

In the opinion of Bond Counsel, under existing statutes, regulations, rulings and court decisions, interest on the Bonds will not be includible in gross income of the holders thereof for federal income tax purposes, assuming continuing compliance by the Authority and the University with the requirements of the Internal Revenue Code of 1986, as amended. Interest on the Bonds will not be a specific preference item for purposes of computing the federal alternative minimum tax on individuals. Under the laws of the Commonwealth of Pennsylvania, as enacted and construed on the date hereof, interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax. See “TAX MATTERS” herein.



\$77,470,000
ALLEGHENY COUNTY HIGHER EDUCATION BUILDING AUTHORITY

Carnegie Mellon University Revenue Bonds
consisting of

\$50,230,000
Carnegie Mellon University Revenue Bonds,
Series A of 2022 (SOFR Index Rate Bonds)

\$27,240,000
Carnegie Mellon University Revenue Bonds,
Series B of 2022

Dated: Date of Delivery

Series A Bonds Due: See “SUMMARY OF THE OFFERING”

Series B Bonds Due: August 1, see “SUMMARY OF THE OFFERING”

The Allegheny County Higher Education Building Authority (the “Authority”) will issue its \$77,470,000 aggregate principal amount of Carnegie Mellon University Revenue Bonds, consisting of \$50,230,000 Carnegie Mellon University Revenue Bonds, Series A of 2022 (SOFR Index Rate Bonds) (the “Series A Bonds”) and \$27,240,000 Carnegie Mellon University Revenue Bonds, Series B of 2022 (the “Series B Bonds”) and, together with the Series A Bonds, the “Bonds”). The Bonds are being issued pursuant to the Act described herein, a resolution adopted by the Authority on December 16, 2021, and separate Trust Indentures relating to the Series A Bonds (the “Series A Indenture”) and the Series B Bonds (the “Series B Indenture” and, together with the Series A Indenture, the “Indentures”), each dated as of January 1, 2022 and each between the Authority and U.S. Bank National Association, as trustee (the “Trustee”). The proceeds of the Series A Bonds are being loaned to Carnegie Mellon University (the “University”), a Pennsylvania nonprofit corporation, to finance a portion of the costs of (i) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bond, Series B of 2012 (the “2012 Series B Refunded Bonds”) and (ii) paying the costs related to the issuance of the Series A Bonds (collectively, the “2022A Project”). The proceeds of the Series B Bonds are being loaned to the University to finance a portion of the costs of (i) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bonds, Series A of 2012 (the “2012 Series A Refunded Bonds” and, together with the 2012 Series B Refunded Bonds, the “Refunded Bonds”) and (ii) paying the costs related to the issuance of the Series B Bonds (collectively, the “2022B Project” and, together with the 2022A Project, the “Projects”).

The University entered into a bond purchase contract on January 20, 2022, pursuant to which the University has agreed to issue and sell its Carnegie Mellon University Taxable Bonds, Series of 2022 (the “Series 2022 Taxable Bonds”) to finance (i) the payment of all or a portion of the costs of constructing the University’s Richard King Mellon Science Building facility, and Robotics Innovation Center and CMU Cloud Lab and (ii) the payment of all or a portion of the costs of issuance of the Series 2022 Taxable Bonds. The Series 2022 Taxable Bonds are expected to be issued by the University in the original aggregate principal amount of \$75,000,000. The Series 2022 Taxable Bonds are not obligations of the Authority. In addition, following the issuance of the Bonds, the Authority expects to issue approximately \$18,920,000 aggregate principal amount of its Carnegie Mellon University Revenue Bonds, Series C of 2022 (the “Series C Bonds”), the proceeds of which will be loaned to the University to finance a portion of the costs of (i) constructing the University’s Richard King Mellon Science Building facility and related capital expenditures and (ii) paying the costs related to the issuance of the Series C Bonds. **Neither the Series 2022 Taxable Bonds nor the Series C Bonds are being offered by means of this Official Statement. Only the Bonds are being offered by the Authority pursuant to this Official Statement.**

The principal of, and interest on, the Series A Bonds are payable solely from payments to be made to the Trustee under a Loan Agreement between the Authority and the University relating to the Series A Bonds (the “Series A Loan Agreement”). The principal of, and interest on, the Series B Bonds are payable solely from payments to be made to the Trustee under a Loan Agreement between the Authority and the University relating to the Series B Bonds (the “Series B Loan Agreement”).

The Series A Bonds will initially bear interest at the Index Rate per annum equal to the sum of (i) the SOFR Index Rate then in effect, determined for each U.S. Government Securities business day on the related SOFR Determination Date for the related SOFR Reference Date, and (ii) the SOFR Index Spread Applicable to the Series A Bonds (the Index Rate so determined being referred to herein as the “SOFR Index Rate”). The Series A Bonds will bear interest at such Index Rate for the initial Index Rate Period beginning and ending on the dates as shown in the “SUMMARY OF THE OFFERING” on the inside front cover.

While the Series A Bonds bear interest at the SOFR Index Rate, interest thereon will be payable on the first Business Day of each month, commencing on March 1, 2022, and, in addition, on each Conversion Date. The Series A Bonds will be subject to mandatory tender for purchase (and remarketing) on the Conversion Date (the first day after the last day of the initial Index Rate Period) as shown in the “SUMMARY OF THE OFFERING” on the inside front cover, and thereafter on each subsequent Conversion Date, subject to the limitations described in this Official Statement.

There is no liquidity facility for the Series A Bonds, and none of the Authority, the University or the Remarketing Agent is obligated to purchase any tendered Series A Bonds. Tendered Series A Bonds will be purchased solely with proceeds from the remarketing thereof. If the Series A Bonds are not purchased upon mandatory tender on the Purchase Date because remarketing proceeds are insufficient for such purchase, an Event of Default shall be deemed to have occurred under the Series A Indenture.

After the initial Index Rate Period for the Series A Bonds, all of the Series A Bonds are subject to conversion to a Daily Rate, Weekly Rate, Monthly Rate, Flexible Rate, Semiannual Rate or Long Rate, or may continue as Index Rate Bonds at a new Index Rate for a new Index Rate Period. **THIS OFFICIAL STATEMENT PROVIDES INFORMATION CONCERNING THE SERIES A BONDS ONLY WHILE BEARING INTEREST AT THE SOFR INDEX RATE SHOWN IN THE “SUMMARY OF THE OFFERING” DURING THE INITIAL INDEX RATE PERIOD.**

Interest on the Series B Bonds is payable on February 1 and August 1 of each year, commencing August 1, 2022, to the owners of record as of the close of business on the fifteenth day of the month preceding such interest payment date.

The Bonds are being issued as fully registered bonds and when issued, will be registered in the name of and held by Cede & Co., as nominee for The Depository Trust Company (“DTC”), New York, New York. DTC will act as securities depository for the Bonds. Purchases of the Bonds will be made only in book-entry form, in denominations of \$5,000 and multiples thereof within a maturity, and purchasers will not receive certificates representing their interests in the Bonds. So long as DTC, or its nominee, Cede & Co., is the registered owner of the Bonds, payments of the principal of, and interest on, the Bonds will be made by the Trustee directly to Cede & Co. Disbursement of such payments to the DTC Participants is the responsibility of DTC, and disbursement of such payments to Beneficial Owners of the Bonds is the responsibility of the DTC Participants and the Indirect Participants. See “BOOK-ENTRY-ONLY SYSTEM” herein.

The Bonds are subject to redemption prior to maturity as provided herein.

There are risks associated with an investment in the Bonds. Some of these risks are outlined under “BONDHOLDERS’ RISKS” herein. This cover page contains information for quick reference only. It is not a summary of this issue. Investors must read the entire Official Statement, including the Appendices, to obtain information essential to making an informed investment decision.

THE BONDS ARE LIMITED OBLIGATIONS OF THE AUTHORITY AND ARE NOT A DEBT OF THE COUNTY OF ALLEGHENY, THE COMMONWEALTH OF PENNSYLVANIA OR ANY POLITICAL SUBDIVISION, AGENCY OR INSTRUMENTALITY THEREOF AND ARE PAYABLE SOLELY FROM THE SOURCES REFERRED TO IN THE BONDS OR AS DESCRIBED HEREIN. NEITHER THE GENERAL CREDIT OF THE AUTHORITY, NOR THE GENERAL CREDIT OR THE TAXING POWER OF THE COUNTY OF ALLEGHENY, THE COMMONWEALTH OF PENNSYLVANIA OR OF ANY POLITICAL SUBDIVISION THEREOF IS PLEDGED FOR THE PAYMENT OF THE PRINCIPAL OR REDEMPTION PRICE OF, OR INTEREST ON, THE BONDS. THE AUTHORITY HAS NO TAXING POWER.

The Bonds are offered when, as and if issued by the Authority and received by the Underwriters subject to prior sale, or to withdrawal or modification of the offer without notice, and subject to the approving opinion of Eckert Seamans Cherin & Mellott, LLC, Pittsburgh, Pennsylvania, Bond Counsel. Certain legal matters will be passed upon for the University by Mary Jo Dively, Esquire, Vice President and General Counsel of the University; for the Authority by its counsel, Clark Hill PLC, Pittsburgh, Pennsylvania; and for the Underwriters by their counsel, Chiesa Shahnian & Giantomasi PC, West Orange, New Jersey. The Bonds are expected to be delivered through DTC on or about January 27, 2022.

BofA Securities
(Underwriter for the Series A Bonds and the Series B Bonds)

Goldman Sachs & Co. LLC
(Underwriter for the Series B Bonds)

PNC Capital Markets LLC
(Underwriter for the Series B Bonds)

SUMMARY OF THE OFFERING

\$77,470,000

ALLEGHENY COUNTY HIGHER EDUCATION BUILDING AUTHORITY

Carnegie Mellon University Revenue Bonds

consisting of

\$50,230,000

**Carnegie Mellon University Revenue Bonds,
Series A of 2022 (SOFR Index Rate Bonds)**

\$27,240,000

**Carnegie Mellon University Revenue Bonds,
Series B of 2022**

\$50,230,000

Carnegie Mellon University Revenue Bonds, Series A of 2022 (SOFR Index Rate Bonds)

CUSIP: 01729EKZ9*

<u>Initial SOFR Index Rate Period Begins</u>	<u>Initial SOFR Index Rate Period Ends</u>	<u>Next Conversion Date</u>	<u>Initial Interest Rate</u>	<u>Price</u>	<u>First Call Date</u>	<u>Maturity Date</u>
January 27, 2022	July 31, 2027	August 1, 2027	70% of SOFR, plus 29 basis points	100%	February 1, 2027	February 1, 2033

\$27,240,000

Carnegie Mellon University Revenue Bonds, Series B of 2022

<u>Maturity Date (August 1)</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>Price</u>	<u>CUSIP Number*</u>
2027	\$27,240,000	5.000%	1.080%	120.918	01729ELA3

* Registered trademark of American Bankers Association. CUSIP numbers are provided by CUSIP Global Services, which is managed on behalf of the American Bankers Association by Standard & Poor's, Capital IQ. The CUSIP numbers listed above are being provided solely for the convenience of Bondholders only at the time of issuance of the Bonds and the Authority does not make any representation with respect to such numbers or undertake any responsibility for their accuracy now or at any time in the future. The CUSIP number for a specific maturity is subject to being changed after the issuance of the Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part or as a result of the procurement of secondary market portfolio insurance or other similar enhancement by investors that is applicable to all or a portion of certain maturities of the Bonds.

ALLEGHENY COUNTY HIGHER EDUCATION BUILDING AUTHORITY

BOARD MEMBERS

William Brooks	Chairman
Margaret McCormick Barron	Vice Chairman
John Brown, Jr.	Assistant Secretary-Treasurer
Senator Wayne Fontana	Member
Daniel C. Connolly	Member
Stanley Louis Gorski	Member
Marian M. Lien	Member
Stephanie Lynn Turman	Member

AUTHORITY COUNSEL

Clark Hill PLC
Pittsburgh, Pennsylvania

BOND COUNSEL

Eckert Seamans Cherin & Mellott, LLC
Pittsburgh, Pennsylvania

TRUSTEE

U.S. Bank National Association
Pittsburgh, Pennsylvania

SENIOR UNDERWRITER

BofA Securities, Inc.
Philadelphia, Pennsylvania

UNDERWRITERS' COUNSEL

Chiesa Shahinian & Giantomasi PC
West Orange, New Jersey

The information set forth herein has been obtained from the Allegheny County Higher Education Building Authority (the “Authority”), Carnegie Mellon University (the “University”) and other sources which are believed to be reliable. Information provided by sources other than the Authority is not guaranteed as to accuracy or completeness by the Authority. Information provided by sources other than the University is not guaranteed as to accuracy or completeness by the University. The information and expressions of opinions 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 any of the information set forth herein since the date hereof.

Certain statements included or incorporated by reference in this Official Statement constitute projections or estimates of future events, generally known as forward-looking statements. These statements are generally identifiable by the terminology used such as “anticipate,” “plan,” “expect,” “estimate,” “budget” or other similar words. The achievement of certain results or other expectations contained in such forward-looking statements involves known and unknown risks, uncertainties and other factors which may cause actual results, performance or achievements to be materially different from any future results, performance or achievements described in or expressed or implied by such forward-looking statements. Other than as may be required by law, the University does not plan to issue any updates or revisions to any such forward-looking statements if or when its expectations are realized or not realized, or when the events, conditions or circumstances on which such statements are based, occur.

The Underwriters have provided the following sentence for inclusion in the Official Statement. The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their responsibilities to investors under the federal securities law as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

No dealer, broker, salesperson or other person has been authorized by the Authority, the Underwriters or the University to give any information or to make any representations with respect to the Bonds, other than those contained in this Official Statement, and if given or made, such other information or representations 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 any offer to buy any of the Bonds in any jurisdiction in which it is unlawful to make such an offer, solicitation, or sale.

The order and placement of materials in this Official Statement, including the appendices, are not to be deemed to be a determination of relevance, materiality, or importance, and this Official Statement, including the appendices, must be considered in its entirety. The offering of the Bonds is made only by means of this entire Official Statement.

References to website 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 websites and the information or links contained therein are not incorporated into, and are not part of, this Official Statement for purposes of, and as that term is defined in, SEC rule 15c2-12.

THE BONDS ARE NOT AND WILL NOT BE REGISTERED UNDER THE SECURITIES ACT OF 1933, OR UNDER ANY STATE SECURITIES LAWS, AND THE INDENTURES HAVE NOT BEEN AND WILL NOT BE QUALIFIED UNDER THE TRUST INDENTURE ACT OF 1939, AS AMENDED, BECAUSE OF AVAILABLE EXEMPTIONS THEREFROM. NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY FEDERAL, STATE, MUNICIPAL, OR OTHER GOVERNMENTAL AGENCY WILL PASS UPON THE ACCURACY, COMPLETENESS, OR ADEQUACY OF THIS OFFICIAL STATEMENT.

TABLE OF CONTENTS

	Page
INTRODUCTION	1
THE PROJECTS.....	3
ESTIMATED SOURCES AND USES OF FUNDS	4
CARNEGIE MELLON UNIVERSITY	4
THE AUTHORITY	4
THE SERIES A BONDS	6
THE SERIES B BONDS	18
BOOK-ENTRY-ONLY SYSTEM	21
SECURITY AND SOURCES OF PAYMENT FOR THE BONDS	24
EXISTING INDEBTEDNESS	24
ESTIMATED ANNUAL DEBT SERVICE	27
BONDHOLDERS' RISKS	28
CONTINUING DISCLOSURE	33
TAX MATTERS.....	33
FINANCIAL ADVISOR	35
THE TRUSTEE	35
LEGAL MATTERS.....	35
LITIGATION MATTERS.....	35
LIMITED OBLIGATIONS	36
ENFORCEABILITY OF REMEDIES	36
UNDERWRITING	36
RATING	38
INDEPENDENT ACCOUNTANTS	38
MISCELLANEOUS	38
 APPENDIX A: Carnegie Mellon University.....	 A-1
APPENDIX B: 2021 Financial Report for Carnegie Mellon University including Audited Financial Statements of Carnegie Mellon University as of and for the Fiscal Years ended June 30, 2021 and June 30, 2020	B-1
APPENDIX C: Summary of Certain Provisions of the Series A Indenture and the Series A Loan Agreement.....	C-1
APPENDIX D: Summary of Certain Provisions of the Series B Indenture and the Series B Loan Agreement	D-1
APPENDIX E Proposed Form of Opinion of Bond Counsel – Series A Bonds.....	E-1
APPENDIX F: Proposed Form of Opinion of Bond Counsel – Series B Bonds	F-1
APPENDIX G: Form of Continuing Disclosure Certificate.....	G-1

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OFFICIAL STATEMENT

Relating to

\$77,470,000

**Allegheny County Higher Education Building Authority
Carnegie Mellon University Revenue Bonds,
consisting of**

\$50,230,000

**Carnegie Mellon University Revenue Bonds,
Series A of 2022 (SOFR Index Rate Bonds)**

\$27,240,000

**Carnegie Mellon University Revenue Bonds,
Series B of 2022**

INTRODUCTION

This Official Statement, including the cover page and the appendices, is furnished in connection with the offering by the Allegheny County Higher Education Building Authority (the “Authority”) of \$77,470,000 aggregate principal amount of Carnegie Mellon University Revenue Bonds, consisting of \$50,230,000 Carnegie Mellon University Revenue Bonds, Series A of 2022 (SOFR Index Rate Bonds) (the “Series A Bonds”) and \$27,240,000 Carnegie Mellon University Revenue Bonds, Series B of 2022 (the “Series B Bonds” and, together with the Series A Bonds, the “Bonds”). The Bonds are being issued pursuant to the Act described below, a resolution adopted by the Authority on December 16, 2021, and separate Trust Indentures relating to the Series A Bonds (the “Series A Indenture”) and the Series B Bonds (the “Series B Indenture” and, together with the Series A Indenture, the “Indentures”), each dated as of January 1, 2022 and each between the Authority and U.S. Bank National Association, as trustee (the “Trustee”).

The proceeds of the Series A Bonds are being loaned to Carnegie Mellon University (the “University”), a Pennsylvania nonprofit corporation, to finance a portion of the costs of (i) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bond, Series B of 2012 (the “2012 Series B Refunded Bonds”) and (ii) paying the costs related to the issuance of the Bonds (collectively, the “2022A Project”). The proceeds of the Series B Bonds are being loaned to the University to finance a portion of the costs of (i) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bonds, Series A of 2012 (the “2012 Series A Refunded Bonds” and, together with the 2012 Series B Refunded Bonds, the “Refunded Bonds”) and (ii) paying the costs related to the issuance of the Series B Bonds (collectively, the “2022B Project” and, together with the 2022A Project, the “Projects”).

The University entered into a bond purchase contract on January 20, 2022, pursuant to which the University has agreed to issue and sell its Carnegie Mellon University Taxable Bonds, Series of 2022 (the “Series 2022 Taxable Bonds”), the proceeds of which will be used to finance (i) the payment of all or a portion of the costs of constructing the University’s Richard King Mellon Science Building facility, Robotics Innovation Center, and CMU Cloud Lab and (ii) the payment of all or a portion of the costs of issuance of the Series 2022 Taxable Bonds. The Series 2022 Taxable Bonds are expected to be issued by the University in the original aggregate principal amount of \$75,000,000. The Series 2022 Taxable Bonds are not obligations of the Authority. In addition, following the issuance of the Bonds, the Authority expects to issue approximately \$18,920,000 aggregate principal amount of its Carnegie Mellon University Revenue Bonds, Series C of 2022 (the “Series C Bonds”), the proceeds of which will be loaned to the University to finance a portion of the costs of (i) constructing the University’s Richard King Mellon Science Building

facility and related capital expenditures and (ii) paying the costs related to the issuance of the Series C Bonds. The Series C Bonds will be issued pursuant to the Series B Indenture. **Neither the Series 2022 Taxable Bonds nor the Series C Bonds are being offered by means of this Official Statement. Only the Bonds are being offered by the Authority pursuant to this Official Statement.**

The Authority is a body politic and corporate existing under the Laws of the Commonwealth of Pennsylvania (the “Commonwealth”), pursuant to the Municipality Authorities Act, Act 22 of 2001, as amended, 53 Pa.C.S. 5601 *et seq.* (hereinafter the “Act”), having been duly organized by the County of Allegheny, Pennsylvania (the “County”).

The Authority is authorized by the Act to issue its revenue bonds and to lend the proceeds thereof to colleges and universities and other eligible educational institutions pursuant to a financing agreement with the Authority for the purpose of financing or refinancing a portion of the cost of acquisition, construction, installation, improving, maintaining and operating buildings and facilities for eligible educational institutions, provided that such bonds shall not constitute a debt, liability, or obligation, or a pledge of the faith and credit, of the Commonwealth or the County, but shall be payable solely from the payments to be made by the borrower and any other revenues of the Authority pursuant to such financing agreement.

The Series A Bonds will be payable solely from amounts to be paid by the University under a Loan Agreement relating to the Series A Bonds dated as of January 1, 2022 (the “Series A Loan Agreement”) between the Authority and the University, and from amounts held from time to time by the Trustee in the funds and accounts (other than the Rebate Fund) established under the Series A Indenture. Pursuant to the Series A Loan Agreement, the Authority will lend the proceeds of the Series A Bonds to the University for the purpose of paying the costs of the 2022A Project. The University will be obligated under the Series A Loan Agreement to make payments (“Series A Loan Payments”) to the Trustee, as the assignee of the Authority, in amounts and at times that, together with other moneys available to the Trustee, are sufficient to pay the principal of, premium, if any, and interest on the Series A Bonds and to pay certain other costs and expenses.

The Series B Bonds will be payable solely from amounts to be paid by the University under a Loan Agreement relating to the Series B Bonds and the Series C Bonds dated as of January 1, 2022 (the “Series B Loan Agreement” and, together with the Series A Loan Agreement, the “Loan Agreements”) between the Authority and the University, and from amounts held from time to time by the Trustee in the funds and accounts (other than the Rebate Fund) established under the Series B Indenture. Pursuant to the Series B Loan Agreement, the Authority will lend the proceeds of the Series B Bonds to the University for the purpose of paying the costs of the 2022B Project. The University will be obligated under the Series B Loan Agreement to make payments (“Series B Loan Payments”) to the Trustee, as the assignee of the Authority, in amounts and at times that, together with other moneys available to the Trustee, are sufficient to pay the principal of, premium, if any, and interest on the Series B Bonds and to pay certain other costs and expenses.

All capitalized terms used in this Official Statement, unless otherwise defined or the context otherwise indicates, have the same meanings as in the Indentures and the Loan Agreements. The descriptions and summaries of such documents set forth in this Official Statement do not purport to be comprehensive or definitive, and reference should be made to each such document for complete details of all terms and conditions. Copies of such documents are on file at the designated corporate office of the Trustee in Pittsburgh, Pennsylvania. All statements in this Official Statement are qualified in their entirety by the terms of each such document and by reference to laws and principles of equity relating to or affecting generally the enforcement of creditors’ rights.

THE PROJECTS

The 2022A Project consists of (i) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bond, Series B of 2012 (as more particularly described below, the “2012 Series B Refunded Bonds”) and (ii) the payment of costs related to the issuance of the Series A Bonds. The 2022B Project consists of (i) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bonds, Series A of 2012 (as more particularly described below, the “2012 Series A Refunded Bonds”) and, together with the 2012 Series B Refunded Bonds, the “Refunded Bonds”) and (ii) the payment of costs related to the issuance of the Series B Bonds. The University also expects to issue the Series 2022 Taxable Bonds and the Series C Bonds. See APPENDIX A – OUTSTANDING INDEBTEDNESS for more information regarding the Series 2022 Taxable Bonds and the Series C Bonds.

Series 2012 B Refunded Bonds

<u>Maturity Date</u>	<u>Principal Amount</u>	<u>Redemption Date</u>
February 1, 2033	\$50,000,000	January 31, 2022

Series 2012 A Refunded Bonds

<u>Maturity Date</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Redemption Date</u>	<u>CUSIP*</u>
March 1, 2024	\$31,935,000	5.00%	March 1, 2022	01729EKV8
March 1, 2024	\$870,000	2.50%	March 1, 2022	01729EKT3

*The CUSIP numbers are included solely for the convenience of the holders of the Refunded Bonds. Neither the Authority nor the University shall be responsible for the selection or the use of the CUSIP numbers, nor is any representation made as to their correctness on the securities or as indicated above.

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ESTIMATED SOURCES AND USES OF FUNDS

The proceeds to be received from the sale of the Bonds, together with other available funds of the University, are expected to be applied as follows:

SOURCES OF FUNDS:	<u>SERIES A BONDS</u>	<u>SERIES B BONDS</u>	<u>TOTAL</u>
Par amount of the Bonds	\$50,230,000.00	\$27,240,000.00	\$77,470,000.00
Net Original Issue Premium	-	5,698,063.20	5,698,063.20
Other Available Funds	<u>62,500.00</u>	<u>809,250.00</u>	<u>871,750.00</u>
TOTAL SOURCES OF FUNDS	<u>\$50,292,500.00</u>	<u>\$33,747,313.20</u>	<u>\$84,039,813.20</u>
USES OF FUNDS:			
Refunding of Refunded Bonds	\$50,062,500.00	\$33,614,250.00	\$83,676,750.00
Costs of Issuance ⁽¹⁾	<u>230,000.00</u>	<u>133,063.20</u>	<u>\$363,063.20</u>
TOTAL USES OF FUNDS	<u>\$50,292,500.00</u>	<u>\$33,747,313.20</u>	<u>\$84,039,813.20</u>

- ⁽¹⁾ Estimated amount to pay the costs of issuance of the Bonds, including underwriting, legal, rating and accounting fees, the Authority's fees, printing costs and certain other fees and expenses.

CARNEGIE MELLON UNIVERSITY

The University is an independent, nonsectarian educational and research institution located on an approximately 157-acre campus five miles from downtown Pittsburgh, Pennsylvania. The University is incorporated in the Commonwealth as a nonprofit corporation and is an organization described in section 501(c)(3) of the Internal Revenue Code of 1986, as amended. See APPENDIX A for a more detailed description of the University and APPENDIX B for the University's 2021 Financial Report and audited financial statements for the fiscal years ended June 30, 2021 and June 30, 2020.

THE AUTHORITY

General

The Authority is a body corporate and politic created pursuant to a resolution of the Board of County Commissioners of the County under the Act. The Authority was created in 1981. A Certificate of Amendment to the Authority's Articles of Incorporation was granted to the Authority by the Secretary of the Commonwealth (the "Secretary") on May 22, 1995, extending the Authority's existence for fifty (50) years from that date. Another Certificate of Amendment to the Authority's Articles of Incorporation was granted to the Authority by the Secretary on May 22, 2013, extending the Authority's existence for fifty (50) years from that date. The Authority's address is One Chatham Center, Suite 900, 112 Washington Place, Pittsburgh, Pennsylvania 15219.

The governing body of the Authority is a board consisting of up to twelve members appointed pursuant to the County Charter by the County Executive, subject to confirmation by the County Council (the County Executive and County Council members are elected officials).

Members of the Authority

Members of the Authority Board* are appointed for staggered five-year terms and may be reappointed. The present members of the Authority Board are as follows:

Member	Position
William Brooks	Chairman
Margaret McCormick Barron	Vice Chairman
John Brown, Jr.	Assistant Secretary-Treasurer
Senator Wayne Fontana	Member
Daniel C. Connolly	Member
Stanley Louis Gorski	Member
Marian M. Lien	Member
Stephanie Lynn Turman	Member

The Authority does not and will not in the future monitor the financial condition of the University, the Projects or otherwise monitor the payment of the Bonds or compliance with the documents relating thereto. The responsibility for the undertaking and completion of the Projects will rest entirely with the University and not the Authority. The Authority will rely entirely on the University and the Trustee to carry out their respective responsibilities under the Indentures and the Loan Agreements. The Authority has assets and may attain additional assets in the future. However, such assets are not pledged to secure the payment of the Bonds, and the Authority has no obligation to make, and no expectation of making, such assets subject to the lien of the Series A Indenture or the Series B Indenture.

The Authority has issued revenue bonds and notes for various projects. Each of the bond and note issues is payable from receipts and revenues derived by the Authority from the entity on whose behalf the bonds or notes were issued and is secured separately and distinctly from the issues of every other entity. The Authority expects from time to time to enter into separate indentures or other agreements for projects that will provide for the issuance of bonds or notes to be secured by revenues derived from such entities.

THE AUTHORITY HAS NOT PREPARED OR ASSISTED IN THE PREPARATION OF THIS OFFICIAL STATEMENT, EXCEPT THE STATEMENTS UNDER THIS SECTION AND UNDER THE HEADING “LITIGATION MATTERS – THE AUTHORITY.” EXCEPT AS AFORESAID, THE AUTHORITY IS NOT RESPONSIBLE FOR ANY STATEMENTS MADE HEREIN AND DISCLAIMS RESPONSIBILITY FOR THE DISCLOSURES SET FORTH HEREIN WHICH ARE MADE IN CONNECTION WITH THE OFFER, SALE AND DISTRIBUTION OF THE BONDS.

The Authority has the power under the Act to participate in the financing and refinancing of various facilities for use by private institutions for higher education within the Commonwealth. The Bonds will be limited obligations of the Authority as described under “SECURITY AND SOURCES OF PAYMENT OF THE BONDS.”

The University has agreed pursuant to the Loan Agreements to indemnify the Authority and the Trustee and to hold them harmless from and against any liabilities that may arise out of (i) an uncured default by the University under the Loan Agreements or the Indentures and (ii) any other matter in

* There are four (4) vacancies as of the date hereof.

connection with the issuance of the Bonds which is in the control of the University. Reference should be made to the Loan Agreements for a more complete description of these provisions.

THE BONDS ARE A LIMITED OBLIGATION OF THE AUTHORITY AND ARE NOT A DEBT OF THE COUNTY OF ALLEGHENY, THE COMMONWEALTH OF PENNSYLVANIA OR ANY POLITICAL SUBDIVISION, AGENCY OR INSTRUMENTALITY THEREOF AND ARE PAYABLE SOLELY FROM THE SOURCES REFERRED TO IN THE BONDS. NEITHER THE GENERAL CREDIT OF THE AUTHORITY, NOR THE GENERAL CREDIT OR THE TAXING POWER OF THE COUNTY OF ALLEGHENY, THE COMMONWEALTH OF PENNSYLVANIA OR OF ANY POLITICAL SUBDIVISION THEREOF IS PLEDGED FOR THE PAYMENT OF THE PRINCIPAL OF, OR INTEREST ON, THE BONDS. THE AUTHORITY HAS NO TAXING POWER.

THE SERIES A BONDS

The following is a summary of certain provisions of the Series A Bonds. This summary of the Series A Bonds is not intended to be an exhaustive discussion of the Series A Bonds. Investors are advised that the Series A Indenture should be reviewed for the general terms of the Series A Bonds. See "APPENDIX C: Summary of Certain Provisions of the Series A Indenture and the Series A Loan Agreement." All capitalized terms used under this caption that are not defined in the body of this Official Statement are defined in APPENDIX C.

This summary of the Series A Bonds applies only while they bear interest at the applicable Index Rate during the Initial Index Rate Period. Holders and potential owners of the Series A Bonds should not rely on this Official Statement for information concerning a change of the Series A Bonds to any Rate Mode other than the applicable Index Rate for the Initial Index Rate Period, but should look solely to the Series A Indenture and the remarketing memorandum or remarketing circular to be issued in connection with any such Index Rate Period change with respect to the Series A Bonds.

All references in this Official Statement to a Remarketing Agent apply only to the extent the University appoints a Remarketing Agent for the Series A Bonds. There is no Remarketing Agent for the Series A Bonds as of the date of the initial issuance and delivery thereof. The Series A Indenture requires the University to appoint a Remarketing Agent on or before the date by which any action is required of a Remarketing Agent in the Series A Indenture, and the University expects to do so by such date.

General

The Series A Bonds will mature on February 1, 2033. Interest on the Series A Bonds while in the initial Index Rate Mode will be calculated on the basis of a 365/366-day year and actual number of days elapsed. The Index Rate (defined below) for the Initial Index Rate Period shall never exceed an interest rate equal to the lesser of ten percent (10.00%) per annum or the maximum rate per annum permitted by applicable law (the "Maximum Rate").

The Series A Bonds will initially, during the Initial Index Rate Period commencing on the Closing Date and ending on the Special Mandatory Tender Date (defined below) (the "Initial Index Rate Period"), bear interest at the "Index Rate", which, during the Initial Index Rate Period is equal to a rate per annum equal to the sum of (i) 70% of the Secured Overnight Funding Rate (or SOFR) then in effect, determined for each U.S. Government Securities Business Day on the related SOFR Determination Date for the Related SOFR Reference Rate (the rate so determined being referred to herein as the "SOFR Index Rate"), and (ii) the SOFR Index Spread applicable to the Series A Bonds for the Initial Index Rate Period. See "Determination of Interest Rates for the Series A Bonds" under this caption.

While the Series A Bonds bear interest at the Index Rate, interest thereon will be payable on the first Business Day of each month, commencing on March 1, 2022, and, in addition, on each Conversion

Date. The Series A Bonds will be subject to mandatory tender for purchase (and remarketing) on the Conversion Date (the first day after the last day of the Initial Index Rate Period) and thereafter on each subsequent Conversion Date. On the day after the last day of the Initial Index Rate Period for the Series A Bonds, all of the Series A Bonds may be converted to bear interest at a Variable Rate, which term includes Series A Bonds bearing interest at a Daily Rate (“Daily Rate Bonds”), a Weekly Rate (“Weekly Rate Bonds”), a Monthly Rate (“Monthly Rate Bonds”), a Flexible Rate (“Flexible Rate Bonds”) a Semiannual Rate (“Semiannual Rate Bonds”), a Long Rate (“Long Rate Bonds”), or a new Index Rate for a new Index Rate Period, or may be converted to bear interest at a Fixed Rate (“Fixed Rate Bonds”).

The Series A Bonds are being issued in the initial Index Rate Mode in the form of fully registered bonds without coupons in the denomination of \$5,000 or any integral multiple in excess thereof. The Series A Bonds are registered in the name of Cede & Co., as Bondholder and nominee of The Depository Trust Company (“DTC”), New York, New York, which acts as securities depository for the Series A Bonds. Ownership interests in the Series A Bonds may be purchased in book-entry form only.

THIS OFFICIAL STATEMENT PROVIDES INFORMATION CONCERNING THE SERIES A BONDS ONLY WHILE BEARING INTEREST AT THE INDEX RATE SHOWN IN THE “SUMMARY OF THE OFFERING” ON THE INSIDE FRONT COVER DURING THE INITIAL INDEX RATE PERIOD.

Determination of Interest Rates for the Series A Bonds

During the Initial Index Rate Period, interest on each Series A Bond shall accrue from one Interest Payment Date to, but not including, the next Interest Payment Date, at a rate per annum equal to the Index Rate, which is the sum of: (i) the SOFR Index Rate in effect as of each SOFR Effective Date, determined by the Calculation Agent on the related SOFR Determination Date for the related SOFR Reference Date; and (ii) the SOFR Index Spread. Such rate shall be in effect for purposes of computing interest from the SOFR Effective Date until the day immediately preceding the next SOFR Effective Date (whether or not such day is a Business Day).

The following are definitions for defined terms in the preceding paragraph or in the definitions of the Index Rate, SOFR Index Rate or Secured Overnight Financing Rate:

“*Federal Reserve’s Website*” means the website of the Federal Reserve Bank of New York currently at <http://www.newyorkfed.org>, or any successor website of the Federal Reserve Bank of New York.

“*OBFR*” means, with respect to any SOFR Effective Date, the Overnight Bank Funding Rate on the Federal Reserve’s Website as of 4:00 p.m., New York City time, on the SOFR Determination Date for each related SOFR Reference Date.

“*OBFR Index Cessation Date*” means, in respect of an OBFR Index Cessation Event, the date on which the Federal Reserve Bank of New York (or any successor administrator of the OBFR), ceases to publish the OBFR, or the date as of which the OBFR may no longer be used.

“*OBFR Index Cessation Event*” means the occurrence of one or more of the following events:

(a) a public statement by the Federal Reserve Bank of New York (or a successor administrator of the OBFR) announcing that it has ceased to publish or provide the OBFR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide an OBFR; or

(b) the publication of information which reasonably confirms that the Federal Reserve Bank of New York (or a successor administrator of the OBFR) has ceased to provide the OBFR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide the OBFR.

“Overnight Bank Funding Rate” means the “Overnight Bank Funding Rate” reported on the Federal Reserve’s Website, or reported by any successor to the Federal Reserve Bank of New York as administrator of the Overnight Bank Funding Rate.

“Secured Overnight Financing Rate” or “SOFR” means the “Secured Overnight Financing Rate” reported on the Federal Reserve’s Website, or reported by any successor to the Federal Reserve Bank of New York as administrator of the Secured Overnight Financing Rate.

“SOFR Determination Date” means, with respect to any SOFR Effective Date, the U.S. Government Securities Business Day immediately preceding such SOFR Effective Date.

“SOFR Effective Date” means each U.S. Government Securities Business Day.

“SOFR Index Cessation Date” means, in respect of a SOFR Index Cessation Event, the date on which the Federal Reserve Bank of New York (or any successor administrator of the Secured Overnight Financing Rate) ceases to publish the Secured Overnight Financing Rate, or the date as of which the Secured Overnight Financing Rate may no longer be used.

“SOFR Index Cessation Event” means the occurrence of one or more of the following events:

(a) a public statement by the Federal Reserve Bank of New York (or a successor administrator of the Secured Overnight Financing Rate) announcing that it has ceased to publish or provide the Secured Overnight Financing Rate permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide a Secured Overnight Financing Rate; or

(b) the publication of information which reasonably confirms that the Federal Reserve Bank of New York (or a successor administrator of the Secured Overnight Financing Rate) has ceased to provide the Secured Overnight Financing Rate permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide the Secured Overnight Financing Rate.

“SOFR Index Rate” means, for any SOFR Effective Date during the Initial Index Rate Period, a per annum interest rate equal to 70% multiplied by:

(a) the Secured Overnight Financing Rate (or SOFR) as of 4:00 p.m., New York City time, on the related SOFR Determination Date for the related SOFR Reference Date; or

(b) if the Secured Overnight Financing Rate (or SOFR) is not published on the related SOFR Determination Date as specified in clause (a) of this definition, then, unless both a SOFR Index Cessation Event and a SOFR Index Cessation Date have occurred, the Secured Overnight Financing Rate for the last U.S. Government Securities Business Day for which such Secured Overnight Financing Rate was published on the Federal Reserve Bank of New York’s Website; or

(c) if both a SOFR Index Cessation Event and SOFR Index Cessation Date have occurred, then:

(i) The Calculation Agent shall determine the Adjusted SOFR Rate as if references to SOFR were references to the rate that was recommended as the replacement for the Secured Overnight Financing Rate by the Federal Reserve Board and/or the Federal Reserve Bank of New York or a committee officially endorsed or convened by the Federal Reserve Board and/or the Federal Reserve Bank of New York for the purpose of recommending a replacement for the Secured Overnight Financing Rate (which rate may be produced by a Federal Reserve Bank or other designated administrator, which rate may include any adjustments or spreads, and which rate will be reasonably expected to measure contemporaneous variations in the cost of newly borrowed funds in U.S. dollars) (the “Recommended Replacement Rate”); or

(ii) If no such Recommended Replacement Rate has been recommended within one U.S. Government Securities Business Day of the SOFR Index Cessation Event, then the Calculation Agent shall use the OBFR published on the Federal Reserve’s Website for any SOFR Effective Date after the SOFR Index Cessation Date (it being understood that the OBFR for any such SOFR Effective Date will be the Overnight Bank Funding Rate on the Federal Reserve’s Website as of 4:00 p.m. on the SOFR Determination Date for each related SOFR Reference Date).

(d) If the Calculation Agent is required to use the OBFR in subsection (c)(ii) above and an OBFR Index Cessation Event has occurred, then for any SOFR Effective Date after the OBFR Index Cessation Date, the Calculation Agent shall use the short-term interest rate target set by the Federal Open Market Committee and published on the Federal Reserve’s Website, or if the Federal Open Market Committee has not set a single rate, the mid-point of the short-term interest rate target range set by the Federal Open Market Committee and published on the Federal Reserve’s Website (calculated as the arithmetic average of the upper bound of the target range and the lower bound of the target range).

“*SOFR Index Spread*” means, with respect to the Series A Bonds, the number of basis points added to 70% of SOFR as set forth in the “SUMMARY OF THE OFFERING”.

“*SOFR Reference Date*” means, with respect to any SOFR Effective Date, the U.S. Government Securities Business Day immediately preceding the related SOFR Determination Date.

“*U.S. Government Securities Business Day*” means any day except for a Saturday, Sunday or a day on which the Securities Industry and Financial Markets Association recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. Government Securities.

Unless otherwise specified herein, all times described herein are New York time.

The Secured Overnight Financing Rate (or SOFR) is published by the Federal Reserve Bank of New York (the Federal Reserve) and is intended to be a broad measure of the cost of borrowing cash overnight collateralized by Treasury securities. The Federal Reserve reports that the Secured Overnight Financing Rate includes all trades in the Broad General Collateral Rate (as defined on the Federal Reserve’s Website), plus bilateral Treasury repurchase agreement transactions cleared through the delivery-versus-payment service offered by the Fixed Income Clearing Corporation (the “FICC”), a subsidiary of the Depository Trust and Clearing Corporation (“DTCC”). The Secured Overnight Financing Rate is filtered by the Federal Reserve to remove a portion of the foregoing transactions considered to be “specials” (as defined on the Federal Reserve’s Website).

The Federal Reserve reports that the Secured Overnight Financing Rate is calculated as a volume-weighted median of transaction-level tri-party repo data collected from The Bank of New York Mellon as well as General Collateral Finance repurchase agreement transaction data and data on bilateral Treasury repurchase transactions cleared through the FICC's delivery-versus-payment service. The Federal Reserve notes that it obtains information from DTCC Solutions LLC, an affiliate of DTCC. The Federal Reserve notes on its publication page for the Secured Overnight Financing Rate that use of the Secured Overnight Financing Rate is subject to important limitations and disclaimers, including that the Federal Reserve may alter the methods of calculation, publication schedule, rate revision practices or availability of the Secured Overnight Financing Rate at any time without notice. Secured Overnight Financing Rate rates are subject to revision until 2:30 p.m. on any date on which the Secured Overnight Financing Rate is published. The description of the Secured Overnight Financing Rate herein does not purport to be exhaustive. For a more complete discussion of the Secured Overnight Financing Rate, see the Federal Reserve's Website at <https://apps.newyorkfed.org/markets/autorates/sofr>.

Conversions

At the election of the University, all (but not less than all) of the Series A Bonds may be converted from an Index Rate to a Daily Rate, Weekly Rate, Monthly Rate, Flexible Rate, Semiannual Rate or Long Rate or another Index Rate for another Index Rate Period (together, "Variable Rate"), which may vary in duration from the Initial Index Rate Period, or may be converted from an Index Rate to a Fixed Rate.

Should the Series A Bonds be converted to bear interest at a Daily Rate, Weekly Rate, Monthly Rate, Flexible Rate, Semiannual Rate or Long Rate, or at a new Index Rate for a new Index Rate Period, or at a Fixed Rate, a remarketing memorandum or remarketing circular will be distributed describing the Series A Bonds during such new Interest Mode.

