bonds then due, the Trustee shall withdraw from the Rate Stabilization Fund and deposit in the appropriate subaccount within the Debt Service Fund the amount necessary to meet such deficiency.

Rebate Fund

For each Series of Bonds subject to the rebate requirements of the Code, there shall be established within the Rebate Fund a separate account, for the benefit of the United States of America, and such subaccounts therein as are provided in the applicable Series Resolution, as amended from time to time, or as may be directed by a certificate of an Authorized Officer.

The Trustee shall deposit in the applicable account in the Rebate Fund such amounts as are required pursuant to such Series Resolution, invest the same as set forth therein, and keep such records as shall enable the Authority to satisfy its rebate obligations for such Series under the Code. The Authority shall direct the Trustee to pay to the United States from the Rebate Fund on the Authority's behalf such amounts as are required to be paid pursuant to the Code, all as set forth in the applicable Series Resolution, provided that any deficiency in the amounts required to be deposited into the Rebate Fund, or in any required payment from the Rebate Fund to the United States, shall be made up by the Authority, and provided further that no amount in the Rebate Fund shall be paid to the Authority or transferred to any other Fund or Account except as permitted by the Agreement, the Series Resolution and the Code.

The provisions described in this paragraph, as modified by the applicable Series Resolution, shall survive the defeasance of the Agreement, or of any Series of Bonds to which such provisions apply, and such provisions and the provisions pertaining to rebate in any Series Resolution shall be subject to amendment without the consent of any Registered Owner to reflect any applicable amendment to the Code with respect to rebate.

SECURITY FOR DEPOSITS AND INVESTMENTS OF FUNDS

Deposits with Trustee

All moneys deposited under the Agreement with the Trustee shall be held in trust and applied in accordance with the provisions of the Agreement, and shall not be subject to lien or attachment by any creditor of the Authority or the Trustee.

All moneys deposited with the Trustee under the Agreement shall be continuously secured, for the benefit of the Authority and the Registered Owners of the Bonds in such manner as may then be required or permitted by applicable state or federal laws and regulations regarding the security for, or granting a preference in the case of, the deposit of trust funds; provided, however, that it shall not be necessary for the Trustee to give security for any moneys which shall be invested in Investment Obligations.

All moneys deposited with the Trustee shall be credited to the particular Fund, Account or subaccount to which such moneys belong.

Investments

Moneys held for the credit of the Note Payment Fund shall, as nearly as may be practicable, be continuously invested and reinvested by the Trustee in Investment Obligations which shall mature, or which shall be subject to redemption by the holder thereof at the option of such holder, not later than the day or days preceding the date or dates of payment of the notes for the payment of which such moneys in the Note Payment Fund are held.

Moneys held for the credit of each Account within the Construction Fund shall, as nearly as may be practicable, be continuously invested and reinvested by the Trustee in Investment Obligations which shall mature, or which shall be subject to redemption by the holder thereof at the option of such holder, not later than the respective dates as set forth in a schedule furnished by an Authorized Officer of the Authority to the Trustee at the time moneys are first deposited in such Account, as such schedule may thereafter be amended, when moneys held for the credit of such Account will be required for the purposes intended.

Moneys held for the credit of the Revenue Fund shall, as nearly as may be practicable, be continuously invested and reinvested by the Trustee in Investment Obligations which shall mature, or which shall be subject to redemption by the holder thereof at the option of such holder, as to moneys not in excess of the amount then required as the reserve for Current Expenses, not later than the day or days preceding the date or dates upon which moneys are to be applied to the payment of Current Expenses, Maintenance, Repair and Operating Expenses and Section 19C Payments as set forth in a schedule filed by the Authority with the Trustee, or, as to moneys held in the Revenue Fund and to be transferred to other Funds, Accounts and subaccounts as described above in “Establishment and Application of Funds and Accounts - Revenue Fund,” not later than the day preceding the date of such transfer.

Moneys held for the credit of each subaccount in the Debt Service Fund shall, as nearly as may be practicable, be continuously invested and reinvested by the Trustee in Investment Obligations which shall mature, or which shall be subject to redemption at the option of the holder thereof, as to moneys so held in any subaccount in the Interest Account in an amount not in excess of the amount payable as interest from such subaccount at the next Interest Payment Date, not later than the day prior to such Interest Payment Date, or, as to moneys so held in any subaccount in the Principal and Sinking Fund Accounts, in amounts not respectively in excess of the amount payable from such subaccount as principal of Bonds maturing at the next maturity date or of the amount of the Sinking Fund Installment next falling due, not later than the day prior to the date of such maturity or such due date, as the ease may be, or, as to other moneys, if any, so held, not later than twelve (12) months after the date of any such investment.

Moneys held for the credit of the Section 10 Reserve Fund and the Rate Stabilization Fund shall, as nearly as may be practicable, be continuously invested and reinvested by the Trustee in Investment Obligations, provided that amounts on deposit in the Section 10 Series Account for any Series of Outstanding Guaranteed Bonds, or in any subaccounts, shall not be invested in excess of the yield or yields as set forth in the investment instructions delivered to the Trustee from time to time by an Authorized Officer, except as permitted by an opinion of bond counsel to the Authority to the effect that investments may be made at the yield or yields set forth in such opinion without adversely affecting the exclusion from gross income of the interest on such Series of Guaranteed Bonds or any other Bonds.

Moneys in any Debt Service Reserve Fund or Multi-Series Debt Service Reserve Fund shall be invested as provided in the one or more applicable Series Resolutions.

Moneys held for the credit of each Account or subaccount in the Property Fund shall, as nearly as may be practicable, be continuously invested and reinvested by the Trustee in Investment Obligations which shall mature, or which shall be subject to redemption by the holder thereof at the option of such holder, on the dates specified from time to time in a certificate of an Authorized Officer delivered to the Trustee.

Notwithstanding any other provisions of the Agreement, the Authority may at any time deliver to the Trustee by a certificate of an Authorized Officer additional or different instructions from those set forth above regarding the investment of moneys held under the Agreement, provided that such instructions do not jeopardize the exclusion from gross income for federal income tax purposes of the interest on any Bond (as to which the Authority may rely on an opinion of bond counsel to the Authority), and provided that such additional or different instructions do not violate the requirements of the issuer of any Credit Facility with respect to the moneys to which such instructions apply. The Trustee shall comply with such instructions if (a) the Authority certifies in such certificate that such instructions do not jeopardize the exclusion from gross income for federal income tax purposes of the interest on any Bond; (b) no investment is directed to be made in any investments other than Investment

Obligations; (c) the Authority certifies in such certificate that such instructions do not violate the requirements of the issuer of any Credit Facility with respect to the moneys to which such instructions apply; and (d) the Trustee's liability as set forth in the Agreement is not modified.

Investment Obligations purchased as an investment of moneys in any Fund, Account or subaccount may be purchased and held with Investment Obligations purchased as an investment of moneys in any other Fund, Account or subaccount as a part of a single investment fund but shall be deemed at all times to be a part of the Fund, Account or subaccount for which they were purchased, and the interest accruing thereon and any profit or loss realized from such investments shall be charged pro rata to each such Fund, Account or subaccount; provided, however, (a) that interest received and profits realized in excess of losses realized in any fiscal year from investments of moneys held in the Note Payment Fund shall be deemed to be proceeds of the corresponding Series of Bonds and, except to the extent provided in the Series Resolution authorizing the issuance of such Bonds to be applied to the payment of notes issued by the Authority, shall be transferred, upon the first to occur of (i) payment in full of the pertinent notes or (ii) the end of a fiscal year, to the corresponding Account within the Construction Fund, (b) that, subject to the provisions described above in "Establishment and Application of Funds and Accounts - Rebate Fund," all such interest and profits from the investment of moneys held in Construction Fund Accounts shall be retained in such Accounts, (c) that, subject to the provisions described above in "Establishment and Application of Funds and Accounts - Rebate Fund," all such interest and profits from the investment of moneys held in any Debt Service Reserve Fund or Multi-Series Debt Service Reserve Fund shall be applied as provided in the one or more Series Resolutions governing the application of moneys held in the applicable Debt Service Reserve Fund or Multi-Series Debt Service Reserve Fund and (d) that, subject to the provisions described above in "Establishment and Application of Funds and Accounts - Rebate Fund," such interest and profits from investments of moneys held in any other Fund, Account or subaccount, except as otherwise provided in a Series Resolution or in the Agreement, shall constitute Revenues and shall be transferred to the Revenue Fund. Such interest received and profits realized in excess of losses realized in any calendar year from investments of moneys held in the Section 10 Reserve Fund shall, subject to the provisions described above in "Establishment and Application of Funds and Accounts - Rebate Fund," and if and only if the amount on deposit to the credit of the Section 10 Reserve Fund on the first day of such calendar year (or on any other date of such calendar year if bond counsel to the Authority delivers an opinion to the effect that such is permitted by the Enabling Act) exceeds the aggregate of all Annual Series Requirements in effect for the Guaranteed Bonds then Outstanding for all calendar years through and including such calendar year, constitute Revenues to the extent of the amount of such excess and shall be transferred as received to the Revenue Fund to be applied to the payment of interest on Guaranteed Bonds, unless a certificate of an Authorized Officer directs that any such interest or profits be held in the Section 10 Reserve Fund. Interest and profits derived from the investment of moneys, which interest and profits are held in the Revenue Fund or which are not subject to being transferred thereto, shall, to the extent available, be deemed to be included among the amounts first requisitioned or otherwise withdrawn and expended from any Fund, Account or subaccount. The Trustee shall sell at the best price obtainable or present for redemption any obligations so purchased whenever it shall be necessary so to do in order to provide moneys to meet any payment or transfer from any such Fund, Account or subaccount.

Neither the Trustee nor the Authority shall, in the absence of bad faith, be liable on account of or responsible for the results of any such investment.

In computing the amount in any Fund, Account or subaccount held by the Trustee under the Agreement, Investment Obligations shall be valued at par if purchased at par or at amortized value if purchased at other than par. Amortized value, when used with respect to an obligation purchased at a premium above or a discount below par, means the value as of any given time obtained by dividing the total premium or discount at which such obligation was purchased by the number of days remaining to maturity on such obligation at the date of such purchase and by multiplying the amount thus calculated by the number of days having passed since such purchase; and (1) in the case of an obligation purchased at a premium by deducting the product thus obtained from the purchase price; and (2) in the case of any obligation purchased at a discount by adding the product thus obtained to the purchase price. Valuation on any particular date shall include the amount of interest then earned or accrued to such date on any Investment Obligations.

Investment Advice

The Authority shall direct all investments of moneys held under the Agreement, or the Authority may, at its expense, appoint as an investment adviser a person registered under the federal Investment Advisers Act of 1940 and having a favorable reputation for competence and experience in investing in Investment Obligations to instruct the Trustee with respect to investment and reinvestment of all or a portion of the moneys held under the Agreement. The Trustee shall have no liability of any kind to the Authority, to any Registered Owner or to any other person for or on account of any investment transaction it shall carry out in accordance with investment instructions given as provided in the Agreement. The Trustee may carry out all investment transactions through its own facilities.

PARTICULAR COVENANTS

Rate Covenant

The Authority covenants that it will establish and revise rules and regulations to insure the use and occupancy of, and will fix, revise, adjust and collect fees, rents, rates and other charges for the use of, each Project and of all Other Projects and other property of the Authority the Revenues from which are pledged under the Agreement, in such manner and at such levels as may be necessary so that the aggregate of (i) the proceeds from such fees, rents, rates and other charges for the use of all Projects, Other Projects and other property the Revenues from which are pledged under the Agreement, (ii) all other Revenues from such Project, Other Projects and property and (iii) all appropriations, contributions, gifts and grants received by the Authority or made for the benefit of the Authority or any such Project, Other Project or property and available and applied for the purpose, will provide Revenues sufficient in each fiscal year:

(a) to pay the Maintenance, Repair and Operating Expenses of such Projects, Other Projects and property, provided, that in the case of a Project with respect to which a Contract is in effect that includes undertakings by the University Trustees respecting maintenance, repair and operation thereof, such undertakings shall be deemed to fulfill the covenant of the Authority as to the sufficiency of Revenues therefor;

(b) (i) to provide for making deposits to the credit of the appropriate Accounts in the Debt Service Fund in amounts in such fiscal year equal in the aggregate to the total of (A) all interest becoming due and payable in such fiscal year on all Bonds then Outstanding, (B) the principal amount of all such Bonds maturing in such fiscal year, (C) the Sinking Fund Installments, if any, becoming due in such fiscal year in respect of all such Bonds and (D) other amounts, if any, payable in such fiscal year on the account of all such Bonds or required to be deposited in such Fiscal Year to any Account in the Debt Service Fund and (ii) to provide for the payment of the purchase price of Bonds tendered as provided in the one or more applicable Series Resolutions;

(c) to pay the Current Expenses of the Authority properly allocable to such Projects, Other Projects and property;

(d) to create and maintain such funds, accounts and reserves, if any, as may be provided for in any Series Resolution authorizing the issuance of Bonds or in a resolution thereafter adopted;

(e) to pay the amounts of any Section 19C Payments to be paid in such fiscal year; and

(f) to provide for making deposits to the credit of (i) the Section 10 Reserve Fund in amounts which, together with amounts deposited in the preceding fiscal year for such purpose or to be deposited in the subsequent fiscal year for such purpose will equal in the aggregate the reserve required by Section 10 of the Enabling Act to be established and maintained in such Fund in respect of each calendar year constituting a portion of such fiscal year and (ii) each Debt Service Reserve Fund or Multi-Series Debt Service Reserve Fund in amounts, if any, required by the one or more applicable Series Resolutions;

except that

(g) as to any Project or Other Projects the Bonds or other indebtedness issued by the Authority to finance or refinance which shall have been paid or provided for in full, as described below in "Defeasance," such Revenues need only be sufficient to pay the amounts required under clauses (a), (c), (d) and (e) above;

and, so far as consistent with the foregoing requirements, so as to maintain reasonable uniformity of charges for like rooms or other accommodations, facilities and services at the University whether or not contained in or provided by a Project of the Authority.

The Authority covenants that if the amounts deposited to the credit of any Account in the Debt Service Fund, the Section 10 Reserve Fund and any other reserve fund securing any Bonds in any fiscal year shall be less than the amounts respectively referred to above for such fiscal year, it will revise and adjust the aforesaid fees, rents rates and other charges so as to provide funds sufficient, with all other moneys available for the purpose, to provide the payments and deposits specified above to be made from Revenues.

To the extent provided in the Enabling Act, any establishment or revision of said rules and regulations and any fixing, revision or adjustment of said fees, rents, rates or other charges by the Authority shall require the approval of the University Trustees, and the Authority covenants that it will use its best efforts to obtain such approval whenever required.

Annual Schedule of Projected Expenses

The Authority shall file with the Trustee an annual schedule of projected expenses (the "Annual Schedule of Projected Expenses" or "Schedule") as follows:

(a) With or before the first remittance to the Trustee of moneys to be deposited in the Revenue Fund, the Authority shall file with the Trustee an initial Schedule signed by an Authorized Officer setting forth the amount estimated by the Authority to be payable from the Revenue Fund as Current Expenses, Maintenance, Repair and Operating Expenses and Section 19C Payments during the period commencing with the date thereof and ending on the next following June 30.