During the Initial Index Rate Period, the Conversion Date for a conversion from an Index Rate (or from one Index Rate Period to another Index Rate Period) is required to occur on the day immediately following the last day of the Index Rate Period in effect immediately prior to the Conversion, and the Series A Bonds may not be converted prior to such Conversion Date. See "SUMMARY OF THE OFFERING" for the initial Conversion Date applicable to the Series A Bonds following the end of the Initial Index Rate Period. On such Conversion Date, all Series A Bonds are subject to mandatory tender for purchase (and remarketing) following notice to the Owners thereof, unless the University withdraws its election to convert such Series A Bonds as described below.

Conversions to Variable Rate.

Any conversion from an Index Rate to another Variable Rate (including a new Index Rate for a new Index Rate Period) shall be subject to the following:

(i) The Variable Rate Conversion Date shall be the Conversion Date set forth under "SUMMARY OF THE OFFERING".

(ii) The University shall give written notice of its election to effect any such conversion to the Authority, the Underwriter for the Series A Bonds, the Tender Agent (initially U.S. Bank National Association), the Bank (if any) and the Trustee not fewer than thirty (30) nor more than forty-five (45) days prior to the proposed Conversion Date. Such notice shall specify the proposed Conversion Date, the Variable Rate to which the conversion will be made, the expected rating (if any) to be issued by the Rating Agency on the Series A Bonds after such conversion and, if applicable, the duration of the Long Rate Period to which the conversion will be made.

(iii) Not later than twenty-five (25) days prior to the Conversion Date, the Tender Agent shall mail (by first class mail) to the owners of the Series A Bonds and each Rating Agency (if any) a written notice of the proposed conversion and the mandatory tender of the Series A Bonds on the Conversion Date. Such notice shall set forth the following information required by the Series A Indenture:

(A) specify the proposed Conversion Date;

(B) state that the Series A Bonds to be converted shall be subject to mandatory tender for purchase on such Conversion Date at a purchase price equal to the principal amount thereof; and

(C) Subject to the provisions of the Series A Indenture described in APPENDIX C – Summary of the Series A Indenture and Series A Loan Agreement under the caption "Determination of Interest Rates on the Bonds; Interest Rate Conversions – Conversions between Variable Rates", in the case of mandatory tender on any Conversion Date:

1) state that the Series A Bonds shall be required to be delivered to the Designated Office of the Tender Agent at or before 9:45 a.m., New York City time, on the Conversion Date;

2) state that if the owner of the Series A Bonds fails to deliver such Bonds to the Tender Agent for purchase on the Conversion Date or other Mandatory Tender Date, as applicable, and if the Tender Agent is in receipt of the purchase price therefor, such Bonds shall nevertheless be deemed purchased on the Conversion Date or other Mandatory Tender Date, as applicable, and ownership of such Bonds shall be transferred to the purchaser thereof;

3) state that interest payments will be paid to the owners of the Series A Bonds on the Conversion Date in accordance with the Series A Indenture;

4) state that any owner who fails to deliver any such Series A Bonds for purchase shall have no further rights thereunder except the right to receive the purchase price thereof upon presentation and surrender of said Series A Bonds to the Tender Agent and that the Bond Registrar will place a stop transfer against the Series A Bonds registered in the name of such owner on the registration books; and

5) state, if applicable, that the Liquidity Facility will be replaced and that the Series A Bonds shall no longer be supported by the Liquidity Facility then in effect and the expected rating on the Series A Bonds on and after the purchase date to be issued by the Rating Agency.

(iv) Any conversion from a Rate Period involving an aggregate time period in excess of one year to a Rate Period involving an aggregate time period of one year or less, or from a Rate Period involving an aggregate time period of one year or less to a Rate Period involving an aggregate time period in excess of one year, shall in either case be subject to the condition that, on or before the proposed Conversion Date, the University shall have delivered to the Tender Agent

(if any), the Trustee, the Bank (if any), and the Remarketing Agent (if any) an opinion of nationally recognized bond counsel to the effect that the conversion will not adversely affect (A) the exclusion from gross income of interest on the Series A Bonds for federal income tax purposes or otherwise to the effect that interest on the Series A Bonds is excluded from gross income for federal income tax purposes and (B) the exemption of interest on the Series A Bonds from personal income tax and corporate net income tax or otherwise to the effect that the Series A Bonds and the interest thereon are exempt from such Commonwealth of Pennsylvania taxes,

(v) In the case of a conversion to a Daily or Weekly Rate, if a Liquidity Facility is in effect, such conversion shall not be effective if the Liquidity Facility in effect on the Conversion Date (A) has a remaining term which is less than six months following such date (giving effect in each case to the notice periods described in clause (ii) above) or (B) does not provide for payments of purchase price in respect of principal and interest (computed on the basis of a 365 or 366-day year, as applicable, for the actual number of days elapsed) up to the full amount payable on any Interest Payment Date, at an assumed rate equal to the Maximum Interest Rate. The University shall be permitted to amend the existing Liquidity Facility or obtain an Alternate Liquidity Facility so as to comply with the foregoing.

Notwithstanding the foregoing, such conversion shall not take effect if (A) the Remarketing Agent fails to determine the interest rate to be effective upon the conversion; (B) the Series A Bonds are not remarketed by 12:00 noon on the proposed Conversion Date; (C) in the case of a conversion to a Flexible Rate, if the University and the Remarketing Agent do not receive from the Rating Agency, if the Rating Agency is then rating the Series A Bonds, a letter to the effect that such conversion will not result in a reduction or withdrawal of the then-current rating on the Series A Bonds; or (D) the Trustee determines and provided written notice to the University that the Liquidity Facility (if any) does not provide sufficient interest coverage to pay the accrued interest on the Series A Bonds through the Conversion Date. In any such event, the Series A Bonds shall (i) bear interest at the Weekly Rate if a Liquidity Facility is then in effect, or (ii) bear interest at a Monthly Rate if no Liquidity Facility is then in effect; provided that the mandatory tender for purchase pursuant to the Series A Indenture shall nevertheless be carried out if notice of the conversion has been given to the owners of the Series A Bonds (subject to subparagraph (vi) below).

(vi) Notwithstanding any contrary provision of the foregoing or of the Series A Indenture, in the case of a conversion from the initial Index Rate Mode to another Variable Rate Mode (including another Index Rate Mode), if the conditions for such conversion have not been met as of the proposed Conversion Date, and the Series A Bonds are not purchased from the holders thereof pursuant to the mandatory tender provisions on the Special Mandatory Tender Date, such failure shall be an Event of Default under the Indenture.

As set forth above, each conversion from the initial Index Rate to a new Variable Rate is conditioned upon, among other requirements set forth in the Series A Indenture, determination of the new rate or rates of interest by the Remarketing Agent and receipt by the Trustee (at the times and in the manner set forth in the Series A Indenture) of an opinion of Bond Counsel to the effect that such Conversion is authorized by the Series A Indenture and does not adversely affect the exclusion of interest on the Index Rate Bonds being converted from gross income for federal income tax purposes.

Conversions to Fixed Rate.

Any conversion of the Series A Bonds at the election of the University from the initial Index Rate to the Fixed Rate shall be made as follows:

(i) The Fixed Rate Conversion Date shall be the date set forth in this Official Statement under “SUMMARY OF THE OFFERING”.

(ii) The University shall give written notice of its election to effect the conversion to the Trustee, the Authority, the Bank, the Remarketing Agent and the Tender Agent, together with the expected rating to be issued by the Rating Agency on the Series A Bonds after such conversion, not fewer than thirty-five (35) nor more than forty-five (45) days prior to the proposed Fixed Rate Conversion Date.

(iii) Not later than thirty (30) days prior to the proposed Fixed Rate Conversion Date, the Tender Agent shall mail (by first class mail) to the owners of the Series A Bonds and each Rating Agency a written notice of the conversion and the mandatory tender of the Series A Bonds on the proposed Fixed Rate Conversion Date. Such notice shall set forth the following information required by the Series A Indenture:

(A) specify the proposed Conversion Date;

(B) state that the Series A Bonds to be converted shall be subject to mandatory tender for purchase on such Conversion Date at a purchase price equal to the principal amount thereof; and

(C) Subject to the provisions of the Series A Indenture described in APPENDIX C – Summary of the Series A Indenture and Series A Loan Agreement under the caption "Determination of Interest Rates on the Bonds; Interest Rate Conversions – Conversions to Fixed Rate":

(1) state that the Series A Bonds shall be required to be delivered to the Designated Office of the Tender Agent at or before 9:45 a.m., New York City time, on the Conversion Date;

(2) state that if the owner of the Series A Bonds fails to deliver such Bonds to the Tender Agent for purchase on the Conversion Date, and if the Tender Agent is in receipt of the purchase price therefor, such Bonds shall nevertheless be deemed purchased on the Conversion Date, and ownership of such Bonds shall be transferred to the purchaser thereof;

(3) state that interest payments will be paid to the owners of the Series A Bonds on the Conversion Date in accordance with the Series A Indenture;

(4) state that any owner who fails to deliver any such Bonds for purchase shall have no further rights thereunder except the right to receive the purchase price thereof upon presentation and surrender of said Bonds to the Tender Agent and that the Bond Registrar will place a stop transfer against the Series A Bonds registered in the name of such owner on the registration books; and

(5) state, if applicable, that the Liquidity Facility will be replaced and that the Series A Bonds shall no longer be

supported by the Liquidity Facility then in effect and the expected rating on the Series A Bonds on and after the purchase date to be issued by the Rating Agency.

(iv) No more than thirty-five (35) days nor later than the last Business Day preceding the Fixed Rate Conversion Date, the Remarketing Agent shall determine the Fixed Rate upon consultation with and upon obtaining the consent of the University. The Fixed Rate shall be the rate of interest on the Series A Bonds on and after the Fixed Rate Conversion Date and shall be the lowest rate of interest that, in the judgment of the Remarketing Agent as of the date of determination and under prevailing market conditions, would cause the Series A Bonds to have a market value equal to the principal amount thereof; provided that separate maturities corresponding to the mandatory redemption schedule for the Series A Bonds may be established for the Series A Bonds and a separate Fixed Rate may be determined for each such maturity; and provided further that the University may designate an alternate maturity schedule, in writing, if the University shall have delivered to the Tender Agent, the Trustee and the Remarketing Agent an opinion of nationally recognized bond counsel to the effect that such designated alternate maturity schedule will not adversely affect the exclusion from gross income of interest on the Series A Bonds for federal income tax purposes or otherwise to the effect that interest on the Series A Bonds is excluded from gross income for federal income tax purposes. Such determination shall be conclusive and binding upon the University, the Trustee, the Tender Agent, the Authority, the Remarketing Agent and the owners of the Series A Bonds. Not later than 4:00 p.m., New York City time, on the date of the determination of such Fixed Rate, the Remarketing Agent shall communicate such Fixed Rate by telex, telecopy or other similar electronic means of communication, followed by mailed written notice, to the Trustee, the Tender Agent, the University and the Authority.

(v) Any conversion to a Fixed Rate shall be subject to the condition that, on or before the Fixed Rate Conversion Date, the University shall have delivered to the Tender Agent, the Trustee and the Remarketing Agent an opinion of nationally recognized bond counsel to the effect described in subsection (iv).

Notwithstanding the foregoing provisions, such conversion shall not take effect if any condition or requirement specified above is not satisfied. In addition, such conversion shall not take effect if (A) the Remarketing Agent fails to determine the interest rate to be effective upon the conversion or (B) the Series A Bonds are not remarketed by 12:00 noon on the proposed Conversion Date. In any such event, the Series A Bonds shall (in accordance with subsection (a) above) (i) bear interest at the Weekly Rate if a Liquidity Facility is then in effect; or (ii) bear interest at a Monthly Rate if no Liquidity Facility is then in effect; provided that the mandatory tender for purchase pursuant to the Series A Indenture shall nevertheless be carried out if notice of conversion to the Fixed Rate has been given to the owners of the Series A Bonds.

Notwithstanding any contrary provision of the foregoing or of the Series A Indenture, in the case of a conversion from the initial Index Rate Mode to a Fixed Rate, if the conditions for such conversion have not been met as of the proposed Conversion Date, and the Series A Bonds are not purchased from the holders thereof pursuant to the mandatory tender provisions on the Special Mandatory Tender Date, such failure shall be an Event of Default under the Series A Indenture.

Mandatory Tenders Upon Conversion

General. The Series A Bonds (other than any Series A Bonds held by or for the University) will be subject to mandatory tender for purchase on the Conversion Date shown in the "SUMMARY OF THE OFFERING" on the inside front cover at a Purchase Price equal to 100% of the principal amount thereof,

plus accrued interest to but excluding the date on which such Series A Bonds are required to be tendered (the “**Purchase Date**”).

Notice of Mandatory Tender. Written notice of mandatory tender shall be given to the Owners of the Series A Bonds at least ten (10) days prior to the Conversion Date. Such notice shall state the Purchase Date, the Purchase Price, that, with respect to any registered owner of the Series A Bonds who has not properly tendered such Series A Bonds, such Series A Bonds will nevertheless be deemed tendered and purchased on the Purchase Date and that after the Purchase Date, interest on such Series A Bonds subject to mandatory tender will cease to accrue and after the Purchase Date such registered owner will have no rights with respect to such Series A Bonds except a right to receive payment of the Purchase Price upon tender of its Series A Bonds to the Tender Agent.

Sources of Funds for Purchase of Tendered Series A Bonds. There is no Liquidity Facility for the Series A Bonds and none of the Authority, the University nor the Remarketing Agent is obligated to purchase any tendered Series A Bonds. Tendered Series A Bonds will be purchased solely with proceeds from the remarketing of such Series A Bonds.

Remarketing of the Tendered Series A Bonds. The Remarketing Agent is required under the Series A Indenture, and subject to the provisions of any Remarketing Agreement, to offer for sale and use its best efforts to find purchasers for all of the Series A Bonds or portions thereof properly tendered pursuant to the Series A Indenture. Such Series A Bonds shall not be remarketed to the Authority or the University. The Remarketing Agent shall cause the Purchase Price to be paid to the Tender Agent in immediately available funds at or before 4:00 p.m., New York City time, on the Purchase Date.

Consequences of a Failed Remarketing. If the moneys held in the Remarketing Proceeds Account of the Purchase Fund following a mandatory tender of Series A Bonds are not sufficient to pay the Purchase Price of all Tendered Bonds of such Series (a “Failed Remarketing”), the Trustee shall, after any applicable grade period under the Series A Indenture, (a) return the tendered Series A Bonds to the owners thereof; (b) return all moneys received for the purchase of the Series A Bonds to the Persons providing such moneys; and (c) notify the Authority and the Remarketing Agent of the return of the Series A Bonds and moneys and the failure to make payment for the tendered Series A Bonds.

Delivery of the Series A Bonds upon Mandatory Tender. On the Purchase Date designated for any Series A Bond, if sufficient money for the payment of the Purchase Price of such Series A Bond is held by the Tender Agent, interest on such Series A Bond will cease to accrue to the former Owner and such Series A Bond shall be deemed to have been purchased pursuant to the Series A Indenture. Any owner who fails to deliver the Series A Bonds for purchase shall have no further rights thereunder except the right to receive the purchase price thereof upon presentation and surrender of said Series A Bonds to the Tender Agent. The Tender Agent shall, as to any Series A Bonds that have not been delivered to it, promptly notify the Remarketing Agent of such nondelivery. The Bond Registrar shall place a stop transfer against an appropriate amount of the Series A Bonds registered in the name of such owner on the registration books until the Series A Bonds have been delivered for purchase. Upon such delivery, the Bond Registrar shall make any necessary adjustments to the registration books.

The Tender Agent is required to establish and maintain a special fund designated as the “Purchase Fund” and, within such Purchase Fund, three separate and segregated accounts, to be designated as the “Remarketing Proceeds Account,” the “Liquidity Facility Payments Account” and the “University Payments Account.” There will be no Liquidity Facility with respect to the Series A Bonds during the Initial Index Rate Period described in “SUMMARY OF THE OFFERING”. No funds will be accepted by the Tender Agent for deposit to the Remarketing Proceeds Account other than the proceeds of the

remarketing of the Series A Bonds by the Remarketing Agent. Money held to the credit of the Purchase Fund may not be invested or commingled.

The Tender Agent is required to accept delivery of all of the Series A Bonds surrendered to it in accordance with the Series A Indenture, and hold such Series A Bonds in trust for the benefit of the Owners that shall have so surrendered such Series A Bonds, until the Purchase Price of such Series A Bonds shall have been delivered to or for the account of or to the order of such Owners or otherwise held by the Tender Agent under the Series A Indenture.

Certain Considerations Relating to the Remarketing Agent, Remarketing and Marketability of the Series A Bonds while Index Rate Bonds

The Remarketing Agent is Paid by the University. The responsibilities of the Remarketing Agent include determining the interest rates from time to time and remarketing the Index Rate Bonds that are optionally or mandatorily tendered for purchase by the owners thereof (subject, in each case, to the terms of the Remarketing Agreement), all as further described in this Official Statement. The Remarketing Agent is appointed and paid by the University for its services. As a result, the interests of the Remarketing Agent may differ from those of existing Owners and potential purchasers of the Index Rate Bonds.

The Remarketing Agent May Purchase the Series A Bonds for Its Own Account. The Remarketing Agent acts as remarketing agent for a variety of variable rate demand obligations and, in its sole discretion, routinely purchases such obligations for its own account. The Remarketing Agent is permitted, but not obligated, to purchase tendered Index Rate Bonds for its own account and, in its sole discretion, may acquire such tendered Index Rate Bonds in order to achieve a successful remarketing of the Index Rate Bonds (i.e., because there otherwise are not enough buyers to purchase the Index Rate Bonds) or for other reasons. However, the Remarketing Agent is not obligated to purchase Index Rate Bonds and may cease doing so at any time without notice. The Remarketing Agent also may make a market for the Index Rate Bonds by routinely purchasing and selling Index Rate Bonds other than in connection with an optional or a mandatory tender and remarketing. Such purchases and sales may be at, above or below par. However, the Remarketing Agent is not required to make a market for the Index Rate Bonds. The Remarketing Agent also may sell any Index Rate Bonds it has purchased to one or more affiliated investment vehicles for collective ownership or enter into derivative arrangements with affiliates or others in order to reduce their exposure in connection with the Index Rate Bonds. The purchase of the Index Rate Bonds by the Remarketing Agent may create the appearance that there is greater third-party demand for the Index Rate Bonds in the market than is actually the case. The practices described above also may result in fewer Index Rate Bonds being tendered in a remarketing.

Index Rate Bonds May be Offered at Different Prices on Any Date Including a Rate Determination Date. Pursuant to the Remarketing Agreement, the Remarketing Agent is required to determine the rate of interest that, in its judgment, is the lowest rate that would permit the sale of the Index Rate Bonds bearing interest at the interest rate at par (or premium or discount, if elected by the Authority and if certain conditions for such election are met), plus accrued interest, if any, on and as of a Rate Determination Date. At the time the new rate becomes effective, the Remarketing Agent is required to use its best efforts to remarket the Index Rate Bonds at par (or premium or discount, if elected by the Authority and if certain conditions for such election are met). The interest rate will reflect, among other factors, the level of market demand for the Index Rate Bonds (including whether the Remarketing Agent is willing to purchase Index Rate Bonds for its own account). There may or may not be Index Rate Bonds tendered and remarketed on a Rate Determination Date, the Remarketing Agent may or may not be able to remarket any Index Rate Bonds tendered for purchase on such date at par and the Remarketing Agent may sell Index Rate Bonds at varying prices to different investors on such date or any other date. The Remarketing Agent is not obligated to advise purchasers in a remarketing if they do not have third party buyers for all of the Index Rate Bonds

at the remarketing price. In the event the Remarketing Agent owns any Index Rate Bonds for its own account, it may, in its sole discretion in a secondary market transaction outside the tender process, offer such Index Rate Bonds on any date, including the Rate Determination Date, at a discount to par to some investors.

The Ability to Sell the Index Rate Bonds Other than Through the Tender Process May Be Limited. The Remarketing Agent may buy and sell Index Rate Bonds other than through the tender process. However, it is not obligated to do so and may cease doing so at any time without notice and may require holders that wish to sell their Index Rate Bonds to instead tender their Index Rate Bonds through the Tender Agent with appropriate notice. Thus, investors who purchase the Index Rate Bonds, whether in a remarketing or otherwise, should not assume that they will be able to sell their Index Rate Bonds other than by tendering the Index Rate Bonds in accordance with the tender process provided in the Resolutions.

Under Certain Circumstances, the Remarketing Agent May Be Removed, Resign or Cease Remarketing the Series A Bonds, Without a Successor Being Named. Under certain circumstances the Remarketing Agent may be removed or have the ability to resign or cease its remarketing efforts, without a successor having been named, subject to the terms of the Remarketing Agreement.

The Series A Bonds Are Subject to Optional Redemption. While in the initial Index Rate Mode, the Series A Bonds may be redeemed by the Authority, at the option of the University, in whole or in part, at any time from and after February 1, 2027, at a Redemption Price equal to 100% of the principal amount of the Series A Bonds to be redeemed plus accrued and unpaid interest on the Series A Bonds to the redemption date. See “Redemption Prior to Maturity – Optional Redemption” under this caption. In determining whether to purchase the Series A Bonds, investors should consider the risk to the duration and liquidity of their portfolios which may result from such optional redemption.

There is No Third-Party Liquidity Support for the Series A Bonds. There is no Liquidity Facility for the Series A Bonds and none of the Authority, the University nor the Remarketing Agent is obligated to purchase the tendered Series A Bonds. Each tendered Series A Bond will be purchased solely with proceeds from the remarketing of the Series A Bonds.

Redemption

Optional Redemption. While in the initial Index Rate Mode, the Series A Bonds may be redeemed by the Authority, at the option of the University, in whole or in part, at any time from and after February 1, 2027, at a Redemption Price equal to 100% of the principal amount of the Series A Bonds to be redeemed plus accrued and unpaid interest on the Series A Bonds to the redemption date.

Notice and Effective Date of Redemptions

The Trustee shall cause notice of any redemption of Series A Bonds to be mailed by first class mail to the Registered Owners of all Series A Bonds to be redeemed at the registered addresses appearing in the registration books maintained by the Bond Registrar. Each such notice shall (i) be mailed at least fifteen (15) days and not more than sixty (60) days prior to the date fixed for redemption, (ii) identify the Series A Bonds to be redeemed, specifying the name of the issue, the date of the issue, the stated maturity, the CUSIP numbers, if any, and certificate numbers assigned to the Series A Bonds, (iii) specify the date fixed for redemption and the Redemption Price and (iv) state that on the date fixed for redemption the Series A Bonds called for redemption will be payable at the office of the Trustee designated in such notice upon presentation and surrender thereof, that from that date interest will cease to accrue and that no representation is made as to the accuracy or correctness of the CUSIP numbers printed therein or on the Series A Bonds. Failure to give notice in the manner described in this paragraph with respect to any Series A Bond, or any defect in

such notice, shall not affect the validity of the proceedings for redemption for any Series A Bond with respect to which notice was properly given. In the case of redemptions made at the option of the Authority pursuant to the direction of the University, if at the time of mailing of any notice of redemption, the Authority shall not have deposited with the Trustee funds sufficient to redeem all the Series A Bonds called for redemption, such notice shall state that such redemption is subject to the deposit of such funds with the Trustee not later than the opening date of business on the date fixed for redemption and shall be of no effect unless such funds are so deposited.

Upon the mailing of the notice provided for above and provided the amount of such Redemption Price shall be irrevocably deposited with the Trustee, the Series A Bonds or parts thereof designated for redemption shall become due and payable upon the date specified in such notice as the date fixed for redemption at the Redemption Price applicable at such time. Payment of the redemption price shall be made to the respective owners of the Series A Bonds or parts thereof designated for redemption, upon surrender of the Series A Bonds, at the place stated in the notice of redemption.

After the mailing of the notices provided for above shall have been duly made, then, on or before the date fixed or date specified in such notices for such redemption, funds in an amount sufficient to effect the redemption of the Series A Bonds or parts thereof specified in such notices shall be deposited in trust by the Authority with the Trustee or left in trust with the Trustee if previously deposited and then available for such purpose. From and after the date fixed for redemption designated in such notices (such funds having been deposited or left with the Trustee, as aforesaid), notwithstanding that any Series A Bonds so called for redemption shall not have been surrendered for cancellation, no further interest shall accrue upon the principal of any of the Series A Bonds or parts thereof so called for redemption.

Redemption in Part

Any Series A Bond which is to be redeemed only in part shall be surrendered at the place stated in the notice of redemption (with due endorsement by, or a written instrument of transfer in form satisfactory to the Trustee duly executed by, the Registered Owner or such owner's attorney duly authorized in writing) and the Authority shall execute and the Trustee shall authenticate and deliver to such Registered Owner without service charge, a new Series A Bond or Series A Bonds of any authorized denomination(s) as requested by such Registered Owner in an aggregate principal amount equal to and in exchange for the unredeemed portion of the principal of the Series A Bond so surrendered.

Transfer and Exchange of Series A Bonds

Subject to the provisions described below under "BOOK-ENTRY-ONLY SYSTEM", a Series A Bond may be transferred or exchanged only upon presentation thereof to the Trustee. Such Series A Bond must be accompanied by an endorsement duly executed by the registered owner. No charge will be imposed in connection with any transfer or exchange, except for taxes or governmental charges related thereto.

No Optional Tenders

The Series A Bonds will not be subject to optional tender during the Initial Index Rate Period.

THE SERIES B BONDS

The following is a summary of certain provisions of the Series B Bonds. This summary of the Series B Bonds is not intended to be an exhaustive discussion of the Series B Bonds. Investors are advised that the Series B Indenture should be reviewed for the general terms of the Series B Bonds. See "APPENDIX D: Summary of Certain Provisions of the Series B Indenture and Series B Loan Agreement." All

capitalized terms used under this caption that are not defined in the body of this Official Statement are defined in APPENDIX D.

General Description

The Series B Bonds will be dated the date of their initial delivery, and will be issued in the principal amount, maturing on August 1 in each of the years and bearing interest at the rates, set forth on the inside front cover page of this Official Statement. Interest on the Series B Bonds is payable on February 1 and August 1 of each year (each a “Scheduled Interest Payment Date”), commencing August 1, 2022. Interest on the Series B Bonds is computed on the basis of a 360-day year consisting of twelve 30-day months. The Series B Bonds are being issued as fully registered bonds without coupons in the denomination of \$5,000 and integral multiples thereof within a maturity.

Interest due on the Series B Bonds on each Scheduled Interest Payment Date is to be paid by check or draft to the persons appearing as registered owners on the registration books kept by the Trustee at the close of business on the fifteenth day (whether or not a Business Day) of the calendar month next preceding such Scheduled Interest Payment Date (the “Regular Record Date”); provided, however, that if funds on any Scheduled Interest Payment Date are insufficient to pay the interest then due, such defaulted interest will cease to be payable to the registered owner as of the Regular Record Date but will instead be payable on a Special Interest Payment Date established by the Trustee for payment of such defaulted interest when sufficient funds are available, to the registered owner as of a Special Record Date to be established in accordance with the provisions of the Series B Indenture. Upon written request to the Trustee, on file at least one Business Day prior to a Regular Record Date, registered owners of \$1,000,000 or more in aggregate principal amount of the Series B Bonds may elect to receive payments of interest by wire transfer to a designated account commencing on the first Scheduled Interest Payment Date following such Regular Record Date.

So long as DTC, or its partnership nominee, Cede & Co., is the registered owner of the Series B Bonds, payments of the principal of and interest on the Series B Bonds are to be made by the Trustee directly to Cede & Co. Disbursements of such payments to the DTC Participants (as hereinafter defined) is the responsibility of DTC. Disbursements of such payments to the owners of beneficial interests in the Series B Bonds is the responsibility of the DTC Participants and the Indirect Participants (as hereinafter defined). See “BOOK-ENTRY-ONLY SYSTEM” below.

Redemption

Optional Redemption

The Series B Bonds may be redeemed by the Authority at the option of the University, in whole or in part, in authorized denominations of \$5,000 or any integral multiple of \$5,000 in excess thereof, at any time at a Redemption Price equal to the “Make Whole Redemption Price” which is equal to the greater of (i) one hundred percent (100%) of the Amortized Value (as defined herein) of the Series B Bonds to be redeemed plus accrued and unpaid interest on the Series B Bonds to be redeemed to the redemption date for such Bonds (the “Redemption Date”); or (ii) an amount equal to the sum of the present values of the remaining scheduled payments of principal and interest to the maturity date of the Series B Bonds to be redeemed, discounted on a semiannual basis, assuming a 360-day year consisting of twelve 30-day months, to the date on which the Series B Bonds are to be redeemed at a discount rate equal to the Applicable Tax-Exempt Bond Rate (as defined herein) minus 10 basis points.

“Amortized Value” shall mean the principal amount of the Series B Bonds to be redeemed multiplied by the price of such Bonds, expressed as a percentage, calculated based on the industry standard

method of calculating bond prices, with a delivery date equal to the Redemption Date, a maturity date equal to the stated maturity date of such Bonds, a coupon equal to the stated coupon on such Bonds and a yield equal to the original offering yield of such Bonds.

“Applicable Tax-Exempt Bond Rate” shall mean, for each Bond to be redeemed, the “Interpolated AAA Yields” rate for the published maturity most closely corresponding to the maturity date of such Bonds, as published most recently by the Municipal Market Data (“MMD”) at least five (5) calendar days, but not more than forty-five (45) calendar days, prior to the Redemption Date of the Series B Bonds to be redeemed. If no such rate is established for the applicable year, the Applicable Tax-Exempt Bond Rate for such Bonds means the “AAA Yields” rate for the published maturity most closely corresponding to the maturity year of such Bonds, as published most recently by MMD at least five (5) calendar days, but not more than forty-five (45) calendar days, prior to the Redemption Date of the Series B Bonds to be redeemed. If no such rates are established for the applicable year, the “Interpolated AAA Yields” or “AAA Yields” rate for the published maturities most closely corresponding to the applicable maturity date will be determined, and the Applicable Tax-Exempt Bond Rate will be interpolated from those rates on a straight-line basis. Should the MMD no longer publish the “Interpolated AAA Yields” or the “AAA Yields” rate, then the Applicable Tax-Exempt Bond Rate will equal the “Consensus Scale” rate for the applicable year as published by Municipal Market Advisors (“MMA”). In the further event that MMA no longer publishes the “Consensus Scale,” the Applicable Tax-Exempt Bond Rate will be determined by a broker-dealer registered with the U.S. Securities and Exchange Commission and the Financial Industry Regulatory Authority, Inc. selected by the Authority, as the quotation agent, based upon the rate per annum equal to the semiannual equivalent yield to maturity for those tax-exempt general obligation bonds rated in the highest rating category by Moody’s Investors Service, Inc. (“Moody’s”) or S&P Global Ratings (“S&P”), with a maturity date most closely corresponding to the maturity date of such Bonds having characteristics (other than the ratings) most comparable to those of such Bonds in the judgment of the quotation agent. The quotation agent’s determination of the Applicable Tax-Exempt Bond Rate shall be final and binding in the absence of manifest error.

Notice and Effective Date of Redemptions

The Trustee shall cause notice of any redemption of Series B Bonds to be mailed by first class mail to the Registered Owners of all Series B Bonds to be redeemed at the registered addresses appearing in the registration books maintained by the Bond Registrar. Each such notice shall (i) be mailed at least thirty (30) days and not more than sixty (60) days prior to the date fixed for redemption, (ii) identify the Series B Bonds to be redeemed, specifying the name of the issue, the date of the issue, the stated maturity, the CUSIP numbers, if any, and certificate numbers assigned to the Series B Bonds, (iii) specify the date fixed for redemption and the Redemption Price and (iv) state that on the date fixed for redemption the Series B Bonds called for redemption will be payable at the office of the Trustee designated in such notice upon presentation and surrender thereof, that from that date interest will cease to accrue and that no representation is made as to the accuracy or correctness of the CUSIP numbers printed therein or on the Series B Bonds. Failure to give notice in the manner described in this paragraph with respect to any Series B Bond, or any defect in such notice, shall not affect the validity of the proceedings for redemption for any Series B Bond with respect to which notice was properly given. In the case of redemptions made at the option of the Authority pursuant to the direction of the University, if at the time of mailing of any notice of redemption, the Authority shall not have deposited with the Trustee funds sufficient to redeem all the Series B Bonds called for redemption, such notice shall state that such redemption is subject to the deposit of such funds with the Trustee not later than the opening date of business on the date fixed for redemption and shall be of no effect unless such funds are so deposited.

Upon the mailing of the notice provided for above and provided the amount of such Redemption Price shall be irrevocably deposited with the Trustee, the Series B Bonds or parts thereof designated for

redemption shall become due and payable upon the date specified in such notice as the date fixed for redemption at the Redemption Price applicable at such time. Payment of the redemption price shall be made to the respective owners of the Series B Bonds or parts thereof designated for redemption, upon surrender of the Series B Bonds, at the place stated in the notice of redemption.

After the mailing of the notices provided for above shall have been duly made, then, on or before the date fixed or date specified in such notices for such redemption, funds in an amount sufficient to effect the redemption of the Series B Bonds or parts thereof specified in such notices shall be deposited in trust by the Authority with the Trustee or left in trust with the Trustee if previously deposited and then available for such purpose. From and after the date fixed for redemption designated in such notices (such funds having been deposited or left with the Trustee, as aforesaid), notwithstanding that any Series B Bonds so called for redemption shall not have been surrendered for cancellation, no further interest shall accrue upon the principal of any of the Series B Bonds or parts thereof so called for redemption.

Redemption in Part

Any Series B Bond which is to be redeemed only in part shall be surrendered at the place stated in the notice of redemption (with due endorsement by, or a written instrument of transfer in form satisfactory to the Trustee duly executed by, the Registered Owner or such owner's attorney duly authorized in writing) and the Authority shall execute and the Trustee shall authenticate and deliver to such Registered Owner without service charge, a new Series B Bond or Series B Bonds of any authorized denomination(s) as requested by such Registered Owner in an aggregate principal amount equal to and in exchange for the unredeemed portion of the principal of the Series B Bond so surrendered.

Transfer and Exchange of Series B Bonds

Subject to the provisions described below under "BOOK-ENTRY-ONLY SYSTEM", a Series B Bond may be transferred or exchanged only upon presentation thereof to the Trustee. Such Series B Bond must be accompanied by an endorsement duly executed by the registered owner. No charge will be imposed in connection with any transfer or exchange, except for taxes or governmental charges related thereto.

BOOK-ENTRY-ONLY SYSTEM

The information set forth herein concerning The Depository Trust Company ("DTC"), New York, New York and the book-entry-only system described below has been extracted from materials provided by DTC for such purpose, is not guaranteed as to accuracy or completeness and is not to be construed as a representation by the University, the Underwriters or the Authority.

None of Authority, the University and the Underwriters can, and in fact do not, give any assurance that (1) DTC will distribute payments of debt service on the Bonds or notices, to DTC Participants, (2) DTC Participants or others will distribute debt service payments paid to DTC or its nominee (as the registered owner of the Bonds) or redemption or other notices, to the Beneficial Owners, or that they will do so on a timely basis, or (3) DTC will serve and act in the manner described in this Official Statement. The current rules applicable to DTC are on file with the United States Securities and Exchange Commission, and the current procedures of DTC to be followed in dealing with DTC Participants are on file with DTC.

General

DTC 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 maturity of the Bonds, 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. 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"). DTC has a Standard & Poor's rating of AA+. 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 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 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 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, tenders, 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. In the alternative, Beneficial Owners may wish to provide their names and addresses to the registrar and request that copies of notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the Bonds within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to 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 Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Payments of principal and redemption price of and interest 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 the Trustee, on a 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 redemption proceeds, distributions, and dividend payments to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Authority or 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.

DTC may discontinue providing its services as depository with respect to the Bonds at any time by giving reasonable notice to the Authority or the Trustee. Under such circumstances, in the event that a successor depository is not obtained, Bond certificates are required to be printed and delivered.

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.

NONE OF THE AUTHORITY, THE UNIVERSITY OR THE TRUSTEE WILL HAVE ANY RESPONSIBILITY OR OBLIGATION TO ANY DTC PARTICIPANT, INDIRECT PARTICIPANT OR ANY BENEFICIAL OWNER OR ANY OTHER PERSON WITH RESPECT TO: (1) THE BONDS; (2) THE ACCURACY OF ANY RECORDS MAINTAINED BY DTC OR ANY DTC PARTICIPANT OR INDIRECT PARTICIPANT; (3) THE PAYMENT BY DTC OR ANY DTC PARTICIPANT OR INDIRECT PARTICIPANT OF ANY AMOUNT DUE TO ANY BENEFICIAL OWNER IN RESPECT OF THE PRINCIPAL OR REDEMPTION PRICE OF OR INTEREST ON THE BONDS; (4) THE DELIVERY BY ANY DTC PARTICIPANT OR INDIRECT PARTICIPANT OF ANY NOTICE TO ANY BENEFICIAL OWNER WHICH IS REQUIRED OR PERMITTED UNDER THE TERMS OF THE INDENTURES TO BE GIVEN TO BONDHOLDERS; (5) THE SELECTION OF THE BENEFICIAL OWNERS TO RECEIVE PAYMENT IN THE EVENT OF ANY PARTIAL REDEMPTION OF THE BONDS; OR (6) ANY CONSENT GIVEN OR OTHER ACTION TAKEN BY DTC AS BONDOWNER.

SECURITY AND SOURCES OF PAYMENT FOR THE BONDS

The principal, and interest on, the Series A Bonds are payable solely from payments to be made by the University under the Series A Loan Agreement and from any other moneys held by the Trustee and available for such purpose. The principal, and interest on, the Series B Bonds are payable solely from payments to be made by the University under the Series B Loan Agreement and from any other moneys held by the Trustee and available for such purpose. The University's obligations to repay the loans made pursuant to the Loan Agreements are unsecured, uncollateralized, general and unconditional obligations of the University. Neither the facilities of the University nor any of its revenues are pledged as security for the payment of the Bonds. There is no debt service reserve fund or similar fund securing the Bonds. See "THE LOAN AGREEMENT" in APPENDIX C (as to the Series A Loan Agreement) and "THE LOAN AGREEMENT" in APPENDIX D (as to the Series B Loan Agreement) for a summary of the University's obligations under the respective Loan Agreements, including a description of the covenants of the University.

The University may incur additional debt without restriction. Further, the University has incurred certain existing indebtedness prior to the issuance of the Bonds. See "EXISTING INDEBTEDNESS," below.

EXISTING INDEBTEDNESS

Upon the issuance of the Bonds, the Series C Bonds and the 2022 Taxable Bonds, the University will be obligated on twelve separate debt issues: the 2008 Bonds described below, the 2013 Bonds described below, the 2017 Taxable Notes described below, the 2017 Bonds described below, the 2019 A Bonds described below, the 2019 B Bonds described below, the 2020 A Bonds described below, the 2020 Taxable Notes described below, the Series C Bonds, the 2022 Taxable Bonds and the Bonds. The University's obligations with respect to each of the foregoing bond issues are general unsecured obligations.

The University has previously entered into a loan agreement, dated as of April 1, 2008, with the Authority, pursuant to which the Authority loaned to the University the proceeds of the Authority's Variable Rate University Revenue Bonds, Series A of 2008 (Carnegie Mellon University) (the "2008 Bonds"). The 2008 Bonds were issued in the original aggregate principal amount of \$120,820,000, all of which is currently outstanding, and currently bear interest at a variable rate. The 2008 Bonds were issued to finance the costs of the refunding the Authority's University Revenue Bonds, Series A and B of 2006 (Carnegie Mellon University) and University Revenue Refunding Bonds, Series A of 2007 (Carnegie Mellon University) and the payment of certain costs of issuance of the 2008 Bonds.

The University has previously entered into a loan agreement, dated as of February 1, 2013 with the Authority, pursuant to which the Authority loaned to the University the proceeds of the Authority's Carnegie Mellon University Revenue Bonds, Series of 2013 (the "2013 Bonds"). The 2013 Bonds were issued in the original aggregate principal amount of \$52,250,000, \$42,250,000 of which is currently outstanding and bears current interest at fixed rates. The 2013 Bonds were issued to finance a portion of the costs of (i) the construction, furnishing and equipping of an approximately 105,000 gross square foot Nano/Bio/Energy Technologies Building and related improvements, including, but not limited to, clean rooms, wet and dry labs, energy research space, and vacated space renovations and (ii) the payment of costs related to the issuance of the 2013 Bonds.

The University has previously entered into a note purchase agreement, dated as of February 1, 2017, pursuant to which the University authorized the issuance and sale of notes (the "2017 Taxable Notes"). The 2017 Taxable Notes were issued in the original aggregate principal amount of \$70,000,000,

all of which are currently outstanding and bear current interest at a fixed rate. The 2017 Taxable Notes were issued to finance general purposes of the University.

The University has previously entered into a loan agreement, dated as of July 1, 2017 with the Authority, pursuant to which the Authority loaned to the University the proceeds of the Authority's Carnegie Mellon University Revenue Bonds, Series of 2017 (the "2017 Bonds"). The 2017 Bonds were issued in the original aggregate principal amount of \$62,165,000, all of which is currently outstanding and bears current interest at fixed rates. The 2017 Bonds were issued to finance a portion of the costs of (i) refunding of a portion of the Pennsylvania Higher Educational Facilities Authority's outstanding Carnegie Mellon University Revenue Bonds, Series 2009, and certain taxable indebtedness of the University and (ii) the payment of costs related to the issuance of the 2017 Bonds.

The University has previously entered into a loan agreement, dated as of January 1, 2019 with the Authority, pursuant to which the Authority loaned to the University the proceeds of the Authority's Carnegie Mellon University Revenue Bonds, Series A of 2019 (the "2019 Bonds"). The 2019 Bonds were issued in the original aggregate principal amount of \$49,600,000, all of which is currently outstanding and bears current interest at fixed rates. The 2019 Bonds were issued to finance a portion of the costs of (i) refunding of a portion of the Pennsylvania Higher Educational Facilities Authority's outstanding Carnegie Mellon University Revenue Bonds, Series 2009 (the "Series 2009 Bonds") and (ii) the payment of costs related to the issuance of the 2019 Bonds.

Simultaneously with the issuance and delivery of the 2019 Bonds, the University entered into a loan agreement, dated as of January 1, 2019, with the Authority, pursuant to which the Authority loaned to the University the proceeds of its Carnegie Mellon University Revenue Refunding Bonds, Series B of 2019 in the aggregate principal amount of \$60,140,000 (the "2019 B Bonds"), all of which are currently outstanding. The 2019 B Bonds were issued directly to PNC Bank, National Association. The 2019 B Bonds were issued to finance a portion of the costs of a project consisting of (i) the refunding of the remaining outstanding portion of the Series 2009 Bonds and (ii) the payment of costs related to the issuance of the 2019 B Bonds.

The University has previously entered into a loan agreement, dated as of February 1, 2020 with the Authority, pursuant to which the Authority loaned to the University the proceeds of the Authority's Carnegie Mellon University Revenue Bonds, Series A of 2020 (the "2020 Bonds"). The 2020 Bonds were issued in the original aggregate principal amount of \$45,565,000, all of which is currently outstanding and bears current interest at fixed rates. The 2020 Bonds were issued to finance a portion of the costs of (i) the costs of constructing Phase 1 and Phase 2 of the University's Housing Master Plan, including without limitation construction of student residences at the intersection of Fifth Avenue and Clyde Street and at the intersection of Forbes Avenue and Beeler Street (the "2020 Capital Projects") and (ii) the payment of costs related to the issuance of the 2020 Bonds.