(b) On or before each June 15, commencing with the June 15 next preceding the end of the period covered by said initial Schedule, the Authority shall file with the Trustee a Schedule similarly signed setting forth the amount estimated by the Authority to be payable from the Revenue Fund as Current Expenses, Maintenance, Repair and Operating Expenses and Section 20 Payments during the period commencing on the next following July 1 and ending twelve months thereafter.

(c) If at any time prior to June 30 in any period covered by the initial or any subsequent Schedule, as the same may have theretofore been amended, the aggregate of the amounts paid from the Revenue Fund since and including the next preceding July 1 as Current Expenses, Maintenance, Repair and operating Expenses and Section 19C Payments shall exceed the amount set forth in such Schedule, the Authority shall file an amended Schedule similarly signed increasing accordingly the estimated amount to be payable as Current Expenses, Maintenance, Repair and Operating Expenses and Section 19C Payments during the balance of such period. Each amended Schedule filed by the Authority under this clause shall supersede all initial, annual and amended Schedules filed prior thereto.

Debt Service Payments and Payment of Purchase Price

The Authority covenants that it will promptly pay the principal of and the interest on every Bond and the purchase price of every Bond tendered as provided in the applicable Series Resolution at the place, on the dates and in the manner provided in the Agreement and in said Bond and Series Resolution, and any premium required for the retirement of said Bond by purchase or redemption, according to the true intent and meaning thereof. Except as otherwise provided in the Agreement, such principal, interest, purchase price and premium are payable solely from Revenues and Funds pledged under the Agreement.

The Authority covenants that it will perform and observe each and every agreement, condition, covenant and obligation on its part to be performed and observed under each Contract providing for the Commonwealth Guaranty to the end that the Commonwealth Guaranty therein provided and the pledge of the full faith and credit of the Commonwealth for such Commonwealth Guaranty shall remain in full force and effect and binding upon the Commonwealth as authorized by the Enabling Act and provided by such Contract, said Commonwealth Guaranty and pledge being evidenced by the guaranty executed on each applicable Guaranteed Bond by an officer of the University Trustees.

Completion of Projects

The Authority covenants that it will with reasonable expedition complete each Project in conformity with law and all requirements of all governmental authorities having jurisdiction thereover. The Authority further covenants that upon completion or occupancy of each Project financed by a Series of Bonds issued under the Agreement, if and to the extent that there is no obligation of the University Trustees under a Contract to undertake the operation and maintenance of any such Project, the Authority will thereafter operate and maintain, or otherwise provide for the operation and maintenance of, such Project.

Land Covenant

(a) The Authority covenants that each Project constructed or acquired by it is or will be located on lands as to which either (i) the same are leased by the Authority from the Commonwealth for the purpose by a good and valid lease or leases continuing or renewable at the option of the Authority for a term not shorter than the last maturity of any Bond of the Series pertaining to such Project, or (ii) good and marketable title to which is owned by the Authority in fee simple or the right to use and occupy which is vested in the Authority by valid franchises, licenses, easements, rights of way or other rights expiring not earlier than the last maturity of any such Bond.

(b) The foregoing covenant shall not apply to a Project consisting of the construction, alteration, enlargement, reconstruction, rehabilitation, remodeling and other work on any building, structure or other facility (including without limitation parking lots) not owned or leased by the Authority as lessee or sublessee and not involving the acquisition of such building, structure or facility by the Authority.

Compliance with Contracts

The Authority covenants that it will perform and observe each and every agreement, condition, covenant and obligation on its part to be performed and observed under each Contract, and will use its best efforts to enforce like performance and observation on the part of the Commonwealth and the University Trustees, to the end that the obligation of the Commonwealth and the University Trustees thereunder, among other things, to remit to the Authority or to the Trustee Revenues, to operate and maintain the Project and to make necessary repairs to and restoration and reconstruction of the same shall continue in full force and effect. The Authority covenants that, from and to the extent of, but not in excess of, the Revenues of each Project owned by it and any other funds available to it for the purpose, it will cure any deficiencies in the maintenance of such Project and will make all necessary repairs, restoration and reconstruction not made by the Commonwealth pursuant to the applicable Contract and that it will observe and perform all of the terms and conditions contained in the Enabling Act.

Payment of Lawful Charges

The Authority covenants that it will not create or suffer to be created any lien or charge upon any Project or any part thereof or upon the Revenues therefrom except the lien and charge upon such Revenues under the Agreement, and that, from the same or other available funds, it will pay or cause to be discharged, or will make adequate provision to satisfy and discharge, as promptly as possible after the same shall accrue, all lawful claims and demands for labor, materials, supplies or other objects which, if unpaid, might by law become a lien upon any Project or any part thereof or the Revenues therefrom; provided, however, that nothing in the foregoing provisions in this subsection shall (a) require the Authority to pay or cause to be discharged, or make provision for, any such lien or charge so long as the validity thereof shall be contested in good faith, or (b) prohibit (i) the University Trustees or the University from using any funds of the University in accordance with law and in compliance with any Contract or any other agreement applicable to the University Trustees or the University or (ii) the Expendable Fund Balance of the University from being used in accordance with law and in compliance with any Contract or any other agreement applicable to the University Trustees; and provided, further, that if on any date the Authority holds or there is held for the account of the Authority Revenues in excess of the Revenues required by the provisions described above in "Rate Covenant" for the remainder of the fiscal year in which such date occurs, the Authority may apply such excess to any lawful purpose of the Authority as the Authority may from time to time determine.

Use of Other Funds for Projects; Sale of Projects

Notwithstanding any other provision of the Agreement, the Authority may permit the Commonwealth or any of its agencies, departments or political subdivisions, to pay the cost of maintaining, repairing and operating any Project out of funds other than Revenues of such Project whether pursuant to the pertinent Contract or otherwise.

The Authority may also, if and to the extent now or hereafter permitted by law, sell any Project owned by the Authority or any portion thereof; provided, that if such sale is of an entire Project, the proceeds therefrom shall be in an amount sufficient, with all other moneys then held by the Trustee hereunder and available for the purpose, (a) to pay or provide for the payment in full at the first date upon which such payment may be made of all amounts then required for the payment of the principal or Redemption Price of and interest on the Bonds then Outstanding issued to finance or refinance the cost of such Project (and the determination of which Bonds of the applicable Series were so issued shall be made by the Authority in any reasonable manner if the Project was financed or refinanced by Bonds issued as part of a Series that financed or refinanced more than one Project and shall be evidenced to the Trustee by a certificate of an Authorized Officer) and (b) to pay all necessary and proper expenses payable in connection with such payment; provided, further, that if such sale is of a portion of a Project, the proceeds therefrom shall be an amount sufficient, with any other moneys then held by the Trustee under the Agreement and available for the purpose, (a) to pay or provide for the payment in full at the first date upon which such payment may be made of the principal or Redemption Price of and interest on a principal amount of Bonds then Outstanding of the Series issued to finance or refinance the Cost of such Project bearing the same proportion to the principal amount of all such Bonds then Outstanding that (as reasonably determined by the Authority and evidenced to the Trustee by a Certificate of an Authorized Officer) the Cost of the portion of such Project to be sold bore to the Cost of the Project and (b) to pay all necessary and proper expenses payable in connection with such payment. The proceeds of any such sale shall be deposited by the Authority with the Trustee and shall be deposited by the Trustee to the credit of the Optional Redemption Account.

Insurance on Projects

The Authority covenants that (a) during the construction, alteration, enlargement, reconstruction, rehabilitation or remodeling of or other work upon each Project it will carry such builder's risk insurance, if any, as it may deem reasonable therefor, and (b) from and after the time when the contractors or any of them engaged in constructing any part of each Project shall cease to be responsible, pursuant to the provisions of the respective contracts for the construction of such part, for loss or damage to such part occurring from any cause, it will insure and at all times keep such part insured with a responsible insurance company or companies, qualified to assume the risk thereof, against physical loss or damage however caused, with such exemptions as are ordinarily required by insurers of buildings, structures or facilities of similar type and in similar locations, in such amount as it shall determine to be reasonable and in any event at least sufficient to comply with any legal or contractual requirement which, if breached, would result in assumption by the Authority of a portion of any loss or damage as a co-insurer; provided, however, that (i) if at any time the Authority shall be unable to obtain such insurance to the extent above required, either as to the amount of such insurance or as to the risks covered thereby, it will not constitute an event of default under the Agreement if the Authority shall maintain such insurance to the extent reasonably obtainable, (ii) such insurance may be provided by a policy or policies covering all insurable portions of such Project as a whole together with other insurable property of the Authority and (iii) the requirements set forth in clause (b) above of this paragraph shall not apply to any Project owned by the Commonwealth (but the Authority may from time to time provide such insurance of the kind described in such clause (b) for any Project owned by the Commonwealth as the Authority may determine in its discretion).

All such policies shall be for the benefit of the Trustee and the Authority as their interests shall appear, shall be made payable to the Trustee (by means of the standard mortgagee clause without contribution, if obtainable) and shall be deposited with the Trustee. The proceeds of any and all such insurance shall be deposited with the Trustee, and the Trustee shall have the sole right to receive the proceeds of such insurance and to collect claims thereunder and receipt therefor. The proceeds of any and all such insurance shall be deposited to the credit of the Insurance Proceeds Account in the Property Fund.

The Authority covenants that, immediately after any damage to or destruction of any part of any Project the estimated cost to repair, restore or reconstruct which exceeds One Hundred Thousand Dollars ($100,000), it will, if necessary, prepare or cause the Architect or Engineer, as the case may be, for the Project to prepare plans and specifications for repairing, restoring or reconstructing the damaged or destroyed property, and in any event it will proceed with all reasonable promptness as may be required to accomplish such repair, restoration or reconstruction in accordance with the original design or to do such other work as may be advised in writing by the University Trustees.

The proceeds of all insurance referred to in this subsection shall be available for, and shall to the extent necessary be applied to, the repair, restoration or reconstruction of the damaged or destroyed property, or the doing of other work with respect thereto as the Authority may determine by resolution adopted upon advice in writing from the University Trustees, and shall be disbursed by the Trustee upon receipt of copies, certified by an Authorized Officer, of the resolution adopted by the Authority authorizing such repair, restoration and reconstruction and of such written advice and otherwise in the manner and upon the showings provided in the Agreement for payments from the Construction Fund. If such proceeds shall be insufficient for such purpose, the deficiency shall be supplied from any other moneys available for the purpose in the appropriate reserve Account or in the General Account in the Property Fund.

Upon completion of the work authorized by such resolution the Authority shall cause to be filed with the Trustee a notice and a Counsel's Opinion with respect thereto executed, approved and including statements substantially to the same effect as those provided in the Agreement for completion of construction of a Project.

Any balance of such proceeds remaining after such certificate shall have been filed shall be held by the Trustee in the Insurance Proceeds Account in the Property Fund and applied as provided herein or, if the Authority shall so direct by a certificate of an Authorized Officer, shall be transferred to one or more of the Revenue Fund, the Optional Redemption Account in the Debt Service Fund, to any Account within the Construction Fund or to the Multi-Purpose Reserve Account.

Use, Occupancy and Other Insurance

The Authority covenants that it will at all times carry with a responsible insurance company or companies or companies qualified to assume the risk thereof:

(a) use and occupancy insurance covering loss of Revenues from each Project by reason of necessary interruption, total or partial, in the use thereof resulting from damage or destruction of any part thereof however caused, with such exceptions as are ordinarily required by insurers providing similar insurance, in such amount as the Authority shall estimate is sufficient to provide a full equivalent of Revenues for the fiscal year of the Authority respecting which such insurance is carried; provided, that if at any time the Authority shall be unable to obtain such insurance to the extent above required, either as to the amount of such insurance or as to the risks covered thereby, it will not constitute an event of default under the Agreement if the Authority shall carry such insurance to the extent reasonably obtainable; provided, however, that the Authority need not (but may) provide the insurance described in this subparagraph with respect to any Project owned by the Commonwealth; and

(b) such worker's compensation or employers' liability insurance as may be required by law and such public liability and property damage insurance as the Authority shall deem reasonable.

All policies providing use and occupancy insurance shall be made payable to and deposited with the Trustee, and the Trustee shall have the sole right to receive any proceeds of such policies and to collect claims thereunder. Any proceeds of use and occupancy insurance paid to the Trustee shall be deposited by it forthwith to the credit of the Revenue Fund.

Any appraisement or adjustment of any loss or damage under any policy payable to the Trustee and any settlement or payment of indemnity under any such policy shall be agreed upon between the Authority and any insurer and shall be evidenced to the Trustee by a certificate, signed by an Authorized Officer of the Authority, which certificate may be relied upon by the Trustee as conclusive. The Trustee shall in no way be liable or responsible for the collection of insurance moneys in case of any loss or damage.

No Inconsistent Action by Authority

The Authority covenants and agrees that none of the Revenues of any Project will be used for any purpose other than as provided in the Agreement and no contract or contracts will be entered into or any action taken which shall be inconsistent with the provisions of the Agreement.

Further Instruments and Actions

The Authority covenants that it will, from time to time, execute and deliver such further instruments and take such further action as may be required to carry out the purposes of the Agreement.

Records, Reports and Audits

The Authority covenants that it will keep an accurate record of the total cost of each Project, of the Revenues collected or derived from such Project, and of the application of such Revenues collected or derived from such Project. Such records shall be open at all reasonable times to the inspection of the Trustee. The Authority covenants that it will cause any reports or audits relating to each Project to be made as required by law and that it will furnish to the Trustee a copy of each such report and audit forthwith upon receipt thereof by the Authority.

Release of Land; Sale of Equipment

The Authority may from time to time (a) release to the University Trustees any land leased by the University Trustees to the Authority if permitted by a lease entered into between the University Trustees and the Authority and if such release will not adversely affect Revenues, (b) sell or otherwise dispose of any machinery, fixtures, apparatus, tools, instruments or other movable property acquired by it from the proceeds of Bonds or from the Revenues of a Project, if the Authority shall reasonably determine that such articles are no longer useful or appropriate in connection with the construction or operation and maintenance of such Project, and that such sale or disposition, taking account of the application of any proceeds received from such sale or disposition and any replacement to be made of or any substitution to be made for any of the properties so sold or disposed of, shall not adversely affect the Revenues from such Project.

Covenant as to Exclusion of Interest from Gross Income

The Authority covenants that it will not take any action or fail to take any action that would adversely affect the exclusion of interest on the Bonds from gross income for federal income tax purposes.