On February 3, 2020, the University issued \$70,000,000 in aggregate principal amount of taxable notes (the "2020 Taxable Notes"). The 2020 Taxable Notes were issued to finance a portion of (i) the costs of the 2020 Capital Projects; (ii) the costs of constructing a New Scaife Hall; (iii) other capital projects of the University, including but not limited to renovation and capital renewal; and (iv) the payment of transaction costs.

The University has incurred certain other outstanding indebtedness in addition to that discussed above. See "OUTSTANDING INDEBTEDNESS" in APPENDIX A to this Official Statement.

The University has entered into interest rate swap agreements with respect to certain of its outstanding bonds. See Note 12 to the Consolidated Financial Statements in APPENDIX B and “OUTSTANDING INDEBTEDNESS – Interest Rate Swaps” in APPENDIX A for further discussion.

In connection with its outstanding variable rate indebtedness, the University has entered into an agreement with a liquidity provider that contains, or may be amended to contain, covenants, events of default and remedial provisions not included in the Loan Agreements.

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ESTIMATED ANNUAL DEBT SERVICE

Fiscal Year Ending June 30	Total Debt Service on Existing Debt ^{1, 2}	Series A Bonds			Series B Bonds			Total Debt Service
		<u>Principal</u>	<u>Interest³</u>	<u>Debt Service</u>	<u>Principal</u>	<u>Interest</u>	<u>Debt Service</u>	
2023	\$ 35,635,451	-	\$1,506,900	\$1,506,900	-	\$1,377,133	\$ 1,377,133	\$38,519,485
2024	25,110,406	-	1,506,900	1,506,900	-	1,362,000	1,362,000	27,979,306
2025	32,037,056	-	1,506,900	1,506,900	-	1,362,000	1,362,000	34,905,956
2026	23,346,939	-	1,506,900	1,506,900	-	1,362,000	1,362,000	26,215,839
2027	28,400,326	-	1,506,900	1,506,900	-	1,362,000	1,362,000	31,269,226
2028	112,944,724	-	1,506,900	1,506,900	\$27,240,000	681,000	27,921,000	142,372,624
2029	38,491,461	-	1,506,900	1,506,900	-	-	-	39,998,361
2030	83,875,594	-	1,506,900	1,506,900	-	-	-	85,382,494
2031	13,723,219	-	1,506,900	1,506,900	-	-	-	15,230,119
2032	13,723,219	-	1,506,900	1,506,900	-	-	-	15,230,119
2033	13,723,219	\$50,230,000	879,025	51,109,025	-	-	-	64,832,244
2034	13,723,219	-	-	-	-	-	-	13,723,219
2035	43,124,719	-	-	-	-	-	-	43,124,719
2036	42,098,719	-	-	-	-	-	-	42,098,719
2037	41,072,719	-	-	-	-	-	-	41,072,719
2038	35,827,604	-	-	-	-	-	-	35,827,604
2039	9,766,450	-	-	-	-	-	-	9,766,450
2040	9,766,450	-	-	-	-	-	-	9,766,450
2041	9,766,450	-	-	-	-	-	-	9,766,450
2042	69,154,700	-	-	-	-	-	-	69,154,700
2043	27,962,250	-	-	-	-	-	-	27,962,250
2044	7,162,250	-	-	-	-	-	-	7,162,250
2045	7,162,250	-	-	-	-	-	-	7,162,250
2046	7,162,250	-	-	-	-	-	-	7,162,250
2047	77,162,250	-	-	-	-	-	-	77,162,250
2048	4,642,250	-	-	-	-	-	-	4,642,250
2049	4,642,250	-	-	-	-	-	-	4,642,250
2050	74,642,250	-	-	-	-	-	-	74,642,250
2051	2,402,250	-	-	-	-	-	-	2,402,250
2052	<u>77,402,250</u>	-	-	-	-	-	-	<u>77,402,250</u>
Total	\$985,655,143	\$50,230,000	\$15,948,025	\$66,178,025	\$27,240,000	\$7,506,133	\$34,746,133	\$1,086,579,302

¹ Interest on the 2008 Bonds is assumed to accrue at the rate of 3.77% on the principal amount of \$5,125,000 until 2027 and at the rate of 3.43% on the principal amount of \$100,000,000 until 2028 for the hedged portion of debt service. Interest on the unhedged portion of debt service is assumed to accrue at the rate of 3.00% per annum. Interest on the 2019B Bonds, which are subject to mandatory tender on February 1, 2024, is assumed to accrue at the rate of 3.00% per annum until maturity in 2042. Interest on taxable commercial paper is assumed to accrue at the rate of 3.00% per annum.

² Excludes debt service on the Refunded Bonds which are expected to be refunded from a portion of the proceeds of the Bonds. Includes debt service on the Series 2022 Taxable Bonds, which are expected to be issued on January 27, 2022. Excludes debt service on the Series C Bonds, which are expected to be issued on February 16, 2022, respectively. For additional information regarding the Series 2022 Taxable Bonds the Series C Bonds, see "APPENDIX A – OUTSTANDING INDEBTEDNESS."

³ Interest on the Series A Bonds, which are subject to mandatory tender on August 1, 2027, is assumed to accrue at the rate of 3.00% per annum until maturity in 2033.

BONDHOLDERS' RISKS

The Bonds are limited obligations of the Authority and are secured by and payable solely from the Trust Estate, which includes Loan Payments made by the University pursuant to the Loan Agreements and certain funds held by the Trustee pursuant to the Indentures. No representation or assurance can be given to the effect that the University will generate sufficient revenues to meet its payment obligations under the Loan Agreements.

Various factors could adversely affect the University's ability to pay the obligations under the Loan Agreements. The future financial condition of the University could be adversely affected by, among other things, economic conditions in the areas from which the University traditionally draws students, legislation, regulatory actions, increased competition from other educational institutions, changes in the demand for higher educational services, demographic changes and litigation. Some of such risk factors are described below.

The following is intended only as a summary of certain risk factors attendant to an investment in the Bonds and is not intended to be exhaustive. In order to identify risk factors and make informed investment decisions, potential investors should be thoroughly familiar with the entire Official Statement (including each Appendix) in order to make a judgment as to whether the Bonds are an appropriate investment. Purchasers of the Bonds, particularly purchasers that are corporations (including S corporations and foreign corporations operating branches in the United States of America), property or casualty insurance companies, banks or other financial institutions or certain recipients of Social Security benefits, are advised to consult their tax advisors as to the tax consequences of purchasing or holding the Bonds. See "TAX MATTERS" herein.

General. The Bonds are limited obligations of the Authority payable solely from the Trust Estate which includes payments made by the University under the Loan Agreements and certain funds held by the Trustee pursuant to the Indentures. No representation or assurance can be given that the University will generate sufficient revenues to meet its payment obligations under the Loan Agreements. The ability to generate such revenues could be affected adversely by future legislation, regulatory actions, economic conditions, increased competition, changes in the demand for services or other factors.

Impacts from COVID-19. The COVID-19 pandemic has affected travel, commerce and financial markets globally. COVID-19 is expected to have a continued impact on global financial markets, national, state and local economies, and the higher education landscape in general and may materially adversely impact the University's finances and operations. The full impact of COVID-19 and the scope of any adverse impact on the University cannot be fully determined at this time. Adverse consequences of COVID-19 to the University may include, but are not limited to, decline in enrollment, decline in demand for University housing, decline in University revenues, decline in value of investments, and decline in demand for University programs that involve travel or that have international connections. There may be cost and delay as a result of any adjustments to the University calendar or the methods by which it operates as a result of COVID-19.

Please refer to APPENDIX A for a more detailed discussion of the University's response to COVID-19.

Other Legislative and Regulatory Actions. The University and its operations are subject to regulation, certification and accreditation by various federal, state and local government agencies and by certain nongovernmental agencies. No assurance can be given as to the effect on future operations of existing laws, regulations and standards for certification or accreditation or of any future changes in such laws, regulations and standards.

Competition. The University could face additional competition in the future from other educational institutions that offer comparable services and programs to the population which the University presently serves. This could include the establishment of new programs and the construction, renovation or expansion of competing educational institutions.

Decrease in Research Funding. For the fiscal year ended June 30, 2021, approximately 35% of the unrestricted operating revenues of the University came from research grants and contracts. The University's ability to retain research staff and meet budgetary forecasts is in part dependent on receiving research funding from federal and state agencies, as well as from other sponsors. There can be no assurance that these agencies and sponsors will continue to support research programs at their current levels. In addition, there are other organizations that compete with the University for these grants and contracts. There can be no assurance that the University will continue to receive an equal amount of research grants and contracts in the future.

Tax-Exempt/Nonprofit Status. In recent years, the activities of tax-exempt organizations have been subjected to increasing scrutiny by federal, state, and local legislative and administrative agencies (including the United States Congress, the Internal Revenue Service (the "IRS"), and local taxing authorities). Various proposals either have been considered previously or are presently being considered at the federal, state, and local level which could restrict the definition of tax-exempt status, impose new restrictions on the activities of tax-exempt corporations and/or tax or otherwise burden the activities of such corporations (including proposals to broaden or strengthen federal tax provisions respecting unrelated business income of nonprofit, tax-exempt corporations). There can be no assurance that future changes in the laws, rules, regulations, interpretations and policies relating to the definition, activities and/or taxation of tax-exempt corporations will not have material adverse effects on the future operations of the University.

Compliance with current and future regulations and rulings of the IRS could adversely affect the ability of the University to charge and collect revenues, finance or incur indebtedness on a tax-exempt basis or otherwise generate revenues necessary to provide for payment of the Bonds. Although the University has covenanted to maintain its tax-exempt status, loss of tax-exempt status by the University would likely have a significant adverse effect on the University and could result in the inclusion of interest on the Bonds in gross income for federal income tax purposes retroactive to their date of issue or acceleration of the maturity of the Bonds.

Property Tax Assessments. Over time, local taxing authorities in Pennsylvania have sought to subject nonprofit university and college facilities to local real estate taxes, primarily by challenging their status as "purely public charities" as described in the Pennsylvania Constitution. The Pennsylvania Institutions of Purely Public Charity Act, among other things, sets forth specific criteria to be met by an entity in order for such entity to be deemed an "institution of purely public charity." The criteria are highly fact-specific and are to be used by the courts as guidance; therefore, there are no assurances that the University's facilities will meet such criteria now or in the future. Notwithstanding passage of the Institutions of Purely Public Charity Act, the question whether an institution qualifies as a "purely public charity" remains an issue to be determined by the courts and it is not clear to what extent, if any, the courts will rely upon the Institutions of Purely Public Charity Act in making such determinations.

Covenant to Maintain Exempt Status of the Bonds. The tax-exempt status of the Bonds is based on the continued compliance by the Authority and the University with certain covenants contained in the Indentures and the Loan Agreements. These covenants relate generally to restrictions on the use of facilities financed with tax-exempt bonds, arbitrage limitations, rebate of certain excess investment earnings to the federal government and restrictions on the amount of issuance costs financed with the proceeds of the Bonds. Failure to comply with such covenants could cause interest on the Bonds to become subject to federal income taxation retroactively to the date of issuance of the Bonds.

Certain Matters Relating to Enforceability of Obligations. The remedies available to Bondholders upon an Event of Default under the Indentures or the Loan Agreements are in many respects dependent upon judicial action which is subject to discretion or delay. Under existing law and judicial decisions, including specifically the United States Bankruptcy Code (the “Bankruptcy Code”), the remedies specified in the Indentures and the Loan Agreements may not be readily available or may be limited. A court may decide not to order specific performance.

The various legal opinions to be delivered concurrently with the original delivery of the Bonds will be qualified as to enforceability of the various legal instruments by, among other things, limitations imposed by bankruptcy, reorganization, insolvency or other similar laws or legal or equitable principles affecting creditors’ rights.

There exists statutory authority in Pennsylvania for a court to dissolve a nonprofit corporation or undertake supervision of its affairs on various grounds, including finding that such corporation is insolvent. Moreover, pursuant to the common law and statutory power to enforce charitable trusts and to see that charitable funds are applied to their intended uses, the Attorney General of the Commonwealth may commence legal proceedings to dissolve a nonprofit corporation acting contrary to its charitable purposes or to restrain actions inconsistent with the charitable use of such funds or which render such nonprofit corporation unable to discharge its charitable functions. In certain states, such actions may arise on a court’s own motion or pursuant to a petition of the attorney general or such other persons who have interests different than those of the general public. The obligations of the University may be limited by such charitable trust laws.

Bankruptcy. The rights and remedies of the owners of the Bonds are subject to various provisions of the Bankruptcy Code. If the University were to file a petition for relief (or if a petition were to be filed against the University) under the Bankruptcy Code, the filing would operate as an automatic stay of the commencement or continuation of any judicial or other proceeding against the University and its property.

In a bankruptcy proceeding, the University could file a plan for the adjustment of its debts which modifies the rights of creditors generally or the rights of any class of creditors, secured or unsecured. The plan, when confirmed by the court, binds all creditors who had notice or knowledge of the plan and discharges all claims against the debtor provided for in the plan. No plan may be confirmed unless, among other conditions (as approved by the bankruptcy court), the plan is in the best interest of creditors, is feasible, and has been accepted by each class of claims impaired thereunder.

Cybersecurity Risk. In the course of its operations, the University collects and stores personally identifiable information, including, but not limited to, social security numbers, educational records and financial information. The University also develops, maintains and/or stores, as applicable, intellectual property such as research data.

Like all institutions of higher education, the University could be subject to cyber intrusion through hacking, malware and/or email scams. Cyber intrusion could lead to (i) data breaches requiring breach notification, (ii) denial of service (e.g., network, system, application or data), (iii) loss of intellectual property and data, (iv) harm to the University’s brand or reputation, (v) life/health safety impacts and/or (vi) financial loss. The University takes steps to prevent, detect and respond to cyber intrusion. Further, the University maintains worldwide cyber insurance coverage to protect against data breaches and other cyber events. However, because the techniques used to obtain unauthorized access, disable or degrade service, or sabotage systems change frequently or may be disguised or difficult to detect, or designed to remain dormant until a triggered event, the University may be unable to anticipate these techniques or implement adequate preventative measures. In addition, no assurance can be given that the insurance

coverages maintained by the University would be sufficient to cover all losses and liability resulting from data breaches or other cyber events.

Risk Associated with Secured Overnight Financing Rate Securities. Because the Secured Overnight Financing Rate is published by the Federal Reserve based on data received from other sources, the University and any Remarketing Agent have no control over its determination, calculation or publication. There can be no guarantee that the Secured Overnight Financing Rate will not be discontinued or fundamentally altered in a manner that is materially adverse to the interests of investors in the Series A Bonds. If the manner in which the Secured Overnight Financing Rate is calculated is changed, that change may result in a reduction of the amount of interest payable on the Series A Bonds and/or the trading prices of the Series A Bonds. If the rate at which interest accrues on any day (meaning the SOFR Index Rate) declines to zero or becomes negative, no interest will be payable on the Series A Bonds in respect of that day.

The Federal Reserve began to publish the Secured Overnight Financing Rate in April 2018. The Federal Reserve has also begun publishing historical indicative Secured Overnight Financing Rates going back to August 2014. Investors should not rely on any historical changes or trends in the Secured Overnight Financing Rate as an indicator of future changes in the Secured Overnight Financing Rate. Also, since the Secured Overnight Financing Rate is a relatively new market index, the Series A Bonds may have a limited trading market when issued, and an established trading market may never develop or may be illiquid. Market terms for debt securities indexed to the Secured Overnight Financing Rate, such as the spread over the index reflected in interest rate provisions, may evolve over time, and trading prices of the Series A Bonds may be lower than those of later-issued indexed debt securities as a result. Similarly, if the Secured Overnight Financing Rate does not prove to be widely used in securities like the Series A Bonds, the trading price of the Series A Bonds may be lower than those of bonds linked to indices that are more widely used. Investors in the Series A Bonds may not be able to sell the Series A Bonds at all or may not be able to sell the Series A Bonds at prices that will provide them with a yield comparable to similar investments that have a developed secondary market, and may consequently suffer from increased pricing volatility and market risk.

Other Factors. Additional factors may affect future operations of the University to an extent that cannot be determined at this time. These factors include, among others, the following:

- (1) The continued ability and willingness of current and future undergraduate and graduate students and their families of the University to be able to afford the tuition and costs of attending the University.
- (2) Employee strikes and other adverse labor actions that could result in a substantial reduction in revenues without corresponding decreases in costs.
- (3) Increased costs and decreased availability of public liability insurance.
- (4) Changes in the demand for higher education in general or for programs offered by the University in particular.
- (5) Cost and availability of energy.
- (6) High interest rates, which could strain cash flow given the University's current and pro forma variable rate debt exposure or prevent borrowing for needed capital expenditures.

- (7) An inability to retain students, resulting in enrollment losses and reduced revenues, which may be due to reduced financial aid available to students from the University or from Federal or state sources.
- (8) A decrease in student loan funds or other aid that permits many students the opportunity to pursue higher education.
- (9) An increase in the costs of health care benefits, retirement plan, or other benefit packages offered by the University to its employees and retirees.
- (10) A significant decrease in the value of the University's investments caused by market or other external factors.
- (11) Withdrawal of any current exemptions from local real estate taxes, business privilege taxes and similar impositions.
- (12) Claims presently unknown to the University.
- (13) Elimination of external funding for research.
- (14) Reduced future University net tuition revenue as a result of a need to increase tuition discounting to attract students.
- (15) Changes in the management of the University, the strategic direction or mission of the University, or the investment policies or other finance decisions of the University.
- (16) Occurrences of natural disasters or acts of terrorism which could damage some or all of the University's facilities, interrupt utility service to some or all of its facilities, or otherwise impair the operation or ability to generate revenues of some or all of its facilities.
- (17) Increased competition from other institutions of higher learning which may offer similar academic programs or may recruit similar students, and that may result in reduced enrollments and reduced University revenues.
- (18) Reduced ability to attract future capital campaign contributions, that may limit future projects and/or the ability to address deferred maintenance and/or reduced ability to attract future annual fund contributions that may negatively impact the ability to afford annual operating expenses and which may negatively affect operating performance.
- (19) Reduced availability of qualified faculty to teach the programs offered by the University, the ability of the University to retain existing faculty members and/or attract new faculty members.
- (20) Legislation and regulation by governmental authorities, including developments affecting tax-exempt status of educational institutions like the University and changes in immigration laws limiting the University's ability to admit foreign students or hire foreign faculty and administrators.
- (21) Natural disasters or effects of any climate change which might damage the University's facilities, interrupt service to its facilities or otherwise impair the operation of the University's facilities.

- (22) Any failure to successfully implement future new programs, negatively affecting operating performance.

CONTINUING DISCLOSURE

The Authority has determined that no financial or operating data concerning the Authority is material to any decision to purchase, hold or sell the Bonds and the Authority will not provide any such information. The University has undertaken all responsibilities for any continuing disclosure to Bondholders as described below, and the Authority shall have no liability to the Bondholders or any other person with respect to such disclosures.

The University will covenant for the benefit of the holders and beneficial owners of the Bonds to provide certain financial information and operating data relating to the University no later than 180 days following the end of the University's fiscal year (presently June 30) (the "Annual Report"), commencing with the report for the fiscal year ended June 30, 2022, and to provide notices of the occurrence of certain enumerated events, if material. The Annual Report and the notices of material events will be filed by or on behalf of the University with the Municipal Securities Rulemaking Board's Electronic Municipal Market Access (EMMA) System. The specific nature of the information to be contained in the Annual Report and the notices of material events is set forth in APPENDIX G – "Form of Continuing Disclosure Certificate". These covenants will be made in order to assist the Underwriters in complying with Rule 15c2-12(b)(5) (the "Rule") promulgated by the Securities and Exchange Commission.

In addition to the University's continuing disclosure undertaking in connection with the Bonds, the University has made similar undertakings in prior bond offerings (collectively, the "Continuing Disclosure Undertakings"). As part of those Continuing Disclosure Undertakings, the University has agreed, among other things, to provide its annual financial statements and certain financial and operating data each year by a date certain and to provide notice of certain listed events in a timely manner or, in certain instances, not in excess of ten (10) business days after the occurrence of such events, all as provided in each Continuing Disclosure Undertaking. With regard to the five-year period prior to the date of this Official Statement, the University notes the following: on April 25, 2017, S&P (as hereinafter defined) upgraded the long-term credit rating of the University to AA from AA-. Notice of the revised rating was automatically noted on EMMA pursuant to an arrangement between S&P and EMMA, but the University did not independently post its notice of the rating change until May 25, 2017, approximately thirty (30) calendar days after the rating upgrade. On October 19, 2020, the University entered into an agreement to extend an existing line of credit. The University posted a redacted copy of the agreement on November 5, 2020, thirteen (13) Business Days after the execution and delivery of the agreement.

TAX MATTERS

Federal

Exclusion of Interest From Gross Income. In the opinion of Bond Counsel, under existing statutes, regulations, rulings and court decisions, interest on the Bonds, including interest accruing in the form of original issue discount, will not be includible in gross income of the holders thereof for federal income tax purposes, assuming continuing compliance by the Authority with the requirements of the Code. Interest on the Bonds will not be a specific preference item for purposes of computing the federal alternative minimum tax on individuals.

In rendering its opinion, Bond Counsel has assumed compliance by the Authority with its covenants contained in the Indentures and the representations and covenants in the Tax Compliance Agreements executed by the Authority and the University on the date of issuance of the Bonds relating to actions to be

taken or caused to be taken, by the Authority and the University after the issuance of the Bonds necessary to effect or maintain the exclusion from gross income of the interest on the Bonds for federal income tax purposes. These covenants and representations relate to, *inter alia*, the use and investment of proceeds of the Bonds and the rebate to the United States Department of Treasury of specified arbitrage earnings, if any. Failure to comply with such covenants could result in the interest on the Bonds becoming includible in gross income for federal income tax purposes from the date of issuance of the Bonds.

Original Issue Premium. The initial public offering price of the Series B Bonds (“Premium Bonds”) is more than the principal amount payable on such Bonds at maturity. Such excess, over the amount payable at maturity of the Premium Bonds is amortizable bond premium, which is not deductible from gross income for federal income tax purposes.

Amortizable bond premium will reduce the owner’s tax basis of the Premium Bonds in each year by the amount of amortization for such year, which basis is used to determine, for federal income tax purposes, the amount of gain or loss upon the sale, redemption at maturity or other disposition of the Premium Bonds.

Owners of the Premium Bonds should consult their own tax advisors with respect to the calculation of the amount of bond premium which will be treated for federal income tax purposes as having amortized for any taxable year (or portion thereof) of the owner and with respect to other federal, state and local tax consequences of owning and disposing of the Bonds.

Other Federal Tax Matters. Ownership or disposition of the Bonds may result in other federal tax consequences to certain taxpayers, including, without limitation, certain S corporations, foreign corporations with branches in the United States, holders of an interest in a financial asset securitization investment trust, property and casualty insurance companies, individuals who otherwise qualify for the earned income credit and taxpayers who have an initial basis in the Bonds greater or less than the principal amount thereof, individual recipients of Social Security or Railroad Retirement benefits, and taxpayers, including banks, thrift institutions and other financial institutions subject to Section 265 of the Code, who may be deemed to have incurred or continued indebtedness to purchase or to carry the Bonds.

Bond Counsel is not rendering any opinion as to any federal tax matters other than those described under the caption “Exclusion of Interest From Gross Income” above and expressly stated in the Proposed Forms of Opinion of Bond Counsel included as APPENDIX E (as to the Series A Bonds) and APPENDIX F (as to the Series B Bonds) to this Official Statement. Purchasers of the Bonds should consult their independent tax advisors with regard to all federal tax matters.

Pennsylvania

In the opinion of Bond Counsel, under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof, interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax; however, under the laws of the Commonwealth of Pennsylvania, as enacted and construed on the date hereof, any profits, gains or income derived from the sale, exchange or other disposition of the Bonds will be subject to Pennsylvania taxes and local taxes within the Commonwealth.

Other

The Bonds and the interest thereon may be subject to state or local taxes in jurisdictions other than the Commonwealth of Pennsylvania under applicable state or local tax laws.

Purchasers of the Bonds should consult their independent tax advisors with regard to all state and local tax matters that may affect them.

FINANCIAL ADVISOR

The University has retained The Yuba Group LLC, also known as Yuba Group Advisors, (the “Financial Advisor”) to serve as financial advisor in connection to the issuance of the Bonds. The Financial Advisor is not obligated to make, and has not undertaken, an independent verification of any of the financial information contained in this Official Statement and makes no guarantee as to the accuracy, completeness or fairness of such information. The Financial Advisor is an independent advisory and consulting firm and is not engaged in the underwriting or trading of municipal securities or other negotiable instruments. The Financial Advisor does not receive a fee related to or contingent upon the sale and closing of the Bonds.

THE TRUSTEE

The Authority has appointed U.S. Bank National Association, a national banking association organized under the laws of the United States, to serve as Trustee. The Trustee is to carry out those duties assignable to it under the Indentures. Except for the contents of this section, the Trustee has not reviewed or participated in the preparation of this Official Statement and assumes no responsibility for the nature, contents, accuracy or completeness of the information set forth in this Official Statement or for the recitals contained in the Indentures or the Bonds, or for the validity, sufficiency, or legal effect of any of such documents.

Furthermore, the Trustee has no oversight responsibility, and is not accountable, for the use or application of the proceeds of such Bonds by the Authority. The Trustee has not evaluated the risks, benefits, or propriety of any investment in the Bonds and makes no representation, and has reached no conclusions, regarding the value or condition of any assets or revenues pledged or assigned as security for the Bonds or the investment quality of the Bonds, about all of which the Trustee expresses no opinion and expressly disclaims the expertise to evaluate.

LEGAL MATTERS

Legal matters incident to the authorization, issuance and sale of the Bonds will be passed upon by Eckert Seamans Cherin & Mellott, LLC, Pittsburgh, Pennsylvania, appointed by the Authority as Bond Counsel. A copy of the proposed opinion of Bond Counsel with respect to the Series A Bonds is set forth in APPENDIX E to this Official Statement, and a copy of the proposed opinion of Bond Counsel with respect to the Series B Bonds is set forth in APPENDIX F to this Official Statement.

Certain legal matters will be passed upon for the University by Mary Jo Dively, Esquire, Vice President and General Counsel of the University. Certain legal matters will be passed upon for the Authority by its counsel, Clark Hill PLC, Pittsburgh, Pennsylvania. Certain legal matters will be passed upon for the Underwriters by their counsel, Chiesa Shahinian & Giantomasi PC, West Orange, New Jersey.

LITIGATION MATTERS

The University

The University, like other similar institutions, is subject to a variety of suits and proceedings arising in the ordinary course of business. In the opinion of management of the University, no such litigation currently pending against it would, if determined adversely to the University, adversely affect the University’s obligations under the Loan Agreements or have a material adverse effect on its operations or

financial condition considered as a whole. Further, there is no action, suit or other proceeding pending or threatened against the University or relating to the Projects before any court or administrative agency or other adjudicative body in which an unfavorable decision would materially adversely affect the financial condition or operation of the University, the execution and delivery of the Loan Agreements, or the financing of the Projects, nor is there any investigation or proceeding known to the University by any person which may result in such action, suit or other proceeding.

See APPENDIX A – LITIGATION AND CONTINGENCIES for a description of certain pending litigation relating to claims for refunds to students for tuition and certain housing and other fees, following the University’s transition to remote instruction in response to the COVID-19 pandemic.

The Authority

There is no litigation of any nature now pending or threatened restraining or enjoining the issuance, sale, execution or delivery of the Bonds or in any way contesting or affecting the validity of the Bonds, or any proceedings of the Authority taken with respect to the issuance or sale thereof, the pledge or application of any moneys or security provided for the payment of the Bonds, or the existence or power of the Authority.

LIMITED OBLIGATIONS

The Bonds are limited obligations of the Authority. Neither the general credit of the Authority nor the credit or the taxing power of the County of Allegheny or the Commonwealth of Pennsylvania or any political subdivision thereof is pledged for the payment of the principal of, and interest on, the Bonds, nor shall the Bonds be or be deemed to be general obligations of the Authority or obligations of the County, the Commonwealth or any political subdivision thereof, nor shall the County, the Commonwealth or any political subdivision thereof be liable for the payment of the principal of, and interest on, the Bonds. The Authority has no taxing power.

ENFORCEABILITY OF REMEDIES

The remedies available to the Trustee or the Authority or to the registered owners of the Bonds upon an Event of Default under the Indentures or the Loan Agreements are in many respects dependent upon legal proceedings that are often subject to discretion and delay. Under existing law, including Title 11 of the United States Code (the Federal Bankruptcy Code) and the Act, the remedies provided in the Indentures and the Loan Agreements may not be readily available or may be limited. The various legal opinions to be delivered concurrently with the delivery of the Bonds will be qualified as to the enforceability of the various legal instruments by limitations imposed by bankruptcy, reorganization, insolvency or other similar laws, by the Act and by legal and equitable principles affecting the rights of creditors.

UNDERWRITING

The Series A Bonds are being purchased by BofA Securities, Inc. (the “Series A Underwriter”) at a purchase price of \$50,141,419.47 (representing the principal amount of \$50,230,000, less an underwriter’s discount of \$88,580.53) pursuant to a Bond Purchase Contract (the “Series A Bond Purchase Contract”) among the Authority, the University and the Series A Underwriter. The Series A Bond Purchase Contract provides that the Series A Underwriter will purchase all of the Series A Bonds, if any are purchased, and requires that the Authority and the University certify to the Series A Underwriter that the Preliminary Official Statement and the Official Statement do not contain any untrue statement of a material fact or omit any statement of any material fact, pertaining to the Authority or the University, as the case may be, necessary to make the statements therein not misleading. In addition, the University agrees to indemnify the Series A Underwriter and the Authority against losses, claims, damages and liabilities arising out of any

such untrue statement or omission pertaining to the University. The Series A Underwriter intends to offer the Series A Bonds to the public at the initial public offering prices set forth on the inside front cover page, which may be changed by the Series A Underwriter from time to time without any requirement of prior notice.

The Series B Bonds are being purchased by the Series B Underwriters (defined below) at a purchase price of \$32,895,334.08 (representing the principal amount of \$27,240,000, less an underwriter's discount of \$42,729.12, plus original issue premium in the amount of \$5,698,063.20), pursuant to a Bond Purchase Contract (the "Series B Bond Purchase Contract") among the Authority, the University and BofA Securities, Inc. as representative, acting on behalf of itself, Goldman Sachs & Co. LLC and PNC Capital Markets LLC (collectively, the "Series B Underwriters" and, together with the Series A Underwriter, the "Underwriters"). The Series B Bond Purchase Contract provides that the Series B Underwriters will purchase all of the Series B Bonds, if any are purchased, and requires that the Authority and the University certify to the Series B Underwriters that the Preliminary Official Statement and the Official Statement do not contain any untrue statement of a material fact or omit any statement of any material fact, pertaining to the Authority or the University, as the case may be, necessary to make the statements therein not misleading. In addition, the University agrees to indemnify the Series B Underwriters and the Authority against losses, claims, damages and liabilities arising out of any such untrue statement or omission pertaining to the University. The Series B Underwriters intend to offer the Series B Bonds to the public at the initial public offering prices set forth on the cover page, which may be changed by the Series B Underwriters from time to time without any requirement of prior notice.

The Underwriters may offer and sell the Bonds to certain dealers (including dealers depositing the Bonds into investment trusts) at prices lower than the public offering prices.

Certain of the Underwriters or their affiliates may hold the Refunded Bonds and may receive proceeds from this offering through the redemption of the Refunded Bonds.

BofA Securities, Inc., one of the Underwriters of the Bonds, has provided the following three sentences for inclusion in this Official Statement. BofA Securities, Inc. has entered into a distribution agreement with its affiliate Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S"). As part of this arrangement, BofA Securities, Inc. may distribute securities to MLPF&S, which may in turn distribute such securities to investors through the financial advisor network of MLPF&S. As part of this arrangement, BofA Securities, Inc. may compensate MLPF&S as a dealer for their selling efforts with respect to the Bonds.

PNC Capital Markets LLC, one of the Underwriters of the Series B Bonds, has provided the following three sentences for inclusion in this Official Statement. PNC Capital Markets LLC and PNC Bank, National Association are both wholly-owned subsidiaries of PNC Financial Services Group, Inc. PNC Capital Markets LLC is not a bank, and is a distinct legal entity from PNC Bank, National Association. PNC Bank, National Association has banking and financial relationships with the University.

The Underwriters and their respective affiliates together comprise 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. Such activities may involve or relate to assets, securities and/or other instruments of the Authority and/or the University (whether directly, as collateral securing other obligations or otherwise) and/or persons and entities with relationships (or that are otherwise involved with transactions by) the Authority and/or the University. The Underwriters and their respective affiliates may have, from time to time, engaged, and may in the future engage, in transactions with, and performed and may in the future perform, various investment banking services for the Authority and/or the University for which they received or will receive

customary fees and expenses. Under certain circumstances, the Underwriters and their respective affiliates may have certain creditor and/or other rights against the Authority and/or the University and any affiliates thereof in connection with such transactions and/or services. In addition, the Underwriters and their respective affiliates may currently have relationships with parties that may relate to assets of, or be involved in the issuance of securities and/or instruments by, the Issuer and/or the University and any affiliates thereof. The Underwriters and their respective affiliates may also communicate independent investment recommendations, market advice or trading ideas and/or publish or express independent research views in respect of such assets, securities or instruments and at any time may hold or recommend to clients that they should acquire, long and/or short positions in such assets, securities and instruments.

RATING

S&P Global Ratings, a business unit of Standard & Poor's Financial Services LLC ("S&P"), has assigned the Bonds a rating of "AA", with a positive outlook. Any explanation of this rating may only be obtained from S&P. Generally, S&P bases its ratings on information and materials supplied to it and on its own investigations, studies and assumptions. There is no assurance that such rating, once assigned, will remain for any given period of time or that it will not be lowered or withdrawn entirely by S&P if in its judgment circumstances so warrant. Any such downward change or withdrawal of the rating assigned to the Bonds by S&P may have an adverse effect on the market price of the Bonds.

INDEPENDENT ACCOUNTANTS

The audited financial statements of the University as of and for the years ended June 30, 2021 and June 30, 2020 are included in APPENDIX B to this Official Statement. KPMG LLP, the University's independent auditor, has not been engaged to perform and has not performed, since the date of its report included as APPENDIX B to this Official Statement, any procedures on the consolidated financial statements addressed in that report. KPMG LLP also has not performed any procedures relating to this Official Statement.

MISCELLANEOUS

All of the summaries of the provisions of the Act, the Bonds, the Indentures and the Loan Agreements contained in this Official Statement and all other summaries and references to other materials not purporting to be quoted in full, are only brief outlines of certain provisions thereof and are made subject to all of the detailed provisions thereof, to which reference is hereby made for further information. Copies of such documents are on file at the principal office of the Trustee in Pittsburgh, Pennsylvania.

All estimates and assumptions herein have been made on the best information available and are believed to be reliable, but no representations whatsoever are made that such estimates or assumptions are correct or will be realized. So far as any statements herein involve matters of opinion, whether or not expressly so stated, they are intended merely as such and not as representations of fact.

The information set forth above and in the Appendices should not be construed as representing all of the conditions affecting the Authority, the University or the Bonds.

This Official Statement is approved and delivered by the Authority.

ALLEGHENY COUNTY HIGHER EDUCATION
BUILDING AUTHORITY

By: /s/ William Brooks
William Brooks
Chairman

Approved:

CARNEGIE MELLON UNIVERSITY

By: /s/ John Dolan
John Dolan
Associate Vice President and Treasurer

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APPENDIX A

Carnegie Mellon University

**APPENDIX A
CARNEGIE MELLON UNIVERSITY**

Table of Contents

I. Overview	A-1
II. Shared Governance of the University.....	A-2
III. Colleges, Schools, and Academic Programs.....	A-9
IV. Physical Plant	A-11
V. Admission and Enrollment.....	A-13
VI. Student Tuition and Fees.....	A-15
VII. Student Financial Aid	A-16
VIII. Faculty and Staff	A-17
IX. Pension Programs	A-18
X. Environmental, Social, and Governance Activities	A-18
XI. Financial Overview	A-19
XII. Fundraising	A-22
XIII. Endowment and Investments	A-24
XIV. Litigation and Contingencies	A-26
XV. Outstanding Indebtedness	A-27
XVI. COVID-19 Pandemic.....	A-28
XVII. Disclaimer	A-29

I. OVERVIEW

Carnegie Mellon University ("Carnegie Mellon" or the "University") is a private, coeducational research institution situated on an approximately 157-acre campus five miles from downtown Pittsburgh, PA. The University is incorporated in the Commonwealth of Pennsylvania as a non-profit corporation and is exempt from federal income tax under section 501(c)(3) of the Internal Revenue Code. The University began in 1900 when industrialist Andrew Carnegie founded the Carnegie Technical Schools in Pittsburgh's Oakland neighborhood. In 1912, these schools merged to become a degree-granting college – the Carnegie Institute of Technology. In 1967, the Carnegie Institute of Technology merged with the Mellon Institute of Research to form Carnegie Mellon University.

For more than 100 years, Carnegie Mellon has fostered a tradition of generating innovations with a global impact by combining systematic analysis and problem-solving with entrepreneurial creativity and hard work. These distinctive values of Carnegie Mellon remain in full force today, in all aspects of the University on display around the world. The University's mission is:

- To create a transformative educational experience for students focused on deep disciplinary knowledge; problem solving; leadership, communication, and interpersonal skills; and personal health and well-being.
- To cultivate a transformative university community committed to (a) attracting and retaining diverse, world-class talent; (b) creating a collaborative environment open to the free exchange of ideas, where research, creativity, innovation, and entrepreneurship can flourish; and (c) ensuring individuals can achieve their full potential.
- To impact society in a transformative way — regionally, nationally, and globally — by engaging with partners outside the traditional borders of the University campus.

The University offers undergraduate, masters, and doctoral degree programs and certificate and executive education programs through seven academic colleges and schools. As of September 20, 2021, the student body consisted of 7,308 undergraduate, 8,393 graduate, 54 certificate-only, and 63 undergraduate and graduate non-degree students, for a total student body of 15,818.

Carnegie Mellon programs in computer science, engineering, business, public policy, sciences, the arts, and the humanities are consistently ranked among the best in the country by national publications such as U.S. News & World Report, Times Higher Education, QS World University Rankings, Academic Ranking of World Universities (ARWU), and Wall Street Journal/Times Higher Education.

RANKING GUIDE	RANKING	LEVEL	YEAR OF RELEASE	RANK
U.S. News & World Report	Best National Universities	Undergraduate	2021	25
	Business	Undergraduate	2021	7
	Computer Science	Undergraduate	2021	1
	Engineering	Undergraduate	2021	6
	Business (Full-time MBA)	Graduate	2021	16
	Business (Part-time MBA)	Graduate	2021	7
	Computer Science	Graduate	2018	1
	Engineering	Graduate	2021	4
	Public Affairs	Graduate	2021	19
	Statistics	Graduate	2018	8
	Psychology	Graduate	2017	17
	Fine Arts	Graduate	2020	7

RANKING GUIDE	RANKING	LEVEL	YEAR OF RELEASE	RANK
Times Higher Education	World University Rankings - Overall	All	2021	28
	World University Rankings – Overall – Computer Science	All	2021	6
	World University Rankings – Overall – Engineering and Technology	All	2021	18
	World University Rankings – Overall – Business and Economics	All	2021	27
	World University Rankings - Among U.S. Colleges	All	2021	18
QS World University Rankings	World University Rankings - Overall	All	2021	53
ARWU	World's Top 500 Universities	All	2021	97
Wall Street Journal/Times Higher Education	U.S. College Rankings	Undergraduate	2021	21

II. SHARED GOVERNANCE OF THE UNIVERSITY

The trustees, faculty, administration, students and staff share the responsibility for achieving the mission and goals of the University. Below is a summary of the respective roles played by the trustees, faculty, and administration.

Board of Trustees

The University's Board of Trustees (the "Board") bears ultimate responsibility for University governance. Direct responsibilities include the supervision of policy, organization, and finance. The Board also counsels and advises the administrative leadership, and appoints the President of the University, to whom they delegate the authority to act as the institution's chief executive.

Much of the work of the Board takes place through its standing committees, including: Advancement, Audit, Compensation, Educational Affairs and Enrollment, Executive, Finance, Investment, Nominating and Governance, Property and Facilities, and Research, Innovation and Entrepreneurship. Typically, each trustee serves as a member of at least one standing committee, usually aligned with individual expertise and interests. The Executive Committee includes the chair of each standing committee among its membership.

To optimize the interaction between the trustees and the University, the President of the University requests that each trustee serve as a member of one or more advisory boards for all academic and many supporting units of the University. Through service on these advisory boards, trustees become familiar with essential components of the University and are thus able to provide valuable advice and assistance to the President on means for improving the institution.

The list that follows contains the name of voting trustees, their position or affiliation, and year that their current term ends.

Voting Trustees

NAME	POSITION/AFFILIATION	CURRENT TERM ENDS
Joel Adams*	General Partner Adams Capital Management	2026
Lane Bess*	Principal and Founder Bess Ventures and Advisory	2024
Ronald Bianchini, Jr.*	Distinguished Engineer Microsoft Corporation	2026
Keith Block*	--	2022
Darryl Britt	President & CEO Apprio/ApprioHealth	2027
Frank Brunckhorst*	Boar's Head Provisions Co., Inc.	2025
David A. Coulter*	Special Limited Partner Warburg Pincus LLC	2026
Nathalie Cowan	Residential Developer Abergel Homes	2027
Russell Crockett*	Managing Partner and CEO Aztlán Chemical Senior Advisor RTC Energy LLC	2026
Jeanne Cunicelli*	President UPMC Enterprises Executive Vice President UPMC	2022
Shrinivas V. Dempo*	Chairman Dempo Group of Companies	2024
Francisco D'Souza*	Chief Executive Officer Cognizant Technology Solutions	2023
Howard Ellin*	Partner Skadden Arps Slate Meagher and Flom	2022
Edward H. Frank*	Co-Founder and Chief Executive Officer Brilliant Lime, Inc.	2025
Yoshiaki Fujimori*	Chairman of the Board Oracle Japan Corporation	2024
Eric Giler*	Chairman Endeavor, Inc.	2026
Edward Grefenstette*	President and Chief Investment Officer The Dietrich Foundation	2026
Torrence M. Hunt, Jr.	The Elmhurst Group and the Roy A. Hunt Foundation	2026
Farnam Jahanian	President Carnegie Mellon University	Ex-Officio
Larry Jennings, Jr.*	Senior Managing Director ValStone Partners, LLC	2026

NAME	POSITION/AFFILIATION	CURRENT TERM ENDS
Tod S. Johnson*	Executive Chairman The NPD Group	2025
Theresa Kail-Smith	President Pittsburgh City Council	Ex-Officio
Raymond J. Lane	Managing Director GreatPoint Ventures	2024
Bruce McWilliams*	--	2022
Anne M. Molloy	Executive Director Posner Fine Arts Foundation	2023
William Peduto	Mayor City of Pittsburgh	Ex-Officio
Javier F. Peña	Chair Faculty Senate, Carnegie Mellon University	Ex-Officio
David Porges	Retired Chairman and CEO EQT Corporation	2023
John Pranzatelli	President Andrew Carnegie Society	Ex-Officio
Sam Reiman	Director and Trustee Richard King Mellon Foundation	2027
James E. Rohr ¹	Retired Chairman and Chief Executive Officer The PNC Financial Services Group, Inc.	2022
J. Lea Hillman Simonds	Chair Hillman Family Foundations	2024
Manoj Singh*	Retired Chief Operating Officer Deloitte Touche Tohmatsu Limited	2022
Luke Skurman*	Chief Executive Officer Niche	2023
Christopher Stengel	President Carnegie Mellon Alumni Association	Ex-Officio
Lip-Bu Tan	Chairman Walden International	2022
David Tepper*	President and Founder Appaloosa Management L.P.	2024
Thomas Tull	Chairman and Chief Executive Officer Tulco	2022
Tamara Tunie*	Actor, Singer, Director and Producer	2025
Paula Kauffman Wagner*	Producer/Owner Chestnut Ridge Productions	2022
Michael Zamagias	Founder, Chairman and Chief Executive Officer Zamagias Properties Chairman and Chief Executive Officer TeleTracking Technologies	2022

¹ PNC Capital Markets LLC, one of the Underwriters of the Bonds, is a wholly-owned subsidiary of The PNC Financial Services Group, Inc.

* Alum(nus)(na)

The following is a list of Emeritus Life Trustees of the University and their position or affiliation.

Emeritus Life Trustees

NAME	POSITION/AFFILIATION
John R. Bertucci*	Chairman MKS Instruments, Inc.
Carol R. Brown	Former President Pittsburgh Cultural Trust
Robert M. Brown, III*	Retired Managing Director Lehman Brothers
Eric Cooper	--
Erroll B. Davis, Jr.	Senior Advisor TalentQuest, Inc.
W. Logan Dickerson*	President Lindwood Farm, Inc. & Protos Foods, Inc
Philip L. Dowd*	Sherick Enterprises, LLC
Dina Dublon*	--
William B. Ellis*	Retired Chairman and CEO Northeast Utilities
Cynthia Friedman	Co-owner Union Real Estate Company of Pittsburgh
Henry J. Gailliot*	--
Claire W. Gargalli	--
Richard D. Hamilton*	Retired Director of Product Supply Procter and Gamble
Teresa Heinz	Chairman Heinz Family Philanthropies Chair Emeritus The Heinz Endowments
T. Jerome Holleran*	Retired Chairman Precision Medical Products, Inc.
W. Lee Hoskins	Retired Chairman and CEO The Huntington National Bank
Justin M. Johnson	Retired Judge Superior Court of Pennsylvania
Patricia Askwith Kenner*	President Campus Coach Lines
David M. Kirr*	Partner Kirr, Marbach & Company
Edward E. Lucente*	--
Thomas A. McConomy*	Retired Chairman of the Board Calgon Carbon Corporation
Jack E. McGrath*	Retired Senior Vice President Booz, Allen & Hamilton
Regina Gouger Miller*	Owner/Artist Ginger and Spice; Regina Gouger Miller Studio

NAME	POSITION/AFFILIATION
Alessandro Ovi	Executive Vice President Fondazione Popoli
E. Kears Pollock*	Retired Executive Vice President PPG Industries, Inc.
Charles J. Queenan, Jr., Esq.	Chairman Emeritus K&L Gates LLP
Vincent A. Sarni	Retired Chairman and CEO PPG Industries, Inc.
Joyce Bowie Scott*	J. Bowie Scott Studio
David S. Shapira	Executive Chairman Board of Directors, Giant Eagle, Inc.
Ajit Shetty	Retired Chairman of the Board Janssen Pharmaceutica
Raymond Smith	Chairman Rothschild Continuation Investments
W. Lowell Steinbrenner*	Retired Chairman Contours, Ltd.
Donald E. Stitzenberg*	Principal CBA Associates
Mary Ann Ulishney	--
James M. Walton	President Emeritus Carnegie Institute

* Alum(nus)(na)

Faculty

Carnegie Mellon's faculty holds the primary responsibility of carrying out the educational, artistic and scholarly programs of the University. Every faculty member has the duty to conduct courses in a manner consistent with the highest standards of the profession. The faculty strives to further their professional development and advance the art of teaching to instill in students a desire to learn and an enthusiasm for the subject matter at hand. Faculty also take the lead in establishing and maintaining curricula that meet the standards and fulfill the educational goals of the University.

The Faculty Senate, which is the representative assembly of the faculty of the University, is comprised of elected members, members ex-officio, and appointed members from the entire faculty organization. At Carnegie Mellon, the Faculty Senate has the prerogative of considering any topic relevant to the interests of the University as well as any topic affecting the welfare of the University community. The Faculty Senate also conducts those academic affairs that are delegated to it by the President or by the Board of Trustees.

Administration

The University's administrative officers are responsible for supervising its programs, implementing and enforcing its policies, assessing the effects of policy, and recommending improvements or changes. The President, subject to the Board's oversight, has full responsibility for administering the activities of the University. The President has the power to appoint, retire and determine the tenure of the faculty, with the approval of the Board. As the University's chief executive officer, the President delegates responsibility to the Provost, as chief academic officer, and to the seven vice presidents: the Vice President for Operations and Interim Vice President for Research, the Vice President for Finance and Chief Financial Officer, the Vice President for University Advancement, the Vice President for Student Affairs and Dean of Students, the Vice President for University Communications and Marketing, the Vice President and General Counsel, and

Secretary of the Corporation, and the Vice President for Information Technology and Chief Information Officer. In addition, the President delegates responsibility to the Chief Investment Officer, Special Advisor to the President, Senior Advisor to the President for Economic Development and Community Engagement, Treasurer, and Assistant Treasurer of the Corporation.

The Provost oversees the seven colleges and schools and all the research institutes and academic support services. The Provost is assisted by the Associate Provost, the Vice Provost for Education, the Vice Provost for Faculty, the Vice Provost for Diversity, Equity, and Inclusion and Chief Diversity Officer, the Vice Provost for Institutional Effectiveness and Planning, and the Associate Vice President. The dean of each college or graduate school is the chief academic officer for that unit. Department heads report directly to their dean, and faculty report to their department head. In units that do not have multiple departments, faculty report directly to their dean.

Administrative officers strive to maintain a campus climate that encourages and facilitates the faculty's ability to teach, engage in research, and take part in other scholarly and artistic activities, and the freedom of the students to learn and grow both inside and outside of the classroom. To do so, administrative officers communicate with faculty, staff and students individually and through the formally constituted committees and councils of the University.

Administrative officers share with the trustees the responsibility for interpreting University policies and for communicating the University's actions to the community at large. This responsibility requires that administrative officers interact with representatives of local, state and federal governments, industry and foundations, and community groups.

The following table lists the name and position of the executive and senior leadership of the University.

University Administration

NAME	POSITION
Farnam Jahanian	President
James H. Garrett, Jr.*	Provost and Chief Academic Officer
Isabelle Bajeux-Besnainou	Dean, David A. Tepper School of Business
Angela Blanton*	Vice President and Chief Financial Officer
Amy Burkert	Vice Provost for Education
Gina Casalegno	Vice President for Student Affairs and Dean of Students
Rebecca Culyba	Associate Provost
Mary Jo Dively	Vice President and General Counsel, and Secretary of the Corporation
Rebecca Doerge	Dean, Mellon College of Science
John Dolan	Treasurer
Wanda Heading-Grant	Vice Provost for Diversity, Equity, and Inclusion and Chief Diversity Officer
Martial Hebert	Dean, School of Computer Science
Charles Kennedy	Chief Investment Officer
Lisa Krieg	Associate Vice President and Director of Enrollment Services and International Programs
Ramayya Krishnan	Dean, Heinz College of Information Systems and Public Policy

NAME	POSITION
Tim McNulty	Associate Vice President, Government Relations
Scott Mory	Vice President for University Advancement
Carrie Nelson	Assistant Treasurer
Paul D. Nielsen	Director and Chief Executive Officer, Software Engineering Institute
Michelle Piekutowski	Associate Vice President and Chief Human Resources Officer
Mary Ellen Poole	Dean, College of Fine Arts
William H. Sanders	Dean, College of Engineering
Richard Scheines	Dean, Dietrich College of Humanities and Social Sciences
Nicholas Scibetta	Vice President for University Communications and Marketing
Rick Siger	Senior Advisor to the President for Economic Development and Community Engagement
Molly Wright Steenson	Vice Provost for Faculty
Michael Steidel	Dean of Admission
Michael Trick	Dean, Carnegie Mellon in Qatar
Stan Waddell	Vice President for Information Technology and Chief Information Officer
Keith Webster	Dean, University Libraries and Director of Emerging and Integrative Media Initiatives
Daryl Weinert	Vice President for Operations and Interim Vice President for Research
Henry Zheng	Vice Provost for Institutional Effectiveness and Planning

* Alum(nus)(na)

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III. COLLEGES, SCHOOLS, AND ACADEMIC PROGRAMS

Carnegie Mellon offers degree programs through seven colleges and schools at its Pittsburgh campus: College of Engineering ("COE"); College of Fine Arts ("CFA"); Dietrich College of Humanities and Social Sciences ("Dietrich"); Heinz College of Information Systems and Public Policy ("Heinz"); Mellon College of Science ("MCS"); School of Computer Science ("SCS"); and Tepper School of Business ("Tepper").

The University also operates branch campuses in Silicon Valley, CA and in the Persian Gulf State of Qatar. Students enrolled in specific Carnegie Mellon University programs may also pursue opportunities at additional sites located domestically in California, New York, and Washington, D.C., and internationally in Australia, Japan, Portugal, Rwanda, and Singapore.

Carnegie Mellon in Silicon Valley

Carnegie Mellon's Silicon Valley campus was founded in 2002. Carnegie Mellon and the College of Engineering have established a natural extension in Mountain View, CA that integrates the rich heritage and resources of the Pittsburgh campus with the opportunities available in Silicon Valley. Carnegie Mellon in Silicon Valley is dedicated to educating its students to become leaders in global technology, innovation and management and to performing innovative research that connects it to local and global high-tech companies. The campus offers part-time and full-time master's programs in electrical and computer engineering, software engineering, technology ventures, software management, and information technology. Each program provides the appropriate mix of technical, business, and organizational skills critical to students' success. Carnegie Mellon's Silicon Valley campus enrolls approximately 300 students each year.

Carnegie Mellon in Qatar

Carnegie Mellon's Qatar campus is a fully funded program, supported by the Qatar Foundation, that began classes in Fall 2004. Today, Carnegie Mellon in Qatar offers undergraduate programs in biological sciences, business administration, computational biology, computer science, and information systems using the same standards and curricula as on the Pittsburgh campus. Approximately 400 students from 54 countries call Carnegie Mellon in Qatar home.

Qatar Foundation was founded in 1995 by His Highness Sheikh Hamad Bin Khalifa Al Thani, now the Father Amir, and Her Highness Sheikha Moza bint Nasser to lead the human, social, and economic development of Qatar through education and research.

Software Engineering Institute (Federally Funded Research and Development Center)

Carnegie Mellon's Software Engineering Institute ("SEI") is a non-profit Federally Funded Research and Development Center ("FFRDC") specifically established by the U.S. Department of Defense ("DoD") to focus on software and cybersecurity. It was founded in 1984 and is in Pittsburgh, PA. The SEI teams create software and cybersecurity guidance, prototypes, tools, and methods and assist customer organizations to adopt them successfully. Its core purpose is to improve the state-of-the-art in software engineering and cybersecurity and to transition this work to the community to improve the state-of-the-practice as well. The SEI transitions its technologies to the global software engineering community through its public courses, conferences, technical reports, and Partner Network.

Sponsored Research

The University intends to continue to develop as a research university, one in which research and education are integral. The University's research objectives are achieved with the support of various organizations and governmental agencies, as well as the use of unrestricted sources of funding. Sponsored research funding in fiscal year 2021 provided approximately \$448 million of revenue, which represents about 35% of the University's total unrestricted operating revenue. Sources of sponsored research revenues include:

Federal Government

Department of Defense	42%
National Science Foundation	16%
Department of Homeland Security	7%
Department of Energy	4%
Health and Human Services	9%
Other Federal Agencies	6%
Sub-Total: Federal Government	85%
Industrial Sources	8%
Other Non-Federal Sources (State, Foundations & Associations)	7%
Total Sponsored Research	100%

Note: Totals may not add due to rounding

Carnegie Mellon has established itself as a research university, drawing on the University's interdisciplinary culture to explore new opportunities and, in so doing, making research, artistic creation, and education integral to one another across the breadth of the University's academic disciplines. Below is the distribution of sponsored research revenues by type, for the fiscal year ended June 30, 2021:

Science and Engineering	32%
Computer Science	26%
Research Institutes	34%
Art, Humanities, Social Sciences & Management	8%
Total Sponsored Research	100%

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Accreditation

The University offers several programs that are fully accredited by nationally recognized professional associations:

COLLEGE/DEPARTMENT	ACCREDITATION AGENCY
Carnegie Mellon University	Middle States Commission on Higher Education (MSCHE)
College of Engineering	ABET-Engineering Accreditation Commission (ABET)
College of Fine Arts	
Architecture	National Architectural Accrediting Board (NAAB)
Music	National Association of Schools of Music (NASM)
Heinz College of Information Systems and Public Policy	
Master of Science in Public Policy and Management; Master of Public Management	Network of Schools of Public Policy, Affairs, and Administration (NASPAA)
Tepper School of Business	The Association to Advance Collegiate Schools of Business International (AACSB)

IV. PHYSICAL PLANT

The University's Pittsburgh campus occupies approximately 157 acres bordered by residential property to the north and the east, a major city park to the south and the Carnegie Museums of Pittsburgh, the University of Pittsburgh, and a residential/retail neighborhood to the west. The University has over 5.7 million square feet of space, about 9% of which is space leased to the University. The University has a total of approximately 4.2 million square feet of assignable space: education and research activities 54%; academic support and student services 32%; and administrative and general support 14%.

The University's Institutional Master Plan ("IMP") was approved by the Pittsburgh City Council in 2012 and amended in 2015. A new IMP is in process, with approval anticipated in early 2022. The IMP establishes the foundation for future development opportunities on campus. It is both a guiding document for campus growth in alignment with the University's strategic vision, and a legal document conforming to the City of Pittsburgh Zoning Code. Consistent with the framework of the IMP, the University has purchased several properties on the north and south sides of Forbes Avenue, working to connect the core of the campus to Mellon Institute and the SEI building along Fifth Avenue. Since the approval of the IMP in 2012, Carnegie Mellon has developed several new academic facilities, and acquired additional property. The new IMP will build on the growth from the previous plan and focuses on several new initiatives. The framework of the plan includes initiatives connecting the campus to Schenley Park; improving the Craig Street corridor; expanding campus green space; and developing Hazelwood Green into a satellite campus. As the University continues to expand under the IMP, it is anticipated that the University will access the capital markets from time to time, as needed, to finance a portion of its future capital costs. Recent and current major capital projects that have a capital expense anticipated to exceed \$50 million for the relevant project, include the following:

Tata Consultancy Services Hall

The Tata Consultancy Services ("TCS") Hall is a research facility which broke ground in 2017 and is the latest addition to the Pittsburgh campus' expansion. TCS Hall consists of a new 90,000 square foot mixed-use building on the site north of Forbes Avenue and includes collaboration space for TCS, the University's Business Engagement Center, the Institute for Software Research, the Master of Science in Computational Finance classrooms and offices, and shelled space. The stand-alone structure houses state-of-the-art facilities, and provides collaborative spaces for the University community. Tata America International Corporation provided a significant gift to fund a portion of the construction of TCS Hall. The project was completed in 2020.

Scaife Hall

The University is currently constructing a new Scaife Hall for its College of Engineering thanks to a lead grant from the Allegheny Foundation. The new Scaife Hall will more than double the size of the existing building, with a focus on expanded, technology-rich labs; modern, flexible classrooms; and spaces that facilitate formal and informal collaborations. The existing building was demolished, and a new facility is being constructed on an expanded footprint at the same location. Scaife Hall is adjacent to the engineering quad that includes the recently renovated Hamerschlag Hall and newly constructed ANSYS Hall and Scott Hall. These facilities are part of the college's Maker Ecosystem, which provides students from across the University with hands-on learning opportunities to prepare them for dynamic, rapidly changing careers.

Housing Master Plan

The University is currently undergoing a planning process that is expected to result in a four-phased Housing Master Plan. Understanding the need to support the Carnegie Mellon student experience through the residential communities, the Housing Master Plan has set up a plan to invest in infrastructure, neighborhoods, and supporting students in their quest for a sense of belonging. This plan focuses on several goals including strengthening the "Neighborhood Concept", maximizing the value of the existing inventory, providing additional on-campus housing, and establishing a comprehensive approach. A key component of the plan is to focus on creating neighborhood commons that include multifunctional dining spaces, technology-enhanced learning commons to facilitate teaching in residence and metacurricular learning, academic support services, maker spaces and wellness spaces to support the student experience. As part of the comprehensive plan, the Board has approved the construction of two new student residences. A new residence hall was constructed at the intersection of Fifth Avenue and Clyde Street. The Fifth Clyde Residence Hall opened in August 2021 and is a 99,000 square foot building that includes 265 beds and the first neighborhood commons. The second new residence hall, Forbes Beeler, is currently under construction and anticipated to open in August 2023. The residence hall was delayed approximately one year due to the impacts of COVID-19. This new apartment style student residence is being constructed at the intersection of Forbes Avenue and Beeler Street. The new facility will be approximately 116,000 square feet, including approximately 266 beds and a community market.

Health, Wellness, and Athletics Center

The University is currently constructing a new student health, wellness and athletics center thanks in part to a lead gift from Highmark Inc. The 160,000-square-foot building will, for the first time, unite critical student well-being services under one roof on the University's Pittsburgh campus. The project will preserve and enhance the existing Skibo Gymnasium for recreational use and construct a modern addition around the surrounding site. The expansion will include space for University Health Services, Counseling and Psychological Services, intercollegiate athletics, mindfulness programming, recreational sports, religious and spiritual life activities, and sports medicine. The state-of-the-art facility will accelerate the University's vision to support students in practicing positive self-care behavior and maintaining their physical and psychological well-being as they pursue their education. The integrated approach is part of the University's model for assisting students to develop through initiatives both inside and outside of the classroom. The project is anticipated to be completed in late 2024.

Science@CMU

Carnegie Mellon has launched a decade-long comprehensive future of science initiative, Science@CMU, to embrace new paradigms and accelerate the University's leadership in scientific discovery, including investments in recruiting and retaining faculty, and developing state-of-the-art research and education infrastructure. The cornerstone of this initiative will be a new, cutting-edge \$210 million science building, the Richard King Mellon Science Building, on its Pittsburgh campus, which is made possible by a \$75 million lead grant from the Richard King Mellon Foundation. The facility, which will be located on Forbes Avenue adjacent to the Carnegie Museums in the Oakland neighborhood, will facilitate collaborative research and education spanning multiple fields across the University. The facility is expected to be 170,000 square feet and will be designed for open collaboration, and to inspire unanticipated intersections of ideas. In addition

to classrooms, teaching labs and other spaces, student and faculty researchers will have access to modern labs that are purposefully designed to be shared. The building is currently in the programming phase and is scheduled to begin design in the winter of 2022. Construction is expected to be completed in late 2026.

The Richard King Mellon Science Building will complement the University's simultaneous \$40 million investment in the nation's first academic cloud laboratory, the CMU Cloud Lab, that will feature highly automated, remote-controlled robotic instruments for experimentation and data collection. The groundbreaking cloud lab's capabilities will quickly advance discoveries, as well as democratize science by expanding researcher and student access to invaluable equipment. It will be the first academic cloud lab in the country. The CMU Cloud Lab is currently in the design phase with construction expected to begin in February 2022.

Robotics Innovation Center

A \$45 million lead grant from the Richard King Mellon Foundation will enable Carnegie Mellon to further expand its robotics research capacity with a new facility, the Robotics Innovation Center (RIC), at Hazelwood Green. The RIC, which is estimated to cost \$100 million and will add up to 150,000 square feet of space to Carnegie Mellon's robotic research capabilities. The new facility will provide Carnegie Mellon robotics researchers with spaces that will allow them to bridge the stages of foundational research, integration, iteration and commercialization to ensure discoveries can be translated into real-world technologies. Envisioned for the building are reconfigurable high bays, multiple testing facilities including a unique large-footprint testing area, and flexible spaces that address robotics systems at different scales. The facility is expected to include pre-incubator space for the next generation of University-affiliated robotics companies. The University will be working with a master developer of the Hazelwood Green site on this project. Construction is expected to be completed in late 2024.

V. ADMISSION AND ENROLLMENT

The following table shows first-year applicants, acceptances, and enrollment for undergraduate enrollees for the last five academic years, as well as the average combined SAT scores for undergraduate enrollees for the current incoming class. The SAT test and scoring changed in 2018, making a trend prior to 2018 no longer useful or comparable.

	FALL 2017	FALL 2018	FALL 2019	FALL 2020	FALL 2021
Applicants	20,497	24,351	27,364	26,189	32,890
Accepted	4,550	4,170	4,267	4,524	4,447
Acceptance Rate	22.2%	17.1%	15.6%	17.3%	13.5%
Enrolled	1,676	1,572	1,585	1,637	1,896
Matriculation Rate	36.8%	37.7%	37.1%	36.2%	42.6%
Average SAT Scores	--	1485	1491	1492	1502

For the Fall 2021 entering class, the number of first-year, first-time applicants to Carnegie Mellon was 32,890, which represents a 25.6% increase from applicants for Fall 2020 and an all-time high for the University. Selectivity continues to improve, with a 13.5% admit rate for Fall 2021, compared to 17.3% for Fall 2020.

The academic quality of the Fall 2021 enrolled class, measured by high school grade point average, SAT scores, and a rating of high school curriculum rigor, has improved in each of the past five years. The University continues to meet its goal of enrolling students with a broad range of talents. Measures of leadership, service, and extra-curricular achievement are at high levels, consistent with those of the past five years.

Geographic Diversity

The University's student body is geographically diverse. The 2021 entering first-year class was drawn from 43 states, including the District of Columbia, and 22 countries. The following table lists the geographic distribution of the past five entering first-year classes by region:

STATE OF RESIDENCE	FALL 2017	FALL 2018	FALL 2019	FALL 2020	FALL 2021
New England States	6%	6%	5%	6%	6%
Middle States (excl. PA)	26	27	25	25	23
Pennsylvania	11	9	9	8	11
Southern States	10	10	11	10	11
Southwestern States	4	5	5	6	4
Midwestern States	6	5	6	6	5
Western States	17	18	18	19	15
International	16	16	17	16	20
Other ¹	4	4	4	4	4

Note: Totals may not add due to rounding

Historical Enrollment

The following table lists the headcount and full-time equivalent (FTE) for both full-time and part-time undergraduate (including undergraduate non-degree) students for the past five years.

UNDERGRADUATE HEADCOUNT*	FALL 2017	FALL 2018	FALL 2019	FALL 2020	FALL 2021
Full-time	6,664	6,680	6,805	6,764	7,164
Part-time	232	267	217	309	201
Total Headcount	6,896	6,947	7,022	7,073	7,365
FTE	6,762	6,793	6,898	6,925	7,265

The following table lists the headcount and FTE for both the full and part-time graduate (including certificate-only and graduate non-degree) students for the past five years.

GRADUATE HEADCOUNT**	FALL 2017	FALL 2018	FALL 2019	FALL 2020	FALL 2021
Full-time	6,933	7,027	7,092	6,184	7,631
Part-time	699	651	685	932	822
Total Headcount	7,632	7,678	7,777	7,116	8,453
FTE	7,296	7,370	7,407	6,636	8,047

¹ Other includes U.S. Territories, as well as U.S. citizens and permanent residents residing outside of U.S.

* Includes undergraduate non-degree students

** Includes graduate non-degree students and certificate-only students

Student Retention

The following table lists the University's first-year-to-sophomore retention rate for the incoming cohort years indicated, as of September 20, 2021:

First-Year-to-Sophomore Retention Rate	2016	2017	2018	2019	2020
	95.9%	96.7%	97.3%	95.6%	97.4%

VI. STUDENT TUITION AND FEES

The following table lists undergraduate and graduate tuition and fees and undergraduate room and board charges for the past five academic years.

	2017-18	2018-19	2019-20	2020-21	2021-22
Undergraduate ¹					
Tuition	\$52,732	\$54,244	\$55,816	\$57,560	\$57,560
Fees ²	1,178	1,221	1,303	1,250	1,364
Room	8,060	8,450	8,822	9,210	9,614
Board	5,724	5,968	6,150	6,340	6,536
Total	\$67,694	\$69,883	\$72,091	\$74,360	\$75,074
Graduate Tuition ³					
CFA (Architecture)	\$35,980	\$36,250	\$38,750	\$38,990	\$38,990
CFA (Art)	34,730	35,000	35,000	35,240	35,240
CFA (Design)	40,000	41,000	42,000	42,000	42,000
CFA (Drama)	34,500	35,030	35,640	36,300	36,300
CFA (Music)	36,900	38,750	39,900	41,000	41,000
COE (Master's)	46,000	47,300	48,500	50,100	50,100
COE (Ph.D.)	43,000	43,430	44,400	45,300	45,300
Heinz College	46,870	48,200	49,600	51,000	51,000
Dietrich College	42,770	44,050	45,330	46,690	46,690
MCS	43,000	44,500	45,000	46,000	46,000
SCS (Master's)	43,000	47,470	49,000	50,320	50,320
SCS (Ph.D.)	43,000	43,430	44,400	45,700	45,700
Tepper ⁴	64,000	66,000	68,000	70,000	70,000

¹ Undergraduate tuition figure represents rates for incoming students.

² Fees include orientation fee for first-year students.

³ Graduate tuition displayed is for the majority of programs within each college; however, tuition may vary by program.

⁴ Tepper tuition is for new students in the full-time MBA program only; returning students in the full-time MBA program pay a different rate; other Tepper tuition rates vary by program and program level.

VII. STUDENT FINANCIAL AID

Over the past five years, the percentage of undergraduates receiving financial aid has averaged 44%. Financial aid packages at the University consist of scholarships, grants, loans, and on-campus job opportunities. The following table shows undergraduate financial aid resources by source for fiscal years 2017 through 2021 (in thousands).

	2017	2018	2019	2020	2021
Scholarships and Grants by Source					
Federal	\$5,590	\$6,248	\$6,742	\$6,989	\$7,262
State	464	436	449*	411	403
Carnegie Mellon	85,460*	96,123	104,531*	109,496	113,851
ROTC	742	949	1,196	1,081	956
Other	3,670	3,881	3,481	3,596	3,320
Sub-Total	95,926*	107,637	116,400*	121,573	125,791
Self Help by Source					
Work-study	\$1,514	\$1,344	\$1,305	\$1,325	\$1,196
Loans	16,196	17,830*	12,178*	11,771	10,553
Sub-Total	17,710	19,174*	13,482*	13,096	11,749
Grand Total	\$113,636*	\$126,811*	\$129,882*	\$134,669	\$137,540
% of Undergraduates Receiving Financial Aid¹	46%	44%	43%	44%	44%

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¹ Figures as reported to the Common Data Set, based on academic years. (Number of undergraduate students who applied for need-based aid, were determined to have financial need and received any financial aid, plus number of undergraduate students with no financial aid need who received non-need based scholarship or grant aid) divided by all undergraduate, degree-seeking students (including Qatar).

*Restated from prior year

VIII. FACULTY AND STAFF

The following table lists the number of persons employed full- and part-time by the University in Fall 2020, employed as of November 1, 2020.

	FULL-TIME	PART-TIME	TOTAL
Tenure-Stream Faculty	749	8	757
Research Faculty	42	4	46
Teaching Faculty	259	5	264
Special Faculty	260	92	352
Faculty Librarians	28	0	28
Academic & Administrative Support Faculty	22	3	25
Staff	3,957	643	4,600
Total	5,317	755	6,072

The following table lists the number of tenured and tenure-eligible faculty by college or school and tenure status in Fall 2020, employed as of November 1, 2020.

Tenure-Stream Faculty

COLLEGE	TENURED	PERCENT TENURED	TENURE- ELIGIBLE	TOTAL
College of Fine Arts	73	70%	32	105
College of Engineering	107	69%	47	154
Dietrich College of Humanities and Social Sciences	98	71%	40	138
Mellon College of Science	74	75%	25	99
School of Computer Science	83	55%	69	152
Tepper School of Business	43	55%	35	78
Heinz College	20	65%	11	31
Qatar	3	100%	0	3
Other ¹	4	100%	0	4
Total	505	66%	259	764

¹ Administration such as President, Provost and Vice Provost.

IX. PENSION PROGRAMS

The University sponsors 403(b) and 401(k) defined contribution plans for faculty, staff, and the Campus Police Association. Employees who have a non-academic year eligible appointment receive contributions equal to 8% of base pay. Employees who hold academic year appointments receive contributions equal to 9.78% of base pay. For the 403(b) plan year ending December 31, 2020, the total amount paid to Teachers Insurance Annuity Association ("TIAA") as the University's contribution was \$34.0 million, and the total amount paid to The Vanguard Group ("Vanguard") as the University's contribution was \$2.0 million. For the 401(k) plan year ending December 31, 2020, the total amount paid to TIAA as the University's contribution was \$2.1 million, and the total amount paid to Vanguard as the University's contribution was \$68,000. As of April 1, 2020, administration of the 403(b) and 401(k) defined contribution plans were consolidated under a single record keeper, TIAA. Benefits are determined by TIAA and Vanguard on an individual basis at the time of retirement, depending upon the accumulated value of the investments in the individual's account.

Three years of eligible service are required to meet the vesting requirement. Prior employee participation in a qualified retirement plan at another eligible not-for-profit educational institution may be recognized for vesting purposes.

Employees of the University who are represented by the International Union of Operating Engineers (IUOE) receive pension benefits through their union's pension fund. The University presently makes monthly contributions on behalf of employees equal to 8% of employees' straight time hours paid.

See Note 16 to the University's Annual Report included as Appendix B of this Official Statement for further information concerning retirement plans and other post-employment benefits.

X. ENVIRONMENTAL, SOCIAL, AND GOVERNANCE ACTIVITIES

The University is committed to operating as a responsible citizen, supporting the community, and improving the world in which it lives.

The University endeavors to make Carnegie Mellon more accessible and affordable in order to increase socioeconomic diversity. The University has created programs and provides financial support for students from all backgrounds. Carnegie Mellon continues to be need-blind when admitting undergraduate students. The University has been meeting full need (based on institutional need methodology) for undergraduate financial aid for the six most recent first-year cohorts. During the 2019-2020 academic year, 987 Carnegie Mellon students received Pell Grants totaling \$4.9 million, including 223 first-year students. In addition, the University continues to place emphasis on undergraduate student aid and graduate fellowships in its capital campaign.

The Tartan Scholars program was created to support academically high-achieving students from low-income backgrounds. The program was recently expanded and now supports nearly 300 undergraduate students.

Diversity, equity, and inclusion ("DEI") guide the University's values and serve as its foundation. The University seeks and cultivates diverse populations and perspective and promote equity and inclusion. Diversity, equity, and inclusion are critical to academic excellence and innovation. The University has created a plan of action focused on initiatives and strategic investments to increase DEI across the campus community. Under this plan, the University hired its inaugural Vice Provost for Diversity, Equity, and Inclusion; increased the capacity for the Tartan Scholars program; implemented strategic DEI plans across campus units; and committed resources to many DEI efforts across the University.

In 2019, Provost and Chief Academic Officer Jim Garrett launched the University's Sustainability Initiative during the United Nations General Assembly. This initiative is organized around objectives that strengthen University's commitment to sustainability; elevate engagement with the Global Sustainable Development Goals ("SDGs"), a shared blueprint for sustainability adopted by countries, cities and universities; and improve coordination of sustainability education, research, and practices among students, faculty, and staff. As a result of this initiative, CMU issued the first of its kind Voluntary University Review of the SDGs in 2020, a report to track progress against the SDGs.

The University has committed to adopting the Leadership in Energy and Environmental Design (LEED) green building rating system for all new construction and significant renovations. All projects are designed and constructed to meet the current version of the LEED for New Construction and Major Renovations (LEED-NC) standard, or Commercial Interiors (LEED-CI). The University has established the goal of achieving a minimum of a LEED "Silver" rating. The University currently has 24 LEED certified buildings, totaling approximately 1.5 million square feet. An additional six buildings are currently in progress for LEED certification.

CMU is a charter member of Pittsburgh 2030 District. The Pittsburgh 2030 District is an internationally recognized, locally driven strategic initiative of Green Building Alliance that supports building owners and managers as they strive toward 50% reductions in energy use, water consumption, and transportation emissions by 2030, while improving indoor air quality. The University has exceeded the performance targets for energy and water reduction and will remain a member in good standing.

During fiscal year 2020, the University purchased 125 million kilowatt hours of wind power in the form of Renewable Electricity Credits and generated approximately 6,000 kilowatt hours of solar power at its 407 South Craig Street property, which is the equivalent to 100% of the University's electricity requirements.

The Pittsburgh region's frequent rainfall can cause raw sewage to overflow into its rivers and streams if storm water is not managed appropriately. Nationally, storm water runoff is the most common cause of water pollution. The University has undertaken a number of initiatives to aid in storm water management. The University's David A. Tepper Quadrangle building collects rain water from the building roof and grounds to a 150,000 gallon cistern located in the building and recycles the water for toilet flushing. The University's Gates Hillman Computer Science Complex has a 10,000 gallon tank for the same purpose. The University also recently installed four tanks with an aggregate 280,000 gallon capacity used to collect storm water which can be reused for the campus chilled water cooling systems.

The University is investing in historically underserved regions in the Pittsburgh area. Hazelwood Green, located on 178 acres along the Monongahela River, is part of Pittsburgh's Hazelwood neighborhood and located in an Opportunity Zone. Opportunity Zones are federally designated census tracts located in low-income neighborhoods. This industrial site formerly served a steel mill and is being re-developed with the leadership of three foundations – the Richard King Mellon Foundation, The Heinz Endowments, and the Claude Worthington Benedum Foundation. In 2019, the first building of the Hazelwood Green development, Mill 19, opened with the University's Manufacturing Futures Initiative and the University's affiliate, the Advanced Robotics for Manufacturing Institute, serving as the anchor tenants. In addition, the University owns options to purchase parcels totaling 8.3 acres at the development site. The University expects to construct its Robotics Innovation Center at Hazelwood Green. More information about the Robotics Innovation Center can be found in Section IV. Physical Plant.

XI. FINANCIAL OVERVIEW

The University's Annual Report with consolidated financial statements as of, and for the year ended, June 30, 2021 is included as Appendix B of this Official Statement. The University's consolidated financial statements have been prepared on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America and include the accounts of Carnegie Mellon and other

majority owned entities. The University presents its financial statements in accordance with the provisions of Accounting Standards Codification ("ASC") 958, Not for Profit Entities. This standard requires the reporting of total assets, liabilities, and net assets in a statement of financial position, reporting the changes in net assets in a statement of activities and reporting the sources and uses of cash and cash equivalents in a statement of cash flows.

ASC 958 also requires that net assets and revenues, expenses, gains and losses be classified based on the existence or absence of donor-imposed restrictions as follows:

- **With Donor Restrictions:** Net assets subject to specific donor imposed or legal stipulations that can be fulfilled by actions of Carnegie Mellon pursuant to those stipulations or that expire by the passage of time. Also included in this category are net assets subject to donor imposed stipulations requiring the assets be maintained in perpetuity by the University. Generally, the donors of these assets permit Carnegie Mellon to use all or part of the income earned on the related investments for general or specific purposes.
- **Without Donor Restrictions:** Net assets that are not subject to donor imposed stipulations.

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Net Assets

The University's total net assets increased from \$3.59 billion as of June 30, 2020 to \$5.12 billion as of June 30, 2021. The following table presents the University's total net asset classes at the end (June 30) of each of the last five fiscal years (in thousands).

Classification of net assets as "with donor restrictions" and "without donor restrictions" is consistent with the presentation of the University's June 30, 2021 Consolidated Financial Statements in Appendix B of this Official Statement.

	2017	2018	2019	2020	2021
Total Assets	\$3,782,270	\$4,075,777	\$4,413,118	\$4,737,719	\$6,292,637
Total Liabilities	887,989	885,007	1,014,850	1,144,955	1,174,066
Total Net Assets	\$2,894,281	\$3,190,770	\$3,398,268	\$3,592,764	\$5,118,571
Comprised of:					
Unrestricted	\$1,275,211	--	--	--	--
Temporarily Restricted	807,491	--	--	--	--
Permanently Restricted	811,579	--	--	--	--
Without Donor Restrictions	--	\$1,464,533	\$1,564,490	\$1,624,117	\$2,058,406
With Donor Restrictions	--	1,726,237	1,833,778	1,968,647	3,060,165
Total Net Assets	\$2,894,281	\$3,190,770	\$3,398,268	\$3,592,764	\$5,118,571

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Historical Operating Results

Set forth in the table below is the University's unrestricted operating results and unrestricted operating surplus available for debt service for the fiscal years indicated (in thousands, except for Net Tuition Per FTE Student):

	2017	2018	2019	2020	2021
Unrestricted Operating Revenue	\$1,175,312	\$1,242,253	\$1,307,408	\$1,341,259	\$1,282,865
<i>Less:</i> Unrestricted Operating Expenses	\$(1,128,254)	\$(1,189,964)	\$(1,250,550)	\$(1,293,574)	\$(1,230,608)
Unrestricted Operating Results	\$47,058	\$52,289	\$56,858	\$47,685	\$52,257
<i>Plus:</i> Depreciation, Amortization and Interest Expenses	\$78,934	\$80,730	\$87,576	\$89,245	\$92,292
Unrestricted Operating Surplus Available for Debt Service	\$125,992	\$133,019	\$144,434	\$136,930	\$144,549
Net Tuition Revenue	\$510,438	\$542,351	\$561,835	\$591,078	\$568,712
Net Tuition per FTE Student	\$38,007	\$38,580	\$39,669	\$41,320	\$41,937

XII. FUNDRAISING

As of July 1, 2021, the University had approximately 112,666 active alumni. "Active" is defined as all alumni for whom the University maintains a current postal or e-mail address. The University's alumni are in 50 states, the District of Columbia and 147 countries around the world. The University actively tracks its undergraduate alumni donor participation rate. For the year ended June 30, 2021, the University recorded more than 48,000 active undergraduate alumni and an undergraduate alumni donor participation rate of 13.3%.

The University's comprehensive fundraising campaign "Make Possible: The Campaign for Carnegie Mellon University," is well underway to complete its fundraising goal of \$2.0 billion by fiscal year 2024. This goal is almost double the more than \$1.0 billion raised in the University's "Inspire Innovation" campaign that ended in 2013. New commitments totaling approximately \$1.8 billion have already been secured. Fundraising progress has been maintained despite the challenges from the COVID-19 pandemic. Fiscal year 2021 ended with \$520 million in new commitments, a 43% increase over fiscal year 2020. Fiscal year 2020 ended with \$223 million in new commitments, a 4% increase over fiscal year 2019.

Carnegie Mellon had its most successful fundraising year ever in fiscal year 2021 due to both regular fundraising as well as two transformational gifts from long-time partners. The Richard King Mellon Foundation gave \$150 million as the lead gift for the Science@CMU initiative and a foundation that is well known to the University committed \$225 million for the CMU Rwanda campus. In addition, the Heinz Foundation gave \$30 million to create the Center for Shared Prosperity.

To date in fiscal year 2022, the University has received several multi-million commitments that will provide long-term support, including a \$20 million gift to establish The Center for Formal Mathematics in Dietrich College and a \$16 million commitment from the Posner Foundation to endow the Tartan Scholars Program;

create the Helen and Henry Posner, Jr. Dean's Chair; and to support the Highmark Health and Wellness Center.

The "Make Possible," campaign has already brought in sizable new endowment resources to the University, approximately 40% of which has been endowment support. This includes 47 new endowed faculty chairs. Donors also have funded 168 new endowed undergraduate scholarships, including a recent \$16 million gift from the Posner Foundation to endow the Tartan Scholars Program; 130 new graduate student fellowships; and new endowed program support for the Hoskinson Center for Formal Mathematics, the Swartz Center for Entrepreneurship, the Block Center for Technology and Society, the Manufacturing Futures Initiative, and the Center for Shared Prosperity.

Fundraising is underway, and significant gifts have been received, for several new facilities on the Pittsburgh campus. This includes fundraising in support of Scaife Hall totaling \$39.2 million to date with a \$55.0 million goal and \$42.2 million for the Highmark Health & Wellness Center, including a \$35.0 million lead gift from Highmark, Inc., with a \$70.0 million goal. Although the fundraising initiative for a new science building has not yet been publicly launched, \$89.0 million has already been raised, including the \$75.0 million lead gift from the Richard King Mellon Foundation, with a \$175.0 million goal.

In addition to the \$2 billion goal, the Make Possible campaign is intended to put in place a higher level of annual fundraising and overall engagement from the University alumni and donor community. Thus far during the campaign, 177 unique donors have made 222 gifts of \$1 million or more, totaling \$1.35 billion, or 76% of new fundraising commitments during the campaign. Significantly, for 82% of these donors, this was their first gift of greater than \$1 million to CMU. In addition, 52,763 unique donors, more than 27,000 of them alumni, have supported Carnegie Mellon during this campaign period.

These sustainable fundamental goals are integral to the campaign plan. Progress on these goals will help to better ensure that Carnegie Mellon is in a position to continue securing private philanthropic support to accelerate its growth trajectory and mission in the coming decades.

Non-endowment contributions received with donor-imposed restrictions are reported as revenues of net assets with donor restrictions class, and a reclassification to net assets without donor restrictions is made in the year when such donor-imposed restrictions are satisfied or expired. Contributions for the endowment are considered net assets with donor restrictions. Grants are included in the net assets with donor restrictions classification when the activity specified by the grant is to be planned and carried out by the University and the University has the right to the benefits of carrying out the activity. This excludes sponsored research revenue that are treated as exchange contracts. The sum of gifts, unconditional pledges to give and grants to the University for fiscal years 2017-2021 is as follows (in thousands):

	2017	2018	2019	2020	2021
Unrestricted	\$24,685	--	--	--	--
Temporarily Restricted	38,741	--	--	--	--
Permanently Restricted	81,308	--	--	--	--
Without Donor Restrictions	--	\$22,019	\$26,283	\$24,334	\$21,638
With Donor Restrictions	--	132,289	116,522	169,902	462,767
Total	\$144,734	\$154,308	\$142,805	\$194,236	\$484,405

XIII. ENDOWMENT AND INVESTMENTS

Earnings from endowment investments fund a variety of activities, ranging from the general operations of the University to specific purposes, such as scholarships or endowed professorships. The Investment Committee of the Board oversees and directs the endowment's investment strategy and asset allocation with the objective of maximizing long-term investment performance within acceptable levels of risk.

The market value of the endowment increased from \$2.07 billion as of June 30, 2020 to \$3.09 billion as of June 30, 2021. The Long-Term Pool's total investment return during fiscal year 2021 was 42.6% (net of fees). Carnegie Mellon's endowment is invested in a long-term pool, which also includes a portion of the University's working capital reserves.