Notice of Default; Financial Statements

The Authority covenants that (a) forthwith upon any officer of the Authority's obtaining knowledge of any condition or event which constitutes or, after notice or lapse of time or both, would constitute an "event of default" as defined in the Agreement, it will file with the Trustee a certificate signed by an Authorized Officer specifying the nature and period of existence thereof, and what action the Authority has taken, is taking or proposes to take with respect thereto, (b) on or before the 15th day of each July it will file with the Trustee a certificate signed by an Authorized Officer stating that, so far as is known to the signer of the certificate, the Authority is not in default under any covenant, agreement or condition contained in the Agreement and that no event has occurred which constitutes or, after notice or lapse of time or both, would constitute such an event of default or, if the Authority shall be in default, or any such event has occurred, specifying each such default and event and the nature and period of existence thereof of which the signer may have knowledge and what action, if any, the Authority has taken, is taking or proposes to take with respect thereto and (c) it will cause an examination of its financial statements as of the end of and for each fiscal year during which Bonds shall be Outstanding under the Agreement to be made by independent certified public accountants and within one hundred eighty (180) days after the end of each fiscal year will file with the Trustee a copy of such financial statements together with the signed opinion of such independent certified public accountants with respect thereto.

Defaults; Remedies

Extended Interest

In case the time for the payment of the interest on any Bond shall be extended, whether or not such extension be by or with the consent of the Authority, such interest so extended shall not be entitled in case of default under the Agreement to the benefit or security of the Agreement except subject to the prior payment in full of the principal of all Bonds then Outstanding and of all interest the time for the payment of which shall not have been extended.

Events of Default

Each of the following events is an "event of default" under the Agreement:

(a) payment of the principal and premium, if any, of any of the Bonds shall not be made when the same shall become due and payable, either at maturity or by required proceedings for redemption or otherwise, or payment of the purchase price of any Bond tendered as provided in the applicable Series Resolution shall not be made when such purchase price shall become due and payable; or

(b) payment of any installment of interest on the Bonds shall not be made when due and payable; or

(c) the Authority shall for any reason be rendered incapable of fulfilling its obligations under the Agreement; or

(d) an order or decree shall be entered, with the consent or acquiescence of the Authority, appointing a receiver or receivers of any Project or any part thereof or of the Revenues thereof, or if such order or decree, having been entered without the consent or acquiescence of the Authority, shall not be vacated or discharged or stayed on appeal within one hundred and twenty (120) days after the entry thereof; or

(e) any proceeding shall be instituted, with the consent or acquiescence of the Authority, for the purpose of effecting a composition between the Authority and its creditors or for the purpose of adjusting the claims of such creditors, pursuant to any federal or state statute now or hereafter enacted, if the claims of such creditors are under any circumstances payable from the Revenues of any Project; or

(f) the Authority shall default in the due and punctual performance of any of the covenants, conditions, agreements and provisions contained in the Bonds or in the Agreement on the part of the Authority to be performed in connection with the Bonds or any Project financed or refinanced by the Bonds, and such default shall continue for thirty (30) days after written notice specifying such default and requiring same to be remedied shall have been given to the Authority by the Trustee, which may give such notice in its discretion and shall give such notice at the written request of the Registered Owners of not less than twenty per cent (20%) in principal amount of the Bonds then Outstanding.

For all purposes of the Agreement, any event of default specified in subparagraph (a) or subparagraph (b) of the preceding paragraph with respect to any one or more Bonds shall be deemed to be such an event of default on all other Outstanding Bonds of the same level or levels as the Bond or Bonds with respect to which such event of default occurred, i.e., any such event of default with respect to one or more Senior Bonds shall be deemed to be such an event of default on all other Outstanding Senior Bonds, any such event of default with respect to one or more Bonds of any Subordinate Series, Level 2 shall be deemed to be such an event of default on all Outstanding Bonds of all Subordinate Series, Level 2, and so on.

No Acceleration

Notwithstanding any other provision of the Agreement to the contrary, the Bonds shall not be subject to acceleration, and all provisions with respect to events of default under the Agreement and with respect to remedies available under the Agreement shall be subject to such prohibition.

Remedies

Upon the happening and continuance of any event of default under the Agreement, then and in every such case the Trustee may proceed, and upon the written request of the Registered

Owners of not less than twenty per centum (20%) in principal amount of the Bonds then Outstanding (or, in the case of an event of default under clause (a) or clause (b) above in "Events of Default," not less than twenty per centum (20%) in principal amount of the Bonds Outstanding as to which such event of default has occurred) shall proceed, subject to being indemnified as provided in the Agreement, to protect and enforce its rights and the rights of the Registered Owners of the Bonds under the laws of the Commonwealth or under the Agreement by such suits, actions or proceedings in equity or at law, or by proceedings in the office of any board or officer having jurisdiction, either for the specific performance of any covenant or agreement contained in the Agreement or in aid or execution of any power herein granted or for the enforcement of any proper legal or equitable remedy, as the Trustee, being advised by counsel, shall deem most effectual to protect and enforce such rights.

In the enforcement of any remedy under the Agreement the Trustee shall be entitled to sue for, enforce payment of and receive any and all amounts then or during any default becoming, and at any time remaining, due from the Authority for principal, interest or otherwise under any of the provisions of the Agreement or of the Bonds, with interest on overdue payments at the rate or rates of interest borne by the applicable Bonds, together with any and all costs and expenses of collection and of all proceedings under the Agreement and under the Bonds, without prejudice to any other right or remedy of the Trustee or of the Registered Owners, and to recover and enforce any judgment or decree against the Authority, but solely as provided in the Agreement and in the Bonds, for any portion of such amounts remaining unpaid, with interest, costs and expenses, and to collect (but solely from moneys in the Debt Service Fund, the Section 10 Reserve Fund, any other reserve fund securing any Bond, the Rate Stabilization Fund and the Property Fund and any other moneys available for such purpose) in any manner provided by law, the moneys adjudged or decreed to be payable.

Application of Funds

(a) Anything in the Agreement to the contrary notwithstanding, if at any time the moneys in the Debt Service Fund, in the Section 10 Reserve Fund, in any other reserve fund securing any Bond, in the Rate Stabilization Fund and in the Property Fund, and any other moneys available for the purpose shall not be sufficient to pay the principal and Redemption Price of or the interest on the Bonds as the same shall become due and payable or the purchase price of any Bond tendered as provided in the applicable Series Resolution, such moneys, together with any moneys then available or thereafter becoming available for such purpose, whether through the exercise of the remedies described in this section of this Summary or otherwise, shall be applied as provided in paragraph (b) below, any such application to be made, first to all Outstanding Senior Bonds, until all principal, Redemption Price and interest then due on such Senior Bonds have been paid, and second, to all Outstanding Level 2 Bonds, until all principal, Redemption Price and interest then due on such Level 2 Bonds have been paid, and third, to all Outstanding Level 3 Bonds, until all principal, Redemption Price and interest then due on such Level 3 Bonds have been paid, and so on in descending order of subordination. Any such application shall also be subject to the following:

(i) moneys received under the Commonwealth Guaranty shall be applied only to the Guaranteed Bonds on account of which such moneys are received and shall not be applied to the payment of the fees and expenses of the Trustee;

(ii) moneys in the Section 10 Reserve Fund shall be applied only to Guaranteed Bonds and shall not be applied to fees and expenses of the Trustee;

(iii) moneys received under any Credit Facility or Derivative shall be applied only to the payment of amounts which are due on the Bonds secured by such Credit Facility or to which such Derivative applies and to which moneys received under such Credit Facility or such Derivative are permitted to be applied and shall be applied to the fees and expenses of the Trustee only if such application is explicitly permitted under the applicable Credit Facility or the applicable Derivative and only in amounts not in excess of the amounts permitted by such Credit Facility or such Derivative to be so applied;

(iv) moneys in any reserve fund other than the Section 10 Reserve Fund shall be applied only as provided in the one or more applicable Series Resolutions and shall be applied to fees and expenses of the Trustee only if such application is explicitly permitted by the applicable Series Resolution;

(v) amounts due to the issuer of a Credit Facility for reimbursement of any amount paid under such Credit Facility for payment of principal or Redemption Price of or interest on any Bond or the purchase price of any Bond tendered as provided in the applicable Series Resolution (but not including interest on any such amount) shall, to the extent and under the conditions set forth in the applicable Series Resolution or reimbursement agreement with the issuer of such Credit Facility, be deemed for purposes of paragraph (b) below to be payments of principal or Redemption Price of or interest on such Bond and shall be paid to such issuer in connection with the application of moneys under such paragraph and

(vi) amounts due from or on account of the Authority under a Derivative for amounts paid under such Derivative for payment of principal or Redemption Price of or interest on any Bond (but not including interest on any such amount) shall, to the extent and under the conditions set forth in the applicable Series Resolution or in such Derivative, be deemed for purposes of paragraph (b) below to be payments of principal or Redemption Price of or interest on such Bond and shall be paid as provided in such Derivative in connection with the application of moneys under such paragraph.

(b) All such moneys shall be applied (subject to paragraph (a) above):

First: to the payment to the Trustee of its unpaid fees and expenses, to the extent of moneys available therefor as provided in paragraph (a) above;

Second: to the payment to the persons entitled thereto of all installments of interest on Bonds then due, in the order of the maturity of the installments of such interest, and, if the amounts available shall not be sufficient to pay in full any particular installment, then to the payment ratably, according to the amounts due on such installment, to the persons entitled thereto, without any discrimination or preference except as to any difference in the respective rates of interest specified in the Bonds and except as provided in paragraph (a) above;

Third: to the payment to the persons entitled thereto of the unpaid principal and Redemption Price of any of the Bonds which shall have become due (other than Bonds called for redemption for the payment of which moneys are held pursuant to the provisions of the Agreement), in the order of their due dates, with interest upon such Bonds from the respective dates upon which they became due, and the unpaid purchase price of any Bond tendered in accordance with the applicable Series Resolution, and, if the amount available shall not be sufficient to pay in full the principal and Redemption Price of Bonds due on any particular date, together with such interest, and such purchase price, then to the payment first of such interest, ratably according to the amount of such interest due on such date, and then to the payment of such principal, Redemption Price and purchase price, ratably according to the amount of such principal and purchase price due on such date, to the persons entitled thereto, and in either case without any discrimination or preference, except as provided in paragraph (a) above and

Fourth: to the payment of the interest on and the principal and Redemption Price of the Bonds, to the purchase and retirement of Bonds and to the redemption of Bonds, all in accordance with the provisions described above under "Establishment and Application of Funds and Accounts" (and as provided in paragraph (a) above).

(c) Whenever moneys are to be applied by the Trustee pursuant to the above provisions, such moneys shall be applied by the Trustee at such times, and from time to time, as the Trustee in its sole discretion shall determine, having due regard to the amount of such moneys available for application and the likelihood of additional moneys becoming available for such application in the future; and the Trustee shall incur no liability whatsoever to the Authority, to any Registered Owner or to any other person for any delay in applying any such moneys, so long as the Trustee acts with reasonable diligence, having due regard to the circumstances, and ultimately applies the same in accordance with such provisions of the Agreement as may be applicable at the time of application by the Trustee. Whenever the Trustee shall exercise such discretion in applying such moneys, it shall fix the date (which shall be an Interest Payment Date unless the Trustee shall deem another date more suitable) upon which such application is to be made and upon such date interest on the amounts of principal to be paid on such date shall cease to accrue.

The Trustee shall give such notice as it may deem appropriate of the fixing of any such date, and shall not be required to make payment to the Registered Owner of any Bond until such Bond shall be surrendered to the Trustee for appropriate endorsement, or for cancellation if fully paid.

Discontinuance of Proceedings

In the event that any proceeding taken by the Trustee on account of any default under the Agreement shall have been discontinued or abandoned for any reason, then and in every such case the Authority, the Trustee and the Registered Owners shall be restored to their former positions and rights under the Agreement, respectively, and all rights, remedies, powers and duties of the Trustee shall continue as though no such proceeding had been taken.

Control of Proceedings

Anything in the Agreement to the contrary notwithstanding, the registered Owners of a majority in principal amount of the Bonds then Outstanding (or, with respect to an event of default described in clause (a) or clause (b) above in "Events of Default," the Registered Owners of a majority in principal amount of the Bonds Outstanding as to which such event of default has occurred) shall have the right, subject to the Trustee's being indemnified as provided in the Agreement, by an instrument or concurrent instruments in writing executed and delivered to the Trustee, to direct the method of conducting all remedial proceedings to be taken by the Trustee under the Agreement in connection with the Bonds, provided that such direction shall not be otherwise than in accordance with law or the provisions of the Agreement.

Restrictions upon Actions by a Registered Owner

No Registered Owner shall have any right to institute any suit, action or proceeding in equity or at law for the execution of any trust under the Agreement or for any other remedy under the Agreement unless such Registered Owner previously shall have given to the Trustee written notice of the event of default on account of which such suit, action or proceeding is to be instituted, and unless also the Registered Owners of not less than twenty per cent (20%) in principal amount of the Bonds then Outstanding (or, with respect to an event of default described in clause (a) or clause (b) above in "Events of Default," the Registered Owners of not less than twenty per cent (20%) principal amount of the Bonds Outstanding as to which such event of default has occurred) shall have made written request of the Trustee after the right to exercise such powers of right of action, as the case may be, shall have accrued, and shall have afforded the Trustee a reasonable opportunity either to proceed to exercise the powers granted by the Agreement or to institute such action, suit or proceeding in its or their name, and unless, also, there shall have been offered to the Trustee reasonable security and indemnity against the costs, expenses and liabilities to be incurred therein or thereby, and the Trustee shall have refused or neglected to comply with such request within a reasonable time; and such notification, request and offer of indemnity are hereby declared in such every case, at the option of the Trustee, to be conditions precedent to the execution of the powers and trusts of the Agreement or for any other remedy under the Agreement. No one or more Registered Owners of the Bonds shall have any right in any manner whatever by action of such Registered Owner or Owners to affect, disturb or prejudice the security of the Agreement, or to enforce any right under the Agreement except in the manner provided in the Agreement, that all proceedings at law or in equity shall be instituted, had and maintained in the manner provided in the Agreement and for the benefit of all Registered Owners of the Outstanding Bonds, and that any individual rights of action or other right given to one or more of such Registered Owners by law are restricted by the Agreement to the rights and remedies provided in the Agreement.

Nothing in the Agreement or in the Bonds shall, however, affect or impair the absolute, unconditional and unalterable obligation of the Authority to pay when due (whether due on account of stated maturities, scheduled payments, call for redemption or otherwise) the principal and Redemption Price of and interest on the Bonds and the purchase price of any Bond tendered as provided in the applicable Series Resolution, or affect the right of any Registered Owner of a Bond to institute or require the institution of any action or proceeding against the Authority for the enforcement of such payment, or against the Commonwealth for the enforcement of its guaranty of Guaranteed Bonds.

Actions by Trustee

All rights of action under the Agreement or under any of the Bonds, enforceable by the Trustee, may be enforced by it without the possession of any of the Bonds or the production thereof on the trial or other proceeding relative thereto, and any such suit, action or proceeding instituted by the Trustee shall be brought in its name for the benefit of all of the Registered Owners, subject to the provisions of the Agreement.

No Remedy Exclusive

No remedy conferred by the Agreement upon or reserved to the Trustee or to the Registered Owners is intended to be exclusive of any other remedy or remedies provided by the Agreement, and each and every such remedy shall be cumulative and shall be in addition to every other remedy given under the Agreement.

No Delay or Omission Construed as Waiver

No delay or omission of the Trustee or of any Registered Owner to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default or an acquiescence therein; and every power and remedy given by the Agreement to the Trustee and the Registered Owners of the Bonds, respectively, with respect to events of default, may be exercised from time to time as often as may be deemed expedient.

The Trustee may, and upon written request of the Registered Owners of not less than a majority in principal amount of the Bonds then Outstanding shall, waive any default which in its opinion shall have been remedied before the entry of final judgment or decree in any suit, action or proceeding instituted by it under the provisions of the Agreement or before the completion of the enforcement of any other remedy under the Agreement, but no such waiver shall extend to or affect any other existing or any subsequent default of defaults or impair any rights or remedies consequent thereon.

Notice of Default

The Trustee shall mail to all Registered Owners of Bonds then Outstanding at their addresses as they appear on the registration books written notice of the occurrence of any event of default described in clause (a) or clause (b) above in “Events of Default” promptly upon the occurrence thereof and of any other event of default described under “Events of Default” within thirty (30) days after the Trustee shall have received written notice that any such event of default has occurred and any applicable grace period shall have expired. The Trustee shall not, however, be subject to any liability to any Registered Owner by reason of its failure to mail any such notice.

CONCERNING THE TRUSTEE

Indemnity

The Trustee shall be under no obligation to institute any suit, or to take any remedial proceeding under the Agreement, or to enter any appearance or in any way defend in any suit in which it may be made defendant, or to take any steps in the execution of the trusts created by the Agreement or in the enforcement of any rights and powers under the Agreement, until it shall be indemnified to its satisfaction against any and all costs and expenses, outlays and counsel fees and disbursements and other reasonable disbursements, and against all liability; the Trustee may, nevertheless, begin suit, or appear in and defend suit, or do anything else in its judgment proper to be done by it as such Trustee, without indemnity, and in such case the Authority shall reimburse the Trustee from the Revenues of any Project for all costs and expenses, outlays and counsel fees and disbursements and other reasonable disbursements properly incurred in connection therewith. If the Authority shall fail to make such reimbursement, the Trustee may reimburse itself from any moneys in its possession under the provisions of the Agreement from which the payment of fees and expenses of the Trustee is not prohibited by the Agreement and shall have a first and prior lien on such moneys for that purpose over any of the Bonds Outstanding under the Agreement.

Limitation on Obligations

The Trustee shall be under no obligation to effect or maintain insurance or to renew any policies of insurance or to inquire as to the sufficiency of any policies of insurance carried by the Authority, or to report, or make or file claims or proof of loss for, any loss or damage insured against or which may occur, or to keep itself informed or advised as to the payment of any taxes or assessments, or to require any such payment to be made. The Trustee shall have no responsibility in respect of the construction or operation of any Project, the validity or sufficiency of the Agreement or the due execution or acknowledgment thereof, or in respect of the validity of the Bonds or the due execution or issuance thereof except as represented by its own authentication, or in respect of the validity or enforceability of the guaranty by the Commonwealth executed on any Guaranteed Bond. The Trustee shall be under no obligation, except as otherwise expressly required in the Agreement, to see that any duties herein imposed upon the Authority, the Architect, the Engineer, any investment adviser appointed by the Authority, or any party other than itself, or any covenants in the Agreement on the part of any party other than itself to be performed, shall be done or performed, and the Trustee shall be under no obligation for failure to see that any such duties or covenants are so done or performed.

Notice of Default

In addition to any other notices required to be given by the Trustee under the Agreement, if on the fifteenth day of the month (or, if such fifteenth day is not a business day, on the next succeeding business day) before the date which shall be one or more of a due date for a payment of interest on Guaranteed Bonds or of a Sinking Fund Installment respecting Guaranteed Bonds or a maturity date for Guaranteed Bonds then Outstanding, the moneys held by the Trustee for or to be deposited prior to such due date to the credit of any subaccount of the Interest Account, any subaccount of the Sinking Fund Account or any subaccount of the Principal Account shall be less than the amount required on such date respectively to pay in full such interest then due, to pay such Sinking Fund Installment then due or to pay the principal of all such Guaranteed Bonds then maturing, all as the case may be, the Trustee shall on such fifteenth day (or next succeeding business day) deliver or cause to be delivered to the offices of the Secretary of Administration and Finance and of the Treasurer and Receiver-General of the Commonwealth a notice addressed to said officials and shall give copies thereof to the Authority and to the purchasers in the manner provided in the Agreement. Such notice shall state (a) the amount or amounts to become due, the nature thereof and the due date, (b) the amount or amounts of moneys held by the Trustee on such business day for the credit of the pertinent Account or Accounts and subaccount or subaccounts, (c) the amount or amounts of moneys held by the Trustee on such business day for the credit of the Section 10 Reserve Fund, each Debt Service Reserve Fund or Multi-Series Debt Service Reserve Fund, the Optional Redemption Account, the Rate Stabilization Fund and any Account in the Property Fund which are available for the payment of such interest, such Sinking Fund Installment or such maturing principal amount, all as the case may be.

If the University Trustees shall be obligated to pay any such amount from Pledged Funds, the Trustee shall include in its notice a request that the University Trustees transfer or cause to be transferred applicable Pledged Funds forthwith, unless such request is otherwise required to be made by any applicable Series Resolution. If (a) the University Trustees shall be obliged by the Contract respecting Outstanding Guaranteed Bonds to give a notice respecting the availability of moneys for said purposes by said dates and (b) such notice has been given and (c) such notice states that moneys are not expected to be available by said dates in amounts sufficient to meet such purposes in full and (d) the moneys held by the Trustee as stated in the last sentence of the first paragraph above in “Notice of Default” are not sufficient, when added to whatever available amount is stated in such notice from the University Trustees, to meet such purposes in full, then the Trustee shall include in the notice to be given by it a request that the Commonwealth make funds available to honor the Commonwealth Guaranty under all such Contracts.

Except as provided above, the Trustee shall not be obliged to take notice or be deemed to have notice of any prospective event of default under the Agreement. The Trustee shall not be obliged to take notice or be deemed to have knowledge of any event of default under the Agreement, except for events of default described in clause (a) or clause (b) above in “Defaults; Remedies - Events of Default,” unless an officer in the corporate trust department of the Trustee has received written notice of such event of default by the Authority or the Registered Owners of not less than twenty per cent (20%) in principal amount of the Bonds Outstanding.

Resignation

The Trustee may resign at any time and thereby become discharged from the trusts created by the Agreement by notice in writing to be given to the Authority and the Registered Owners at least thirty (30) days before such resignation is to take effect, but such resignation shall take effect immediately upon the appointment of a new Trustee under the Agreement, if such new Trustee shall be appointed before the time limited by such notice and shall then accept the trusts of the Agreement.

Removal

The Trustee may be removed at any time by an instrument or concurrent instruments in writing, signed by the Registered Owners of not less than a majority in principal amount of the Bonds then Outstanding and filed with the Authority (and the Authority shall promptly deliver to the Trustee a reproduction copy of each such instrument) or by resolution of the Authority.

The Trustee may also be removed at any time for any breach of trust or violation of the Agreement by any court of competent jurisdiction upon application by the Registered Owners of not less than five per cent (5%) in principal amount of the Bonds then Outstanding.

Appointment of Successor Trustee

If at any time the Trustee shall resign, be removed, be dissolved or otherwise become incapable of acting, or the bank or trust company acting as Trustee shall be taken over by any governmental official, agency, department or board, the position of Trustee shall thereupon become vacant. If at any time moneys on deposit with the Trustee shall not be secured as required by the Agreement, a vacancy in the position of Trustee may be declared by a resolution duly passed by the Authority. If the position of Trustee shall become vacant for any of the foregoing reasons or for any other reason, the Authority shall appoint a Trustee to fill such vacancy. The Authority shall send written notice of any such appointment to the Registered Owners, and the Trustee whose position is being filled shall make available to the Authority at all times during normal business hours its registration books and permit the Authority to copy such registration books.

At any time within one year after any such vacancy shall have occurred, the Registered Owners of a majority in principal amount of the Bonds then Outstanding, by an instrument or concurrent instruments in writing, signed by such Registered Owners or their attorneys in fact or legal representatives and filed with the Authority, may appoint a successor Trustee which shall supersede any Trustee theretofore appointed by the Authority. Copies of such instrument shall be delivered promptly by the Authority to the predecessor Trustee and to the Trustee so appointed by the Registered Owners.

If no appointment of a successor Trustee shall be made pursuant to the foregoing provisions, the Registered Owner of any Outstanding Bond or any retiring Trustee may apply to any court of competent jurisdiction to appoint a successor Trustee. Such court may thereupon, after such notice, if any, as such court may deem proper and prescribe, appoint a successor Trustee.

Any Trustee hereafter appointed shall be a bank or trust company within the Commonwealth (as the words "within the Commonwealth" are used in the Enabling Act) duly authorized to exercise corporate trust powers and subject to examination by federal or state authority, of good standing, having a combined capital and surplus aggregating not less than One Hundred Million Dollars ($100,000,000).

The Trustee shall not be required to be "within the Commonwealth" if the Enabling Act no longer contains such requirement.

SUPPLEMENTAL AGREEMENTS

Supplemental Agreements without Consent of Registered Owners

The Authority and the Trustee may, from time to time and at any time, without the consent of the Registered Owners, enter into agreements supplemental to the Agreement as shall not be inconsistent with the terms and provisions of the Agreement (which supplemental agreements shall thereafter form a part of the Agreement)

(a) to cure any ambiguity or formal defect or omission in the Agreement or in any supplemental agreement, or

(b) to grant to or confer upon the Trustee for the benefit of the Registered Owners any additional rights, remedies, powers, authority or security that may lawfully be granted to or conferred upon the Registered Owners or the Trustee, or

(c) to add to the covenants and agreements of the Authority other covenants and agreements thereafter to be observed by the Authority which shall not be inconsistent with the terms and provisions of the Agreement or to surrender any right or power reserved to or conferred upon the Authority in the Agreement, or

(d) to add any amendment described in "Establishment and Application of Funds and Accounts - Rebate Fund," or

(e) for any other purpose, provided that (i) such supplemental agreement (A) does not adversely affect the interest of any Registered Owner and (B) does not make any change in the Agreement prohibited by clauses (a) through (e) below in "Modification of Agreement" and (ii) the Authority and the Trustee receive an opinion of bond counsel to the Authority to the effect that such supplemental agreement complies with subclauses (A) and (B) of this clause.

If the interest on obligations issued in bearer form should at any time qualify for exclusion from gross income for federal income tax purposes, or if the Authority desires to issue obligations the interest on which is not excludable from gross income for federal income tax purposes, and if in either case applicable law permits the issuance by the Authority of obligations in bearer form, the Agreement may be amended without the consent of the registered Owners to permit the issuance under the Agreement of obligations in such form; provided that the Authority and the Trustee receive an opinion of bond counsel to the Authority to the effect that applicable law permits the issuance by the Authority of obligations in bearer form and that such amendment will not affect the exclusion from gross income for federal income tax purposes of the interest on any Bond previously issued under the Agreement.

Any provision of the Agreement with respect to any Series of Bonds secured by a Credit Facility may be amended by the Series Resolution authorizing such Series to take into account the requirements or reasonable requests of the issuer of such Credit Facility. Such amendments may include, but not be limited to, amendments with respect to the exercise of rights of the Registered Owner of the Bonds of such Series by the issuer of such Credit Facility and subrogation of the issuer of such Credit Facility to the rights of such Registered Owners.

Modification of Agreement

The Registered Owners of not less than fifty-one percent (51%) in aggregate principal amount of the Bonds then Outstanding shall have the right, from time to time, to consent to and approve the execution by the Authority and the Trustee of such agreement or agreements supplemental to the Agreement as shall be deemed necessary or desirable by the Authority for the purpose of modifying, altering, amending, adding to or rescinding, in any particular, any of the terms or provisions contained in the Agreement or in any supplemental agreement; provided, however, that nothing contained in the Agreement shall permit, or be construed as permitting (a) an extension of the maturity of the principal of, the due date of any Sinking Fund Installment or respecting the due date of any interest payment due on any Bond, or (b) a reduction in the principal amount of any Bond or the Redemption Price thereof or the rate of interest thereon, or (c) the creation of a lien or pledge of Revenues ranking prior to or on a parity with the lien or pledge created by the Agreement, or (d) a preference or priority of any Bond or Bonds over any other Bond or Bonds other than as provided in the Agreement or (e) a reduction in the aggregate principal amount of the Bonds required for consent to such supplemental agreement. Nothing contained in the Agreement, however, shall be construed as making necessary the approval by Registered Owners of the execution of any supplemental agreement or agreements described above in "Supplemental Agreements without Consent of Registered Owners."

If the Registered Owners of not less than fifty-one per cent (51%) in aggregate principal amount of the Bonds Outstanding at the time of the execution of such supplemental agreement shall have consented to and approved the execution thereof as provided in the Agreement, no Registered Owner shall have any right to object to the execution of such supplemental agreement, or to object to any of the terms and provisions contained therein or the operation thereof, or in any manner to question the propriety of the execution thereof, or to enjoin or restrain the Trustee or the Authority from executing the same or from taking any action pursuant to the provisions thereof.

Responsibilities of Trustee

In each and every case provided for in this section "Supplemental Agreements," the Trustee shall be entitled to exercise its discretion in determining whether or not any proposed supplemental agreement, or any term or provision therein contained, is proper or desirable, having in view the purposes of such instrument, the needs of the Authority, the rights and interests of the Registered Owners and the rights, obligations and interests of the Trustee, and the Trustee shall not be under any responsibility or liability to the Authority or to any Registered Owner or to anyone whomsoever for its refusal in good faith to enter into any such supplemental agreement if such agreement is deemed by it to be contrary to the provisions of this section. The Trustee shall be entitled to receive, and shall be fully protected in relying upon, the opinion of any counsel approved by it, who may be counsel for the Authority, as conclusive evidence that any such proposed supplemental agreement does or does not comply with the provisions of the Agreement, and that it is or is not proper for it under the applicable provisions of the Agreement, to join in the execution of such supplemental agreement.

DEFEASANCE

Release of Agreement

If the Authority shall pay or cause to be paid, or there shall otherwise be paid, to the Registered Owners of all Bonds the principal or Redemption Price, if applicable, and interest due or to become due thereon, at the times and in the manner stipulated therein and in the Agreement, or if all Outstanding Bonds shall be deemed to be paid as provided in the following paragraph, and if all other sums, if any, then payable to the Trustee under the shall be paid, or the payment of such sums shall be provided for to the reasonable satisfaction of the Trustee, then the pledge of any Revenues and other moneys and securities pledged under the Agreement and all covenants, agreements and other obligations of the Authority to the Registered Owners, shall thereupon cease, terminate and become void and be discharged and satisfied. In such event, the Trustee shall cause an accounting for such period or period as shall be requested by the Authority to be prepared and filed with the Authority and, upon the request of the Authority, shall execute and deliver to the Authority all such instruments as may be desirable to evidence such discharge and satisfaction, and the Trustee shall pay over or deliver to the Authority all moneys or securities held by it pursuant to the Agreement which are not required for the payment of principal or Redemption Price, if applicable, of or interest on Bonds not theretofore surrendered for such payment or redemption, and for the payment of such other amounts. If the Authority shall pay or cause to be paid, or there shall otherwise be paid, to the Registered Owners of any Outstanding Bonds the principal or Redemption Price, if applicable, and interest due or to become due thereon, at the times and in the manner stipulated therein and in the Agreement, or if any Outstanding Bonds shall be deemed to be paid as provided in the following paragraph, such Bonds shall cease to be entitled to any lien, benefit or security under the Agreement, and all covenants, agreements and obligations of the Authority to the Registered Owners of such Bonds shall thereupon cease, terminate and become void and be discharged and satisfied.