The following table provides a summary of the total changes in market value (in thousands) of the endowment assets, excluding pledges, for the past five fiscal years ended June 30 as reported in Note 7 to the Consolidated Financial Statements in Appendix B of this Official Statement:

	2017	2018	2019	2020	2021
Beginning Endowment Value	\$1,305,763	\$1,719,679	\$1,886,832	\$2,002,300	\$2,068,860
Gifts/Transfers	294,312	62,329	58,618	55,966	217,263
Draw	(67,649)	(81,037)	(85,951)	(91,616)	(100,444)
Investment Performance	187,253	185,861	142,801	102,210	906,385
Ending Endowment Value ¹	\$1,719,679	\$1,886,832	\$2,002,300	\$2,068,860	\$3,092,064

The June 30 investment market value of the University's Long-Term Investment Pool ("LTP"), which consists of endowment assets and certain working capital reserves for the last five fiscal years, is summarized in the table below (in thousands). Investments in the LTP consist primarily of domestic and non-U.S. public equities, private equities, fixed income, hedge funds, real estate, natural resources, opportunistic investments and cash.

	2017	2018	2019	2020	2021
Endowment ¹	\$1,719,679	\$1,886,832	\$2,002,300	\$2,068,860	\$3,092,064
University Capital	304,567	333,286	362,852	393,394	551,385
Total Long-Term Pool ²	\$2,024,246	\$2,220,118	\$2,365,152	\$2,462,254	\$3,643,449

¹ Includes endowment gifts and other transfers pending investment and other accruals. For the fiscal year ended June 30, 2021, this included \$3.2 million as endowment gifts and other transfers pending investment and other accruals.

² The Long-Term Investment Pool includes endowment and selected University capital, which together represent a portion of the University's total investments as reflected in the Consolidated Financial Statements in Appendix B of this Official Statement.

Investment Policy and Asset Allocation Targets

At Carnegie Mellon University, the Investment Committee of the Board of Trustees (the "IC") is principally responsible for overseeing the University's LTP, as managed by the University's Chief Investment Officer and the other members of the investment office staff and supported by certain external advisors, as appropriate. The Chief Investment Officer reports to the University President and the Chair of the IC. While endowment funds account for the vast majority of assets in the LTP, the LTP also includes certain other non-endowment assets of the University. Although endowment funds are distinct in purpose or restriction, all assets in the LTP are managed on a commingled basis and tracked with unit accounting, much like a mutual fund.

To document the philosophy, policies, strategic objectives and procedures that drive the oversight and management of the LTP, investment office staff and senior University administration developed, and the IC has approved, the University's Investment Policy Statement ("IPS", last amended September 2018). The Investment Policy Statement serves as the "institutional memory" of the rationale behind the strategy and activities of the investment program and provides guidance for any future changes to the investment program. Areas that are covered by the IPS in detail include: (1) core principles and objectives of the investment program, (2) governance, (3) benchmarking, (4) investment philosophy and guidelines, (5) risk management, and (6) asset allocation.

The current Target Allocation was approved August 24, 2016. The prior asset allocation targets were the same as current targets with the following exceptions: Hedge Funds in aggregate were 18% and Private Equity was 25%. The following table illustrates the LTP's actual versus targeted asset allocations as of June 30, 2021.

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Asset	Target Allocation	Actual Allocation
U.S. Public Equities	14%	14%
International – Developed	6%	5%
International – Emerging	9%	9%
Hedge Funds – Directional	8%	6%
Private Equity	30%	43%
Real Assets	15%	7%
Fixed Income – Growth	3%	1%
Hedge Funds – Absolute Return	5%	2%
Fixed Income/Cash	10%	13%
Total	100%	100%

Spending Policy

Pennsylvania Act 141 allows organizations to choose a total return spending policy whereby the Board of Trustees may annually elect to spend between two and seven percent of the fair market value of the endowment. The University maintains a total return spending policy. Endowment income distributions can consist of dividends and interest income and a withdrawal of accumulated capital gains. The main objective of the total return policy is to separate spending policy from investment policy. This approach permits asset allocation decisions to be made independently of the need for current income. The goal of the spending policy is to seek balance between supporting the University's current programs while preserving the long term purchasing power of investment assets. The endowment spending rate is determined annually pursuant to a smoothing formula whereby an approved spending rate is applied to the trailing thirty-six month average of endowment market values at December 31. For fiscal years 2019, 2020 and 2021, the approved spending rate has been 5.0%.

See Note 7 to the Consolidated Financial Statements in Appendix B of this Official Statement for further discussion on the University's spending policy and the spending rate for the endowment.

XIV. LITIGATION AND CONTINGENCIES

See "LITIGATION MATTERS" in the front part of this Official Statement and Note 15 to the Consolidated Financial Statements in Appendix B of this Official Statement for information about certain other commitments and contingencies.

Relating specifically to the COVID-19 pandemic, as similarly experienced by other institutions of higher education, on May 15, 2020 a class action complaint was filed against the University in the United States District Court for the Western District of Pennsylvania, asserting claims for breach of contract, unjust enrichment and conversion arising out of the University's alleged failure to provide refunds to students for tuition, and certain housing and other fees, following the University's transition to remote instruction in response to the COVID-19 pandemic. On June 5, 2020, a second class action complaint was filed against the University in the same court asserting similar claims and seeking similar relief. On August 26, 2020, the court granted plaintiffs' motion to consolidate the two lawsuits, and the plaintiffs' consolidated amended complaint was filed on September 25, 2020. The University filed a motion to dismiss the complaint on May 14, 2021. The University is awaiting decision on its motion to dismiss and intends to continue to vigorously defend the matter. As this time, it is too early to determine the magnitude of potential damages in the event of an unfavorable outcome.

XV. OUTSTANDING INDEBTEDNESS

The total outstanding indebtedness in the University's most recent audited financial statements at June 30, 2021 was \$659.2 million. See Note 11 to the Consolidated Financial Statements in Appendix B of this Official Statement.

The University has one liquidity facility in place with respect to its bond indebtedness. The Bank of New York Mellon ("BNY Mellon") is the standby bond purchase agreement ("SBPA") provider for the 2008 Bonds (\$120.8 million outstanding par amount). The SBPA was renewed on January 12, 2021 for a three-year term ending January 12, 2024. If BNY Mellon does not renew the agreement, it must provide notification at least 60 days prior to the expiration date. The SBPA includes an event of default if the University's rating is withdrawn, suspended or reduced below BBB- by Standard & Poor's.

The University maintains a taxable commercial paper program which allows the university to issue in aggregate up to \$70.0 million in commercial paper notes. As of December 31, 2021, \$10.0 million in commercial paper notes were outstanding.

The University also has a committed \$50.0 million line of credit with PNC Bank. This facility provides a liquidity reserve for general purposes and contains an event of default if the University fails to maintain a rating greater than Baa1 by Moody's (if rated by Moody's) and BBB+ by Standard & Poor's. The line of credit was undrawn as of December 31, 2021.

The Authority expects to issue its Carnegie Mellon University Revenue Bonds, Series A of 2022 (the "2022 A Bonds") and its Carnegie Mellon University Revenue Bonds, Series B of 2022 (the "2022 B Bonds"). It is expected that the University will enter into a loan agreement with the Authority, pursuant to which the Authority will lend to the University the proceeds of its 2022 A Bonds and its 2022 B Bonds. The 2022 A Bonds and the 2022 B Bonds are being issued to (i) refund all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bond, Series A of 2012; (ii) refund all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bond, Series B of 2012; and (iii) pay all or a portion of the related financing costs.

The Authority also expects to issue its Carnegie Mellon University Revenue Bonds, Series C of 2022 (the "2022 C Bonds"). It is expected that the University will enter into a loan agreement with the Authority, pursuant to which the Authority will lend to the University the proceeds of its 2022 C Bonds. The 2022 C Bonds are being issued to finance (i) a portion of the costs of constructing the Richard King Mellon Science Building facility and related capital expenditures and (ii) all or a portion of the related financing costs.

The University also expects to enter into a bond purchase contract for the issuance and sale of its Carnegie Mellon University Taxable Bonds, Series of 2022 (the "Series 2022 Taxable Bonds"). Proceeds from the sale of the Series 2022 Taxable Bonds will be used to finance (i) a portion of constructing the Richard King Mellon Science Building facility; (ii) all or a portion of the CMU Cloud Lab; (iii) all or a portion of the Robotics Innovation Center; and (iv) all or a portion of the related financing costs.

See Section IV. Physical Plant on page A-14 above for a more detailed description of the projects.

See "EXISTING INDEBTEDNESS" in the front part of this Official Statement and Note 11 to the Consolidated Financial Statements in Appendix B of this Official Statement.

Interest Rate Swaps

The University utilizes interest rate swaps to manage the interest expense and risk of its debt. The table below outlines the University's existing swap agreements as of June 30, 2021. See Note 13 to the Consolidated Financial Statements in Appendix B of this Official Statement.

COUNTERPARTY	NOTIONAL VALUE (IN MILLIONS)	EFFECTIVE DATE	UNIVERSITY PAYS	UNIVERSITY RECEIVES	MARK TO MARKET VALUE ¹ (IN MILLIONS)
PNC	\$100.0	2006	3.43%	67% of 1M LIBOR	\$(19.0)
JP Morgan	\$5.1	2007	3.77%	67% of 1M LIBOR	\$(0.9)
JP Morgan	\$40.3	2012	3.77%	67% of 1M LIBOR	\$(9.8)
PNC	\$38.0	2012	SIFMA	1.92%	\$1.6
Total	\$183.4				\$(28.1)

Each of the University's swap agreements call for a posting of collateral by either counterparty based on a matrix that matches long-term debt ratings with posting thresholds. At the University's current S&P rating of AA, that threshold requires posting of collateral for total liability values per counterparty in excess of \$30 million. A drop in the credit rating of the University of one notch to AA- would reduce the threshold to \$25 million. As of June 30, 2021, the University was not required to post collateral.

XVI. COVID-19 PANDEMIC

In March 2020, the World Health Organization declared the novel coronavirus ("COVID-19") a pandemic. As a result of the pandemic, in March 2020, the University suspended in-person education and other campus-based activities and provided a combination of credits and refunds of residence and dining revenues to students aggregating \$8.4 million. During fiscal 2021, the University operated under a modified campus posture, utilizing a hybrid education model, de-densified residence and dining facilities, and on-campus core campus based activities.

Beginning July 1, 2021, the University operated under a transitional campus posture, with instruction predominately in person, increased residence and dining facility density, and the transition of other campus-based activities to on campus with flexible arrangements. In addition to the precautions taken under the modified campus posture, the University established its own fully operational certified laboratory to provide asymptomatic COVID-19 testing to all students, faculty, staff, and affiliate members of the CMU community.

On January 6, 2022, the University transitioned to a modified campus posture to start the Spring 2022 semester. The first two weeks of most courses will be taught via remote instruction.

The University requires all students, along with faculty and staff working in the United States, to be fully vaccinated against COVID-19. In addition, the University recently announced that booster shots will be required for members of the community. Details about the booster requirement are forthcoming and were unavailable at the time of this publication.

The University provided emergency financial aid to students under the Coronavirus Aid, Relief and Economic Security Act (CARES Act) totaling \$2.9 million and \$1.1 million during the years ended June 30, 2021 and 2020, respectively. The University recognized revenue from federal and other governmental funding related to the COVID-19 pandemic totaling \$7.3 million for the year ended June 30, 2021, which is included in other revenue sources on the Consolidated Statement of Activities. While future impacts of the COVID-19 pandemic cannot be quantified at this time, the University continues to monitor legislative developments, future relief funding opportunities and directives from federal, state and local governments and, if

¹ As of June 30, 2021; negative mark-to-market (MTM) values are a liability for the University.

necessary, is prepared to take additional measures to ensure the health and welfare of the University community.

XVII. DISCLAIMER

Certain statements included or incorporated in this Appendix A constitute "forward-looking statements." Such statements are generally identifiable by the terminology used such as "plan," "expect," "estimate," "budget," "intend," "projection," "forecast," or other similar words. Forward looking statements do not guarantee future results. Several important factors impacting the University's financial condition could cause actual results to differ materially from those stated in such forward-looking statements.

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APPENDIX B

**2021 Financial Report for Carnegie Mellon University including
Audited Financial Statements of Carnegie Mellon University as of
and for the Fiscal Years ended June 30, 2021 and June 30, 2020**

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Carnegie
Mellon
University



MISSION FORWARD

2020-2021 FINANCIAL REPORT



**Carnegie
Mellon
University**

20²⁰/
20²¹

Carnegie Mellon University isn't just a place, or a student body, or a faculty. It's a mission. To create a transformative educational experience and pursue a passion for innovation and solutions that have a transformative impact on society. That mission has a momentum of its own. Driven by curiosity, powered by passion, constantly persevering in the face of even the most difficult challenges. Because our mission is too vital, our progress too essential, to slow down or look back. Because our mission is the future.

CONTENTS

4	Facts and Figures
5	Independent Auditors' Report and Consolidated Financial Statements
6	Independent Auditors' Report
7	Consolidated Statements of Financial Position
8	Consolidated Statements of Activities
10	Consolidated Statements of Cash Flows
11	Notes to Consolidated Financial Statements
40	2020–2021 Board of Trustees





FACTS AND FIGURES

TYPE OF UNIVERSITY

A private, global research university granting over 5,100 bachelor's, master's and doctoral degrees each year.

COLLEGES AND SCHOOLS

College of Engineering
College of Fine Arts
Dietrich College of Humanities
and Social Sciences
Heinz College of Information Systems
and Public Policy
Mellon College of Science
School of Computer Science
Tepper School of Business

NUMBER OF STUDENTS

7,308 undergraduate, 6,212 master's,
2,181 doctoral and 117 non-degree students

NUMBER OF EMPLOYEES

6,072 total employees made up of 757 tenure-stream faculty, 715 non-tenure-stream faculty and 4,600 staff

NUMBER OF ACTIVE ALUMNI

108,838+ alumni

CARNEGIE MELLON FACULTY AND ALUMNI AWARD HIGHLIGHTS

- 20 Nobel Prize Laureates
- 65 Members, National Academy of Engineering
- 20 Members, National Academy of Sciences
- 6 Members, National Academy of Medicine
- 138 Emmy Award Winners
- 50 Tony Award Winners
- 11 Academy Award Winners
- 13 Turing Awards

ATHLETICS

Team name is "The Tartans," NCAA Division III classification, founding member of the University Athletic Association, 19 varsity sports teams, 46 clubs and intramural sports

COMPUTERS

Carnegie Mellon is one of the most technologically sophisticated campuses in the world. When it introduced its "Andrew" computing network in the mid-1980s, it pioneered educational applications of technology. The "Wireless Andrew" system, developed in the mid-1990s, covers the majority of the 157.2-acre Pittsburgh campus.

HISTORY

Founded in 1900 by industrialist and philanthropist Andrew Carnegie as a technical school for working-class Pittsburgh; became Carnegie Institute of Technology in 1912; merged with the Mellon Institute in 1967 to become Carnegie Mellon University.

PHYSICAL SIZE

157.2-acre Pittsburgh campus, 126 campus-owned buildings, two branch campuses.

LOCATION

Pittsburgh, Pennsylvania: Five miles east of downtown Pittsburgh, bordered by 500-acre Schenley Park and three culturally active residential neighborhoods.

GLOBAL PRESENCE

Carnegie Mellon is a global university. Our students, alumni and faculty hail from almost every country. With more than a dozen degree-granting locations, and more than 20 research partnerships, Carnegie Mellon has an international identity, including campuses in Doha, Qatar and Silicon Valley, California, as well as additional locations in places such as Rwanda, Africa and Adelaide, Australia.

For more information about Carnegie Mellon, please contact:

Office of Media Relations
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213-3890
Phone: 412-268-2900
cmu.edu
cmu.edu/news

**INDEPENDENT
AUDITORS'
REPORT &
CONSOLIDATED
FINANCIAL
STATEMENTS**





**INDEPENDENT AUDITORS' REPORT
TO THE BOARD OF TRUSTEES OF
CARNEGIE MELLON UNIVERSITY AND ITS SUBSIDIARIES**

We have audited the accompanying consolidated financial statements of Carnegie Mellon University (the University), which comprise the Consolidated Statements of Financial Position as of June 30, 2021 and 2020, the related Consolidated Statements of Activities and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Consolidated Financial Statements

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

Auditors' Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the consolidated 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 consolidated 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 entity'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 consolidated financial statements.

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

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Carnegie Mellon University as of June 30, 2021 and 2020, and the changes in its net assets and its cash flows for the years then ended in accordance with U.S. generally accepted accounting principles.

KPMG LLP

*Pittsburgh, Pennsylvania
October 27, 2021*

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

June 30, 2021 and 2020 (dollars in thousands)

	2021	2020
Assets		
Cash and cash equivalents (Note 2)	\$700,526	\$622,309
Accrued interest and dividends	1,743	464
Accounts receivable, net (Note 4)	89,222	70,856
Pledges receivable, net (Note 5)	280,674	131,291
Student loans receivable, net (Note 4)	8,091	10,530
Investments (Note 6 and Note 8)	3,880,775	2,585,809
Assets held in trust by others (Note 8)	12,450	10,605
Unexpended bond proceeds (Note 11)	25,789	53,142
Prepaid expenses and other assets (Note 2)	57,943	50,443
Right-of-use assets (Note 9)	72,575	78,937
Land, buildings and equipment, net (Note 10)	1,162,849	1,123,333
Total assets	\$6,292,637	\$4,737,719
Liabilities		
Accounts payable and other liabilities (Note 2)	\$243,368	\$221,429
Deferred revenue (Note 4)	175,076	153,015
Federal student loan funds (Note 2)	7,788	11,021
Present value of split interest agreement obligations (Note 2)	15,811	15,870
Lease obligations (Note 9)	72,851	77,885
Debt obligations (Note 11)	659,172	665,735
Total liabilities	\$1,174,066	\$1,144,955
Net assets		
Without donor restrictions (Note 12)	\$2,058,406	\$1,624,117
With donor restrictions (Note 12)	3,060,165	1,968,647
Total net assets	\$5,118,571	\$3,592,764
Total liabilities and net assets	\$6,292,637	\$4,737,719

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

CONSOLIDATED STATEMENT OF ACTIVITIES

Year ended June 30, 2021 (dollars in thousands)

	Without Donor Restrictions	With Donor Restrictions	Total
Revenue and other support			
Tuition and other educational fees revenue, net of financial aid (Note 4)	\$568,712	\$ -	\$568,712
Sponsored projects revenue (Note 4)			
Software Engineering Institute	119,677	-	119,677
Advanced Robotics for Manufacturing Institute	19,018	-	19,018
Other grants and contracts	309,150	-	309,150
Investment income	55,402	8,859	64,261
Contributions revenue (Note 5)	21,638	462,767	484,405
Auxiliary services revenue	20,686	-	20,686
Other revenue sources (Note 2)	84,903	1,909	86,812
Net assets released from donor restrictions	83,679	(83,679)	-
Total revenue and other support	\$1,282,865	\$389,856	\$1,672,721
Expenses			
Salaries	\$713,528	\$ -	\$713,528
Benefits	163,415	-	163,415
Other operating expenses	261,373	-	261,373
Depreciation and amortization	80,165	-	80,165
Interest expense	12,127	-	12,127
Total expenses	\$1,230,608	\$ -	\$1,230,608
Increase in net assets before nonoperating activities	\$52,257	\$389,856	\$442,113
Nonoperating activities			
Net realized/unrealized gains on investments (Note 6)	\$350,472	\$717,940	\$1,068,412
Other (Note 2)	5,020	10,103	15,123
Post-retirement plan changes other than net periodic benefit costs (Note 16)	159	-	159
Net assets released from restrictions for capital	26,381	(26,381)	-
Total nonoperating activities	\$382,032	\$701,662	\$1,083,694
Increase in net assets	\$434,289	\$1,091,518	\$1,525,807
Net assets			
Beginning of year	\$1,624,117	\$1,968,647	\$3,592,764
End of year	\$2,058,406	\$3,060,165	\$5,118,571

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

CONSOLIDATED STATEMENT OF ACTIVITIES

Year ended June 30, 2020 (dollars in thousands)

	Without Donor Restrictions	With Donor Restrictions	Total
Revenue and other support			
Tuition and other educational fees revenue, net of financial aid (Note 4)	\$591,078	\$ -	\$591,078
Sponsored projects revenue (Note 4)			
Software Engineering Institute	141,683	-	141,683
Advanced Robotics for Manufacturing Institute	16,836	-	16,836
Other grants and contracts	287,461	-	287,461
Investment income	61,165	10,456	71,621
Contributions revenue (Note 5)	24,334	169,902	194,236
Auxiliary services revenue	54,082	-	54,082
Other revenue sources (Note 2)	84,997	410	85,407
Net assets released from donor restrictions	79,623	(79,623)	-
Total revenue and other support	\$1,341,259	\$101,145	\$1,442,404
Expenses			
Salaries	\$722,345	\$ -	\$722,345
Benefits	154,292	-	154,292
Other operating expenses	327,692	-	327,692
Depreciation and amortization	76,778	-	76,778
Interest expense	12,467	-	12,467
Total expenses	\$1,293,574	\$ -	\$1,293,574
Increase in net assets before nonoperating activities	\$47,685	\$101,145	\$148,830
Nonoperating activities			
Net realized/unrealized gains on investments (Note 6)	\$3,388	\$65,366	\$68,754
Other (Note 2)	(14,338)	(5,358)	(19,696)
Post-retirement plan changes other than net periodic benefit costs (Note 16)	(3,392)	-	(3,392)
Net assets released from restrictions for capital	26,284	(26,284)	-
Total nonoperating activities	\$11,942	\$33,724	\$45,666
Increase in net assets	\$59,627	\$134,869	\$194,496
Net assets			
Beginning of year	\$1,564,490	\$1,833,778	\$3,398,268
End of year	\$1,624,117	\$1,968,647	\$3,592,764

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

**CONSOLIDATED
STATEMENTS OF
CASH FLOWS**

Years ended June 30, 2021
and 2020
(dollars in thousands)

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

	2021	2020
Cash flows from operating activities		
Increase in net assets	\$1,525,807	\$194,496
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Realized and unrealized losses (gains) on investments, net	(1,115,886)	(108,977)
Depreciation and amortization	80,165	76,778
Amortization of right-of-use assets	20,119	22,745
Amortization of bond premium and bond issuance costs, net	(5,179)	(4,394)
Gifts in kind	(3,186)	(1,296)
Asset dispositions	1,829	294
Contributions for land, buildings, and equipment and endowment	(249,701)	(77,809)
Provision for bad debt and other allowances	(1,758)	3,657
Assets held in trust by others	(206)	(149)
(Increase)/Decrease in assets:		
Accrued interest and dividends	(1,279)	1,358
Accounts receivable, net	(18,999)	3,789
Pledges receivable, net	(146,990)	(49,357)
Other assets	(10,155)	(4,385)
Increase/(Decrease) in liabilities:		
Accounts payable and other liabilities	12,149	19,465
Lease obligations	(17,274)	(20,681)
Deferred revenue	22,061	3,181
Present value of split interest agreements payable	(59)	887
Net cash provided by operating activities	\$91,458	\$59,602
Cash flows from investing activities		
Proceeds from sale and maturity of investments	\$1,792,603	\$2,273,851
Purchases of investments	(1,973,323)	(2,228,593)
Purchases of land, buildings and equipment	(108,412)	(151,201)
Federal loan programs	(3,233)	(4,094)
Disbursements of loans to students	(20)	(166)
Repayments of loans from students	2,459	4,167
Net cash used for investing activities	\$(289,926)	\$(106,036)
Cash flows from financing activities		
Proceeds from issuance of indebtedness	\$10,000	\$130,806
Repayments of debt obligations	(11,384)	(1,207)
Payment of debt issuance costs	-	(288)
Contributions for land, buildings, and equipment and endowment	250,716	77,809
Net cash provided by financing activities	\$249,332	\$207,120
Net increase in cash and cash equivalents, and restricted cash	\$50,864	\$160,686
Cash, cash equivalents, and restricted cash at beginning of year	675,451	514,765
Cash, cash equivalents, and restricted cash at end of year	\$726,315	\$675,451
Cash and cash equivalents	\$700,526	\$622,309
Restricted cash (ACHEBA Series A 2020 escrow)	25,789	53,142
Total cash, cash equivalents, and restricted cash	\$726,315	\$675,451
Non-cash transactions		
Non-cash gift in kind	\$3,186	\$1,296
Increase/(Decrease) in accounts payable and accrued liabilities for land, buildings and equipment	9,667	(18,781)
Non-cash stock contributions	536	1,027
Loans assigned to Federal Government	-	558
Lease obligations arising from obtaining right-of-use assets	12,240	25,392

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. CARNEGIE MELLON

Carnegie Mellon University ("Carnegie Mellon" or "the university") is a private, not-for-profit educational and research institution. Carnegie Mellon currently enrolls approximately 14,190 students and granted approximately 5,150 bachelor's, master's and doctoral degrees in the last academic year. Approximately 79% of undergraduate students are from the United States of America. International students comprise approximately 21% of undergraduate, 61% of master's and 52% of Ph.D. students.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting and Reporting

The accompanying consolidated financial statements have been prepared on the accrual basis of accounting in accordance with U.S. generally accepted accounting principles ("GAAP") and include the accounts of Carnegie Mellon as well as the Software Engineering Institute ("SEI"), and other majority-owned entities. The consolidated entities are Advanced Robotics for Manufacturing Institute ("ARM Institute"), Benjamin Garver Lamme Scholarship Fund, Jack G. Buncher Charitable Fund for Carnegie Mellon, iCarnegie, Inc. and Carnegie Innovations, LLC. All significant inter-entity transactions and balances have been eliminated in consolidation. Carnegie Mellon is a joint sponsor with the University of Pittsburgh in MPC Corporation ("MPC"), a beneficiary of The Dietrich Foundation, and an owner as a tenant in common of the Bellefield Boiler Plant. The activities of MPC, The Dietrich Foundation and the Bellefield Boiler Plant are not consolidated in Carnegie Mellon's consolidated financial statements (see [Note 17](#)).

The SEI is a federally funded research and development center (FFRDC) sponsored by the U.S. Department of Defense ("DoD") and operated by the university. The most recent contract provided a five-year initial term ending in June 2020 plus a five-year renewal option, which was exercised in July 2020. In January 2017, the DoD awarded the ARM Institute, a nonprofit venture led by Carnegie Mellon, a seven-year contract to launch an advanced robotics manufacturing institute in Pittsburgh. Carnegie Mellon's net assets and revenues, expenses, gains and losses are classified based on the existence or absence of donor-imposed restrictions. Accordingly, net assets and changes therein are classified and reported as follows:

Without Donor Restrictions

Net assets that are not subject to donor-imposed stipulations.

With Donor Restrictions

Net assets subject to specific donor-imposed or legal stipulations that can be fulfilled by actions of Carnegie Mellon pursuant to those stipulations or that expire by the passage of time. Also included in this category are net assets subject to donor-imposed stipulations requiring the assets be maintained in perpetuity. Generally, the donors of these assets permit Carnegie Mellon to use all or part of the income earned on the related investments for general or specific purposes. Other restricted items in this category include annuity and life income gifts where the ultimate purpose of the proceeds is donor restricted.

Revenues are reported as increases in net assets without donor restrictions unless use of the related assets is limited by donor-imposed restrictions. Expenses are reported as decreases in net assets without donor restrictions. Gains and losses on investments and other assets or liabilities are reported as increases or decreases in net assets without donor restrictions unless their use is restricted by the donor or by law. Expiration or satisfaction of donor restrictions on net assets are reported as net assets released from donor restrictions.

Cash Equivalents

Cash equivalents include highly liquid investments with original maturities of three months or less when purchased. Cash equivalents are recorded at cost, which approximates fair value. These balances are held at the university's custodians, prime brokers, clearing agents and banking institutions for investment and working capital purposes. Cash equivalents held within investments are held for long-term purposes and not considered cash equivalents for purposes of the statements of cash flow.

Investments

All investments held by Carnegie Mellon are reported at fair value. The fair value of marketable debt and equity securities is based on published current market prices in active securities markets. The fair value of certain investments structured as investment companies is based on the net asset value of such investments and generally is estimated by external investment managers.

As a practical expedient, the university is permitted to estimate fair value of an investment in an investment company, at the measurement date, using the reported net asset value (NAV) without further adjustment unless the university expects to sell the investment at a value other than NAV or if the NAV is not calculated in accordance with fair value principles. Investments measured under the net asset value practical expedient primarily consist of the university's ownership in alternative investments (principally limited partnership interests in private equity, real estate, natural resources and hedge funds) and certain investments in commingled funds.

Carnegie Mellon reviews and evaluates the valuation methods and assumptions used by investment managers in determining fair value NAV. Those estimated fair values may differ significantly from values that would result had a ready market for these securities existed. [Note 8 - Fair Value](#) provides additional information about inputs used to determine fair value for investments. Investments received as a gift are reflected as contributions at their fair value at the date of the gift.

Gains and losses, dividends and interest income from investments are reported in the Consolidated Statements of Activities. Internal and external investment management fees and expenses are netted against investment returns.

Investment securities, in general, are exposed to various risks, such as interest rate, credit and overall market volatility. Due to the level of risk associated with certain investment securities, changes could materially affect the amounts reported in the Consolidated Statements of Financial Position.

Endowment

Investment policy for endowment assets is the responsibility of the Investment Committee of the Board of Trustees. Substantially all endowment assets are managed by outside investment managers and overseen by the university's Investment Office.

Endowment net assets without donor restrictions include Carnegie Mellon funds, gifts without restrictions from donors and any accumulated income, gains and appreciation thereon, which is intended to remain in the endowment for the long-term support of Carnegie Mellon activities, but may be expended under trustee authorization. Also included is interest and dividend income on donor restricted endowment assets where distribution of such income is not subject to a donor restriction.

Endowment net assets with donor restrictions include gifts and any accumulated income, gains and appreciation thereon which donor restrictions require to be retained in perpetuity to provide a permanent source of support for the university. Also included are accumulated income, gains and appreciation on endowment assets where distribution/spending of such returns is restricted by the donor. The Trustees of Carnegie Mellon must annually authorize release of endowment gains according to Pennsylvania law. This classification also includes term endowments and endowment gifts whereby the donor permits distributions of the principal amount of the gift and accumulated appreciation.

All endowment funds participate in a Carnegie Mellon investment pool. The investment pool provides income to its respective participants. Such income is used for the specific purpose prescribed by the donor or, if the

purpose was not prescribed by the donor, the income is deemed to be without donor restrictions and used for general purposes. New endowment funds or additions to existing funds are assigned shares in the investment pool based upon the per share market value at the end of the previous month. Income distributions from the investment pool are based upon the number of shares held by each participant and the approved spending rate (see [Note 7](#)). Income distributions from the investment pool are based upon the “total return concept.” Component amounts of total return not distributed currently are reinvested in the investment pool and are available for distribution from the endowment assets in future years.

Assets Held in Trust by Others

Assets held in trust by others include the value of Carnegie Mellon’s beneficial interest in perpetual trusts and irrevocable trusts held by outside trustees. The present value of the perpetual trusts’ estimated future cash receipts, which are measured by the fair value of the assets contributed to the trust, are recognized as assets and contribution revenues at the dates the trusts are established. The assets are adjusted periodically for changes in market values.

Various donors have established irrevocable trusts whereby Carnegie Mellon holds a remainder interest in the trust or is entitled to distributions over the life of the trusts. The present value of the portion of the trusts estimated to be distributable to Carnegie Mellon over the life of the trusts or upon the termination of the trusts are recorded as assets and contribution revenues at the dates the trusts are established. The assets are adjusted periodically for changes in market value.

Unexpended Bond Proceeds

Unexpended bond proceeds in the amount of \$25.8 million and \$53.1 million as of June 30, 2021 and 2020, respectively, represent cash proceeds from the issuance of Series 2020A bonds in February 2020 that are held by a trustee under the bond indenture for capital expenditures. See [Note 11](#) for more information.

Prepaid Expenses and Other Assets

Prepaid expenses represent items such as prepaid insurance, prepaid rentals and other contractual payments made in advance of their use or consumption. Amounts are expensed and amortized over the periods to which the charges relate. Other assets include deferred compensation plan assets, swap assets and other costs incurred that will result in benefits to future periods.

Right-of-use Assets and Lease Obligations

Operating lease right-of-use (“ROU”) assets and operating lease obligations are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. As the university’s leases generally do not provide an implicit rate, the university’s incremental borrowing rate at commencement date is used to determine the present value of future payments. The operating lease ROU asset also includes any lease payments made and excludes lease incentives and any initial direct costs incurred. The university’s operating lease ROU assets and operating lease obligations are calculated including options to extend the lease when it is reasonably certain that the university will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

Land, Buildings and Equipment

Land, buildings and equipment are recorded at cost at the date of acquisition or, if acquired by gift, at the fair value as of the date of the gift. Additions to plant assets are capitalized while scheduled maintenance and minor renovations are expensed to operations. Buildings and equipment are reflected net of accumulated depreciation which is calculated on a straight-line basis over the estimated useful lives. Carnegie Mellon capitalizes interest during periods of construction. Carnegie Mellon reviews its land, buildings, equipment and other long-lived assets for impairment whenever events or circumstances indicate that the carrying amount may not be recoverable.

Donated works of art, historical treasures and similar assets have been recognized at their estimated fair value based upon appraisals or similar valuations at the date of acquisition or donation. If purchased, the assets are recognized at cost. The assets are depreciated over 99 years.

Accounts Payable and Other Liabilities

Accounts payable and other liabilities include accounts payable, accrued payroll and benefits, swap liabilities and other accrued expenses.

Federal Student Loan Funds

This liability represents Perkins loan funds provided to students by the federal government through Carnegie Mellon. Carnegie Mellon is required to collect the loans on behalf of the federal government. The federal government did not renew the Perkins loan program after September 30, 2017, and did not allow disbursements to be made after June 30, 2018. The university has elected to retain the outstanding loans in lieu of assigning the loans to the federal government. The liability will be repaid over the years that loan repayments are received from student borrowers. During the years ended June 30, 2021 and 2020, \$3.0 million and \$3.9 million was repaid to the federal government, respectively. The amounts due from the students are reported in the Consolidated Statements of Financial Position as a component of student loans receivable, net.

Present Value of Split Interest Agreements Obligations

Carnegie Mellon's split interest agreements with donors consist primarily of gift annuities, unitrusts, lead trusts, charitable remainder annuity trusts and life income agreements. Assets held under these agreements are included in investments. Generally, contribution revenues are recognized at the dates the agreements are established, after recording liabilities for the present value of the estimated future payments to be made to the beneficiaries. The liabilities are adjusted during the term of the trusts for changes in the value of the assets, accretion of the discount and other changes in the estimates of future benefits. The discount rates utilized for split interest agreements range from 0.06% to 6.0%. Distributions from the trusts are recorded in accordance with the donor's stipulations as contributions and the carrying value of the assets are adjusted for changes in the fair value of the trust assets.

Operating Activities

Carnegie Mellon's measure of operations without donor restrictions includes revenue from tuition, sponsored projects, investment return distributed according to Carnegie Mellon's spending policy, contributions without donor restrictions, contributions for programs, revenues from auxiliary services and other sources, and net assets released from donor restrictions. Operating expenses are reported by natural classification.

Revenue Recognition from Contracts with Customers

Revenue is recognized when control of the promised goods or services is transferred to customers in an amount that reflects the consideration the university expects to be entitled to receive in exchange for those goods and services.

Contributions Revenue

Contributions include gifts, grants and unconditional promises to give that are recognized as revenue, at fair value, in the period such commitments are received. Conditional promises to give may be subject to both a barrier to entitlement and a right of return of unused funds. Such contributions are recognized as revenue when the barrier is satisfied. Unconditional promises to give to be received in future years are discounted, as of the date of the gift, at a rate commensurate with the pledge payment schedule. A discount rate commensurate with fair value is used. An allowance is estimated for uncollectible contributions based upon historical patterns and any known uncollectible accounts or accounts in arrears.

Capital Contributions

Donors' contributions to fund construction projects are classified as net assets with donor restrictions and are released from donor restriction through nonoperating activities when the facility is placed in service. \$26.4 million and \$26.3 million of capital contributions were released from donor restrictions during fiscal years 2021 and 2020, respectively, and were reclassified from net assets with donor restrictions to net assets without donor restrictions through nonoperating activities.

Nonoperating Activities

Items presented in the Consolidated Statements of Activities as "Nonoperating activities" include unrealized gains and losses and interest expense related to interest rate swap agreements, losses from adjustments of pledges receivable with donor restrictions, and other gains and losses.

Income Taxes

Carnegie Mellon is a nonprofit organization as described in Section 501(c)(3) of the Internal Revenue Code (the "Code") and is generally exempt from income taxes on related income pursuant to Section 501(a) of the Code.

The university accounts for uncertainties in income taxes in accordance with authoritative guidance, which prescribes a recognition threshold of more-likely-than-not to be sustained upon examination by the appropriate taxing authority. Measurement of the tax uncertainty occurs if the recognition threshold has been met. Management determined there were no tax uncertainties that met the recognition threshold at June 30, 2021 and 2020.

The university's federal Exempt Organization Business Income Tax Returns remain subject to examination by the Internal Revenue Service for the years subsequent to June 30, 2016.

The university's policy is to recognize interest related to unrecognized tax benefits in interest expense and penalties in operating expenses.

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported consolidated financial statements and related accompanying footnote disclosures. Actual results could differ from those estimates and these differences could be material.

Adoption of New Accounting Pronouncements

In August 2018, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement* (ASU 2018-13). ASU 2018-13 addresses modifications to existing footnote disclosures in order to improve the effectiveness of the disclosures. The standard is effective for fiscal years beginning after December 15, 2019, with components applied retrospectively or prospectively depending on the nature of the disclosure. The university adopted this standard on July 1, 2020, the result of which did not have a material impact on its consolidated financial statements.

In August 2018, the FASB issued ASU 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* (ASU 2018-15). The standard aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal use software license). The standard is effective for fiscal years beginning after December 15, 2019, with components applied either retrospectively or prospectively. The university adopted this standard prospectively on July 1, 2020, the result of which did not have a material impact on its consolidated financial statements.

In September 2020, the FASB issued ASU 2020-07, *Not-for-Profit Entities (Topic 958): Presentation and Disclosures by Not-for-Profit Entities for Contributed Nonfinancial Assets* (ASU 2020-07). ASU 2020-07 addresses current guidance on the presentation of contributed nonfinancial assets within the Consolidated Statements of Activities. The standard is effective for fiscal years beginning after June 15, 2021, with early adoption permitted and should be applied on a retrospective basis to each period presented. The university is evaluating the impact this will have on the consolidated financial statements beginning in fiscal year 2022.

3. FINANCIAL ASSETS AND LIQUIDITY RESOURCES

The university continuously monitors liquidity needed to meet its operating activities while prudently investing its available capital. Possible sources of liquidity include cash and cash equivalents, short-term investments, marketable debt and equity securities, a \$50.0 million line of credit and a \$70.0 million commercial paper program which has \$60.0 million available as of June 30, 2021 (see [Note 11](#)). The university also anticipates converting certain receivables to cash within the next 12 months. As of June 30, 2021 and 2020, financial assets available within one year for general expenditure are as follows (*dollars in thousands*):

	2021	2020
Cash and cash equivalents	\$700,526	\$622,309
Accounts receivable, net	89,222	70,856
Pledge receivables donor restricted for operations	10,815	9,107
Short-term working capital investments	110,935	57,418
Subsequent year's approved endowment distributions	111,192	98,485
Subsequent year's approved long-term working capital distributions	11,221	9,857
Total financial assets available within one year	\$1,033,911	\$868,032

For purposes of analyzing resources available for general expenditures over a 12-month period, the university considers all expenditures related to its ongoing activities of teaching and research, as well as the conduct of services undertaken to support those activities, to be general expenditures. This includes short-term working capital investments available for construction and plant activity. Long-term working capital investments are included within the university's long-term investments pool. While the university does not intend to spend from these long-term working capital investments other than the amounts appropriated for general expenditure as indicated above, the long-term working capital investments could be made available if necessary. However, the long-term investments pool contains investments with lock-up provisions that reduce the total investments that could be made available (see [Note 6](#) and [Note 8](#)).

4. REVENUE FROM CONTRACTS WITH CUSTOMERS AND ACCOUNTS RECEIVABLE

Tuition Revenue: Tuition revenue is recognized within the fiscal year in which educational services are provided. Revenue related to student services crossing fiscal years is recognized on a pro-rata basis based upon the number of instruction days in each period. Tuition, at published prices, from undergraduate students was \$399.3 million and \$383.5 million for the years ended June 30, 2021 and 2020, respectively. Tuition, at published prices, from graduate students was \$315.3 million and \$339.1 million for the years ended June 30, 2021 and 2020, respectively. Other education related revenue was \$31.5 million and \$39.2 million for the years ended June 30, 2021 and 2020, respectively. The transaction price for tuition revenue may be reduced directly by discounts or scholarships from the amount of the standard rates charged. These discounts are considered financial aid and were \$177.4 million and \$170.7 million for the years ended June 30, 2021 and 2020, respectively. Upon withdrawal, a student may be eligible to receive a refund, or a partial refund, the amount of

which is dependent on the timing of the withdrawal during the academic term. The amount of refunds paid is not a significant portion of the university's tuition revenue.

Students are billed prior to the start of each academic term based upon the agreements they signed, and payment is due prior to the start of the term. Student receivables are not collateralized; however, credit risk is minimized as a result of the diverse nature of the university's student base. The university establishes an allowance for doubtful accounts based on historical trends and other information.

Sponsored Projects Revenue: The university receives sponsored program funding from various governmental and corporate sources. The funding may represent a reciprocal transaction in exchange for an equivalent benefit in return, or it may be a nonreciprocal transaction in which the resources provided are for the benefit of the university, the funding organization's mission or the public at large.

Revenues from exchange transactions are recognized as performance obligations are satisfied, which in most cases is as related costs are incurred. Revenue from non-exchange transactions (contributions) may be subject to conditions, in the form of both a barrier to entitlement and a refund of amounts paid (or a release from obligation to make future payments). Revenues from conditional non-exchange transactions are recognized when the barrier is satisfied. In addition, the university has elected the simultaneous release option for conditional contributions that are also subject to purpose restrictions. Under this option, net assets without donor restrictions will include the donor-restricted contributions for which the purpose restrictions are met in the same reporting period as the revenue is recognized.

Amounts recognized as sponsored projects revenue are based upon a signed contract for direct costs along with indirect cost recovery. Indirect sponsored projects revenue is recorded at rates established in advance by Carnegie Mellon through negotiations with the United States government and other sponsors based upon direct costs incurred. The actual federal indirect cost rate is audited by the Defense Contracts Audit Agency (DCAA) and a final fixed-rate agreement is signed by the United States government and Carnegie Mellon. The variance between the negotiated fixed and the final audited indirect cost rate results in a carryforward (over or under recovery) that is included in the calculation of negotiated fixed rates in future years.

Sponsored projects revenue is invoiced per the terms of the contractual agreement. Amounts received from sponsors under agreements that require the exchange of assets, rights or other privileges between Carnegie Mellon and the sponsor are recorded as deferred revenue until the contract terms are fulfilled.

Auxiliary Services Revenue: Carnegie Mellon's auxiliaries exist primarily to furnish goods and services to students, faculty and staff. Managed as essentially self-supporting activities, Carnegie Mellon's auxiliaries consist principally of housing and dining services, parking, retail and other external services. Revenue is recognized as the services are provided based upon published prices and rates.