Any Outstanding Bonds shall prior to the maturity or redemption date thereof be deemed to have been paid within the meaning and with the effect expressed in the previous paragraph if (a) in case any of said Bonds are to be redeemed on any date prior to their maturity, the Authority shall have given to the trustee in form satisfactory to it irrevocable instructions to give notice of redemption of such Bonds on said date, (b) there shall have been deposited with the Trustee either moneys in an amount which shall be sufficient, or Investment Obligations (including any Investment Obligations issued or held in book-entry form on the books of the Department of the Treasury of the United States, which are irrevocably payable to the Trustee and in form satisfactory to the Trustee) the principal of and the interest on which when due will provide the Trustee with moneys which, together with the moneys, if any, deposited with the Trustee at the same time, shall be sufficient, to pay when due the principal or Redemption Price, if applicable, and interest due and to become due on said Bonds on and prior to the redemption date or maturity date thereof, as the case may be, and (c) in the event said Bonds will not be redeemed within the next succeeding sixty (60) days, the Authority shall have given the Trustee in form satisfactory to it irrevocable instructions to give notice, in the manner and at the time specified in the Agreement, that the deposit required by (b) above has been made with the Trustee and that said Bonds are deemed to have been paid in accordance with this paragraph and stating such maturity or redemption date or dates upon which moneys are to be available for the payment of the principal or Redemption Price, if applicable, on said Bonds. None of Investment Obligations, moneys deposited with the Trustee pursuant to this paragraph or principal or interest payments on any such Investment Obligations shall be withdrawn or used for any purpose other than, and shall be held in trust for, the payment of the principal or Redemption Price, if applicable, and interest on said Bonds; provided that any cash received from such principal or interest payments on such Investment Obligation deposited with the Trustee, if not needed for such purpose, shall, to the extent practicable, be reinvested in Investment Obligation maturing at times and in amounts sufficient to pay when due the principal or Redemption Price, if applicable, and interest to become due on said Bonds on and prior to such redemption date or maturity date, as the case may be, and interest earned from such reinvestment shall be paid over to the Authority, as received by the Trustee, free and clear of any trust, lien or pledge. For the purposes of this paragraph, Investment Obligations shall mean and include only such securities as are described in clause (a) of the definition of "Investment Obligations" in "Definitions" which shall not be subject to redemption prior to their maturity.

Anything in the Agreement to the contrary notwithstanding, the Trustee shall notify the Authority in writing of any moneys held by the Trustee in trust for the payment and discharge of any of the Bonds which remain unclaimed six months prior to the date when such moneys would escheat under applicable law and shall, at the written request of the Authority, pay such moneys to the Authority as its absolute property and free from trust, or, if the Authority does not so request in writing, or if such payment is not permitted under applicable escheat law, shall apply such moneys as provided by such applicable law, and the Trustee shall upon such payment or application be released and discharged with respect thereto and the Registered Owners shall look only to the Authority or as such applicable law may provide for the payment of such Bonds, the Authority or any other entity being liable only to the extent of funds received from the Trustee (without regard to any interest thereon received from the Trustee) and having no liability for interest on any such funds.

MISCELLANEOUS PROVISIONS

Rights under Agreement

Except as otherwise expressly provided in the Agreement, nothing in the Agreement expressed or implied is intended or shall be construed to confer upon any person, firm or corporation other than the parties hereto and the Registered Owners any right, remedy or claim, legal or equitable, under or by reason of the Agreement or any provisions hereof, the Agreement and all its provisions being intended to be and being for the sole and exclusive benefit of the parties hereto and the Registered Owners.

Effect of Partial Invalidity

In case any one or more of the provisions of the Agreement or of the Bonds shall for any reason be held to be illegal or invalid, such illegality or invalidity shall not affect any other provision of the Agreement or of the Bonds, but the Agreement and the Bonds shall be construed and enforced as if such illegal or invalid provision has not been contained therein. In case any covenant, stipulation, obligation or agreement contained in the Bonds or in the Agreement shall for any reason be held to be in violation of law, then such covenant, stipulation, obligation or agreement shall be deemed to be the covenant, stipulation, obligation or agreement of the Authority to the full extent permitted by law.

Effect of Covenants, etc.

All covenants, stipulations, obligations and agreements of the Authority contained in the Agreement shall be deemed to be covenants, stipulations, obligations and agreements of the Authority to the full extent permitted by law. No covenant, stipulation, obligation or agreement contained in the Agreement shall be deemed to be a covenant, stipulation, obligation or agreement of any present or future member, officer, agent or employee of the Authority in his individual capacity, and neither any member of the Authority nor any officer thereof executing the Bonds shall be liable personally on the Bonds or be subject to any personal liability by reason of the issuance thereof. No member, officer, agent or employee of the Authority shall incur any liability in acting or proceeding or in not acting or not proceeding, in good faith, reasonably and in accordance with the terms of the Agreement and the Enabling Act.

The Agreement is executed with the intent that the laws of the Commonwealth shall govern its construction.

Reference to Interest as Excludable from Gross Income

All references in the Agreement with respect to the exclusion, excludability, inclusion or includability or the like of interest from gross income for federal income tax purposes shall apply only to Bonds and the interest thereon as to which an opinion of counsel has been rendered to the effect that interest on such Bonds is excludable from gross income for federal income tax purposes.

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SUMMARY OF CERTAIN PROVISIONS OF THE CONTRACT

Except as otherwise expressly provided herein, capitalized terms shall be used as defined in the Trust Agreement dated as of November 1, 2000 by and between the Authority and the trustee named therein or its successor (the "Project Trust Agreement" or the Trust Agreement dated as of December 1, 2000 by and between the Authority and the trustee named therein or its successor (the "Facilities Trust Agreement" and together with the Project Trust Agreement, the "Trust Agreements". Bonds issued pursuant to the Project Trust Agreement are referred to herein as "Project Revenue Bonds," and bonds issued pursuant to the Facilities Trust Agreement are referred to herein as "Facilities Revenue Bonds." The trustees named in each Trust Agreement are referred to herein as the "Bond Trustee."

PROJECTS

General

From time to time, upon the request of the University, the Authority undertakes Projects on behalf of the Commonwealth and the University. The Prior Projects are listed in the Contract. Additional Projects will become subject of the terms of the Contract upon designation thereof by the Authority and the University, as evidenced by the listing of such Projects on a Certificate delivered by the Authority and the University. Delivery of the Certificate makes the Projects listed thereon, in addition to the Prior Projects, subject to the terms of the Contract, so long as any bonds or notes of the Authority remain outstanding.

Undertaking and Completion of Projects by the Authority and the University

The Authority shall proceed with all reasonable speed to undertake, acquire, plan, construct, and complete the Projects in accordance with the written requests authorized by the University of Massachusetts Board of Trustees (the "University Trustees"), subject to such further approvals by the University Trustees and other officials as may be required by the Act or the Contract. The Authority may use any mode of procurement of acquisition, design and construction with regard to each Project that is from time to time permitted by the Act or other applicable law.

The Authority may engage such consulting architects, engineers, and other experts as it deems advisable in connection with the Projects. The plans and specifications for each of the Projects shall comply, or provide for compliance, with all applicable building codes, laws relating to health, safety and access and other applicable laws, and with all applicable rules and regulations promulgated thereunder by any governmental authority including without limitation executive orders issued by the Governor of the Commonwealth. Upon award of a contract or contracts for the doing of any work included in, or in connection with any acquisitions of, the Projects, as applicable, the Authority shall provide and maintain competent and adequate architectural and engineering observation of the Projects as the Authority deems appropriate until acceptance thereof by the University Trustees for occupancy. The Authority and the University Trustees shall permit each other free access to the Projects at all times. The Authority shall permit the University Trustees to examine such records of the Authority pertaining to the Projects as the University Trustees may desire, and the University Trustees shall permit the

Authority to examine such records of the University and the Commonwealth pertaining to the Projects as the Authority may desire.

The Authority and the University Trustees shall use their best efforts to cause the Projects to be completed or acquired, as applicable, so as to be ready for use (and, where applicable, occupancy) as promptly as reasonably possible and, upon completion of all work in connection with any of the Projects, the Authority shall furnish or cause to be furnished to the University Trustees a certificate or certificates to the effect that such work has been completed free from defects and inadequacies and otherwise in conformity with the working drawings and detail specifications as amended or modified by any change order or additional work authorizations, that no mechanics', laborers', materialmen's or other liens exist or can be created on the Projects on account of such work, and that the Authority has made payment or cause such payment to be made in full for the doing of the work or acquisition in question, or has made other proper arrangements so that it is no longer liable for any claims for payment for such work or materials or supplies furnished to such portion of the Projects; or that the Authority is disputing any such claims.

During the period the Projects are being undertaken and completed the University Trustees shall also furnish to the site thereof (a) steam or other sources for temporary heating purposes, (b) electricity for temporary light and power and (c) water for construction purposes, such utilities to be furnished at such points and in such manner as is set forth in the working drawings and detail specifications approved by the University Trustees for the doing of work upon the Projects.

Operation, Maintenance and Repair of Projects

The Authority and the University, as applicable, shall administer and operate each of the Projects in accordance with the Act, the Contract and the applicable Trust Agreement.

The University acknowledges that use of the Projects or portions thereof by any individual or entity that is not a state, a political subdivision thereof or an integral part of a state or political subdivision thereof may jeopardize the tax-exempt status of interest on the tax-exempt bonds or notes issued by the Authority. The University will avoid such private use of the Projects, which would jeopardize the tax-exempt status of the tax-exempt bonds or notes. During the time that any tax-exempt bond or note is outstanding, the University will consult with the Authority and with bond counsel to the Authority regarding the impact of any private use of the Projects on the tax-exempt status of such bonds or notes and will not enter into any transaction which might result in a private use without notifying the Authority.

Fees, Rents, Rates and Other Charges for Projects

The Authority or the University, as applicable, shall establish and revise rules and regulations to ensure the use (and, where applicable, occupancy) of, and fix and revise fees, rents, rates and other charges allocable to the Projects as set forth in the Contract.

Such rules and regulations and such fees, rents, rates and other charges shall be so fixed and adjusted in respect of the aggregate of all revenues from or allocable to the Projects (collectively, the "Revenues") (x) so as to maintain, so far as consistent with the requirements of the Contract, a reasonable uniformity in charges for like rooms and other accommodations at the University whether or not contained in a project of the Authority and (y) so as to provide Revenues sufficient to:

(a) pay the cost of maintaining, repairing and operating the Projects;

(b) pay the fees and expenses of the Bond Trustee, fees and expenses of any paying or fiscal agent appointed by the Authority in connection with the issuance of notes or bonds secured or provided for under the Trust Agreements or other instruments, premiums of insurance maintained by the Authority with respect to the Projects and such other projects and property and rentals payable by the Authority under any lease or leases of land on which the Projects or any other such project or property may be located;

(c) pay the principal of (including Sinking Fund Installments) and the interest on notes and bonds issued to finance or refinance the Projects, as such principal and interest shall become due and payable;

(d) pay such portions of the operating and administrative expenses of the Authority (which shall include any amount (the "Rebate Amount") required by the Internal Revenue Code of 1986, as amended or other applicable law to be rebated by the Authority with respect to tax-exempt bonds or notes to the United States of America and not provided from other funds of the Authority) as the Authority shall deem properly allocable to the Projects;

(e) pay amounts payable by the Authority under the Series Resolutions, any Derivatives, any Liquidity Facility, any Credit Facility or any other contract or other arrangement with respect to bonds or notes;

(f) create or maintain reserves, if any, for such of the foregoing purposes as may be provided for in any resolution of the Authority as required or permitted by either the Trust Agreement or the Contract; and

(g) pay the amount, if any, required by Section 19C of the Enabling Act to be paid to the Treasurer and Receiver-General of the Commonwealth out of such revenues.

Other Obligations of the University for Projects

The University Trustees shall make available to the Authority the services of officers and employees of and facilities in the University for the performance of any and all activities with respect to the Projects as necessary to operate them in furtherance of the purposes of the University and to maintain the Projects in good order and repair, as determined by the University.

In performing the foregoing services the University Trustees may act in the name of the Commonwealth or in their name, as may be consistent with law, and in their discretion as to the manner, method and time of performance.

The obligation of the University Trustees under the Contract to operate the Projects, keep them in good order and repair and maintain them shall include, but not be limited to, the furnishing of all supplies and materials needed or desirable for such operation, keeping in good order and repair, and maintenance, the making of all interior and exterior repairs to the buildings and structures included in the Projects and all repairs to other improvements and to equipment and furnishings included in the Projects, the maintenance of the Projects and the replacement, restoration and reconstruction of any structure, improvement or item of equipment or furnishings or portion thereof worn out, damaged or destroyed by whatever cause.

Other Obligations of the Authority for Projects

The Authority shall at all times conduct its business and affairs in such manner that:

(1) each of the Projects will be separately and distinctly accounted for relative to any other project or enterprise developed, administered or engaged in by the Authority; and

(2) such portion of the office and general administrative expenses of the Authority as is charged to each of the Projects and the basis upon which the same is apportioned can be readily determined.

The Authority shall account separately for all revenues, income, reserves and funds, from whatever source, received or held by the Authority for:

(1) the undertaking, acquisition, completion, operation or maintenance of the Projects;

(2) for any of the purposes set forth in any resolution authorizing the issue of bonds or notes or in the Trust Agreements or other instruments;

(3) received by or for the account of the Authority as proceeds of insurance upon or as damages award for the taking or condemnation of any of the Projects or any portion thereof;

(4) for Projects and property of the Authority for which the Authority has issued notes or bonds;

(5) for bonds and notes to be refunded by bonds issued under either Trust Agreement;

provided that the Authority may, except as otherwise provided in the Trust Agreements or other instrument or any Authority resolution relating to bonds or notes to be refunded by bonds to be issued under the Trust Agreements, mingle all revenues, income, reserves and funds, from whatever source, received or held by the Authority for the purposes of or in connection with the undertaking, completion, operation or maintenance of any Project financed or to be financed or refinanced by bonds or notes secured by the Trust Agreements or for like purposes of or in connection with any other Project or property of the Authority the revenues from which are pledged or assigned by the Trust Agreements.

Pursuant to the Contract, the Authority authorizes and directs the University Trustees to make and revise rules and regulations concerning the conduct of persons while on or in the Projects and the bringing into or onto, keeping in or on and removal from the Projects of property of others than the Authority, to enforce such rules and regulations and to establish and impose penalties for violation of the same. All such rules, regulations and penalties shall be subject to the approval of the Authority, which shall not be reasonably withheld, shall comply with the Act, the Contract, any other contract or agreement between the Authority and the University Trustees relating to the Projects and the Trust Agreements, and, shall be made and revised so as to be nearly identical as possible with rules, regulations and penalties from time to time promulgated by the Trustees respecting other like facilities under their control.

Insurance

The Authority shall purchase and maintain in effect with respect to each of its Projects policies of insurance and fidelity bonds against such risks and losses and in such amounts as it shall deem to be reasonable.

ISSUANCE OF BONDS OR NOTES

General

From time to time, the Authority shall issue bond or notes to achieve its corporate purposes in undertaking Projects on behalf of the Commonwealth and the University and paying related expenses or to refund prior indebtedness of the Authority or other indebtedness with respect to the University, all as set forth in the Act. The bonds or notes shall be issued pursuant to the Trust Agreements or other instruments permitted by the Act. Prior Bonds subject to the terms of the Contract are listed in the Contract. Additional bonds or notes will become subject to the terms of the Contract upon designation thereof by the Authority and the University, as set forth in the Certificate related to such bonds or notes. The Certificate shall set forth (i) whether the bonds or notes constitute Facility Revenue Bonds, Project Revenue Bonds or other bonds or notes issued under the Trust Agreements or other instrument, and (ii) the aggregate principal amount of such indebtedness. The Authority shall apply the proceeds of the bonds or notes as set forth in the Act, the applicable Trust Agreement, the applicable Series Resolution and the Certificate with respect to such bonds or notes.

Commonwealth Guaranty for Certain Bonds and Notes

In accordance with the Act, certain bonds and notes of the Authority will be guaranteed by the Commonwealth with the approval of the University Trustees, acting on behalf of the Commonwealth. Prior Bonds of the Authority guaranteed by the Commonwealth are listed in the Contract (the "Prior Guaranteed Bonds"). From time to time, the Authority may issue additional bonds or notes guaranteed by the Commonwealth, as determined by the Authority and the University Trustees, on behalf of the Commonwealth, as set forth in the Certificate with respect to such bonds or notes.

With respect to the Prior Guaranteed Bonds and other guaranteed bond or notes so designated in a Certificate, the Commonwealth agrees to guarantee to the Owners thereof and to the Bond Trustee, as trustee for such Owners, the payment of the principal of and interest on all of the guaranteed bonds or notes as the same become due and payable, and in case the Authority shall default in making any such payment as and when the same shall be due and payable, the Commonwealth agrees to make such payment as the same becomes due and payable and pledges its full faith and credit for the performance of this guaranty, provided that the total outstanding amount of bonds and notes issued by the Authority and guaranteed by the Commonwealth under the Act shall not exceed the amount from time to time authorized by the Act to be so guaranteed.

Such guaranteed bonds or notes shall include a guaranty in the form of Exhibit B to the Contract executed by the University Trustees, on behalf of the Commonwealth.

No provision of the Contract shall create or be deemed to create any obligation by the Commonwealth to appropriate funds for any purposes under the Contract other than performance of the Commonwealth Guaranty on the guaranteed indebtedness.

In accordance with the Act, the Section 10 Reserve Account shall be funded in connection the issuance of guaranteed bonds or notes in an amount determined in accordance with the Act and the Trust Agreement. Moneys in the Section 10 Reserve Fund may be applied as set forth in the Trust Agreements and Series Resolutions.

Special Provisions for Facilities Revenue Bonds

A Capital Improvements Reserve Account shall be funded in connection the issuance of Facilities Revenue Bonds in an amount determined by the Authority, in consultation with the University. Moneys in the Capital Improvements Reserve Account may be applied to any lawful purpose of the Authority, all as set forth in the Trust Agreements and Series Resolutions.

Special Provisions for Derivatives

In connection with any Derivatives related to bonds or notes issued by the Authority, the Authority shall establish a General Reserve Fund. The Authority shall deposit into the General Reserve Fund from time to time, amounts received by the Authority on account of the Derivatives related to the bonds or notes, initially based on an amount equal to 0.19875% per annum of the notional amounts thereof or such other amount as determined by the Authority and set forth in a Series Resolution with respect the bonds or notes related to the Derivative. Amounts on deposit in the General Reserve Fund may be invested in any investment by which the Authority is from time to time permitted by law to invest its moneys. Moneys and investments in the General Reserve Fund shall be held separately from all other moneys and investments of the Authority. Moneys in the General Reserve Fund may be applied to any lawful purpose of the Authority. Moneys may be withdrawn from the General Reserve Fund by any authorized officer of the Authority.

SECURITY FOR PAYMENT OF BONDS AND NOTES

General Obligation of the University

Pursuant to the Contract, the University Trustees pledge all funds of the University permitted by law to be applied thereto, to the making of all payments required under the Contract, including without limitation all payments of debt service on bonds or notes issued by the Authority under the Act and the Trust Agreements or other instruments and payments with respect to any Liquidity Facility, Credit Facility or Derivatives. *Notwithstanding the foregoing,* *this pledge does not apply to payments with respect to bonds or notes issued for Specific Revenue Projects under the Facilities Trust Agreement*.

Without limiting the generality of the foregoing, the University Trustees, in the name and on behalf of the Commonwealth, pledge to the making of payments required by the Contract Spendable Cash and Investments, Authority Eligible Gifts, University Eligible Gifts and Trust Funds, each as defined in Exhibit C to the Contract.

Pledge of the University for Bonds and Notes Related to Specific Revenue Projects

Pursuant to the Contract, the University Trustees pledge to the making of all payments required under the Contract with respect to bonds or notes issued for Specific Revenue Projects under the Facilities Trust Agreement, revenues generated from the rates and charges established by the University for such Specific Revenue Project, including amounts which constitute Authority Eligible Gifts, University Eligible Gifts and Trust Funds. Amounts payable under the Contract with respect to Specific Revenue Projects are not secured by the general obligation of the University, including without limitation Spendable Cash and Investments.

General Provisions Related to Pledged Funds

All Revenues collected or received by the Commonwealth or the University, from whatever source, as payment of fees, rents, rates or other charges for the use and occupancy of a Project, including without limitation Revenues from Specific Revenue Projects and from Spendable Cash and Investments, and needed to pay the Certified Amount shall be held in trust by the University for the Authority and paid to the Authority, as applicable, separate from all other moneys held by the University or the Commonwealth. Such amounts ("Pledged Funds") shall be applied solely as provided in the Act, the Contract, the Series Resolutions or the Trust Agreements and shall be remitted by the University Trustees to the Bond Trustee under the Trust Agreements or the Authority, as applicable, at such times and in such amounts as may be directed in writing by the Authority in accordance with the Authority's annual certification process described below.

Pledged Funds are and will be free and clear of any pledge, lien, charge or encumbrance thereon or with respect thereto prior to the pledge created by the Contract and the University Trustees shall take all actions necessary to protect and effectuate such pledge provided, however, that nothing in this Section shall be deemed to limit the right of the University Trustees, to the extent permitted by law, to create a pledge, lien or other charge on any or all such Pledged Funds to other Projects and bonds and notes issued for such Projects in accordance with the Contract or on a basis junior and subordinate to the pledge created by the Contract.

The University shall cause to be available in Spendable Cash and Investments at all times amounts sufficient to pay such portion of the Certified Amount (hereinafter defined) required to be paid therefrom and to provide for any other payments required under the HEFA Financing Agreements.

Authority Certification of Amounts Due under the Contract

On or before March 1 of each year for the twelve-month period commencing the next succeeding November 1, the Authority shall certify in writing to the University Trustees (and provide a copy to the Bond Trustee) the amount estimated for each component of the Projects, detailing (i) the Authority′s projected debt service costs and fees and expenses related to the bonds or notes, including without limitation any payments with respect to any Liquidity Facility, Credit Facility or Derivatives, (ii) the Authority′s projected operating and administrative costs, (iii) any projected required deposits to reserves, including without limitation the Section 10 Reserve Fund, Capital Improvements Reserve Fund and the General Reserve Fund, (iv) any projected payments to the Commonwealth pursuant to Section 19C of the Act, (v) any additional reserves it may propose to create or augment consistent with the Trust Agreements and (vi) the amount, if any, payable to the University Trustees to reimburse Specific Revenue Project expenses incurred by the University Trustees (collectively, the "Certified Amount"). Such certificate, which may be revised from time to time as necessary, shall state the dates within such period when any portion of the Certified Amount shall be due, the portion of the Certified Amount due on such dates, the payee of such amount and payment instructions, the source of such payments and the amount payable from each source. The Certified Amount shall also detail the fees, rents, rates and other charges proposed for the use of the Projects, which shall be fixed so as to be sufficient, in the aggregate, together with other available moneys, to cover all of the costs and transfers to reserves as aforesaid allocable to the Projects.

University Certification of Spendable Cash and Investments

On or before April 1 of each year, the University shall certify in writing to the Authority whether or not there are sufficient funds in Spendable Cash and Investments to pay the Certified Amounts and, if so, that such funds will be held in trust in Spendable Cash and Investments for the equal and ratable benefit of the Authority and each other person or entity for whose benefit amounts will be applied to the payment of amounts required to be paid therefrom and will not be expended for any other purpose. Such funds will be so held and not expended for any other purpose; provided, however, that if any portion of the Certified Amount is paid from University Eligible Gifts, Authority Eligible Gifts, other Authority revenues or Revenues from Specific Revenue Projects, then after any such payment an amount equal to such portion so paid need no longer be held in Spendable Cash and Investments.

The University Trustees authorize and, pursuant to Chapter 3A of Chapter 75 of the Massachusetts General Laws and other applicable law or resolution, delegate power to the President of the University, the Senior Vice President for Administration and Finance & Treasurer of the University and any such other officer to deliver the certificate described in the preceding paragraph and to do all other acts and things necessary or desirable to cause the University to comply with its obligations under the Contract.

If such certification states that sufficient funds are not available in Spendable Cash and Investments to pay such amounts, such certification shall state the amount of funds in Spendable Cash and Investments that are available to pay a portion of such amounts and a ratable portion of such funds in Spendable Cash and Investments shall be held in trust for the benefit of the Authority to be applied to the payment pro rata of all amounts payable to or for the account of the Authority from Spendable Cash and Investments. The University will continue to be obligated to pay any portion (or, if applicable, all) of the Certified Amount payable from all funds of the University permitted by law to be applied thereto notwithstanding any shortfall in amounts available in Spendable Cash and Investments.

If such certification states that sufficient funds are not available in Spendable Cash and Investments to pay such amounts, or if the Authority has not received such certificate as required by the Contract, the Authority will promptly adopt or revise mandatory fees, rates, rents and other charges for the use of the Projects and any portion thereof to be charged and billed to and collected from students in the University and provide for the billing, collection and remittance of such fees rates, rents and other charges by the University Trustees at such times and in such manner as in the judgment of the Authority will produce moneys sufficient and available to meet the requirements of the Contract. The Authority shall promptly notify the University Trustees in writing of the matters set forth in the foregoing sentence. Pursuant to the Contract, the University Trustees approve, and agree to confirm such approval from time to time, all fees, rents, rates and other charges adopted or revised by the Authority pursuant to this paragraph and agree to cause the same to be billed to and collected from students in the University as the Authority may provide and remitted as the Authority may provide.

<u>Payments from Pledged Funds</u>

The University Trustees on behalf of the University will transfer to the Authority or the Bond Trustees, as applicable, amounts required to pay the Certified Amount (defined in *Authority Certification of Amounts Due under the Contract* above), including but not limited to the amounts necessary to pay principal of, premium if any, and interest on the bonds and notes issued by the Authority from all funds of the University legally permitted to be applied thereto, including, but not limited to University Eligible Gifts, Authority Eligible Gifts, other available Revenues of the University, including without limitation, amounts available in the University's Spendable Cash and Investments.

Expenses incurred by the University Trustees in connection with the repair and maintenance of the Projects shall be paid for or reimbursed to the University Trustees from the Pledged Funds. The Authority, in its discretion, may (a) authorize the University Trustees to deduct from the Pledged Funds, prior to remittance thereof to the Bond Trustee, amounts equal to amounts budgeted by the Authority for such expenses, or (b) instruct the University Trustees to certify to the Authority the amount of such expenses, if any, incurred by the University Trustees and not authorized to be deducted, such amounts to be reimbursed to the University Trustees from Pledged Funds transmitted to the Bond Trustee. Any amount deducted by the University Trustees pursuant to (a) and not expended for such expenses during the period for which it was budgeted by the Authority shall be certified to the Authority by the University Trustees within 30 days and shall be retained by the University Trustees and used solely for expenses of repair and maintenance of the Projects. In the event the Authority incurs an expense for repair or maintenance of the Projects, the University Trustees shall remit to the Authority such portion of the Pledged Funds deducted under (a) as is necessary to reimburse the Authority.

Defaults And Rights

Upon the failure of the Authority to pay debt service on any bond or note issued by the Authority (other than as a result of the failure of the University Trustees under the Contract) or to observe or perform any other agreement or condition under the Contract (or failure to cure the same), after 15 days notice thereof to the Authority by the University Trustees, the Authority shall be deemed to be in default under the Contract. Thereupon, the Commonwealth may, acting by and through the University Trustees, assume the rights and obligations of the Authority under the Contract until such time as the University Trustees may declare the default to be cured.

Upon the failure of the Authority or the University Trustees to make any payment required under the provisions of the Contract, or to observe any other covenant or requirement imposed by the Contract, the Authority or the University Trustees, as the case may be, shall be deemed in default under the Contract. Thereupon, the Authority or the Trustee may institute legal proceedings to enforce such covenant or requirement or to enforce the pledge and lien granted under the provisions of the Contract and may take such other actions or exercise such other remedies as may be available at law or in equity to enforce the provisions of the Contract, including without limitation and upon agreement of the parties, mediation or arbitration. Without limiting the generality of the foregoing, in the case of an Authority default, the Commonwealth may, acting by and through the University Trustees, assume the rights and obligations of the Authority under the Contract until such time as the University Trustees may declare the default to be cured, and, in the case of the University Trustees default, the Authority may itself undertake to perform such obligations, and may employ such persons or entities and make such expenditures as are reasonably necessary for the performance thereof, until such time as the Authority may declare the default to be cured.

No action by the Authority to enforce the Contract, or any other action of the Authority under the Contract, and no default or breach by the University Trustees, shall in any way affect the obligations of the University Trustees under the Contract. No action by the University Trustees under the Contract, and no default or breach by the Authority, shall in any way affect the obligations of the Commonwealth under the Contract. Whenever a breach of the Contract, whether substantial or otherwise, and whether before or after notice of the breach has been given to the Authority or the University Trustees, has been corrected, the obligations and rights under the Contract shall be reinstated and performance of the Contract shall continue as if such breach had never occurred.