Other revenue sources: Other revenue is comprised of funding received for Carnegie Mellon's international locations, royalty income, licensing revenue, affiliate/membership revenue and other miscellaneous revenues. Other revenue is recognized as services are rendered or over the term of the contract and invoiced based on contractual terms.

The university has elected the practical expedient in ASC 606-10-50-14 to not disclose the information about remaining performance obligations that have original expected durations of one year or less. Federal and other sponsored grants and contracts may include fiscal funding clauses or be subject to annual appropriation. These sponsored research agreements typically span less than five years. The university estimates that its conditional awards outstanding as of June 30, 2021 approximate historical annual sponsored program activity.

Accounts receivable at June 30, 2021 and 2020, consist of the following (*dollars in thousands*):

	2021	2020
Sponsored project accounts receivable		
Software Engineering Institute	\$134	\$282
Other grants and contracts	57,571	52,188
Total sponsored projects accounts receivable	\$57,705	\$52,470
Student accounts	6,264	5,546
Other	27,607	14,631
Total student accounts and other	\$33,871	\$20,177
Allowance for doubtful accounts	(2,354)	(1,791)
Net accounts receivable	\$89,222	\$70,856

Other accounts receivable relates primarily to Carnegie Mellon's international programs, affiliate and membership agreements, license agreements and other miscellaneous revenue sources.

Deferred revenue at June 30, 2021 and 2020 consists of the following (*dollars in thousands*):

	2021	2020
Sponsored projects deferred revenue		
Software Engineering Institute	\$11,270	\$7,730
ARM Institute	1,823	6,319
Other contracts and conditional grants	56,944	54,712
Total sponsored projects deferred revenue	\$70,037	\$68,761
Student accounts	19,241	15,399
Other	85,798	68,855
Total deferred revenue	\$175,076	\$153,015

Student Loans Receivable

Net student loans receivable of approximately \$8.1 million and \$10.5 million, as of June 30, 2021 and 2020, respectively, primarily represent student loans made under the Perkins federal loan program. These loans are reported net of an allowance for doubtful accounts of approximately \$0.5 million as of June 30, 2021 and 2020.

5. CONTRIBUTIONS REVENUE AND PLEDGES RECEIVABLE

Conditional promises to give, which depend on the satisfaction of identified barriers such as matching gifts from other donors, are recognized as contributions revenue when the conditions are substantially met. Carnegie Mellon had approximately \$24.7 million and \$40.1 million as of June 30, 2021 and 2020 of conditional pledged contributions outstanding related to capital projects. In addition, the university had approximately \$26.0 million

and \$12.0 million related to conditional contributions as of June 30, 2021 and 2020, respectively, recorded as deferred revenue in the Consolidated Statements of Financial Position. These amounts were not recognized as contributions revenue during the respective fiscal year as the barriers had not been met.

Pledges receivable as of June 30, 2021 and 2020 are due as follows (*dollars in thousands*):

	2021	2020
In one year or less	\$47,020	\$24,715
Between one year and five years	171,487	60,469
More than five years	98,288	74,004
Pledges receivable, gross	\$316,795	\$159,188
Unamortized discount	\$(24,426)	\$(11,489)
Allowance for unfulfilled pledges	(11,695)	(16,408)
Pledges receivable, net of discount and allowance	\$280,674	\$131,291

6. INVESTMENTS

Investments by major category at June 30, 2021 and 2020, are as follows (*dollars in thousands*):

	2021	2020
Cash equivalents	\$77,787	\$75,682
Short-term fixed income securities	77,705	24,356
Fixed income securities	466,662	300,214
Equity securities	1,124,508	897,244
Alternative investment partnerships	2,134,113	1,288,313
	\$3,880,775	\$2,585,809

Investments are held for the following purposes (*dollars in thousands*):

	2021	2020
Endowment	\$3,088,868	\$2,065,293
Reserves for working capital and plant – short-term	110,935	57,418
Reserves for working capital and plant – long-term	551,385	393,394
Other	129,587	69,704
Total investments	\$3,880,775	\$2,585,809

Fixed income securities are United States Treasury and Agency obligations, investment grade corporate debt, short-term commercial paper and asset backed securities. Equity securities at June 30, 2021 and June 30, 2020, included 52.3% domestic equities and 47.7% international and emerging market equities. Alternative investment partnerships are largely investments in buyout, venture capital, real estate, natural resources and hedge funds.

The allocation to each major class in the previous table represents the actual allocation of the short-term and long-term reserves, and other miscellaneous investments on a combined basis. Actual allocations on a combined basis should not be interpreted as an investment allocation policy for a particular investment pool.

Operating investment income as reported in the Consolidated Statements of Activities includes dividends and interest earned on funds without donor restrictions as well as accumulated gains without donor restrictions utilized for current operations in the amounts of \$46.2 million and \$40.2 million for the years ended June 30, 2021 and 2020, respectively. The accumulated gains are reclassified from net realized gains to investment income.

Certain of Carnegie Mellon's outside investment managers are authorized to and do purchase and sell derivative instruments in order to create, increase, decrease or hedge exposures to market position, including to manage risk due to interest rate and foreign currency fluctuations.

Carnegie Mellon's long-term investments comprise U.S. domestic and international portfolios. Carnegie Mellon does not hedge international portfolios with respect to foreign currencies. Investment managers of these international portfolios have the discretion to, and certain do, manage foreign currencies through foreign exchange contracts to protect the portfolios from potential foreign currency losses and to benefit from potential gains. Carnegie Mellon's investment managers understand that they are assuming active management risks to the extent that they assume foreign currency exposures that differ from the foreign currency exposures in their relevant market benchmarks.

Gains or losses from derivative instruments are reported as realized and unrealized gains or losses in the Consolidated Statements of Activities. The fair value of all derivative instruments is included in the fair value of the investments.

Under the terms of certain limited partnership agreements, Carnegie Mellon is obligated to periodically advance additional funding for venture capital, buyout, real estate and natural resources fund investments. At June 30, 2021 and 2020, Carnegie Mellon had unfunded commitments of approximately \$599.1 million and \$677.5 million, respectively, for which capital calls had not been exercised. Such commitments generally have fixed expiration dates or other termination clauses. Carnegie Mellon maintains sufficient liquidity in its investment portfolio to cover such calls.

Alternative investments, including certain equity funds, measured at NAV are less liquid than Carnegie Mellon's other investments. The following tables summarize these investments by strategy type at June 30, 2021 and 2020 (*dollars in thousands*):

	Number of Funds	2021 Fair Value	Number of Funds	2020 Fair Value
Commingled funds	6	\$357,814	6	\$246,017
Hedge funds	15	283,017	15	159,230
Natural resources	20	125,983	21	119,227
Private equity (buyout) funds	61	274,223	60	180,573
Real estate	20	129,206	21	110,998
Venture capital	181	1,302,283	167	690,531
Other	12	19,401	15	27,754
Total	315	\$2,491,927	305	\$1,534,330

Commingled funds and hedge fund investments held by the university may be subject to restrictions related to the initial investment that limit the university's ability to redeem capital from such investments during a specified period of time subsequent to the university's investment of capital in such funds, typically known as a lock-up period. Capital available for redemption after the lock-up period has expired may also be subject to limits that restrict the available redemption period to semi-monthly, monthly, quarterly, semi-annually, annually or triennially and require 2–180 days prior written notice, potentially limiting the university's ability to respond quickly to changes in market conditions. All commingled funds have passed the initial lock-up period as of June 30, 2021.

Natural resources, private equity, real estate, venture capital and other alternative investments cannot be redeemed upon request. Instead, the nature of these investments is that distributions are received through the liquidation of the underlying assets of the fund. It is estimated that the underlying assets of these funds would be liquidated over approximately four to eight years.

7. ENDOWMENTS

The following tables outline the endowment net asset composition by type of fund as of June 30, 2021 and 2020 (*dollars in thousands*):

2021	Without Donor Restrictions	With Donor Restrictions	Total
Donor-restricted endowment funds	\$ -	\$2,524,564	\$2,524,564
Board-designated funds	567,500	-	567,500
Total funds	\$567,500	\$2,524,564	\$3,092,064

2020	Without Donor Restrictions	With Donor Restrictions	Total
Donor-restricted endowment funds	\$ -	\$1,644,699	\$1,644,699
Board-designated funds	424,161	-	424,161
Total funds	\$424,161	\$1,644,699	\$2,068,860

The following tables provide a summary of the changes in value of the endowment net assets excluding endowment pledges for the years ended June 30, 2021 and 2020 (*dollars in thousands*):

2021	Without Donor Restrictions	With Donor Restrictions	Total
Endowment net assets, beginning of year	\$424,161	\$1,644,699	\$2,068,860
Gifts and other additions	\$13	\$217,250	\$217,263
Investment income			
Interest and dividends	5,836	7,532	13,368
Net realized gains on sale of securities	30,714	119,094	149,808
Net unrealized gains	150,630	592,579	743,209
Total investment income	\$187,180	\$719,205	\$906,385
Income distributed			
Cash and accrued interest and dividends	\$(5,836)	\$(7,532)	\$(13,368)
Accumulated realized investment gains	(38,018)	(49,058)	(87,076)
Total income distributed	(43,854)	(56,590)	(100,444)
Endowment net assets, end of year	\$567,500	\$2,524,564	\$3,092,064⁽¹⁾

⁽¹⁾ Includes \$3.2 million of endowment gifts and other transfers pending investment and other accruals.

2020	Without Donor Restrictions	With Donor Restrictions	Total
Endowment net assets, beginning of year	\$438,497	\$1,563,803	\$2,002,300
Gifts and other additions	\$21	\$55,945	\$55,966
Investment income			
Interest and dividends	7,491	9,098	16,589
Net realized gains on sale of securities	57,191	203,958	261,149
Net unrealized losses	(37,511)	(138,017)	(175,528)
Total investment income	\$27,171	\$75,039	\$102,210
Income distributed			
Cash and accrued interest and dividends	\$(7,491)	\$(9,098)	\$(16,589)
Accumulated realized investment gains	(34,037)	(40,990)	(75,027)
Total income distributed	\$(41,528)	\$(50,088)	\$(91,616)
Endowment net assets, end of year	\$424,161	\$1,644,699	\$2,068,860⁽¹⁾

⁽¹⁾ Includes \$3.6 million of endowment gifts and other transfers pending investment and other accruals.

Unless the donor specifies that only a certain amount of the endowment may be spent, Pennsylvania Act 141 ("Act 141") allows organizations to choose a total return spending policy strategy, whereby the Board of Trustees may annually elect to spend between 2.0% and 7.0% of the fair market value of the endowment. On July 23, 2020, Pennsylvania 2020 Act 71 ("Act 71") was signed into law. Act 71 modifies Act 141 in that it permits the university's Board of Trustees to spend up to 10% during calendar years 2020, 2021 and 2022, or for the corporation's fiscal years that end during those calendar years. Carnegie Mellon maintains a total return spending policy. Endowment income distributions can consist of dividend and interest income and a withdrawal of accumulated capital gains, when necessary. The main objective of the total return spending policy is to separate spending policy from investment policy. This approach permits asset allocation decisions to be made independently of the need for current income. Carnegie Mellon targets a diversified asset allocation to achieve its long-term objectives with prudent risk constraints. The endowment spending rate is determined annually pursuant to a smoothing formula whereby an approved spending rate percentage is applied to the trailing 36-month average of endowment market values at December 31. For fiscal years 2021 and 2020, the approved spending rate was set at 5.0%. As a result of the spending rate formula, the effective spending rate (defined as the endowment draw totals for the fiscal years 2021 and 2020 divided by the June 30 endowment market values for the those fiscal years) was 3.2% for June 30, 2021 and 4.4% for June 30, 2020.

8. FAIR VALUE

ASC Topic 820, *Fair Value Measurement*, establishes a hierarchy to prioritize valuation inputs based on the extent to which the inputs are observable in the marketplace. Observable inputs reflect market data obtained from sources independent of the reporting entity and unobservable inputs reflect the entity's own assumptions about how market participants would value an asset or liability based on the best information available.

The following is a description of the university's valuation methodologies for assets and liabilities measured at fair value:

Level 1

Based upon quoted prices in active markets that the university has the ability to access for identical assets and liabilities. Market price data is generally obtained from exchange or dealer markets. The university does not adjust the quoted price for such assets and liabilities, which include active listed equities, mutual funds, government supported obligations and cash equivalents.

Level 2

Based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active or assets subject to transfer restrictions. Inputs are obtained from various sources including market participants, dealers and brokers.

Level 3

Based on valuation techniques that use significant inputs that are unobservable as they trade infrequently or not at all.

The following tables present the financial instruments carried at fair value as of June 30, 2021 and 2020 by caption in the Consolidated Statements of Financial Position by the valuation hierarchy defined above (dollars in thousands):

2021	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Investments				
Cash equivalents ^a	\$55,120	\$22,667	\$ -	\$77,787
Equity investments				
U.S. – equity funds and common stocks ^a	525,436	3,962	58,785	588,183
Mutual funds – international developed	20,323	-	-	20,323
Mutual funds – international emerging	158,188	-	-	158,188
Short-term fixed income	-	77,705	-	77,705
Fixed income funds and securities ^a	466,662	-	-	466,662
	\$1,225,729	\$104,334	\$58,785	\$1,388,848
Investments measured under the NAV practical expedient ^b				\$2,491,927
Total investments				\$3,880,775
Assets held in trust by others				
Beneficial interests held by third party	\$ -	\$ -	\$2,619	\$2,619
Perpetual trusts held by third party	-	-	9,831	9,831
Total assets held in trust by others	\$ -	\$ -	\$12,450	\$12,450
Unexpended bond proceeds	\$25,789	\$ -	\$ -	\$25,789
Prepaid expenses and other assets				
Deferred compensation plan assets	\$19,144	\$8,047	\$3,187	\$30,378
Interest rate swap receivable	-	1,631	-	1,631
Total prepaid expenses and other assets	\$19,144	\$9,678	\$3,187	\$32,009
Total assets at fair value	\$1,270,662	\$114,012	\$74,422	\$3,951,023
Liabilities				
Interest rate swaps payable	\$ -	\$29,659	\$ -	\$29,659
Total liabilities at fair value	\$ -	\$29,659	\$ -	\$29,659

(a) Presentation as a single class is appropriate based on the nature and risks of these investments.

(b) In accordance with ASC Subtopic 820-10, certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the Consolidated Statements of Financial Position. This includes commingled funds of \$357.8 million, and hedge and private equity funds of \$2,134.1 million as of June 30, 2021.

2020

	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Investments				
Cash equivalents ^a	\$28,626	\$47,056	\$ -	\$75,682
Equity investments				
U.S. – equity funds and common stocks ^a	464,294	-	6,932	471,226
Mutual funds – international developed	55,903	-	-	55,903
Mutual funds – international emerging	124,098	-	-	124,098
Short-term fixed income	-	24,356	-	24,356
Fixed income funds and securities ^a	300,214	-	-	300,214
	\$973,135	\$71,412	\$6,932	\$1,051,479
Investments measured under the NAV practical expedient ^b				\$1,534,330
Total investments				\$2,585,809
Assets held in trust by others				
Beneficial interests held by third party	\$ -	\$ -	\$2,413	\$2,413
Perpetual trusts held by third party	-	-	8,192	8,192
Total assets held in trust by others	\$ -	\$ -	\$10,605	\$10,605
Unexpended bond proceeds	\$53,142	\$ -	\$ -	\$53,142
Prepaid expenses and other assets				
Deferred compensation plan assets	\$13,943	\$6,159	\$3,074	\$23,176
Interest rate swap receivable	-	2,382	-	2,382
Total prepaid expenses and other assets	\$13,943	\$8,541	\$3,074	\$25,558
Total assets at fair value	\$1,040,220	\$79,953	\$20,611	\$2,675,114
Liabilities				
Interest rate swaps payable	\$ -	\$39,085	\$ -	\$39,085
Total liabilities at fair value	\$ -	\$39,085	\$ -	\$39,085

(a) Presentation as a single class is appropriate based on the nature and risks of these investments.

(b) In accordance with ASC Subtopic 820-10, certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the Consolidated Statements of Financial Position. This includes commingled funds of \$246.0 million, and hedge and private equity funds of \$1,288.3 million as of June 30, 2020.

Deferred compensation plan assets are valued using market quotations or prices obtained from independent pricing services (Level 1), market quotations or prices obtained from independent pricing sources who may employ various pricing methods (Level 2), and at contract value (Level 3), which approximates fair value.

Beneficial remainder and lead trusts held by third parties are valued at the present value of the future distributions expected to be received upon termination of the trust or over the term of the trust agreement and approximate fair value. Perpetual trusts are valued based upon the university's percentage interest in the fair value of the underlying trust assets.

Interest rate swaps are valued using observable inputs, such as quotations received from the counterparty, dealers or brokers, whenever available and considered reliable. The valuation methods described above may produce fair value calculations that may not be indicative of net realizable value or reflective of future fair values.

The following table includes a roll forward of the Consolidated Statements of Financial Position amounts for financial instruments classified by the university within Level 3 of the fair value hierarchy (*dollars in thousands*):

	Deferred Compensation	Common Stock	Trusts Held by Others	Total
Fair value, June 30, 2019	\$2,460	\$6,249	\$10,702	\$19,411
Unrealized gains/(losses)	81	683	(97)	667
Purchases	229	-	-	229
Transfers in	304	-	-	304
Fair value, June 30, 2020	\$3,074	\$6,932	\$10,605	\$20,611
Unrealized gains	\$91	\$51,344	\$1,845	\$53,280
Purchases	204	100	-	304
Transfers in	-	409	-	409
Transfers out	(182)	-	-	(182)
Fair value, June 30, 2021	\$3,187	\$58,785	\$12,450	\$74,422

During the fiscal year ended June 30, 2021, the university recognized \$50.0 million in unrealized gains from the university's investment in Duolingo, Inc., a mobile global learning platform. The university holds this equity investment as a result of a technology license agreement. The unrealized gain reflects the fair value of the university's shares based upon historical data for private offerings of Duolingo's common stock. Please see [Note 20 - Subsequent Events](#), for additional information.

9. LEASE ARRANGEMENTS

The university has operating leases primarily for campus facilities, student housing, and office space. Variable lease payments based on an index or rate, such as the consumer price index, are initially measured using the index or rate in effect at lease commencement. The university has elected the short-term lease exception for all leases and, as such, leases with an initial term of 12 months or less are not recorded on the Consolidated Statements of Financial Position. The university recognizes lease expense for short-term leases on a straight-line basis over the lease term.

The components of lease cost for the fiscal years ended June 30, 2021 and 2020, respectively, included operating lease costs of \$20.8 million and \$23.4 million and short-term lease costs of \$4.7 million and \$4.4 million. Cash payments for operating leases were \$19.5 million and \$22.8 million for the year ended June 30, 2021 and 2020, respectively.

The following table displays the undiscounted cash flows due to operating leases as of June 30, 2021 along with a reconciliation to the discounted amount recorded on the June 30, 2021 Consolidated Statements of Financial Position (*dollars in thousands*):

As of June 30, 2021	
2022	\$18,808
2023	12,982
2024	10,037
2025	8,428
2026	5,624
Thereafter	20,939
Total undiscounted cash flows (weighted average term 7.9 years)	\$76,818
Impact of present value discount (weighted average discount rate 1.5%)	(3,967)
Amount reported on Consolidated Statements of Financial Position	\$72,851

10. LAND, BUILDINGS AND EQUIPMENT

Land, buildings and equipment at June 30, 2021 and 2020, consist of the following (*dollars in thousands*):

	Useful Lives	2021	2020
Buildings	35-50 years	\$1,594,163	\$1,514,198
Movable equipment	5-20 years	280,077	266,735
Utilities and building-related assets	20 years	120,015	115,844
Land improvements	15 years	19,841	19,841
Software costs	2-10 years	54,847	54,277
Leasehold improvements	2-20 years	35,075	35,395
Subtotal		\$2,104,018	\$2,006,290
Accumulated depreciation		(1,077,577)	(1,021,101)
Subtotal		\$1,026,441	\$985,189
Land		\$55,767	\$55,456
Construction and equipment in progress		80,641	82,688
Land, buildings and equipment, net		\$1,162,849	\$1,123,333

Carnegie Mellon acquired \$16.7 million and \$7.1 million in equipment through grants for the years ended June 30, 2021 and 2020, respectively.

11. DEBT OBLIGATIONS

Debt obligations consist of the following as of June 30, 2021 and 2020 (*dollars in thousands*):

	Maturity	Interest %	2021	2020
Allegheny County Higher Education Building Authority Revenue Bonds				
Fixed Rate				
Series 2012 A	03/01/24	2.5-5.0%	\$32,805	\$32,805
Premium, net of debt issuance costs			1,491	2,050
Series 2013	03/01/43	4.0-5.0%	42,250	52,250
Premium, net of debt issuance costs			2,430	2,980
Series 2017	08/01/29	5.0%	62,165	62,165
Premium, net of debt issuance costs			9,828	11,209
Series 2019 A	08/01/27	5.0%	49,600	49,600
Premium, net of debt issuance costs			7,531	8,752
Series 2020 A	02/01/30	5.0%	45,565	45,565
Premium, net of debt issuance costs			12,849	14,346
Variable Rate				
Series 2008 A	12/01/37	0.09%	120,820	120,820
Debt issuance costs			(274)	(290)
Series 2012 B	02/01/33	0.66%	50,000	50,000
Debt issuance costs			(87)	(94)
Series 2019 B	02/01/42	0.5%	60,140	60,140
Debt issuance costs			(126)	(132)
Collaborative Innovation Center Tax Increment Financing	11/01/22	8.5%	685	1,050
Collaborative Innovation Center Mortgage Obligation	03/01/25	6.78%	11,500	12,519
Taxable Senior Notes	02/01/47	3.6%	70,000	70,000
Taxable Senior Notes	02/01/50	3.2%	70,000	70,000
Taxable Commercial Paper	Rolling, up to 270 days	Various	10,000	-
Total debt obligations			\$659,172	\$665,735

The university borrows its tax-exempt debt through public conduit issuers. As of June 30, 2021, all of Carnegie Mellon's tax-exempt debt was issued by the Allegheny County Higher Education Building Authority (ACHEBA). The debt is a general unsecured obligation of the university. Although ACHEBA is the issuer, the university is responsible for the debt service of these bonds.

On September 30, 2014, Carnegie Mellon acquired the Collaborative Innovation Center (CIC) from the Regional Industrial Asset District (RIDC) when Carnegie Mellon and RIDC agreed to terminate the long-term ground lease for the land on which the CIC building was built. The CIC building was originally built and owned by RIDC on land owned and leased by Carnegie Mellon to RIDC pursuant to a long-term ground lease. Prior to the termination of the ground lease, the CIC was recorded as a capital lease by Carnegie Mellon.

As part of the agreement to terminate the ground lease, Carnegie Mellon assumed a \$16.8 million mortgage note. The mortgage note requires monthly principal and interest payments, bears interest at a fixed rate of 6.78% and matures on March 1, 2025. The mortgage note is secured by the CIC building (carrying value of \$22.6 million), the land where CIC is located, and rents derived from the operation of CIC.

Carnegie Mellon also assumed the sole responsibility to make semi-annual payments of any shortfall between the amount of real estate and parking taxes collected and pledged under a Tax Increment Financing (TIF) agreement, and the debt service and annual cost of the TIF. Carnegie Mellon is obligated to timely fund that shortfall until the TIF is satisfied in full on October 5, 2022. The balance of the outstanding TIF note was \$0.7 million and \$1.1 million at June 30, 2021 and 2020, respectively. The TIF note bears interest at a rate of 8.5% through maturity.

Series 2020 A bonds were issued in February 2020 in the amount of \$45.6 million bearing interest of 5.0% and maturing on February 1, 2030. The bonds include an original issue premium of \$15.2 million. Proceeds from the issuance of these notes are restricted to capital projects involving two residence halls on the Pittsburgh campus.

In February 2020, Carnegie Mellon issued three senior notes in the aggregate amount of \$70.0 million to a life insurance company. These notes bear interest at 3.2% with principal due on February 1, 2050. Proceeds from the issuance of these notes may be used to finance capital projects.

The university maintains a taxable commercial paper program that allows the university to issue in aggregate up to \$70.0 million in commercial paper notes. Proceeds of the notes may be used to refund outstanding debt, finance capital projects, support operations and for any other lawful activity of the university. The notes are sold at a discount to par. The maturities of individual notes cannot exceed 270 days. The university issued \$10.0 million in notes during fiscal year 2021 that are outstanding at June 30, 2021. The notes outstanding at June 30, 2021 were sold at a discount of 0.08% and are payable in July 2021.

The university has a \$50.0 million unsecured line of credit agreement that expired October 19, 2021. No advances were outstanding at June 30, 2021. Advances accrue at a variable rate based on LIBOR plus 100 basis points. The unsecured line of credit arrangement was renewed through October 19, 2022, with advances accruing at a variable rate based on the daily simple SOFR rate plus 46.5 basis points.

Interest Expense

Cash paid for interest on debt obligations for the fiscal years ended June 30, 2021 and 2020 totaled \$18.3 million and \$16.5 million, respectively. The university utilizes interest rate swaps to synthetically adjust its exposure to variable rates. Including the swap expense, cash paid for interest for the fiscal years ended June 30, 2021 and 2020 was \$22.6 million and \$20.0 million, respectively. For the fiscal years ended June 30, 2021 and 2020, interest expense of \$0.8 million and \$0.9 million was capitalized related to construction in progress.

Aggregate Maturities

Aggregate maturities of bonds and other debt instruments, excluding commercial paper, for each of the next five years ending June 30, are as follows (*dollars in thousands*):

2022	\$1,410
2023	1,365
2024	33,961
2025	8,254
2026	-
Thereafter	570,540
Total	\$615,530

Debt obligations are reflected in the table above based on stated final maturity dates. The outstanding Series 2008 A bonds are variable rate demand bonds that are subject to daily optional tender by the bondholders. In the event that a bondholder tenders these variable rate demand bonds, the purchase price will be repaid from the remarketing of the bonds to a new investor. However, in the event that none of the bonds could be remarketed, Carnegie Mellon has entered into a Standby Bond Purchase Agreement (SBPA) with a financial institution that will purchase the Series 2008 A Bonds at the amount of the bonds outstanding plus related interest. The bonds would then become bank bonds, payable to the liquidity provider per the terms of the agreement. This SBPA was renewed in January 2021 for a three-year term ending January 12, 2024.

12. NET ASSETS

Net assets consist of gifts and other unexpended revenues and gains and are available for the following purposes supporting the university's educational and research mission as of June 30, 2021 (*dollars in thousands*):

2021	Without Donor Restrictions	With Donor Restrictions	Total
Board-designated endowment funds	\$567,500	\$ -	\$567,500
Reserves for working capital and plant – long-term	551,385	-	551,385
Donor-restricted endowment funds	-	1,147,708	1,147,708
Unexpended endowment gains	-	1,376,856	1,376,856
Capital and other designations	937,048	217,692	1,154,740
Pledges and assets held in trust by others	-	293,124	293,124
Split interest agreements and other donor designations	-	14,919	14,919
Term endowments	-	7,670	7,670
Loan funds	2,473	2,196	4,669
Total net assets	\$2,058,406	\$3,060,165	\$5,118,571

Net assets consist of gifts and other unexpended revenues and gains and are available for the following purposes supporting the university's educational and research mission as of June 30, 2020 (*dollars in thousands*):

2020	Without Donor Restrictions	With Donor Restrictions	Total
Board-designated endowment funds	\$424,161	\$ -	\$424,161
Reserves for working capital and plant – long-term	393,394	-	393,394
Donor-restricted endowment funds	-	930,458	930,458
Unexpended endowment gains	-	714,241	714,241
Capital and other designations	803,790	164,377	968,167
Pledges and assets held in trust by others	301	141,595	141,896
Split interest agreements and other donor designations	-	8,822	8,822
Term endowments	-	7,174	7,174
Loan funds	2,471	1,980	4,451
Total net assets	\$1,624,117	\$1,968,647	\$3,592,764

13. DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

Carnegie Mellon has entered into the following interest rate swap agreements to adjust the exposure to variable interest rates on long-term debt (*dollars in thousands*):

Swap Agreement	Effective Date	Notional Amount	Rate Paid by CMU	Interest Received	Term (in years)	Termination Date	Cancellation Option
Apr 2006	Dec 2006	\$ 100,000	3.4 %	67% of 1M LIBOR	22	Dec 2028	Dec 2016
May 2007	Jun 2007	\$ 5,125	3.8 %	67% of 1M LIBOR	20	Mar 2027	N/A
May 2007	Mar 2012	\$ 40,325	3.8 %	67% of 1M LIBOR	20	Mar 2032	N/A
Feb 2012	Mar 2012	\$ 38,000	SIFMA	1.92%	12	Mar 2024	N/A

The following fair values of the swap agreements were recorded as accounts payable and other liabilities and other assets in the Consolidated Statements of Financial Position as of June 30, 2021 and 2020 (*dollars in thousands*):

Date of Swap Agreement	Derivatives Reported as Assets/(Liabilities)	
	2021	2020
Apr 2006	\$(19,003)	\$(25,260)
May 2007	(890)	(1,178)
May 2007	(9,766)	(12,647)
Feb 2012	1,631	2,382
Total	\$(28,028)	\$(36,703)

The fair value of these agreements is estimated to be an amount that Carnegie Mellon would receive (receivable) or pay (liability) to voluntarily terminate the agreement. Based upon the university's credit rating, the university is required to post collateral equal to the amount by which the liability value exceeds \$30.0 million for each of its counterparties. No collateral was required as of June 30, 2021 and June 30, 2020.

The following interest expense/income and fair value losses/gains were recorded as other sources under nonoperating activities in the Consolidated Statements of Activities for the years ended June 30, 2021 and 2020 (*dollars in thousands*):

Date of Swap Agreement	Interest (Expense) Income		Fair Value (Loss) Gain		Total (Loss) Gain	
	2021	2020	2021	2020	2021	2020
Interest rate swaps:						
Sep 2004*	\$ -	\$(186)	\$ -	\$186	\$ -	\$ -
Apr 2006	(3,337)	(2,360)	6,257	(6,547)	2,920	(8,907)
May 2007	(189)	(139)	288	(232)	99	(371)
May 2007	(1,484)	(1,096)	2,881	(3,013)	1,397	(4,109)
Feb 2012	698	286	(751)	1,089	(53)	1,375
Total	\$(4,312)	\$(3,495)	\$8,675	\$(8,517)	\$4,363	\$(12,012)

* The interest rate swap agreement matured in fiscal year 2020 and was not renewed.

Carnegie Mellon utilizes energy forward contracts, which are physically settled, to hedge against the future changes in the cost of electricity and natural gas. These contracts limit Carnegie Mellon's exposure to higher rates; however, they could also limit the benefit of decreases in rates. These contracts qualify for normal purchases and sales exemptions and are not required to be recognized on the Consolidated Statements of Financial Position at fair value because Carnegie Mellon takes physical delivery of the electricity and natural gas and the gains and losses are already recognized in the cost.

14. EXPENSES BY FUNCTIONAL CATEGORY

Operating expenses by functional category for the year ended June 30, 2021 are as follows (*dollars in thousands*):

2021	Instruction & Dpt Research	Sponsored Research	SEI/ARM Sponsored Research	Admin & Instl Support	Academic Support	Student Services	Auxiliary	Total
Salaries	\$302,049	\$154,532	\$81,105	\$76,052	\$69,176	\$28,334	\$2,280	\$713,528
Benefits	66,161	19,903	20,988	26,965	20,593	8,141	664	163,415
Other Operating Expenses	50,435	55,230	35,735	31,992	51,554	10,770	25,657	261,373
Depreciation and Amorization	28,443	14,462	5,694	5,137	10,302	8,187	7,940	80,165
Interest	3,534	1,797	707	638	1,280	1,017	3,154	12,127
Total	\$450,622	\$245,924	\$144,229	\$140,784	\$152,905	\$56,449	\$39,695	\$1,230,608

Operating expenses by functional category for the year ended June 30, 2020 are as follows (*dollars in thousands*):

2020	Instruction & Dpt Research	Sponsored Research	SEI/ARM Sponsored Research	Admin & Instl Support	Academic Support	Student Services	Auxiliary	Total
Salaries	\$307,203	\$145,360	\$84,569	\$81,217	\$70,879	\$29,977	\$3,140	\$722,345
Benefits	65,157	19,575	21,589	18,038	20,567	8,551	815	154,292
Other Operating Expenses	68,852	61,993	47,875	38,702	57,073	17,015	36,182	327,692
Depreciation and Amorization	27,138	13,821	5,828	5,100	9,668	7,669	7,554	76,778
Interest	3,617	1,842	777	680	1,289	1,022	3,240	12,467
Total	\$471,967	\$242,591	\$160,638	\$143,737	\$159,476	\$64,234	\$50,931	\$1,293,574

Natural expenses attributable to more than one functional expense category are allocated using a variety of cost allocations such as square footage, time and effort.

Total fundraising expense of \$27.6 million and \$33.4 million (\$24.7 million and \$30.6 million in administration and institutional support) is included above for the years ended June 30, 2021 and 2020, respectively.

15. COMMITMENTS AND CONTINGENCIES

Carnegie Mellon is a defendant in a number of legal actions seeking damages and other relief. While the final outcome of each action cannot be determined at this time, management records a reserve in operating activities for those cases in which the loss is both probable and estimable. For the other legal actions that are not reserved, legal counsel and management are of the opinion that the liability, if any, will not have a material effect on Carnegie Mellon's consolidated financial statements.

Carnegie Mellon receives significant financial assistance from the federal government, including the sponsorship of federal research projects. Research grants and contracts normally provide for the recovery of direct and indirect costs. Entitlement to the recovery of the applicable direct and related indirect costs is generally conditional upon compliance with the terms and conditions of the grant agreements and applicable federal regulations, including the expenditure of the resources for eligible purposes. Substantially all grants and Carnegie Mellon's indirect cost rate are subject to financial and compliance reviews and audits by the grantors. In management's opinion, the likelihood of an adverse material outcome upon its financial position from those reviews and audits is remote.

Alternative investment partnership commitments totaled \$599.1 million at June 30, 2021. These funds may be drawn down at the request of the general partners over the course of the next several years. Carnegie Mellon expects to finance these commitments through available cash and expected proceeds from the sales of securities.

At June 30, 2021 and 2020 Carnegie Mellon had contractual obligations of approximately \$82.5 million and \$29.5 million, respectively, in connection with major construction projects.

16. RETIREMENT PLANS AND OTHER POST-EMPLOYMENT BENEFITS

Carnegie Mellon sponsors two defined contribution retirement plans for eligible faculty and staff, health care plans for retirees, and participates in a multi-employer pension fund for union staff. Retirement plan expense for the years ended June 30, 2021 and 2020 totaled \$41.9 million and \$37.7 million, respectively. Carnegie Mellon contributed \$0.9 million to the Central Pension Fund of the International Union of Operating Engineers, a multi-employer plan in fiscal years 2021 and 2020, respectively. See below for a discussion of the assets held in trust to fund post-retirement health care and other post-employment benefits.

Carnegie Mellon provides certain health care benefits for eligible retired employees. The liability for post-retirement benefit obligations is recorded in the Consolidated Statements of Financial Position in accounts payable and other liabilities.

Net periodic benefit costs recognized in the Consolidated Statements of Activities totaled \$1.7 million and \$1.1 million for the years ended June 30, 2021 and 2020, respectively. Other gains/(losses) in benefit obligations recognized in non-operating activities totaled \$0.2 million and (\$3.4 million) for the years ended June 30, 2021 and 2020, respectively. Cumulative net actuarial gains of \$10.8 million and \$10.6 million have been recognized as of June 30, 2021 and 2020, respectively.

During fiscal year 2022, amortization of \$0.6 million actuarial gain is expected to be recognized as components of net periodic benefit cost. The discount rate used in determining the net periodic benefit cost was 3.1% and 3.7% for the years ended June 30, 2021 and 2020, respectively.

The reconciliation of the accumulated benefit obligation and funded status at June 30 is as follows
(dollars in thousands):

	2021	2020
Benefit obligation, beginning of year	\$24,734	\$20,594
Service cost	1,486	1,159
Interest cost	807	799
Assumption changes and actuarial gain/loss	(747)	2,530
Benefit payments	(401)	(348)
Benefit obligation, end of year	\$25,879	\$24,734
Fair value of plans' assets	-	-
Funded status	\$25,879	\$24,734

The assumed discount rate used for calculating the benefit obligation for the fiscal years ended June 30, 2021 and 2020 was 3.1%. An annual rate of increase in the per capita cost of covered health care benefits for the fiscal years ended June 30, 2021 and 2020 of 6.25% and 6.5%, respectively, was assumed. For the fiscal years ended June 30, 2021 and 2020, the rate was assumed to decrease gradually to 5.0% by 2026 and remain at 5.0% thereafter.

Expected benefits to be paid in future fiscal years are as follows (dollars in thousands):

June 30	Retiree Contributions	Employer Payments	Total Expected Benefit Payments
2022	\$709	\$419	\$1,128
2023	1,048	596	1,644
2024	1,368	760	2,128
2025	1,650	896	2,546
2026	1,904	1,003	2,907
2027-2031	12,591	5,851	18,442

In conjunction with an agreement made with the federal government, Carnegie Mellon has established a separate trust, which is available to general creditors only in the event of insolvency. Assets in the trust to fund post-retirement health care and other post-employment benefits are \$22.7 million as of June 30, 2021 and 2020. These assets are reflected as investments in the accompanying Consolidated Statements of Financial Position.

17. RELATED PARTY TRANSACTIONS

Sponsored projects revenue for fiscal years 2021 and 2020 includes \$3.0 million and \$3.4 million respectively, received from MPC, a nonprofit related entity of Carnegie Mellon and the University of Pittsburgh. The revenue primarily represents federal funding from various contracts received by MPC, for which MPC has subcontracted to Carnegie Mellon for support of a supercomputer and related activities.

Carnegie Mellon is an owner as a tenant in common of the Bellefield Boiler Plant ("Bellefield") for the purpose of sharing of the steam produced by the plant. Bellefield operates such that all of the operating costs of the plant are passed to the owners in the form of steam prices. Carnegie Mellon is obligated for a percent of liabilities based upon use of steam produced by Bellefield. As of June 30, 2021 and 2020, Carnegie Mellon's percentage obligation was 15.2%. Included in other assets is \$1.0 million and \$0.6 million of advances resulting primarily from operating surpluses at June 30, 2021 and 2020, respectively. Included in occupancy and related expenses is \$4.0 million and \$3.7 million for steam costs paid to Bellefield for the years ended June 30, 2021 and 2020, respectively.

Carnegie Mellon is one of 15 designated institutions of higher learning and other charitable organizations named as beneficiaries of The Dietrich Foundation (the "Foundation") created by William S. Dietrich II pursuant to an Amended and Restated Declaration of Trust dated August 23, 2011. The Foundation came into existence as a Pennsylvania charitable trust on October 6, 2011 and was granted exemption from federal income tax under section 501(c)(3) of the Internal Revenue Code, specifically as a Type I charitable supporting organization under section 509(a)(3). The Foundation's primary mission is to provide ongoing and increasing financial support to a number of educational institutions, largely in the greater Pittsburgh area, including Carnegie Mellon. The Foundation is governed by a board of nine trustees, of which two are appointed by Carnegie Mellon.

The Foundation is expected to make annual distributions that will be allocated among the pre-specified supported organizations. As of June 30, 2021, Carnegie Mellon's distribution share remained at 53.5%.

The distributions to Carnegie Mellon have been recorded as contribution revenue with donor restrictions as received and held in endowment net assets with donor restrictions designated as Dietrich Foundation Endowment Funds. The endowed funds will be managed in accordance with Carnegie Mellon's generally applicable investment and disbursement policies in effect for its other permanently restricted endowments. Distributions made from the endowed funds will be used for the purposes authorized by the Foundation's trustees. Distributions of \$17.3 million and \$15.2 million were received in fiscal years 2021 and 2020, respectively.

18. GUARANTEES

In the ordinary course of business, Carnegie Mellon engages in transactions with third parties involving the provision of goods and/or services. The contracts for these transactions may require Carnegie Mellon to indemnify the third party or others under certain circumstances. The terms of indemnity vary from contract to contract. The amount of the liability associated with such indemnification obligations, if any, is not expected to be material.

Carnegie Mellon has contractually agreed to indemnify its trustees and officers, and in some cases its employees and agents, against certain liabilities incurred as a result of their service on behalf of or at the request of Carnegie Mellon and also advances, on behalf of those indemnified, the costs incurred by them in defending certain claims. Carnegie Mellon carries insurance that limits its exposure for this indemnification obligation. The amount of the liability associated with any known pending or threatened claims covered by this indemnification obligation, if any, is not expected to be material.

Carnegie Mellon has contractually agreed to indemnify specified parties in connection with bond offerings in which it has been involved. The indemnification obligation covers losses, claims, damages, liabilities and other expenses incurred by the underwriters as a result of any untrue statements or material omissions made by Carnegie Mellon in connection with the bond offerings. The amount of the liability associated with any known pending or threatened claims covered by this indemnification obligation, if any, is not expected to be material.

19. COVID-19 PANDEMIC

In March 2020, the World Health Organization declared the novel coronavirus ("COVID-19") a pandemic. As a result of the pandemic, in March 2020, the university suspended in-person education and other campus-based activities and provided a combination of credits and refunds of residence and dining revenues to students aggregating \$8.4 million. During fiscal 2021, the university operated under a modified campus posture,

utilizing a hybrid education model, de-densified residence and dining facilities, and on-campus core campus based activities. Beginning July 1, 2021, the university is operating under a transitional campus posture, with instruction predominately in person, increased residence and dining facility density, and the transition of other campus-based activities to on campus with flexible arrangements. The university provided emergency financial aid to students under the Coronavirus Aid, Relief and Economic Security Act (CARES Act) totaling \$2.9 million and \$1.1 million during the years ended June 30, 2021 and 2020, respectively. The university recognized revenue from federal and other governmental funding related to the COVID-19 pandemic totaling \$7.3 million for the year ended June 30, 2021, which is included in other revenue sources on the Consolidated Statement of Activities. While future impacts of the COVID-19 pandemic cannot be quantified at this time, the university continues to monitor legislative developments, future relief funding opportunities and directives from federal, state and local governments and, if necessary, is prepared to take additional measures to ensure the health and welfare of the university.

20. SUBSEQUENT EVENTS

As described in Note 8, the university holds an equity investment in Duolingo resulting from a technology license agreement. On July 28, 2021, Duolingo completed an initial public offering (IPO) at a price per share of \$102. The university's ability to sell this investment is subject to a 180-day lockup period as a result of an agreement with the IPO underwriters.

The university has performed an evaluation of subsequent events through October 27, 2021, the date on which the consolidated financial statements were issued.



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Inquiries concerning the application of and compliance with this statement should be directed to the university ombudsman, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412.268.1018.

Obtain general information about Carnegie Mellon University by calling 412.268.2000. 22-063.

APPENDIX C

Summary of Certain Provisions of the Series A Indenture and the Series A Loan Agreement

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SUMMARY OF CERTAIN PROVISIONS OF THE SERIES A INDENTURE AND THE SERIES A LOAN AGREEMENT

THE FOLLOWING SUMMARIES ARE OF CERTAIN PROVISIONS OF THE SERIES A INDENTURE AND THE SERIES A LOAN AGREEMENT. THEY ARE NOT FULL STATEMENTS OF ANY OF THE DOCUMENTS AND REFERENCE SHOULD BE MADE TO THE DOCUMENTS THEMSELVES FOR ALL OF THEIR TERMS AND PROVISIONS.