The University Trustees, the University or the Authority may, to the extent authorized by law, act under the Contract or authorize an officer or officers to act in their name thereunder, and the action of any duly authorized officer or committee of the University Trustees, the University or the Authority shall be deemed to be the action of the Commonwealth, acting by and through the University Trustees, the University or the Authority, as the case may be.

No member, officer or employee of the University Trustees or the University shall be individually liable on any obligation assumed by the Commonwealth or the University Trustees under the Contract. No member, officer or employee of the Authority shall be individually liable on any obligation assumed by the Authority under the Contract, and neither the carrying out of a

Project nor the ownership of a Project by the Authority shall impose any liability on any such member, officer or employee.

NOTICES AND DEMANDS

Any notice or demand permitted or required under the Contract to be given or served by any of the parties to the Contract to or upon another party to the Contract shall be in writing and shall be signed in the name of the party giving or serving the same. Such notice or demand shall be mailed by registered mail (postage and registry charges prepaid) or served on the President of the University, if such notice is to the Commonwealth or the University Trustees, or otherwise on the Executive Director of the Authority. Notice shall be deemed to have been received at the time of actual service or three days after the date of the mailing by registered mail properly addressed. The principal office of the President of the University and the Authority, respectively, shall be deemed to be One Beacon Street, 31^{st} Floor, Boston, Massachusetts 02108 or such other place as the University Trustees may designate by written notice to the Authority or as the Authority may designate by written notice to the President of the University.

NON-ASSIGNABILITY

The Contract is not assignable except that if by act of the General Court the powers, functions, duties and property of the University or the Authority are transferred to another political subdivision, agency, board, commission, department, authority or institution of the Commonwealth, the rights and obligations of the Contract shall be deemed to have been assigned thereby to such transferee, and provided further that the Authority's rights to receive moneys under the Contract and to enforce the provisions of the Contract may be assigned to the Bond Trustee.

AMENDMENTS

The Contract may be amended only by the execution of an Amendment in writing by the Authority, the University Trustees and the Commonwealth, acting by and through the University Trustees, or their successors.

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APPENDIX E

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PROPOSED FORM OF OPINION OF BOND COUNSEL

[Date of Delivery]

University of Massachusetts Building Authority
One Beacon Street, 32nd Floor
Boston, MA 02108

Re: University of Massachusetts Building Authority Refunding Revenue Bonds, Senior Series 2019-1 (the "Bonds")

We have acted as bond counsel to the Authority in connection with the issuance by the Authority of the above-captioned Bonds pursuant to (i) Chapter 773 of the Acts of 1960, as amended (the "Act"), (ii) the Trust Agreement dated as of November 1, 2000 (the "Trust Agreement") between the Authority and U.S. Bank National Association, as successor trustee (the "Trustee") and (iii) the Series Resolution Authorizing the Issuance of the Bonds adopted by the Authority on February 14, 2019 (the "Series Resolution"). In such capacity, we have examined the law and such certified proceedings and other documents as we have deemed necessary to render this opinion, including without limitation the Amended and Restated Master Contract for Financial Assistance, Management and Services dated as of February 25, 2014 (the "Master Contract"), among the Authority, the University of Massachusetts, acting by and through the Board of Trustees (the "University Trustees"), and The Commonwealth of Massachusetts (the "Commonwealth"), acting by and through the University Trustees, and the Certificate Making Bonds Subject to Master Contract dated as of the date hereof (the "Certificate," and together with the Master Contract, the "Contract"). Capitalized terms used herein shall, unless otherwise specified, have the meanings set forth in the Trust Agreement and the Series Resolution.

Under the Trust Agreement, the Authority has pledged certain revenues (the "Revenues") for the payment of the principal of and interest on the Bonds when due.

Based upon and subject to the foregoing, we are of the opinion that, under existing law:

1. The Authority is validly existing as a body politic and corporate and public instrumentality of the Commonwealth with the power to enter into the Trust Agreement and the Series Resolution, perform the agreements on its part contained therein and issue the Bonds.

2. The Trust Agreement, the Series Resolution and the Contract have been duly authorized, executed and delivered by the Authority and constitute valid and binding obligations of the Authority enforceable upon the Authority.

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3. The Contract has been duly authorized, executed and delivered by the Commonwealth and constitutes a valid and binding obligation of the Commonwealth enforceable upon the Commonwealth.

4. Pursuant to the Act, the Trust Agreement creates a valid lien on the Revenues and other funds pledged by the Trust Agreement for the security of the Bonds issued thereunder on a parity with other bonds issued under the Trust Agreement.

5. The Bonds have been duly authorized, executed and delivered by the Authority and are valid and binding limited obligations of the Authority, payable solely from the Revenues and other funds provided therefor in the Trust Agreement. Neither the Commonwealth nor any political subdivision or instrumentality thereof, including the Authority, is obligated to pay the principal of or redemption premium, if any, or interest on the Bonds except from the Revenues and other funds provided therefor as aforesaid in the Trust Agreement and the Series Resolution, and neither the faith and credit nor the taxing power of the Commonwealth nor of any political subdivision or instrumentality thereof, including the Authority, is pledged to the payment of the principal of or redemption premium, if any, or interest on the Bonds.

6. Interest on the Bonds will not be included in the gross income of the holders of the Bonds for federal income tax purposes. This opinion is expressly conditioned upon the Authority's compliance with certain requirements of the Internal Revenue Code of 1986, as amended, which must be satisfied subsequent to the date of issuance of the Bonds in order that interest thereon is and continues to be excluded from gross income for federal income tax purposes. Failure to comply with certain of such requirements could cause interest on the Bonds to be included in the gross income of holders of the Bonds retroactive to the date of issuance of the Bonds. Interest on the Bonds will not constitute a preference item for purposes of computation of the federal individual alternative minimum tax. We express no opinion as to other federal tax consequences resulting from holding the Bonds.

7. Interest on the Bonds, and any profit made on the sale thereof, are exempt from Massachusetts personal income taxes, and the Bonds are exempt from Massachusetts personal property taxes. We express no opinion as to other Massachusetts tax consequences arising with respect to the Bonds nor as to the taxability of the Bonds or the income therefrom under the laws of any state other than Massachusetts.

It is to be understood that the rights of the holders of the Bonds and the enforceability of the Bonds, the Trust Agreement and the Contract may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws affecting creditors' rights generally and by equitable principles, whether considered at law or in equity.

This opinion is expressed as of the date hereof, and we neither assume nor undertake any obligation to update, revise, supplement or restate this opinion to reflect any action taken or omitted, or any facts or circumstances or changes in law or in the interpretation thereof, that may hereafter arise or occur, or for any other reason.

This opinion is limited to the matters expressly set forth herein and no opinion is implied or may be inferred beyond the matters expressly stated herein. Copies of this opinion may not be delivered to and may not be relied upon by any other party without our express prior written consent.

Very truly yours,

McCarter & English, LLP

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APPENDIX F

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AUTHORITY AND UNIVERSITY
CONTINUING DISCLOSURE AGREEMENT

This Authority and University Continuing Disclosure Agreement dated May 1, 2019 (this "Agreement") by and between the University of Massachusetts Building Authority (the "Authority"), a body politic and corporate established by Chapter 773 of the Acts of 1960 of The Commonwealth of Massachusetts (as amended, the "Enabling Act") and the University of Massachusetts (the "University")

W I T N E S S E T H:

WHEREAS, upon the execution and delivery of this Agreement (and subject to the fulfillment of certain other conditions) the Authority will issue its Refunding Revenue Bonds, Senior Series 2019-1 (the "Bonds"); and

WHEREAS, the Rule (hereinafter defined) requires a participating underwriter not to purchase or sell municipal securities in connection with an offering unless the participating underwriter has reasonably determined that the issuer and other obligated persons (within the meaning of the Rule) have undertaken certain continuing disclosure obligations.

NOW, THEREFORE, in consideration of the premises, including without limitation the issuance by the Authority of the Bonds, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Authority and the University agree as follows:

1. Purpose; Beneficiaries. This Agreement is entered into solely to assist the Underwriter (hereinafter defined) in complying with subsection (b)(5) of the Rule. This Agreement constitutes a written undertaking for the benefit of the Registered Owners (hereinafter defined) and beneficial owners (within the meaning of the Rule) of the Bonds (such Registered Owners and beneficial owners being sometimes called herein "owners").

2. Definitions. The following words and terms used in this Agreement shall have the following respective meanings:

(a) "EMMA" means the MSRB's Electronic Municipal Market Access system, or its successor as designated by the MSRB.

(b) "Financial Obligation" means (i) a debt obligation; (ii) a derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligations; or (iii) a guarantee of (i) or (ii). The term Financial Obligation shall not include municipal securities as to which a final official statement has been provided to the MSRB consistent with the Rule.

(c) "MSRB" means the Municipal Securities Rulemaking Board.

(d) "Rule" means Rule 15c2-12 promulgated by the SEC under the Securities and Exchange Act of 1934, as amended (17 CFR Part 240, §240.15c2-12), as in effect on the date of this Agreement, including any official interpretation thereof.

(e) "SEC" means the United States Securities and Exchange Commission.

All capitalized words and terms used in this Agreement and not otherwise defined herein shall have the meaning ascribed to such words and terms in the Official Statement dated March 29, 2019 pertaining to the Bonds (the "Official Statement").

3. The Undertaking of the University. The University hereby undertakes to provide to the Authority no later than 270 days after the end of each fiscal year of the University, commencing with the fiscal year ending June 30, 2019, the annual financial information described below, together with audited financial statements of the University for such fiscal year if audited financial statements are then available; provided, however, that if audited financial statements of the University are not then available, such audited financial statements shall be delivered to the Authority when they become available (but in no event later than 350 days after the end of such fiscal year (the "prior fiscal year")). If the audited financial statements of the University for such fiscal year are not available when the University delivers its annual financial information described herein, the University shall deliver its unaudited financial statements to the Authority and its audited financial statements when available as described herein. The University's annual financial statements for each fiscal year will be prepared on an accrual basis in accordance with generally accepted accounting principles as in effect from time to time (or as otherwise may be required or permitted by law) and will consist of a combined balance sheet, a combined statement of changes in net assets and a combined statement of current net assets, revenues, expenses and other changes (or such other items as may be required or permitted by law or by generally accepted accounting principles as in effect from time to time or by other accounting principles as in effect from time to time in accordance with which the financial statements of the University may be prepared). Such financial statements will be audited by a group of certified public accountants appointed by the University. The annual financial information regarding the University to be provided to the Authority shall consist of financial and operating data, in each case updated through the last day of the prior fiscal year unless otherwise noted, relating to the following information in Appendix A – "Letter from the University" to the Official Statement and in each case substantially in the same level of detail as is found under the subheading under such caption referenced in parentheses after each item:

(a) number of full-time equivalent undergraduates and graduates at each campus of the University as of the fall of the prior fiscal year ("University Campuses – Amherst Campus," "– Boston Campus," "– Dartmouth Campus," "– Lowell Campus," "– Worcester Campus" and "– UMassOnline");

(b) degrees and programs offered at each campus of the University ("University Campuses – Amherst Campus," "– Boston Campus," "– Dartmouth Campus," "– Lowell Campus," "– Worcester Campus" and "– UMassOnline");

(c) organizations related to the University ("University Related Organizations");

(d) number and members of the Trustees or other chief governing body of the University and general governmental structure ("Governance – Board of Trustees");

(e) number of faculty members and the number of full-time faculty members, the percentage of tenured faculty members and the full-time equivalent student to the full-time equivalent faculty ratios for each campus of the University (except the Worcester campus)("Governance – Faculty and Staff");

(f) academic programs (to the extent not covered under (b) above) and accreditation ("Academic Programs and Accreditation");

(g) applicants, acceptances and matriculations for the fall of the prior fiscal year and total head count enrollment and total full-time equivalent enrollment (“Enrollment”);

(h) tuition and fees for the prior fiscal year for each campus of the University (“Tuition and Fees”);

(i) student financial aid amounts (“Tuition and Fees – Student Financial Aid”);

(j) sources of revenues of the University (“University Revenues and Budgeting – Budget Process”);

(k) modifications to the University’s five-year capital plan and status of completion of the University’s five-year capital plan (“Current and Future Capital Plans”);

(l) modifications to the budget process (“University Revenues and Budgeting – Budget Process”);

(m) management of appropriated funds, including appropriations received by the University shown on a five-year comparative basis and management of non-appropriated funds (“University Revenues and Budgeting – Appropriated Funds” and “– Management of Non-Appropriated Funds”);

(n) combined statement of revenues and expenses, including current fund revenues and expenditures and other changes (accrual basis) for the prior fiscal year (“Summary of Operations” and “Summary of Financial Results, Fiscal Years 2016 Through 2018”);

(o) University and Foundation endowment assets shown on a five-year comparative basis (“Endowment and Fundraising”);

(p) indebtedness of the University (“Indebtedness of the University”);

(q) unrestricted net assets (formerly expendable fund balances) (“Indebtedness of the University – Unrestricted Net Assets”);

(r) spendable cash and investments (as defined in the Amended and Restated Master Contract for Financial Assistance, Management and Services dated as of February 25, 2014 by and among the Authority, the University and the Commonwealth (the “Master Contract”) and formerly known as “Expendable Fund Balance” and “Unrestricted Net Assets” in the Master Contract) (“Indebtedness of the University – Spendable Cash and Investments”);

(s) additional indebtedness (“Indebtedness of the University – Additional Indebtedness”);

(t) capitalized leases (“Indebtedness of the University – Capitalized Leases”);

(u) insurance (“Insurance”);

(v) technological initiatives (“Technological Initiatives”);

(w) litigation (“Litigation”); and

(x) employee relations ("Employee Relations").

4. Transmission of Material Financial Statements and Annual Financial Information by the Authority. The Authority will transmit the audited or unaudited financial statements of the University and the annual financial information regarding the University to the MSRB through its EMMA system promptly upon the receipt thereof from the University and will give notice to EMMA of any failure by the University to provide such audited or unaudited financial statements or annual financial information by the dates set forth in this Agreement.

5. The Undertaking of the Authority. The Authority hereby undertakes to provide to EMMA no later than 270 days after the end of each fiscal year of the Authority, commencing with the fiscal year ending June 30, 2019, the annual financial information described below, together with audited financial statements of the Authority for such fiscal year if audited financial statement are then available; provided, however, that if audited financial statements of the Authority are not then available, such audited financial statements shall be delivered to the MSRB via EMMA when they become available (but in no event later than 350 days after the end of such fiscal year (the "prior fiscal year of the Authority")). The Authority's annual financial statements for each fiscal year will be prepared using the economic resources measurement focus and the accrual basis of accounting in accordance with generally accepted accounting principles as in effect from time to time (or as otherwise may be required or permitted by law) and will consist of a statement of net assets, a statement of revenues, expenses and changes in net assets and a statement of cash flows (or such other items as may be required or permitted by law or by accounting principles as in effect from time to time in accordance with which the financial statements of the Authority may be prepared). Such financial statements will be audited by a group of certified public accountants appointed by the Authority. The annual financial information to be provided by the Authority shall consist of financial and operating data, updated through the last day of the prior fiscal year of the Authority unless otherwise noted, relating to the following information contained in the Official Statement and substantially in the same level of detail as is found in the section of the Official Statement referenced in parentheses after each item:

(a) any material change in the provisions of the Contract ("Security and Sources of Payment for the Bonds – Contract" and "– Pledge of Revenues under the Project Trust Agreement");

(b) annual debt service requirements on the Bonds ("Security and Sources of Payment for the Bonds – Annual Debt Service Requirements");

(c) any material change in the Enabling Act or other law of the Commonwealth with respect to the Authority ("The Authority – General");

(d) members, officers and staff of the Authority ("The Authority – Members, Officers and Staff"); and

(e) any amendment to the Project Trust Agreement made with the consent of the registered owners of the Bonds and any other amendment to the Project Trust Agreement which, in the opinion of the firm of attorneys serving as bond counsel to the Authority at the time the Authority submits the information required by the University and Authority Disclosure Agreement, is material to the interests of the registered owners of the Bonds ("Appendix D -- Summary of Legal Documents").