DEFINITIONS OF CERTAIN TERMS

The following are certain terms used in the Series A Indenture, the Series A Loan Agreement and/or the Official Statement.

"2022A Project" shall consist of the payment of all or a portion of the costs of (a) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bond, Series B of 2012 and (b) paying certain costs of issuance of the Bonds.

"Affiliate" shall mean any Person directly or indirectly controlling, controlled by or under common control with the University, as certified by the University to the Trustee and the Remarketing Agent by the University. In addition, the term "Affiliate" shall also include any Person (other than the Bank) who has guaranteed the payment of the University's obligations under the Loan Agreement or the Liquidity Facility.

"Agent" shall mean the lead financial institution identified in any Liquidity Facility.

"Alternate Liquidity Facility" shall mean a Liquidity Facility provided with respect to the Bonds following the expiration or termination of a Liquidity Facility. Such Alternate Liquidity Facility shall provide for an Agent if there is more than one provider, have terms that are the same or more beneficial in all material respects to the Registered Owner (except expiration date and except any changes with respect to interest or premium coverage in connection with an interest rate reset or conversion) as the Liquidity Facility then in effect, shall have an expiration date that is not earlier than 364 days after its effective date and shall otherwise satisfy the requirements of the Series A Indenture.

"Authority" shall mean the Allegheny County Higher Education Building Authority, a body politic and corporate organized and existing under the Municipality Authorities Act, as amended and supplemented, and its successors.

"Bank" shall mean, in the event an Alternate Liquidity Facility is outstanding, the issuer or issuers of the Alternate Liquidity Facility, provided that if such Alternate Liquidity Facility is an agented facility, then the term "Bank" shall refer to the Agent in respect of such Alternate Liquidity Facility

"Bank Index Rate" shall mean an Index Rate for an Index Rate Period during which the Bonds are being held by a single Bondholder as a result of a direct placement of the Bonds with such Bondholder.

"Bank Interest Payment Date" shall mean the date on which any Liquidity Provider Bonds are remarketed or purchased by the University under the Series A Indenture, or other date interest is required to be paid on Liquidity Provider Bonds under the Liquidity Facility,

"Bank Rate" shall mean, in connection with the determination of the interest rate payable on Liquidity Provider Bonds, a fluctuating rate of interest per annum determined in accordance with the Liquidity Facility and as to which the Trustee has notice from the Liquidity Provider. The definition of "Bank Rate" for purposes of the Liquidity Facility may be modified from time to time by agreement of the University and the Bank, provided that (i) the Trustee is provided with a written notice of such modification, together with an opinion of Bond Counsel to the effect that such modification shall not adversely affect the tax-exempt status of interest on the Bonds and (ii) in no event shall such Bank Rate as so modified exceed the maximum rate of interest allowed by law.

"Bond" or "Bonds" shall mean the \$50,230,000 Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Bonds, Series A of 2022 (SOFR Index Rate Bonds).

"Bonds outstanding under the Series A Indenture" or "outstanding under the Indenture" or "outstanding", when used with reference to the Bonds, shall mean, at any date for which the amount of outstanding Bonds is to be determined, the aggregate of all Bonds authenticated and delivered under the Series A Indenture except:

- (a) Bonds canceled at or prior to such date;
- (b) Bonds for the payment of which funds shall have been theretofore irrevocably deposited in trust with the Trustee and which shall have matured by their terms but shall not have been surrendered for payment;
- (c) Bonds for the payment of which moneys or Government Securities (which bear interest at such rates and mature at such times as to permit the timely payment of the Bonds) shall have been theretofore irrevocably deposited in trust with the Trustee, whether upon or prior to the maturity;
- (d) Bonds deemed purchased if the Tender Agent is in receipt of the purchase price, notwithstanding the Registered Owners' failure to deliver the Bonds, in accordance with subsections 5.04(h) and 5.05(c) of the Series A Indenture relating to tenders; and
- (e) Bonds in lieu of and in substitution for which other Bonds shall be authenticated by the Trustee and delivered by the Authority under the provisions of the Series A Indenture relating to lost and stolen Bonds.

Any reference to a majority or a particular percentage or proportion of the Registered Owners of the Bonds, shall mean the owners at the particular time of a majority or of the specified percentage or proportion in aggregate principal amount of all Bonds then outstanding under the Series A Indenture, exclusive of Bonds held by or on behalf of the Authority, the University or an Affiliate (whether or not theretofore issued); but for the purpose of determining whether the Trustee shall be protected in relying upon any direction or consent given or action taken by Registered Owners, only the Bonds which the Trustee actually knows are so held shall be excluded.

"Bonds issued", when used with respect to any Bond, shall mean sold or otherwise disposed of for value by the Authority.

"Bond Registrar" shall mean the Trustee, which shall serve as Bond Registrar for the Bonds.

"Business Day" shall mean any day other than a Saturday or Sunday on which banks in Pittsburgh, Pennsylvania and New York, New York and the other city or cities in which the Designated Offices of the Trustee, Paying Agent and Bond Registrar are located are open for commercial banking purposes and on which the New York Stock Exchange is not closed.

"Calculation Agent" means, during the initial Index Rate Period, U.S. Bank National Association, and if U.S. Bank National Association shall no longer be appointed as Trustee under the Series A Indenture, its successors as Trustee, and thereafter, during any subsequent Index Rate Period, such Person as shall be appointed by the University to perform the functions of Calculation Agent in accordance with the Series A Indenture.

"Certified Authority Resolution" shall mean a copy of a resolution or resolutions certified by the Secretary, Assistant Secretary, or authorized designate of the Authority, under its corporate seal, to have been duly adopted by its Board and to be in full force and effect on the date of such certification.

"Certified University Resolution" shall mean a copy of a resolution or resolutions certified by the Secretary or an Assistant Secretary of the University, under its corporate seal, to have been duly adopted by the Board of Trustees of the University, its Executive Committee or any special committee appointed by the said Board of Trustees, to be in full force and effect on the date of such certification.

"Closing Date" or "Issue Date" means the date of issuance and delivery of the Bonds.

"Code" shall mean the Internal Revenue Code of 1986, as amended, and the regulations and decisions thereunder, as in effect from time to time.

"Conversion Date" shall mean (i) each Variable Rate Conversion Date and (ii) the Fixed Rate Conversion Date, as applicable.

"Daily Rate" shall mean an interest rate that is determined for the Bonds on each Business Day pursuant to the Series A Indenture.

"Daily Rate Conversion Date" shall mean the day on which interest on the Bonds begins to accrue at a Daily Rate following conversion from a different Variable Rate, pursuant to the Series A Indenture.

"Daily Rate Period" shall mean the period commencing on a Business Day and extending to, but not including, the next succeeding Business Day during which interest on the Bonds is payable or is accrued at a Daily Rate, pursuant to the Series A Indenture.

"Debt Service Fund" shall mean the Debt Service Fund created pursuant to the Series A Indenture, and subdivided into the following subaccounts: the "2022A Principal and Redemption Premium Subaccount" and the "2022A Interest Subaccount".

"Designated Office" shall mean, with respect to the Trustee, the Paying Agent and the Registrar, the office specified in the Series A Indenture or such other address as may hereafter be specified in writing by the Trustee, the Paying Agent and the Registrar for purposes of notices to be given and actions to be taken under the Series A Indenture; provided, however, that with respect to payments on the Bonds and any exchange, transfer, or other surrender of the Bonds, the Designated Office shall mean the corporate trust office of the Trustee, Paying Agent and Registrar in St. Paul, Minnesota or such other office or location designated by the Trustee, Paying Agent or Registrar by written notice.

"Escrowed Securities" shall mean pre-refunded obligations of a state or any political subdivision thereof, which pre-refunded obligations are rated, at the time of purchase, in the highest rating category by the Rating Agency.

"Event of Default" shall mean any Event of Default specified below under "Events of Default", which continues beyond the period of time, if any, therein designated as a grace or cure period with respect to such event.

"Federal Reserve's Website" means the website of the Federal Reserve Bank of New York, currently at <http://www.newyorkfed.org>, or any successor website of the Federal Reserve Bank of New York.

"Fixed Rate" shall mean an interest rate borne by the Bonds from and after the Fixed Rate Conversion Date, as determined in accordance with the Series A Indenture.

"Fixed Rate Conversion Date" shall mean the date on which interest on the Bonds is converted to a Fixed Rate pursuant to the Series A Indenture.

"Flexible Rate" shall mean an interest rate on the basis of a term of between one (1) and two hundred seventy (270) days that is determined for the Bonds pursuant to the Series A Indenture.

"Flexible Rate Conversion Date" shall mean the day on which interest on the Bonds is converted to a Flexible Rate pursuant to the Series A Indenture.

"Flexible Rate Period" shall mean each period of between one (1) and two hundred seventy (270) days during which interest on the Bonds accrues at a particular Flexible Rate pursuant to the Series A Indenture.

"Government Securities" shall mean direct obligations of the United States of America and obligations on which the timely payment of principal and interest is fully and unconditionally guaranteed by the United States of America.

"Indenture" or "Series A Indenture" shall mean the Trust Indenture dated as of January 1, 2022 between the Authority and the Trustee, as the same may from time to time be amended and supplemented.

"Independent Public Accountant" shall mean a Person who is a certified public accountant or firm of certified public accountants under the laws of the Commonwealth, who is engaged in the accounting profession, who is in fact independent (although such Person may be regularly retained by the Authority or the University), and who is appointed by the Authority or the University, in respect of the accounts of such entity. If such Person is an individual, such Person shall not be a member of the board, an officer or employee of the Authority or of the University. If such Person is a partnership or corporation, such Person shall not have a partner, director, officer or substantial stockowner that is a member of the Board of the Authority or of the Board of Trustees of the University or an officer or employee of the Authority or of the University.

"Index Rate" means an annual rate equal to the SOFR Index Rate plus the SOFR Index Spread. In the event the Bonds bear interest at a Bank Index Rate, the Index Rate for the applicable Index Rate Period shall be subject to adjustment on each Scheduled Interest Payment Date by multiplying the Index Rate by the Margin Rate Factor.

"Index Rate Period" shall mean each period during which interest on the Bonds is payable or is accrued at an Index Rate pursuant to the Series A Indenture. For purposes of the initial Index Rate Mode, "Index Rate Period" means the period commencing on the Closing Date and ending on the Special Mandatory Tender Date.

"Initial Index Rate Mode" shall mean the initial Mode in which the Bonds bear interest at an Index Rate commencing on the Closing Date.

"Initial Index Rate Period" shall mean, with respect to the Bonds in the Initial Index Rate Mode, the initial period commencing on the Closing Date and ending on the Special Mandatory Tender Date.

"Liquidity Facility" shall mean a standby purchase agreement, a line of credit, a letter of credit or a similar liquidity facility authorizing drawings thereunder by the Trustee or the Tender Agent, issued or guaranteed by the University or a commercial bank (or a branch or agency of a foreign banking institution), insurance company or other financial institution during any period in which the Bonds are in the Daily Mode, Weekly Mode or Monthly Modes. "Liquidity Facility" may include an agreement by the University to provide liquidity itself for the Bonds during any period in which the Bonds are in the Daily Mode, Weekly Mode or Monthly Mode.

"Liquidity Facility Payments Account" shall mean the special account of that name within the Purchase Fund established pursuant to the Series A Indenture.

"Liquidity Provider Bonds" shall mean the Bonds purchased by the Bank pursuant to the Liquidity Facility for so long as the same are owned by the Bank and are not remarketed.

"Loan Agreement" or "Series A Loan Agreement" shall mean the Loan Agreement dated as of January 1, 2022 between the Authority and the University, as the same may from time to time be amended and supplemented.

"Long Rate" shall mean an interest rate that is determined for the Bonds on the basis of a term of one year or more pursuant to the Series A Indenture.

"Long Rate Conversion Date" shall mean the day on which interest on the Bonds is converted to a Long Rate or the duration of the applicable Long Rate Period is changed pursuant to the Series A Indenture.

"Long Rate Period" shall mean each period of one year or more during which interest on the Bonds is payable or is accrued at a Long Rate pursuant to the Series A Indenture.

"Mandatory Tender Date" shall mean the date on which the Bonds are subject to mandatory tender in accordance with the Series A Indenture.

"Margin Rate Factor" means the quotient of (a) one minus the Maximum Federal Corporate Tax Rate in effect from time to time divided by (b) one minus the Maximum Federal Corporate Tax Rate in effect as of the Closing Date. The effective date of any change in the Margin Rate Factor shall be the effective date of any change in the Maximum Federal Corporate Tax Rate. The Maximum Federal Corporate Tax Rate as of the Closing Date is 21% such that the current Margin Rate Factor equals 1.0.

"Maximum Federal Corporate Tax Rate" means the maximum rate of income taxation imposed upon corporations pursuant to Section 11(b) of the Code, as in effect from time to time (or, if as a result of a change in the Code, the rate of income taxation imposed on corporations generally shall not be applicable to national banks, the maximum statutory rate of federal income taxation which could apply to national banks).

"Maximum Interest Rate" shall mean, (a) with respect to the Bonds (unless the Bonds are then Liquidity Provider Bonds) prior to the applicable Fixed Rate Conversion Date, the rate of ten percent (10%) per annum, or such higher rate (if any) as may be specified in the Liquidity Facility as the maximum rate at which interest on the Bonds is payable by the Bank, (b) with respect to Liquidity Provider Bonds, the Bank Rate, provided that in either case the Maximum Interest Rate shall not exceed the highest rate of interest allowed by law, and (c) with respect to the Bonds during any Index Rate Period, the highest rate of interest allowed by law.

"Mode" shall refer to the period for which interest on the Bonds is calculated and adjusted in, respectively, the Index, Daily, Weekly, Monthly, Semiannual, Flexible, Long or Fixed Rate Periods.

"Monthly Rate" shall mean an interest rate that is determined for the Bonds on a monthly basis pursuant to the Series A Indenture, excluding the Bonds during any Index Rate Period.

"Monthly Rate Conversion Date" shall mean the day on which interest on the Bonds is converted to a Monthly Rate pursuant to the Series A Indenture, excluding the Bonds during any Index Rate Period.

"Monthly Rate Period" shall mean each monthly period during which interest on the Bonds is payable or is accrued at a Monthly Rate pursuant to the Series A Indenture, excluding the Bonds during any Index Rate Period.

"Moody's" shall mean Moody's Investors Service, Inc., Moody's Investors Service, 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, for the purpose of the definition of Qualified Investments only, "Moody's" shall be deemed to refer to any other nationally recognized securities rating agency designated by the University, with written notice to the Authority and the Trustee.

"OBFR" means, with respect to any SOFR Effective Date, the Overnight Bank Funding Rate on the Federal Reserve's Website as of 4:00 p.m., New York City time, on the SOFR Determination Date for each related SOFR Reference Date.

"OBFR Index Cessation Date" means, in respect of an OBFR Index Cessation Event, the date on which the Federal Reserve Bank of New York (or any successor administrator of the OBFR), ceases to publish the OBFR, or the date as of which the OBFR may no longer be used.

"OBFR Index Cessation Event" means the occurrence of one or more of the following events:

(a) a public statement by the Federal Reserve Bank of New York (or a successor administrator of the OBFR) announcing that it has ceased to publish or provide the OBFR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide an OBFR; or

(b) the publication of information which reasonably confirms that the Federal Reserve Bank of New York (or a successor administrator of the OBFR) has ceased to provide the OBFR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide the OBFR.

"Opinion of counsel" shall mean an opinion or opinions in writing signed by counsel.

"Overnight Bank Funding Rate" means the "Overnight Bank Funding Rate" reported on the Federal Reserve's Website, or reported by any successor to the Federal Reserve Bank of New York as administrator of the Overnight Bank Funding Rate.

"OBFR" means, with respect to any SOFR Effective Date, the Overnight Bank Funding Rate on the Federal Reserve's Website as of 4:00 p.m., New York City time, on the SOFR Determination Date for each related SOFR Reference Date.

"OBFR Index Cessation Date" means, in respect of an OBFR Index Cessation Event, the date on which the Federal Reserve Bank of New York (or any successor administrator of the OBFR), ceases to publish the OBFR, or the date as of which the OBFR may no longer be used.

"OBFR Index Cessation Event" means the occurrence of one or more of the following events:

(a) a public statement by the Federal Reserve Bank of New York (or a successor administrator of the OBFR) announcing that it has ceased to publish or provide the OBFR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide an OBFR; or

(b) the publication of information which reasonably confirms that the Federal Reserve Bank of New York (or a successor administrator of the OBFR) has ceased to provide the OBFR permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide the OBFR.

"Overnight Bank Funding Rate" means the "Overnight Bank Funding Rate" reported on the Federal Reserve's Website, or reported by any successor to the Federal Reserve Bank of New York as administrator of the Overnight Bank Funding Rate.

"Paying Agent" shall mean the Trustee, which shall serve as Paying Agent for the Bonds.

"Person" shall mean an individual, a corporation, a partnership, an association, a joint stock company, a trust, an unincorporated organization, an authority or similar body, a municipality, or a government or political subdivision thereof.

"Prime Rate" means on any day, the rate of interest per annum then most recently established by U.S. Bank National Association as its "prime rate."

"Purchase Fund" shall mean the special fund of that name established pursuant to the Series A Indenture.

"Qualified Investments" shall mean, to the extent permitted by law from time to time:

(i) Government Securities;

(ii) stripped securities where the principal-only and interest-only strips of non-callable obligations are issued by the U.S. Treasury and REFCORP Securities stripped by the Federal Reserve Bank of New York;

(iii) direct obligations of any agency or instrumentality of the United States of America including, without limitation, Federal Home Loan Bank System, Federal National Mortgage Association, Export-Import Bank of the United States, Federal Land Bank and Government National Mortgage Association;

(iv) deposits, demand deposits, including interest bearing money market accounts, time deposits, trust funds, trust accounts, overnight bank deposits, interest-bearing deposits, and certificates of deposit, including those placed with a third party pursuant to agreement of the Trustee and the University, federal funds or bankers' acceptances of any bank, including the Trustee or any of its affiliates, which (A) has an unsecured, uninsured and unguaranteed long- or short-term obligation rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds; or (B) is the lead bank of a parent bank holding company with an uninsured, unsecured and unguaranteed obligation meeting the rating requirements in (A) above at the time of investment;

(v) demand deposits, including interest bearing money market accounts, time deposits, trust funds, trust accounts, overnight bank deposits, interest-bearing deposits, certificates of deposit including those placed by a third party pursuant to agreement of the Trustee and the University and bankers' acceptances of any bank or savings and loan association including the Trustee or any of its affiliates, which has combined capital, surplus and undivided profits of not less than \$100,000,000, provided such deposits are fully insured by the Federal Deposit Insurance Corporation or Federal Savings and Loan Insurance Corporation or, if applicable, collateralized to the extent required by regulations applicable to national banking associations;

(vi) repurchase agreements, if the provider of any such repurchase agreement, which may include the Trustee or any of its affiliates, has, or if the parent corporation of such provider has, an uninsured, unsecured and unguaranteed obligation rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds;

(vii) commercial paper rated at the time of investment by a Rating Agency in one of its two top commercial paper rating categories;

(viii) direct obligations of any state of the United States of America or any subdivision or agency thereof whose unsecured general obligation debt is rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds or any obligation fully and unconditionally guaranteed by any state, subdivision or agency whose unsecured general obligation debt is rated by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds,

(ix) Escrowed Securities;

(x) investment agreements with a bank, including the Trustee or any of its affiliates, insurance company or any other entity which has an unsecured, uninsured and unguaranteed obligation (or claims-paying ability) rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds, or is the lead bank of a parent bank holding company with an uninsured, unsecured and unguaranteed obligation meeting such rating requirements at the time of investment, provided that (A) moneys invested thereunder may be withdrawn to the extent necessary to make any payment required under the Series A Indenture without any penalty, premium or charge upon not more than ten Business Days' notice and provided further that charges may be levied upon withdrawal caused by the Trustee's early termination of any such investment agreement, to the extent use of such moneys are not required under the Series A Indenture, and (B) the agreement is not subordinated to any other obligations of such insurance company, bank or other entity, and provides that if the issuer defaults under the investment agreement or if the rating agency subsequently downgrades the issuer's uninsured, unsecured and unguaranteed obligation (or claims paying ability) below "A" or withdraws or suspends its rating, then within fifteen (15) days after such downgrading, withdrawal or suspension, (1) the issuer's payment obligations under any such investment agreements shall be fully collateralized by cash or Government Securities or (2) the agreement may be terminated at any time without penalty;

(xi) collateralized obligations which represent certificates or other evidence of ownership in a pool of securities, which certificates or other evidence of ownership are rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds ;

(xii) shares of money market funds registered under the Investment Company Act of 1940, as amended, that invest solely in Government Securities and repurchase agreements backed by such Government Securities, including, without limitation, any such fund for which the Trustee or an affiliate of the Trustee serves as investment manager, administrator, shareholder servicing agent and/or custodian or subcustodian, notwithstanding the fact that (A) the Trustee or an affiliate of the Trustee receives fees from such funds for services rendered, (B) the Trustee charges and collects fees for services rendered pursuant to the Series A Indenture, which fees are separate from the fees received from such funds, and (C) services performed for such funds and pursuant to the Series A Indenture may at times duplicate those provided to such funds by the Trustee or its affiliates; and

(xiii) shares of money market funds registered under the Investment Company Act of 1940, as amended, that are rated, at the time of investment, at least as high by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds . Qualified Investments include money market mutual funds, including, without limitation, any money market mutual fund or any other mutual fund or which the Trustee or an affiliate of the Trustee serves as investment manager, administrator, shareholder servicing agent, and/or custodian or subcustodian, notwithstanding that (A) the Trustee or an affiliate of the Trustee receives fees from such funds for services rendered, (B) the Trustee charges and collects fees for services rendered pursuant to this Indenture, which fees are separate from the fees received by such funds and (C) services performed for such funds and pursuant to this Indenture may at times duplicate those provided to such funds by the Trustee or its affiliate.

"Rate Period" shall mean any of a Daily Rate Period, an Index Rate Period, a Fixed Rate Period, a Long Rate Period, a Monthly Rate Period, a Semiannual Rate Period or a Weekly Rate Period, as the context requires.

"Rating Agency" shall mean each nationally recognized securities rating agency rating the Bonds at the request of the University, which at the time of issuance of the Bonds means S&P. For purposes of the definition of Qualified Investments, "Rating Agency" shall mean S&P or Moody's.

"Rebate Fund" shall mean the special fund created pursuant to the Series A Indenture.

"Redemption Price" shall mean, for purposes of the initial Index Rate Mode, shall mean 100% of the principal amount of the Bonds being redeemed as provided in the Indenture.

"Registered Owners" or "owner" or "owner of the Bonds" shall mean the Person(s) in whose name the Bond(s) are registered as reflected in the registration books of the Bond Registrar.

"Regular Record Date" shall mean the date (other than a Special Record Date) specified in any Bond upon which, at the close of business, the Trustee shall determine the Persons entitled to receive interest on such Bond on the next succeeding Scheduled Interest Payment Date and the amount of interest then payable to the Registered Owners of such Bond, which date shall be the fifteenth day (whether or not a Business Day) of the calendar month next preceding each Scheduled Interest Payment Date.

"Remarketing Agent" shall mean any remarketing agent appointed by the University to serve in such capacity pursuant to the Series A Indenture.

"Remarketing Agreement" shall mean any Remarketing Agreement between the Remarketing Agent and the University, as the same may be amended or supplemented from time to time.

"Remarketing Proceeds Account" shall mean the special account of that name within the Purchase Fund established pursuant to the Series A Indenture.

"S&P" shall mean S&P Global Ratings, a business unit of Standard & Poor's Financial Services LLC, its successors.

"Scheduled Interest Payment Date" shall have the meaning set forth in this Official Statement under the caption "THE BONDS – General Description". During the initial Index Rate Mode, Scheduled Interest Payment Date shall mean, while the Bonds remain unpaid, the first Business Day of each month, commencing March 1, 2022.

"Secured Overnight Financing Rate" or "SOFR" means the "Secured Overnight Financing Rate" reported on the Federal Reserve's Website, or reported by any successor to the Federal Reserve Bank of New York as administrator of the Secured Overnight Financing Rate.

"Semiannual Rate" shall mean, with respect to the Bonds, an interest rate that is determined for the Bonds on a semiannual basis pursuant to the Series A Indenture.

"Semiannual Rate Conversion Date" shall mean the day on which interest on the Bonds is converted to a Semiannual Rate pursuant to the Series A Indenture.

"Semiannual Rate Period" shall mean each semiannual period during which interest on the Bonds is payable or is accrued at a Semiannual Rate pursuant to the Series A Indenture.

"SIFMA Swap Index" means, as of any date, a rate determined on the basis of the seven-day high grade market index of tax-exempt variable rate demand obligations, as produced by Municipal Market Data, and published or made available by the Securities Industry & Financial Markets Association (formerly the Bond Market Association) ("SIFMA") or any person acting in cooperation with or under the sponsorship of SIFMA and effective from such date.

"SOFR Determination Date" means, with respect to any SOFR Effective Date, the U.S. Government Securities Business Day immediately preceding such SOFR Effective Date.

"SOFR Effective Date" means each U.S. Government Securities Business Day.

"SOFR Index Rate" means, for any SOFR Effective Date during the initial Index Rate Period, a per annum interest rate equal to 70% multiplied by:

(a) the Secured Overnight Financing Rate (or SOFR) as of 4:00 p.m., New York City time, on the related SOFR Determination Date for the related SOFR Reference Date; or

(b) if the Secured Overnight Financing Rate is not published on the related SOFR Determination Date as specified in clause (a) of this definition, then, unless both a SOFR Index Cessation Event and a SOFR Index Cessation Date have occurred, the Secured Overnight Financing Rate for the last U.S. Government Securities Business Day for which such Secured Overnight Financing Rate was published on the Federal Reserve Bank of New York's Website; or

(c) if both a SOFR Index Cessation Event and SOFR Index Cessation Date have occurred, then:

(i) The Calculation Agent shall determine the Adjusted SOFR Rate as if references to SOFR were references to the rate that was recommended as the replacement for the Secured Overnight Financing Rate by the Federal Reserve Board and/or the Federal Reserve Bank of New York or a committee officially endorsed or convened by the Federal Reserve Board and/or the Federal Reserve Bank of New York for the purpose of recommending a replacement for the Secured Overnight Financing Rate (which rate may be produced by a Federal Reserve Bank or other designated administrator, which rate may include any adjustments or spreads, and which rate will be reasonably expected to measure contemporaneous variations in the cost of newly borrowed funds in U.S. dollars) (the "Recommended Replacement Rate"); or

(ii) If no such Recommended Replacement Rate has been recommended within one U.S. Government Securities Business Day of the SOFR Index Cessation Event, then the Calculation Agent shall use the OBFR published on the Federal Reserve's Website for any SOFR Effective Date after the SOFR Index Cessation Date (it being understood that the OBFR for any such SOFR Effective Date will be the Overnight Bank Funding Rate on the Federal Reserve's Website as of 4:00 p.m. on the SOFR Determination Date for each related SOFR Reference Date).

(d) If the Calculation Agent is required to use the OBFR in subsection (c)(ii) above and an OBFR Index Cessation Event has occurred, then for any SOFR Effective Date after the OBFR Index Cessation Date, the Calculation Agent shall use the short-term interest rate target set by the Federal Open Market Committee and published on the Federal Reserve's Website, or if the Federal Open Market Committee has not set a single rate, the mid-point of the short-term interest rate target range set by the Federal Open Market Committee and published on the Federal Reserve's Website (calculated as the arithmetic average of the upper bound of the target range and the lower bound of the target range).

For purposes of any Index Rate Period following the initial Index Rate Period, the percentage applied in determining the SOFR Index Rate as set forth in the first sentence of this definition shall be as set forth in the Supplemental Indenture executed and delivered in connection with such Index Rate Period.

"SOFR Index Cessation Date" means, in respect of a SOFR Index Cessation Event, the date on which the Federal Reserve Bank of New York (or any successor administrator of the Secured Overnight Financing Rate) ceases to publish the Secured Overnight Financing Rate, or the date as of which the Secured Overnight Financing Rate may no longer be used.

"SOFR Index Cessation Event" means the occurrence of one or more of the following events:

(a) a public statement by the Federal Reserve Bank of New York (or a successor administrator of the Secured Overnight Financing Rate) announcing that it has ceased to report or provide the Secured Overnight Financing Rate permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide a Secured Overnight Financing Rate; or

(b) the publication of information which reasonably confirms that the Federal Reserve Bank of New York (or a successor administrator of the Secured Overnight Financing Rate) has ceased to provide the Secured Overnight Financing Rate permanently or indefinitely, provided that, at that time, there is no successor administrator that will continue to publish or provide the Secured Overnight Financing Rate.

"SOFR Index Spread" means, during the initial Index Rate Period, twenty-nine basis points (0.29%) and, during any subsequent Index Rate Period, the number of basis points set forth in a Supplemental Indenture executed and delivered in connection with such Index Rate Period. For purposes of any Index Rate Period following the initial Index Rate Period, the SOFR Index Spread shall be as set forth in the Supplemental Indenture executed and delivered in connection with such Index Rate Period.

"SOFR Reference Date" means, with respect to any SOFR Effective Date, the U.S. Government Securities Business Day immediately preceding the related SOFR Determination Date.

"Special Mandatory Tender Date" means, for purposes of the initial Index Rate Mode, August 1, 2027. For Index Rate Modes after the initial Index Rate Mode, "Special Mandatory Tender Date" shall mean the date set forth in the Supplemental Indenture establishing such Index Rate Mode.

"Special Record Date" shall mean any date established by the Trustee for payment of defaulted interest on the Bonds, which date shall be established by notice mailed to the Registered Owners of the Bonds at least ten (10) days prior to the Special Record Date, but not more than thirty (30) days prior to the Special Interest Payment Date so established.

"Supplemental indenture" or "indenture supplemental to the Indenture" shall mean any indenture amending or supplementing the Series A Indenture and entered into in accordance with the provisions of the Series A Indenture.

"Taxable Date" means, during the initial Index Rate Mode, any date on which either of the following events occurs: (a) a final determination by any court of competent jurisdiction or a final determination by the Internal Revenue Service to which the University shall consent or from which no timely appeal shall be taken to the effect that interest on the Bonds is includable in the gross income thereof under Section 103 of the Code; or (b) the delivery to the University, the Bondholder, the Authority and the Trustee of an opinion of nationally recognized bond counsel to the effect that interest on the Bonds is includable in the gross income of the owner thereof under Section 103 of the Code.

"Taxable Rate" shall mean, during the initial Index Rate Mode, the rate per annum equal to the SOFR Index Rate (without applying the 70% percentage set forth in the definition of SOFR Index Rate) plus the SOFR Index Spread, but not more than the Maximum Interest Rate.

"Tender Agent" shall mean any tender agent appointed by the University to serve in such capacity pursuant to the Series A Indenture. Initially, the Tender Agent shall be U.S. Bank National Association.

"Termination Event" shall mean, in connection with the Liquidity Facility, any event, whether an event of default, a termination or a suspension pursuant to the terms of such Liquidity Facility, that would allow the Bank to terminate such Facility prior to the stated expiration date of such Facility.

"Trustee" shall mean U.S. Bank National Association, a national banking association organized under the laws of the United States of America, and its successors under the Series A Indenture.

"University" shall mean Carnegie Mellon University and its permitted successors and assigns.

"University Payments Account" shall mean the special account of that name within the Purchase Fund established pursuant to the Series A Indenture.

"Unremarketed Bond" shall mean a Bond bearing interest at a Variable Rate (other than a Flexible Rate) and which is tendered or deemed tendered for purchase at the option of the owner thereof pursuant to the Series A Indenture and during the period in which the Bonds are not either (a) remarketed by the Remarketing Agent as set forth in the Series A Indenture or (b) purchased by the University.

"U.S. Government Securities Business Day" means any day except for a Saturday, Sunday or a day on which the Securities Industry and Financial Markets Association recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. Government Securities.

"Variable Rate" shall mean a Daily Rate, Index Rate, Weekly Rate, Monthly Rate, Flexible Rate, Semiannual Rate or Long Rate, as the context requires.

"Variable Rate Conversion Date" shall mean (i) the effective date of a conversion from one Variable Rate to another Variable Rate or (ii) the effective date of a change in the duration of a Long Rate Period.

"Variable Rate Period" shall mean each period during which interest on the Bonds is payable or is accrued at a specific Variable Rate.

"Weekly Rate" shall mean an interest rate that is determined for the Bonds on a weekly basis pursuant to the Series A Indenture.

"Weekly Rate Conversion Date" shall mean the day on which interest on the Bonds is converted to a Weekly Rate pursuant to the Series A Indenture.

"Weekly Rate Period" shall mean the weekly period during which interest on the Bonds is payable or is accrued at a Weekly Rate pursuant to the Series A Indenture.

THE SERIES A INDENTURE

Provisions Relating to the Bonds

Registration of Bonds. The Authority shall keep or cause to be kept, at the office of the Bond Registrar, books for the registration, transfer or exchange of Bonds entitled to registration, transfer and exchange; and the Authority will register, transfer or exchange or cause to be registered, transferred or exchanged therein, as provided in the Series A Indenture and under such reasonable regulations as it may prescribe, any Bonds entitled to be so registered, transferred or exchanged upon presentation thereof at such office or agency.

Manner of Effecting Transfer or Exchange. Any Bond may be exchanged and the transfer of any Bond may be registered at the agency or agencies of the Authority to be maintained by it as provided in the Series A Indenture, upon surrendering such Bond for cancellation accompanied by delivery of a written instrument of transfer in a form approved by the Trustee, duly executed by the Registered Owner of such Bond or such Owner's duly authorized attorney or legal representative; and thereupon, but subject to such rights of transfer and exchange as such Bond shall have, the Authority shall execute in the name of the transferee or transferees or exchange for, and the Trustee shall authenticate and deliver, a new Bond or Bonds, in authorized forms for the same aggregate principal amount. Such transfers and exchanges shall be made without cost to the Registered Owner, but any taxes or other governmental charges required to be paid with respect to the same shall be paid by the Registered Owner requesting such transfer or exchange as a condition precedent to the exercise of such privilege.

Status of Registered Owners. The Person in whose name any Bond shall be registered shall be deemed and regarded as the absolute owner thereof for all purposes of the Series A Indenture; and payment of or on account of the principal of such Bond shall be made only to or upon the order in writing of such Registered Owner; but such registration may be changed as provided in the Series A Indenture. Each such payment shall be valid and effectual to satisfy and discharge the liability upon such Bond to the extent of the sum or sums so paid.

Bonds Equally and Ratably Secured; Exceptions. The Series A Indenture creates a security interest in amounts payable to the Authority pursuant to the Series A Loan Agreement (except the Authority's administrative expenses and its right to reimbursement and indemnification pursuant to the Series A Loan Agreement). In the Series A Loan Agreement the University agrees to repay the loan made thereunder in amounts sufficient and at such times as may be necessary to provide for the full and final payment of, the principal of and the interest on Bonds which may, from time to time, be executed, authenticated and delivered under the Series A Indenture. Except as aforesaid, the Authority has assigned all of its rights and interests in the Series A Loan Agreement to the Trustee. Subject to the provisions of the Series A Indenture and the provisions of any Trust Agreement, all Bonds shall in all respects be equally and ratably secured hereby without preference, priority or distinction on account of the actual time or times of the authentication or delivery or maturity of the Bonds or any of them, so that all Bonds at any time outstanding under the Series A Indenture shall have the same right, lien and preference under and by virtue of the Series A Indenture, and shall all be equally secured hereby, with like effect as if they had all been executed, authenticated and delivered simultaneously on the date of the Series A Indenture, whether the same, or any of them, shall actually be sold or disposed of on such date, or whether they, or any of them, shall be sold or disposed of on some future date.

Determination of Interest Rates on the Bonds; Interest Rate Conversions

General

The Bonds initially shall bear interest at an Index Rate for an Index Rate Period commencing on the Closing Date and ending on the applicable Special Mandatory Tender Date.

During the initial Index Rate Period, in the event a Taxable Date occurs, the Bonds shall commence to bear interest at the Taxable Rate and, whether or not the Bonds have been previously paid in full, the Registered Owner may make a written demand to the Authority (the "Demand"), with a copy to the University and the Trustee, that the Authority pay, but solely from the revenues hereinbefore mentioned, (i) an amount equal to the difference between (A) the amount of interest paid to the Registered Owner on the Bonds during the period (the "Taxable Period"), in which interest on the Bonds is includable in the gross income of the Registered Owner beginning on the Taxable Date and (B) the amount of interest that would have been paid to the Registered Owner during such Taxable Period had the

Bonds borne interest at the Taxable Rate, and (ii) an amount equal to any interest, penalties or charges owed by the Registered Owner as a result of interest on the Bonds becoming includable in the gross income of the Registered Owner, together with any and all reasonable attorneys' fees, court costs, or other out of pocket costs incurred by the Registered Owner in connection therewith. Upon such Demand, the foregoing notwithstanding, interest on the Bonds shall be deemed to accrue (or to have accrued) at the Taxable Rate during the Taxable Period.

Following conversion of the Bonds from the initial Index Rate Mode to a different Variable Rate (including a new Index Rate for a new Index Rate Period) or to a Fixed Rate, interest on the Bonds shall be determined as set forth in the Series A Indenture. **This Official Statement provides information concerning the Bonds only while bearing interest at the Index Rate shown in the "Summary of the Offering" on the inside front cover of this Official Statement during the initial Index Rate Period. In the event of a conversion of the Bonds from the initial Index Rate Mode to a new Mode, the provisions relating to determination of the interest rate during such Mode shall be set forth in a remarketing memorandum or other offering document relating to the Bonds in such Mode.**

Conversions between Variable Rates.

At the election of the University, the Bonds may be converted from the Index Rate to another Index Rate having different terms and provisions or to a Variable Rate, or from one Variable Rate to another or from one Long Rate Period to another. **Notwithstanding any contrary provision of the following, during the Initial Index Rate Period, the Bonds shall not be subject to conversion prior to the Conversion Date shown in the "SUMMARY OF THE OFFERING" on the inside front cover of the Official Statement (the "Initial Conversion Date").** Any such conversion shall be subject to the following:

(i) The Variable Rate Conversion Date shall be a Scheduled Interest Payment Date; provided that, in the case of a conversion from a Long Rate or Flexible Rate (if the Flexible Rate Period exceeds one hundred eighty (180) days) to a different Variable Rate or from one Long Rate Period to another, such Variable Rate Conversion Date shall be the last Interest Payment Date on which interest is payable at the particular Long Rate or Flexible Rate in effect prior to such conversion.

(ii) The University shall give written notice of its election to effect any such conversion to the Authority, the Underwriter (if the Bonds are in an Index Rate Mode), the Remarketing Agent, the Tender Agent, the Bank and the Trustee not fewer than thirty (30) nor more than forty-five (45) days prior to the proposed Conversion Date (not fewer than twenty (20) nor more than forty-five (45) days prior to the proposed Conversion Date in the case of a conversion from the Daily, Weekly or Monthly Rate to another Variable Rate). Such notice shall specify the proposed Conversion Date, the Variable Rate to which the conversion will be made, the expected rating (if any) to be issued by the Rating Agency on the Bonds after such conversion and, if applicable, the duration of the Long Rate Period to which the conversion will be made.

(iii) Not later than twenty-five (25) days (fifteen (15) days in the case of a conversion from the Daily, Weekly or Monthly Rate, and ten (10) days in the case of the conversion from the Index Rate following the end of the Initial Index Rate Period) prior to any proposed Conversion Date, the Tender Agent, the Trustee) shall mail (by first class mail) to the owners of the Bonds and each Rating Agency (if any) a written notice of the proposed conversion and the mandatory tender of the Bonds on the proposed Conversion Date, Such notice shall set forth the information required by subsection 5.04(h) of the Series A Indenture.

(iv) Any conversion from a Rate Period involving an aggregate time period in excess of one year to a Rate Period involving an aggregate time period of one year or less, or from a Rate Period involving an aggregate time period of one year or less to a Rate Period involving an aggregate time period in excess of one year, shall in either case be subject to the condition that, on or before the proposed Conversion Date, the University shall have delivered to the Tender Agent, the Trustee, the Bank, and the Remarketing Agent an opinion of nationally recognized bond counsel to the effect that the conversion will not adversely affect (A) the exclusion from gross income of interest on the Bonds for federal income tax purposes or otherwise to the effect that interest on the Bonds is excluded from gross income for federal income tax purposes and (B) the exemption of interest on the Bonds from personal income tax and corporate net income tax or otherwise to

the effect that the Bonds and the interest thereon are exempt from such Commonwealth of Pennsylvania taxes,

(v) In the case of a conversion to a Daily or Weekly Rate, such conversion shall not be effective if the Liquidity Facility in effect on the Conversion Date (A) has a remaining term which is less than six months following such date (giving effect in each case to the notice periods described in clause (ii) above) or (B) does not provide for payments of purchase price in respect of principal and interest (computed on the basis of a 365 or 366-day year, as applicable, for the actual number of days elapsed) up to the full amount payable on any Interest Payment Date, at an assumed rate equal to the Maximum Interest Rate. The University shall be permitted to amend the existing Liquidity Facility or obtain an Alternate Liquidity Facility so as to comply with the foregoing.

Notwithstanding any election by the University to effect a conversion pursuant to the foregoing provisions, such conversion shall not take effect if the University withdraws its notice of election prior to the date on which the Remarketing Agent determines the new interest rate to be effective upon the conversion or if any applicable condition or requirement specified above is not satisfied. In addition, such conversion shall not take effect if (A) the Remarketing Agent fails to determine the interest rate to be effective upon the conversion; (B) the Bonds are not remarketed by 12:00 noon on the proposed Conversion Date; (C) in the case of a conversion to a Flexible Rate, if the University and the Remarketing Agent do not receive from the Rating Agency, if the Rating Agency is then rating the Bonds, a letter to the effect that such conversion will not result in a reduction or withdrawal of the then-current rating on the Bonds; or (D) the Trustee determines and provided written notice to the University that the Liquidity Facility does not provide sufficient interest coverage to pay the accrued interest on the Bonds through the Conversion Date. In any such event, the Bonds shall (in accordance with subsection (a) above) (i) continue to bear interest at the last effective Variable Rate if the Bonds are being converted from a Daily or Weekly Rate; (ii) bear interest at the Weekly Rate if the Bonds are being converted from any other Variable Rate and a Liquidity Facility is then in effect; or (iii) bear interest at a Monthly Rate if no Liquidity Facility is then in effect; provided that the mandatory tender for purchase pursuant to the Series A Indenture shall nevertheless be carried out if notice of the conversion has been given to the owners of the Bonds (subject to subparagraph (vi) below). Withdrawal of a conversion notice shall be communicated by the University to the Tender Agent, the Trustee, the Bank and the Remarketing Agent, by telephone, promptly confirmed in writing. Subject to clause (vi) below, no cancellation of a conversion or failure to satisfy any of the conditions to a conversion pursuant to this subsection (h) shall constitute an Event of Default under the Series A Indenture.

(vi) Notwithstanding any contrary provision of the Series A Indenture, in the case of a conversion from the initial Index Rate Mode to another Variable Rate Mode (including another Index Rate Mode), if the conditions for such conversion have not been met as of the Initial Conversion Date, and the Bonds are not purchased from the holders thereof pursuant to the mandatory tender provisions on the Special Mandatory Tender Date, such failure shall be an Event of Default under the Series A Indenture.