6. Notice by the Authority of Certain Events. Whenever the Authority obtains knowledge of the occurrence of any of the following listed events 6(a)-(o) below with respect to the Bonds or the occurrence of the event listed in 6(p) below with respect to Financial Obligations of the Authority, the University or any other obligated person, the Authority shall submit or caused to be submitted to the MSRB via EMMA, in a timely manner not in excess of ten business days of the event, notice of any of the following events 6(a)-(o) below with respect to the Bonds or notice of the event listed in 6(p) below with respect to Financial Obligations of the Authority, the University or any other obligated person.

(a) principal and interest payment delinquencies;

(b) non-payment related defaults, if material;

(c) unscheduled draws on debt service reserves reflecting financial difficulties;

(d) unscheduled draws on credit enhancements, if any, reflecting financial difficulties;

(e) substitution of credit or liquidity providers, if any, or their failure to perform;

(f) adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the Bonds, or other material events affecting the tax-exempt status of the Bonds;

(g) modifications to rights of holders of the Bonds, if material;

(h) bond calls, if material, and tender offers;

(i) defeasances;

(j) release, substitution, or sale of property, if any, securing payment of the Bonds, if material;

(k) rating changes;

(l) bankruptcy, insolvency, receivership or similar event of the Authority;

Note to clause (l): For the purposes of this event, the event is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent or similar officer for the Authority in a proceeding under the U.S. Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the Authority, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the Authority;

(m) the consummation of a merger, consolidation, or acquisition involving the Authority or the sale of all or substantially all of the assets of the Authority, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material;

(n) appointment of a successor or additional trustee or the change of the name of the Trustee, if material;

(o) incurrence of a Financial Obligation of the Authority, the University or any other obligated person, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the Authority, the University or any other obligated person, any of which affect the holders of the Bonds, if material; and

(p) default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a Financial Obligation of the Authority, the University or any other obligated person, any of which reflect financial difficulties.

7. The Undertaking of the University as an Obligated Person. The University hereby undertakes to provide (or assist the Authority in providing) event notice (o) and (p) in Section 6 herein regarding Financial Obligations.

8. Enforceability of this Agreement; Termination. To the extent permitted by law, the provisions of this Agreement shall be enforceable against the University with respect to the obligations of the University hereunder, and against the Authority with respect to the obligations of the Authority hereunder, in accordance with the terms hereof by any owner of a Bond, including any beneficial owner acting as a third party beneficiary (upon proof of its status as a beneficial owner reasonably satisfactory to the University or the Authority, as the case may be). To the extent permitted by law, any such owner shall have the right, for the equal benefit and protection of all owners of the Bonds, by mandamus or other suit or proceeding at law or in equity, to enforce its rights against the University or the Authority, as applicable, and to compel the University or the Authority as applicable, and any of the officers, agents or employees of, as applicable, the University or the Authority, to perform and carry out their duties under such provisions of this Agreement; provided, however, that the sole remedy for a violation of this Agreement shall be limited to an action to compel specific performance of the obligations of the University or the Authority, as applicable, under this Agreement and shall not include any rights to monetary damages. This Agreement shall terminate if no Bonds remain outstanding (without regard to an economic defeasance) or if the provisions of the Rule concerning continuing disclosure are no longer in effect, whichever occurs first.

9. Amendments. This Agreement may be amended, changed or modified by the parties hereto, without the consent of, or notice to, any owners of the Bonds, (a) to comply with or conform to the provisions of the Rule or any amendments thereto or authoritative interpretations thereof by the SEC or its staff (whether required or optional), (b) to add a dissemination agent for the information required to be provided pursuant to this Agreement by the University or the Authority and to make any necessary or desirable provisions with respect thereto, (c) to add to the covenants of the University or the Authority for the benefit of the owners of the Bonds, (d) to modify the contents, presentation and format of the annual financial information of the University or the Authority from time to time as a result of a change in circumstances that arises from a change in legal requirements, or (e) to otherwise modify the duties of the University or the Authority in this Agreement in a manner

consistent to the requirements of the Rule concerning continuing disclosure; provided, however, that in the case of any amendment pursuant to clause (d) or (e), (i) the duties of the University or the Authority, as amended, would have complied with the requirements of the Rule at the time of the offering of the Bonds, after taking into account any amendments or authoritative interpretations of the Rule, as well as any change in circumstances, and (ii) the amendment does not materially impair the interests of the owners of the Bonds, as determined either by a party unaffiliated with the University or the Authority (such as the firm serving at the time as bond counsel to the Authority) or by the vote or consent of the Registered Owners of a majority in outstanding principal amount of the Bonds affected thereby at or prior to the time of such amendment, which consent shall be obtained as provided in the Trust Agreement with respect to consents of Registered Owners. Any amendment, change or modification to this Agreement shall be in writing.

If this Agreement is amended with respect to the annual financial information to be submitted by the Authority or the University hereunder, the annual financial information containing the amended financial information will explain, in narrative form, the reasons for the amendment and the impact of the change in the type of financial information being provided. If this Agreement is amended with respect to the accounting principles to be followed in preparing financial statements of the University or the Authority, the annual financial information of the University or the Authority as applicable, for the year in which the change is made will present a comparison between the financial statements or information prepared on the basis of the new accounting principles and the financial statements or information prepared on the basis of the former accounting principles. Such comparison will include a qualitative discussion of the differences in the accounting principles and the impact of the change in the accounting principles on the presentation of the financial information, in order to provide information to investors to enable them to evaluate the ability of the University or the Authority, as applicable, to meet its obligations with respect to the Bonds. To the extent reasonably feasible, the comparison will also be quantitative. The University will give notice of any change in its accounting principles to the Authority as promptly as practicable after such change has been determined and the Authority will submit such information to EMMA promptly upon the receipt thereof. The Authority will give notice of any change in its accounting principles to the MSRB via EMMA as promptly as practicable after such change has been determined.

10. Counterparts. This Agreement may be executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument.

11. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth and applicable law of the United States of America.

12. Titles of Sections. The titles of sections in this Agreement shall have no effect in construing this Agreement.

13. Actions to be Performed on Non-Business Days. Any action required by this Agreement to be taken on a Saturday, Sunday or holiday within the Commonwealth may be taken on the next business day with the same force and effect as if taken on the day so required.

(*Remainder of page intentionally left blank*)

IN WITNESS WHEREOF, the UNIVERSITY OF MASSACHUSETTS, acting by a signer thereunto duly authorized by vote of the Trustees, and UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY, acting by its Chairman or other officer thereunto duly authorized by vote of the Authority, have executed this Agreement, and the seal of the Trustees and the seal of the Authority have been affixed hereto, all as of the day and year first above written.

(seal)

UNIVERSITY OF MASSACHUSETTS
BUILDING AUTHORITY

By:__________________________________
Patricia Filippone
Executive Director and Assistant
Secretary-Treasurer

(seal)

UNIVERSITY OF MASSACHUSETTS

By:__________________________________
Lisa A. Calise
Senior Vice President for Administration
and Finance & Treasurer

EXHIBIT A

MSRB

Municipal Securities Rulemaking Board

CDINet, 1900 Duke St., Suite 600
Alexandria, VA 22314
Phone: (703) 797-6600
Fax: (703) 683-1930

EMMA

Electronic Municipal Market Access

http://emma.msrb.org/default.aspx
(703)797-6668

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APPENDIX G

BOOK-ENTRY ONLY SYSTEM

DTC

The Depository Trust Company ("DTC"), New York, New York, will act as securities depository for the Bonds. The Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully registered Bond certificate will be issued for each stated maturity of the Bonds, in the aggregate principal amount of the applicable stated maturity, and will be deposited with DTC.

DTC, the world's largest securities depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934, as amended. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com.

Purchases of the Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Bonds on DTC's records. The ownership interest of each actual purchaser of each Bond ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Bonds, except in the event that use of the book-entry system for the Bonds is discontinued.

To facilitate subsequent transfers, all Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of the Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Bonds. DTC's records reflect only the identity of the Direct Participants to whose accounts such Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of Bonds may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the Bonds, such as redemptions, defaults, and proposed amendments to the Bond documents. For example, Beneficial Owners of Bonds may wish to ascertain that the nominee holding the Bonds for their benefit has agreed to obtain and transmit notices to Beneficial Owners.

Redemption notices shall be sent to DTC. If less than all of the Bonds are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such Bonds to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).The Authority cannot give any assurances that Direct Participants or others will distribute payments of principal of and interest on the Bonds paid to DTC or its nominee, as the registered owner, to the Beneficial Owners, or that they will do so on a timely basis or that DTC will serve and act in a manner described in this document.

Beneficial Owners of the Bonds will not receive or have the right to receive physical delivery of such Bonds and will not be or be considered to be the registered owners thereof. So long as Cede & Co. is the registered owner of the Bonds, as nominee of DTC, references herein to the holders or registered owners of the Bonds shall mean Cede & Co. and shall not mean the Beneficial Owners of the Bonds, except as otherwise expressly provided herein.

Principal, redemption premium, if any, and interest payments on the Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Authority or Trustee on the payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Trustee or the Authority, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Trustee, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of Direct and Indirect Participants.

The Authority may decide to discontinue use of the system of book-entry-only transfers through DTC (or a successor securities depository). In that event, Bond certificates will be printed and delivered to DTC.

THE INFORMATION IN THIS SECTION CONCERNING DTC AND DTC'S BOOK-ENTRY SYSTEM HAS BEEN OBTAINED FROM SOURCES THAT THE AUTHORITY BELIEVES TO BE RELIABLE, BUT THE AUTHORITY TAKES NO RESPONSIBILITY FOR THE ACCURACY THEREOF.

No Responsibility of the Authority or the Trustee

NEITHER THE AUTHORITY NOR THE TRUSTEE WILL HAVE ANY RESPONSIBILITY OR OBLIGATIONS TO DIRECT PARTICIPANTS OR THE PERSONS FOR WHOM THEY ACT AS NOMINEES WITH RESPECT TO THE PAYMENTS TO OR THE PROVIDING OF NOTICE FOR DIRECT PARTICIPANTS, INDIRECT PARTICIPANTS, OR BENEFICIAL OWNERS.

SO LONG AS CEDE & CO. IS THE REGISTERED OWNER OF THE BONDS, AS NOMINEE OF DTC, REFERENCES HEREIN TO THE HOLDERS OR REGISTERED OWNERS OF THE BONDS SHALL MEAN CEDE & CO. AND SHALL NOT MEAN THE BENEFICIAL OWNERS OF THE BONDS.

Certificated Bonds

DTC may discontinue providing its services as securities depository with respect to the Bonds at any time by giving reasonable notice to the Authority and the Trustee. In addition, the Authority may determine that continuation of the system of book-entry transfers through DTC (or a successor securities depository) is not in the best interests of the Beneficial Owners of the Bonds. If for either reason the Book-Entry Only system is discontinued, Bond certificates will be delivered as described in the Agreement and the Beneficial Owner, upon registration of certificates held in the Beneficial Owner's name, will become the holder of such Bond. Thereafter, the Bonds may be exchanged for an equal aggregate principal amount of the Bonds in other authorized denominations and of the same maturity, upon surrender thereof at the principal corporate trust office of the Trustee. The transfer of the Bonds may be registered on the books maintained by the Trustee for such purpose only upon the assignment in the form satisfactory to the Trustee. For every exchange or registration of transfer of the Bonds, the Authority and the Trustee may make a charge sufficient to reimburse them for any tax or other governmental charge required to be paid with respect to such exchange or registration of transfer, but no other charge may be made to the holder of such Bond for any exchange or registration of transfer of the Bonds. The Trustee will not be required to transfer or exchange the Bonds during the notice period preceding any redemption if such Bonds (or any part thereof) are eligible to be selected or have been selected for redemption.

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APPENDIX H

REFUNDED BONDS

University of Massachusetts Building Authority Project Revenue Bonds,
Senior Series 2009-2 (Federally Taxable-Build America Bonds-Direct Pay to Issuer)

Term Bond Maturity Date (May 1)	Sinking Fund Installment (May 1)	Interest Rate	Par Amount*	Redemption Date	Redemption Price	CUSIP† Number
2029						
	2024	6.423%	$ 8,110,000	May 1, 2019	100%	914440KJ0
	2025	6.423	16,850,000	May 1, 2019	100	914440KJ0
	2026	6.423	17,545,000	May 1, 2019	100	914440KJ0
	2027	6.423	18,280,000	May 1, 2019	100	914440KJ0
	2028	6.423	19,050,000	May 1, 2019	100	914440KJ0
	2029	6.423	19,840,000	May 1, 2019	100	914440KJ0
2039						
	2030	6.573	13,260,000	May 1, 2019	100	914440KK7
	2031	6.573	13,825,000	May 1, 2019	100	914440KK7
	2032	6.573	14,410,000	May 1, 2019	100	914440KK7
	2033	6.573	15,030,000	May 1, 2019	100	914440KK7
	2034	6.573	15,675,000	May 1, 2019	100	914440KK7
	2035	6.573	15,250,000	May 1, 2019	100	914440KK7
	2036	6.573	15,900,000	May 1, 2019	100	914440KK7
	2037	6.573	16,575,000	May 1, 2019	100	914440KK7
	2038	6.573	17,285,000	May 1, 2019	100	914440KK7
	2039	6.573	18,025,000	May 1, 2019	100	914440KK7

*Portion of Sinking Fund Installment

† CUSIP is a registered trademark of the American Bankers Association. CUSIP data herein are provided by CUSIP Global Services, managed on behalf of The American Bankers Association by S&P Global Market Intelligence. The CUSIP numbers are included solely for the convenience of owners of the Bonds, and the Commonwealth is not responsible for the selection or the correctness of the CUSIP numbers printed herein. CUSIP numbers assigned to securities may be changed during the term of such securities based on a number of factors, including, but not limited to, the refunding or defeasance of such securities or the use of secondary market financial products.

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UNIVERSITY OF MASSACHUSETTS BUILDING AUTHORITY • Refunding Revenue Bonds, Senior Series 2019-1

Mixed Sources
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