Conversion to Fixed Rate.

At the election of the University the Bonds may be converted to bear interest at a Fixed Rate until final maturity or earlier date fixed for redemption. **Notwithstanding any contrary provision of the following, during the Initial Index Rate Period, the Bonds shall not be subject to conversion prior to the Initial Conversion Date shown in the "SUMMARY OF THE OFFERING" on the inside front cover of the Official Statement.** Any such conversion shall be made as follows:

(i) The Fixed Rate Conversion Date shall be a Scheduled Interest Payment Date; provided that in the case of a conversion from a Long Rate or Flexible Rate (if the Flexible Rate Period exceeds one hundred eighty (180) days), such Fixed Rate Conversion Date shall be the last Interest Payment Date on which interest is payable at the particular Long Rate or Flexible Rate in effect prior to such conversion.

(ii) The University shall give written notice of its election to effect the conversion to the Trustee, the Authority, the Underwriter (if the Bonds are in an Index Rate Mode), the Bank, the Remarketing Agent and the Tender Agent, together with the expected rating to be issued by the Rating Agency on the

Bonds after such conversion, not fewer than thirty-five (35) nor more than forty-five (45) days (not fewer than twenty (20) nor more than forty-five (45) days prior to the proposed Conversion Date in the case of a conversion from the Daily or Weekly Rate) prior to the proposed Fixed Rate Conversion Date.

(iii) Not later than thirty (30) days (fifteen (15) days prior to the Conversion Date in the case of conversion from the Daily or Weekly Rate, and ten (10) days in the case of the conversion from the Index Rate following the end of the Initial Index Rate Period) prior to the proposed Fixed Rate Conversion Date, the Tender Agent shall mail (by first class mail) to the owners of the Bonds and each Rating Agency a written notice of the conversion and the mandatory tender of the Bonds on the proposed Fixed Rate Conversion Date. Such notice shall set forth the information required by subsection 5.04(h) of the Series A Indenture.

(iv) No more than thirty-five (35) days nor later than the last Business Day preceding the Fixed Rate Conversion Date, the Remarketing Agent shall determine the Fixed Rate upon consultation with and upon obtaining the consent of the University. The Fixed Rate shall be the rate of interest on the Bonds on and after the Fixed Rate Conversion Date and shall be the lowest rate of interest that, in the judgment of the Remarketing Agent as of the date of determination and under prevailing market conditions, would cause the Bonds to have a market value equal to the principal amount thereof; provided that separate maturities corresponding to the mandatory redemption schedule for the Bonds may be established for the Bonds and a separate Fixed Rate may be determined for each such maturity; and provided further that the University may designate an alternate maturity schedule, in writing, if the University shall have delivered to the Tender Agent, the Trustee and the Remarketing Agent an opinion of nationally recognized bond counsel to the effect that such designated alternate maturity schedule will not adversely affect the exclusion from gross income of interest on the Bonds for federal income tax purposes or otherwise to the effect that interest on the Bonds is excluded from gross income for federal income tax purposes. Such determination shall be conclusive and binding upon the University, the Trustee, the Tender Agent, the Authority, the Remarketing Agent and the owners of the Bonds. Not later than 4:00 p.m., New York City time, on the date of the determination of such Fixed Rate, the Remarketing Agent shall communicate such Fixed Rate by telex, telecopy or other similar electronic means of communication, followed by mailed written notice, to the Trustee, the Tender Agent, the University and the Authority.

(v) Any conversion to a Fixed Rate shall be subject to the condition that, on or before the Fixed Rate Conversion Date, the University shall have delivered to the Tender Agent, the Trustee and the Remarketing Agent an opinion of nationally recognized bond counsel to the effect described in subsection (iv).

Notwithstanding any election by the University to effect a Fixed Rate conversion pursuant to the foregoing provisions, such conversion shall not take effect if the University withdraws its notice of election prior to the date on which the Remarketing Agent determines the Fixed Rate or if any condition or requirement specified above is not satisfied. In addition, such conversion shall not take effect if (A) the Remarketing Agent fails to determine the interest rate to be effective upon the conversion or (B) the Bonds are not remarketed by 12:00 noon on the proposed Conversion Date. In any such event, the Bonds shall (in accordance with subsection (a) above) (i) continue to bear interest at the last effective Variable Rate if the Bonds are being converted from a Daily or Weekly Rate and a Liquidity Facility is then in effect; (ii) bear interest at the Weekly Rate if the Bonds are being converted from any other Variable Rate and a Liquidity Facility is then in effect; or (iii) bear interest at a Monthly Rate if no Liquidity Facility is then in effect; provided that the mandatory tender for purchase pursuant to the Series A Indenture shall nevertheless be carried out if notice of conversion to the Fixed Rate has been given to the owners of the Bonds. Withdrawal of a conversion notice shall be communicated by the University to the Trustee, the Remarketing Agent and the Tender Agent, by telephone, promptly confirmed in writing. Except as set forth in the immediately succeeding paragraph, no cancellation of a conversion to the Fixed Rate or failure to satisfy any of the conditions to a conversion pursuant to the foregoing provisions shall constitute an Event of Default under the Series A Indenture.

Notwithstanding any contrary provision of the foregoing or of the Series A Indenture, in the case of a conversion from the initial Index Rate Mode to a Fixed Rate, if the conditions for such conversion have not been met as of the proposed Conversion Date, and the Bonds are not purchased from the holders thereof pursuant to the mandatory tender provisions on the Special Mandatory Tender Date, such failure shall be an Event of Default under the Series A Indenture

Pursuant to the foregoing provisions, the Bonds may be converted from one Variable Rate to another or may be converted to bear interest at a Fixed Rate, and, in such event, a different Liquidity Facility may support the Bonds, or upon conversion to a Variable Rate other than a Daily Rate or a Weekly Rate or to a Fixed Rate, there may be no Liquidity Facility supporting the Bonds.

The Bonds shall bear interest at the Bank Rate while they are Liquidity Provider Bonds. Such interest shall be payable as provided in the form of Bond and in the Liquidity Facility.

Indenture Funds

Debt Service Fund; Accounts of the Debt Service Fund.

In respect of the Bonds, the Trustee shall establish and maintain the Debt Service Fund. The Debt Service Fund shall be subdivided into the following subaccounts: the "2022A Principal and Redemption Premium Subaccount", and the "2022A Interest Subaccount." The Trustee shall deposit into the Debt Service Fund, (A) all amounts required to be deposited in such Fund pursuant to the Series A Indenture, if any; (B) all payments hereafter made by the University for deposit in such Accounts provided in the Series A Loan Agreement provisions described below under "Loan Repayments" 2.03 and 2.04, which amounts shall be deposited into the 2022A Principal and Redemption Premium Subaccount and the 2022A Interest Subaccount, as indicated in the Series A Loan Agreement, and (C) all other amounts required under the Series A Indenture or pursuant to the Series A Loan Agreement to be deposited in such Fund.

Subject to the provisions described below under "—Moneys to Be Held for All Registered Owners, with Certain Exceptions" (to the extent applicable), moneys on deposit in the Debt Service Fund shall be applied as follows:

- (i) from the 2022A Principal and Redemption Premium Subaccount of the Debt Service Fund, to the payment of principal of the Bonds; and
- (ii) from the 2022A Interest Subaccount of the Debt Service Fund, to the payment of interest on the Bonds.

Pursuant to the Series A Loan Agreement, by 11:00 a.m., Pittsburgh time, on each Scheduled Interest Payment Date, each date fixed for optional or mandatory redemption and the maturity date of the Bonds, the Trustee shall have received funds in the Debt Service Fund from the University to pay on such Scheduled Interest Payment Date, optional or mandatory redemption date or maturity date, as the case may be, the principal or Redemption Price of and interest on the Bonds due on such date.

Moneys to Be Held for All Registered Owners, with Certain Exceptions.

Until applied as in the Series A Indenture provided, the moneys and investments held in all funds and accounts, other than the Rebate Fund established under the Series A Indenture and the proceeds of any remedies exercised under "Events of Default" hereof, shall be held in trust for the ratable benefit of the owners of all outstanding Bonds except that: (a) on and after the date on which the interest on or principal of any particular Bond or Bonds is due and payable from the Debt Service Fund, the unexpended balance of the amount deposited or reserved in such Fund for the making of such payments shall, to the extent necessary therefor, be held for the benefit of the Registered Owner or Registered Owners entitled thereto and, after all Registered Owners have been paid, then for the benefit of the University; and (b) the rights of any Registered Owners with respect to principal or interest payments extended by their agreement beyond their due dates shall be subordinate to the rights of Registered Owners with respect to payments not so extended.

Investment or Deposit of Funds. Moneys on deposit in the accounts and funds established under the Series A Indenture shall be invested and reinvested by the Trustee in accordance with the provisions summarized below. Moneys in the Debt Service Fund representing principal of or interest on any Bonds which are deemed paid under the defeasance provisions of the Series A Indenture shall be invested only if and as provided in the Series A Indenture provisions described below under "Defeasance".

All moneys deposited under the provisions of this Indenture (other than moneys on deposit in the Rebate Fund), either in the name of the Trustee or of the Authority, shall be trust funds under the Series A Indenture and shall be held in trust by the Trustee and applied only for the purposes set forth in this Indenture and, pending the application thereof (other than moneys on deposit in the Rebate Fund) in accordance with and subject to the limitations of this Indenture, shall be subject to a lien and charge in favor of the owner of the Bonds and for the further security of such owner until paid out as in the Series A Indenture provided. All moneys which the Trustee shall have withdrawn from the Debt Service Fund and deposited with any paying agent for the particular purpose of paying any portion of the Bonds which has become or are about to become due and payable or which has been called for redemption shall be held in trust for the owner of the Bonds. Any moneys so held at any time by any paying agent shall, upon request of the Trustee, be paid by such paying agent to the Trustee, which shall thereafter hold such moneys in trust for the respective owners of the Bonds, subject to the defeasance provisions of the Series A Indenture.

All moneys and funds held by the Trustee under the Series A Indenture shall be invested in Qualified Investments at the written direction of the University. The Trustee may rely on such written direction as to the legality and suitability of such investments and such written direction shall be deemed to be a certification that such directed investments constitute Qualified Investments. Ratings of Qualified Investments shall be determined at the time of initial purchase of such Qualified Investments and without regard to ratings subcategories and the Trustee shall have no responsibility to monitor the ratings of Qualified Investments after the initial purchase of such Qualified Investments, including at the time of reinvestment of earnings thereof. Any investments with a maturity greater than one year shall be valued annually by the Trustee on each June 30 commencing June 30, 2022. Any moneys to the credit of the Debt Service Fund shall, if the University shall so request by filing with the Trustee a letter signed by the President, the Vice President or the Treasurer or Assistant Treasurer of the University, be invested by the Trustee in the Qualified Investments specified in such letter. In the absence of a written direction from the University, such moneys and funds shall remain uninvested without liability for interest.

In any such case the full purchase price of such investments or obligations, including premium and accrued interest, shall be paid out of the moneys to the credit of the appropriate Fund. Upon a written request by the University, or whenever the moneys in a particular Fund or Account are to be applied and paid out pursuant to any provisions of this Indenture, the Trustee shall sell all or any part of the bonds or obligations in which the moneys in such Fund or Account shall be invested, and the proceeds of such sale shall be deposited to the credit of such Fund or Account. The interest received and profits realized on the bonds, obligations or other Qualified Investments in which moneys to the credit of such account shall be invested shall (except as otherwise provided in any supplemental indenture in respect of any Fund or Account or otherwise) be transferred when received to the Debt Service Fund (for deposit in the 2022A Interest Subaccount or the 2022A Principal and Redemption Premium Subaccount, as the University shall in writing direct) and any loss sustained shall be charged to the Fund or Account sustaining such loss, provided that all amounts earned in the Rebate Fund shall be retained therein. Whenever, under the provisions of the Series A Indenture, the amount of money to the credit of a particular Fund or Account is required to be determined, all bonds and obligations in which moneys in such Fund or Account shall, except as provided in the penultimate sentence of this paragraph, be invested shall be valued for such purposes at their cost.

Tenders of the Bonds During Variable Rate Periods; Liquidity Facility

(a) The Bonds shall be subject to mandatory tender on the Conversion Date shown in the “Summary of the Offering” on the inside front cover of this Official Statement following the end of the Initial Index Rate Period (which date is a Special Mandatory Tender Date) and thereafter on each Special Mandatory Tender Date and on each Conversion Date at the purchase price described in subsection (b) below. Notice of mandatory tender on a Conversion Date shall be given as set forth in subsection (h) below.

(b) The Bonds (unless the Bonds shall be Liquidity Provider Bonds) shall be subject to mandatory tender at a purchase price equal to the principal amount thereof, plus accrued interest (if any is required to be included in the applicable purchase price), (i) on each Conversion Date, (ii) in the case of the Bonds bearing interest at the Index, Daily, Weekly or Monthly Rate or if an Alternate Liquidity Facility is in effect for the Bonds bearing interest at any other Variable Rate, on the Interest Payment Date (but in any case, not less than five (5) days) next preceding the expiration date of the Liquidity Facility unless on or prior to such Interest Payment Date, the Trustee has received notice that the Liquidity Facility has been or will be extended or an Alternate Liquidity Facility has been provided pursuant to the Series A Indenture, (iii) on the date of replacement of the Liquidity Facility or Alternate Liquidity

Facility with an alternate credit facility if such replacement will result in a reduction or withdrawal of the current rating on the Bonds given by the Rating Agency, (iv) on (A) the tenth (10th) Business Day after the Tender Agent receives notice that the Bank's commitment under the Liquidity Facility will be terminated because a Termination Event has occurred under the Liquidity Facility or (B) the last Business Day that is no more than ten (10) Business Days after the occurrence of a Termination Event, (v) while the Bonds bear interest at a Flexible Rate, on the first day of each Flexible Rate Period, and (vi) while the Bonds bear interest at a Long Rate, on each date on which the interest rate changes for a Rate Period when such Rate Period is of a different duration than the immediately preceding Rate Period.

(c) The Remarketing Agent shall offer for sale and use its best efforts to find purchasers for the Bonds subject to mandatory tender pursuant to subsections (a) and (b) above; provided that the Remarketing Agent may not remarket the Bonds to be purchased pursuant to the provisions described under this caption to the Authority or the University. The terms of any sale by the Remarketing Agent shall provide for the payment of the purchase price of the Bonds subject to such mandatory tender to the Remarketing Agent, in immediately available funds, at or before 4:00 p. m., New York City time, on the applicable purchase date.

(d) The commitment of the Bank or the University, as applicable, under a Liquidity Facility shall include purchasing the Bonds that are not remarketed following any mandatory tender.

(e) At or before 1:30 p.m., New York City time, on the Business Day immediately preceding the date fixed for purchase of the tendered Bonds (or by 12:00 noon, New York City time, on the purchase date in the case of the Bonds bearing interest at a Daily or Weekly Rate), the Remarketing Agent shall give notice by telephone, telegram, telecopy, telex or other similar communication to the Trustee, the Tender Agent, the Bank and the University (promptly confirmed in writing) of the principal amount of the Bonds that were remarketed, specifying the names, addresses and taxpayer identification numbers of purchasers of remarketed Bonds, the denominations of the remarketed Bonds to be delivered to each purchaser and, if available, wire transfer instructions for regularly scheduled interest payments on such remarketed Bonds.

(f) By 11:00 a.m., New York City time, on any purchase date, the Remarketing Agent shall notify the Tender Agent who shall notify the Trustee, the Bank and the University of the amount of the Bonds that were not remarketed pursuant to the provisions described under this caption, whereupon the University may purchase (and shall provide the Tender Agent and the Bank with notice thereof by 11:15 a.m., New York City time, on such purchase date), or shall provide for the purchase of such unremarketed Bonds on or before 11:30 a.m., New York City time, of such day and, failing such purchase by the University, the Tender Agent shall draw the purchase price for such Bonds pursuant to the Liquidity Facility by 12:00 noon.

(g) The Remarketing Agent shall cause to be paid to the Tender Agent by 12:00 noon, New York City time, on the date fixed for purchase of the tendered Bonds, all amounts representing proceeds of the remarketing of the Bonds in accordance with the foregoing provisions, such payments to be made by the purchaser of the Bonds in the manner and at the time specified in subsection (c) above.

(h) The Tender Agent shall give notice of mandatory tender, to each owner of the Bonds by first-class mail at least ten (10) days prior to a mandatory tender date described above (twenty-five (25) days prior to a mandatory tender date for the Bonds while bearing interest at a Monthly, Semiannual or Long Rate), except that no notice of mandatory tender is required in the event of the occurrence of a change in the interest rate applicable to the Bonds while bearing interest at a Flexible Rate. The Registered Owners shall have no right to elect to retain the Bonds that are subject to mandatory tender. Such notice shall:

(i) specify the proposed Conversion Date;

(ii) state that the Bonds to be converted shall be subject to mandatory tender for purchase on such Conversion Date at a purchase price equal to the principal amount thereof; and

(iii) Subject to the provisions of the Series A Indenture provisions described above under "— Determination of Interest Rate on the Bonds; Interest Rate Conversions", in the case of mandatory tender on any Conversion Date or in the case of any notice mailed pursuant to subsection (b) above:

(A) state that the Bonds shall be required to be delivered to the Designated Office of the Tender Agent at or before 9:45 a.m., New York City time, on the Conversion Date or other Mandatory Tender Date, as applicable;

(B) state that if the owner of the Bonds fails to deliver such Bonds to the Tender Agent for purchase on the Conversion Date or other Mandatory Tender Date, as applicable, and if the Tender Agent is in receipt of the purchase price therefor, such Bonds shall nevertheless be deemed purchased on the Conversion Date or other Mandatory Tender Date, as applicable, and ownership of such Bonds shall be transferred to the purchaser thereof;

(C) state that if the Conversion Date (which is required to be a Scheduled Interest Payment Date) or any other Mandatory Tender Date is a Scheduled Interest Payment Date, interest payments will be paid to the owners of the Bonds in accordance with the Series A Indenture;

(D) state that any owner who fails to deliver any such Bonds for purchase shall have no further rights thereunder except the right to receive the purchase price thereof upon presentation and surrender of said Bonds to the Tender Agent and that the Bond Registrar will place a stop transfer against the Bonds registered in the name of such owner on the registration books; and

(E) state, if applicable, that the Liquidity Facility will be replaced and that the Bonds shall no longer be supported by the Liquidity Facility then in effect and the expected rating on the Bonds on and after the purchase date to be issued by the Rating Agency.

The Series A Indenture contains other provisions applicable to optional and mandatory tender of Bonds that will or may apply following conversion of the Bonds from the initial Index Rate Mode to a different Variable Rate (including a new Index Rate) or to a Fixed Rate, as well as provisions relating to any Liquidity Facility provided with respect to the Bonds while in a Variable Rate Mode other than the initial Index Rate Mode. **Except as set forth above, this Official Statement provides information concerning tender of Bonds only while bearing interest at the Index Rate shown in the "Summary of the Offering" on the inside front cover of this Official Statement during the initial Index Rate Period.** In the event of a conversion of the Bonds from the initial Index Rate Mode to a new Mode, the provisions relating to tender of Bonds and any Liquidity Facility provided during such new Mode shall be set forth in a remarketing memorandum or other offering document relating to the Bonds in such Mode.

Events of Default and Remedies

Events of Default. Each of the following events shall be an "Event of Default", that is to say, if

(a) Payment of any installment of interest on any of the Bonds shall not be made within five (5) days of the date when due and payable as therein expressed; or

(b) Payment of any part of the principal of any of the Bonds shall not be made within three (3) days of the date when the same shall become due and payable, whether at maturity as therein expressed, by declaration or otherwise; or

(c) An Event of Default under the Series A Loan Agreement shall occur and be continuing; or

(d) Final judgment shall be rendered against the Authority, which materially and adversely affects the enforceability of the Series A Indenture or the Bonds and any such judgment shall not be discharged within sixty (60) days from the entry thereof, or an appeal shall not be taken therefrom, or from the order, decree or process upon which or pursuant to which such judgment was granted or entered, in such

manner as to set aside conclusively the execution or levy under such judgment, order, decree or process, or the enforcement thereof; or

(e) An order or decree shall be entered with the consent or acquiescence of the Authority or the University, as the case may be, appointing a receiver or receivers of the Authority or the University, as the case may be, or of the receipts and revenues thereof, or any proceeding shall be instituted with the consent or acquiescence of the Authority or the University, as the case may be, for the purpose of effecting a composition between the Authority or the University, as the case may be, 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 out of the receipts and revenues of the Authority or the University, as the case may be, or if such order or decree having been entered without the consent or acquiescence of the Authority or the University, as the case may be, shall not be vacated or discharged within sixty (60) days after the entry thereof, or if such proceeding having been instituted without the consent or acquiescence of the Authority or the University, as the case may be, shall not be withdrawn, or any order entered therein shall not be vacated or discharged, within sixty (60) days after the institution of such proceeding or the entry of such order; or

(f) The Authority shall default in the due and punctual performance or observance of any of the other covenants, conditions, agreements or provisions contained in the Bonds or in the Series A Indenture on the part of the Authority required to be kept, performed or observed, and any such default shall have continued for a period of thirty (30) days after written notice specifying such default and requiring the same to be remedied shall have been given to the Authority by the Trustee (with a copy of such notice also to be delivered to the University), which may give such notice in its discretion and shall give such notice at the request of the owners of not less than 25% of the Bonds then outstanding.

(g) If the purchase price on any Bonds required to be purchased pursuant to the variable rate or mandatory tender provisions of the Series A Indenture (or Section 5.07 of the Series A Indenture with respect to any Special Mandatory Tender Date) is not paid when the same becomes due and payable; or

(h) If a Liquidity Facility is in effect, receipt from the Liquidity Facility Provider that an "Event of Default" has occurred and is continuing under the Liquidity Facility.

Acceleration. Upon the occurrence and continuation of an Event of Default under the Series A Indenture, then the Trustee may, subject to the provisions described below under "—Enforcement of Remedies", and at the direction of the owners of a majority in aggregate principal amount of all outstanding Bonds, shall, by notice in writing to the Authority and the University, declare the principal of all of the Bonds then outstanding and the interest accrued thereon to be due and payable immediately; provided, however, that no such declaration shall be made if the Authority or the University cures such Event of Default prior to the date of the declaration.

If, after the principal of the Bonds shall have been so declared to be due and payable, all arrears of interest upon the Bonds and all other sums payable under the Series A Indenture shall have been paid by or on behalf of the Authority, the Trustee may, subject to the provisions described below under "—Rescission or Annulment of Defaults", annul such declaration and thereafter the consequences of such declaration and such annulment shall be binding upon the Trustee and upon all owners of Bonds issued under the Series A Indenture.

Rescission or Annulment of Defaults. The provisions described above under "—Acceleration" are subject to the condition that at any time after the principal of all of the Bonds shall have been so declared due and payable, the owners of a majority in aggregate principal amount of the Bonds then outstanding may, by written notice to the Authority and the Trustee with a copy to the University, rescind and annul such declaration and its consequences if--

(a) All arrears of interest upon all of the Bonds then outstanding under the Series A Indenture, except interest accrued since the last Scheduled Interest Payment Date, with interest on overdue installments of interest (to the extent that the payment thereof is enforceable under applicable law) at the respective rates provided in the Bonds, shall have been paid or payment thereof provided for; and

(b) The expenses of the Trustee and all other indebtedness secured hereby, except the principal of any of the Bonds not then due by their express terms, shall have been paid or payment thereof provided for; and

(c) Every other default known to the Trustee in the observance or performance of any covenant, condition or agreement contained in the Bonds or in the Series A Indenture shall have been remedied or a remedy therefor satisfactory to the Trustee shall have been provided for; and

(d) All the obligations set forth in subparagraphs (a), (b) and (c) above requiring payment which have not been paid have been provided for by depositing with the Trustee for the credit of the Debt Service Fund moneys sufficient for the payment thereof.

No such rescission or annulment shall extend to or affect any subsequent default or impair any right of the Trustee or the Registered Owners arising therefrom.

Enforcement of Remedies. Upon the happening and continuance of any Event of Default, then and in every such case the Trustee may, and upon the written direction of the owners of a majority in aggregate principal amount of the Bonds then outstanding, and the provision of indemnity satisfactory to the Trustee in accordance with the Series A Indenture, shall, proceed to protect and enforce its rights and the rights of the Registered Owners under the Series A Indenture by the exercise of any proper legal or equitable right or remedy as the Trustee being advised by counsel shall deem most effectual to protect and enforce the rights of the Registered Owners. The rights and remedies which the Trustee may or shall exercise include all or any of the following:

(a) The right in its own name by mandamus or other suit, action or proceeding at law or in equity to enforce all rights of the Registered Owners, including the right to require the Authority to carry out the covenants and agreements of the Authority contained in the Series A Indenture and to require the Authority to carry out any agreements with or for the benefit of the Registered Owners and to perform its duties under the Act;

(b) The right to bring suit upon the Bonds outstanding under the Series A Indenture, provided, however, that any judgment obtained in any such suit shall be payable only out of the receipts and revenues of the Authority under the Series A Loan Agreement;

(c) The right by action or suit in equity to require the Authority to account as if it were the trustee of an express trust for the Registered Owners;

(d) The right by action or suit in equity to enjoin any acts or things which may be unlawful or in violation of the rights of the Registered Owners;

(e) The right to the appointment of a receiver of the University's facilities and of the revenues and receipts therefrom;

(f) The right to apply all moneys and funds held under the Series A Indenture (except the Rebate Fund and except moneys and funds which shall theretofore have been set aside for the payment of particular Bonds) to the payments and as provided below under "—Application of Remedies"; and

(g) The right to exercise any or all other rights or remedies provided by the Act, or by any other law or by any other suit, action or other special proceeding in equity or at law either for the specific performance of any covenant or agreement contained in the Series A Indenture or in aid or execution of any power in the Series A Indenture granted.

Application of Moneys. All moneys received by the Trustee or by any receiver under the foregoing provisions shall, and all moneys and funds held by the Trustee under the Series A Indenture (except the Rebate Fund and except moneys and funds which shall theretofore have been set aside for the payment of particular Bonds) shall be applied by the Trustee or receiver in the following order of priority:

(a) To the payment of all costs, expenses and liabilities reasonably incurred by the Trustee or receiver, as the case may be (including reasonable compensation to the Trustee or receiver, its agents, attorneys and counsel), to the payment of the Trustee's outstanding fees and expenses, if any, and to the repayment of all advances made by the Trustee or receiver, as the case may be, and the creation of a reasonable reserve for anticipated fees, costs and expenses;

(b) Unless the principal of all the Bonds outstanding under the Series A Indenture shall have become due, whether at the due dates expressed therein, or by declaration as provided in the Series A Indenture or otherwise, then

(1) To the payment of any overdue installments of interest on the Bonds in the order of the expressed maturity of the installments of such interest, with interest on overdue installments of interest (to the extent that the payment of such interest is enforceable under applicable law) at the respective rates provided in the Bonds; and, if the amount to be applied to the payment of any installment of interest shall not be sufficient to pay such installment in full, then to the payment thereof ratably, according to the amounts due on such installment, to the Persons entitled thereto without any discrimination or preference; and

(2) After the payment of all such overdue installments of interest with the interest thereon, then to the payment of the principal of all of the Bonds which shall have become due by their express terms, with interest on the Bonds at the rate or rates provided for in the Bonds from the respective dates upon which they became due in the order of maturity dates expressed in the Bonds, and if the amount to be distributed at any particular time shall not be sufficient to pay in full all of the Bonds due on any particular date, to the payment thereof ratably according to the amounts due thereon; and

(3) After all payments required by the preceding subparagraphs of this paragraph (b) shall have been made, then to the payment of the principal of and the interest on the Bonds in accordance with the provisions of the Series A Indenture; and

(4) Any surplus thereof remaining after the payment of the full principal of and interest on all Bonds, to the University or to whomsoever may be lawfully entitled to receive the same.

(c) In case the principal of all of the Bonds shall have become due, whether at the due dates expressed therein, by declaration or otherwise, then

(1) To the payment of the full amount then owing and unpaid upon all Bonds outstanding for principal and interest with interest on overdue installments of interest (to the extent that the payment of such interest is enforceable under applicable law) at the respective rates provided in the Bonds then outstanding, and if the amount to be applied to such payment shall not be sufficient to pay such payment in full, then to the payment of such principal and interest without preference or priority of principal over interest or of interest over principal or of any installment of interest over any other installment of interest ratably to the aggregate of such principal and interest; and

(2) Any surplus thereof remaining after the payment of the full principal of and interest on all Bonds, to the University or to whomsoever may be lawfully entitled to receive the same.

Whenever moneys are to be applied by the Trustee or by any receiver pursuant to the provisions described under this subcaption, such moneys shall be applied by the Trustee or receiver at such times, and from time to time, as the Trustee or receiver in its sole discretion shall determine, having due regard to the amount of such moneys available for application in the future. The deposit of such moneys with the bank or trust company at which the Bonds shall be payable, or otherwise setting aside of such moneys, in trust for the proper purpose, shall constitute proper application by the Trustee or receiver; and the Trustee or receiver 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 or receiver acts with reasonable diligence, having due regard to the circumstances, and ultimately applies the same in accordance with such provisions of the Series A Indenture as may be applicable at the time of application by the Trustee or receiver. Whenever the Trustee or receiver shall exercise such discretion in applying such moneys, it shall fix the date upon which such application is to be made, including determination of a Special Record Date and the provision of notice thereof as provided in the form of Bond, and upon such date interest on the amounts of principal to be paid on such date shall cease to accrue. The Trustee or receiver shall give notice of any Special Record Date as provided in the form of Bond and shall give such other notice as it may deem appropriate of the fixing of any such date, and shall not be required to make payments to the owner of any Bond until such Bond shall be surrendered to the Trustee or receiver for stamping with reference to such payment.

Discontinuance of Proceedings. In case any proceeding taken by the Trustee on account of any default shall have been discontinued or abandoned for any reason, or shall have been determined adversely to the Trustee, 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 Series A Indenture, respectively, and all rights, remedies, powers and duties of the Trustee shall continue as though no such proceeding had been taken.

Instructions from Registered Owners. Anything in the Series A Indenture to the contrary notwithstanding, the owners of a majority in aggregate principal amount of the Bonds then outstanding under the Series A Indenture shall have the right, by an instrument in writing executed and delivered to the Trustee and upon delivery to the Trustee of satisfactory indemnity in accordance with the Series A Indenture and subject to the provisions in the next succeeding paragraph, to direct the method and place of conducting all remedial proceedings to be taken by the Trustee under the Series A Indenture. The Trustee shall not be obligated to follow any direction described in the preceding sentence if, in the opinion of the Trustee, the proposed action is not to the advantage of all Registered Owners.

Limitation on Registered Owners' Rights. Except as provided in the Act, no owner of any of the Bonds shall have any right to institute any suit, action or proceeding in equity or at law for the execution of any trust under the Series A Indenture, or for any other remedy under the Series A Indenture, unless such 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 taken; nor unless also the owners of a majority in aggregate principal amount of the Bonds then outstanding shall have made written request of the Trustee, after the right to exercise such powers or rights of action shall have accrued, and shall have afforded the Trustee a reasonable opportunity either to proceed to exercise the powers granted under the Series A Indenture, or to institute such action, suit or proceeding in its name; nor unless, also, there shall have been offered to the Trustee security and indemnity satisfactory to it 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 every such case, at the option of the Trustee, to be conditions precedent to the execution of the powers and trusts of the Series A Indenture or for any other remedy under the Series A Indenture; it being understood and intended that no one or more Owners of the Bonds hereby secured shall have any right in any manner whatever by such Owner(s) action to affect, disturb or prejudice the security of the Series A Indenture, or to enforce any right under the Series A Indenture, except in the manner provided in the Series A Indenture, and that all proceedings at law or in equity shall be instituted, and maintained in the manner provided in the Series A Indenture and for the prior and equal benefit of all Owners of outstanding Bonds, subject to the provisions of the Series A Indenture.

Enforcement of Remedies. All rights of action under the Series A Indenture, or under any of the Bonds secured hereby, 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 proceedings relative thereto, and any such suit, action or proceeding instituted by the Trustee shall be brought in its name and as Trustee of an express trust for the equal and ratable benefit of the owners of all Bonds, subject to the provisions of the Series A Indenture.

Provisions Relating to the Trustee, Remarketing Agent, Tender Agent and Calculation Agent

Acceptance of Trust. The Trustee accepts and agrees to execute the trusts hereby created, but only upon the additional terms set forth herein under "Provisions Relating to Trustee", to all of which the parties to the Series A Indenture, the University and the respective owners of the Bonds agree. The Trustee prior to the occurrence of an event of default and after the curing of all events of default which may have occurred, undertakes to perform such

duties and only such duties as are specifically set forth in the Series A Indenture and no implied covenants or obligations shall be read into the Series A Indenture against the Trustee. If any event of default under the Series A Indenture shall have occurred and be continuing, the Trustee shall exercise such of the rights and powers vested in it by the Series A Indenture and shall use the same degree of care as a prudent person would exercise or use in the circumstance in the conduct of such person's own affairs.

Trustee May Act Through Agents. The Trustee may execute any of the trusts or powers of the Series A Indenture and perform the duties required to be performed by it either directly or by or through attorneys, agents, receivers or employees, and shall be entitled to consult counsel and, in good faith, to rely conclusively upon the advice of counsel concerning all matters of trust of the Series A Indenture and its duties under the Series A Indenture, and the Trustee shall not be answerable for the default of any such attorney, agent or employee selected by it with reasonable care. The Trustee shall not be liable for any action taken, omitted or suffered on the advice of counsel subject to the immediately preceding sentence. The Trustee shall not be answerable for the exercise of any discretion or power under the Series A Indenture or for anything whatsoever in connection with the trusts, except only its own bad faith, willful misconduct, negligence or gross negligence.

Trustee Not Obligated to Act. Except as otherwise provided by law, the Trustee shall be under no obligation to take any action in respect to any default, Event of Default or otherwise, or toward the execution or enforcement of any of the trusts hereby created, or to institute, appear in or defend any suit or other proceeding in connection therewith, unless requested so to do in writing by the owners of a majority in aggregate principal amount of the Bonds then outstanding, and, if in its opinion such action may tend to involve it in expense or liability, unless furnished, from time to time and as often as it may require, with security and indemnity satisfactory to it; but the foregoing provisions are intended only for the protection of the Trustee, and shall not affect any discretion or power given by any provision of the Series A Indenture to the Trustee to take action in respect of any default, Event of Default or otherwise without such notice or request from the Registered Owners or without such security or indemnity.

Trustee May Make Advances. If the Authority or the University shall fail to perform any of the covenants or agreements contained in the Series A Indenture or in the Series A Loan Agreement which are applicable to it, the Trustee may, in its uncontrolled discretion and without notice to the Registered Owners, at any time and from time to time, make advances to effect performance of the same on behalf of the Authority or the University, as the case may be, but the Trustee shall be under no obligation so to do; and any and all moneys paid or advanced by the Trustee for any such purpose, together with interest thereon at the prime rate of its primary banking affiliate shall be a lien in favor of the Trustee upon any moneys coming into its hands prior to the lien of the Bonds provided that no such advance shall operate to relieve the Authority or the University from any default under the Series A Indenture or under the Series A Loan Agreement.

Trustee May Rely in Good Faith Upon Others. The Trustee shall be protected and shall incur no liability in acting or proceeding in good faith upon any resolution, notice, telegram, request, consent, waiver, certificate, statement, affidavit, voucher, bond or other paper or document which it shall in reasonable good faith believe to be genuine and to have been passed or signed by the proper board or Person, or to have been prepared and furnished pursuant to any of the provisions of the Series A Indenture or the Series A Loan Agreement, and the Trustee shall be under no duty to make any investigation or inquiry as to any statements contained or matters referred to in any such instrument, but may accept and rely upon the same as conclusive evidence of the truth and accuracy of such statements. The Trustee shall not be responsible for any loss or damage resulting from any action or inaction taken by the Trustee in good faith in reliance upon an opinion of counsel or, with respect to non-legal matters, upon the report of such other professional as the Trustee shall deem appropriate. The Trustee shall not be bound to recognize any Person as an owner of any Bond or to take any action at such Person's request unless such Bond shall be registered in the name of such Person.

Resignation of Trustee. The Trustee may resign and be discharged of the trusts created by the Series A Indenture by executing a written instrument resigning such trusts and specifying the date when such resignation shall take effect, by filing the same with the Authority and with the University not less than sixty (60) days before the resignation date specified in such instrument. Concurrently with the giving of such notice the Trustee shall also mail copies thereof to the Registered Owners of all Bonds at their addresses as shown in the registration books of the Authority. Such resignation shall take effect on the resignation date specified in such instrument and notice, unless (a) no successor shall theretofore have been appointed and qualified, in which case such resignation shall be of no

effect until such a successor Trustee has so accepted and qualified or (b) a successor Trustee previously shall have been appointed as provided in the Series A Indenture, in which event such resignation shall take effect immediately on the appointment and acceptance of such successor Trustee.

Removal of Trustee. The Trustee may be removed at any time by the vote of the owners of a majority in aggregate principal amount of the Bonds then outstanding. The Trustee may be removed upon thirty (30) days' written notice at any time by the Authority at the direction of the University if the Trustee shall have failed or refused to perform its material obligations under the Series A Indenture and such failure or refusal shall have continued for a period of thirty (30) days after written notice thereof shall have been given by the Authority to the Trustee. Any such removal by the owners or the Authority shall not take effect until a successor Trustee has been appointed and qualified and has accepted such appointment. If at any time the Trustee shall be dissolved, the Trustee shall no longer be eligible to act as such and a vacancy shall forthwith and ipso facto exist in the office of Trustee.

The Remarketing Agent. Following conversion of the Bonds to a Variable Rate Mode, the Authority, at the request of the University, shall appoint a Remarketing Agent for the Bonds. The Remarketing Agent and each successor Remarketing Agent appointed by the University shall specify its Designated Office and signify its acceptance of the duties and obligations imposed upon it as described in the Series A Indenture by a written instrument of acceptance between the Remarketing Agent and the University delivered to the Authority, the Trustee, the Bank and the University under which the Remarketing Agent will agree, particularly:

(a) to hold all moneys (if any) delivered to it for the purchase of the Bonds in trust for the exclusive benefit of the Person or Persons that shall have so delivered such moneys until the Bonds purchased with such moneys shall have been delivered to or for the account of such Person or Persons;

(b) to keep such books and records as shall be consistent with prudent industry practice and to make such books and records available for inspection by the Authority, the Trustee, the Bank and the University at all reasonable times;

(c) to determine the Variable Rates and Fixed Rates and give notice of such rates to the Trustee, the Tender Agent and the University in accordance with the Series A Indenture;

(d) subject to any conditions set forth in the instrument by which it assumes the duties of the Remarketing Agent and which excuse performance of its obligations to offer for sale and use its best efforts to find purchasers for the Bonds tendered for purchase, each Liquidity Provider Bond and any Bonds theretofore purchased by the University, any such sale to be made at a price equal to 100% of the principal amount thereof plus accrued interest (if any is required to be included in the applicable purchase price) to the purchase date, in accordance with the terms of this Indenture; provided, however, that if there shall have occurred and be continuing an Event of Default of which the Remarketing Agent has notice, there shall be no remarketing of the Bonds pursuant to the Series A Indenture; and

(e) to deliver to the Tender Agent in accordance with the conversion provisions of the Series A Indenture, if applicable, the Bonds (if any) received by it which are subject to tender for purchase in accordance with the terms of this Indenture.

In the event that the Remarketing Agent shall resign, be removed, or be dissolved, or if the property or affairs of the Remarketing Agent shall be taken under control of any state or federal court or administrative body because of bankruptcy or insolvency, or for any other reason, and the University shall not have appointed its successor as Remarketing Agent, the Tender Agent shall ipso facto be deemed to be such Remarketing Agent for all purposes of this Indenture until the appointment by the University of a successor Remarketing Agent; provided, however, that the Tender Agent, in its capacity as Remarketing Agent, shall not be required to sell the Bonds or determine the interest rate on the Bonds under the Series A Indenture if the Tender Agent is prohibited by law from conducting such activities. The Remarketing Agent may in good faith hold any form of indebtedness issued by the Authority or any security issued by the University including the Bonds; own, accept or negotiate any drafts, bills of exchange, acceptances or obligations thereof; and make disbursements thereof or enter into any commercial or business arrangement therewith; all without any liability on the part of the Remarketing Agent for any real or apparent conflict of interest by reason of any such actions. In the event the Tender Agent is deemed to be the Remarketing Agent under

the foregoing provisions, the Tender Agent may petition a court having jurisdiction for the appointment of a successor Remarketing Agent.

Qualifications and Resignation of Remarketing Agent. The Remarketing Agent shall be authorized by law to perform all the duties imposed upon it. Except as provided in the Remarketing Agreement, the Remarketing Agent may at any time resign and be discharged of the duties and obligations described under the Series A Indenture by giving at least thirty (30) days' notice to the Authority, the Trustee, the Tender Agent, the Bank, the University and the Rating Agency, provided that such resignation shall not take effect until the appointment of a successor Remarketing Agent. Successor Remarketing Agents may be appointed from time to time by the University with the consent of the Bank, which consent shall not be unreasonably withheld. The Remarketing Agent may be removed at any time by the University upon notice to the Remarketing Agent, the Authority, the Tender Agent, the Bank, the Trustee and the Rating Agency so long as a successor Remarketing Agent shall have assumed the duties thereof. As set forth in the Remarketing Agreement, the Remarketing Agent may also resign or cease remarketing upon the occurrence of certain events.

Tender Agent. Following conversion of the Bonds to a Variable Rate Mode, the Authority at the written request of the University may appoint the Trustee as the Tender Agent for the Bonds. Each Tender Agent appointed under the Series A Indenture (if other than the Trustee) shall specify its Designated Office and signify its acceptance of the duties and obligations imposed upon it as described in the Series A Indenture by a written instrument of acceptance delivered to the Authority, the Trustee, the Bank and the University under which each Tender Agent will agree, particularly:

- (a) to hold the Bonds delivered to it for purchase under the Series A Indenture in trust for the exclusive benefit of the respective owners that shall have so delivered the Bonds until moneys representing the purchase price of the Bonds shall have been delivered to or for the account of or to the order of such Registered Owners;
- (b) to hold the Purchase Fund in accordance with the provisions of the Series A Indenture;
- (c) to keep such books and records as shall be consistent with prudent industry practice and to make such books and records available for inspection by the Authority, the Trustee, the Bank, the Remarketing Agent and the University; and
- (d) to serve as Bond Registrar and Paying Agent under the Series A Indenture with respect to the Bonds.

Calculation Agent. U.S. Bank National Association is appointed under the Series A Indenture as the initial Calculation Agent. The Calculation Agent shall perform such duties and only such duties as are specifically set forth in the Series A Indenture and a Calculation Agent Agreement between the University and the initial Calculation Agent, which agreement shall govern and control the rights, duties and liabilities of the initial Calculation Agent of its duties hereunder.

The Calculation Agent may at any time resign as Calculation Agent by giving written notice to the University of such intention on its part, specifying the date on which its desired resignation shall become effective, provided that such notice shall be given not less than 30 days prior to the said effective date unless the University otherwise agrees in writing. The Calculation Agent may be removed by the University giving notice in writing signed by the University specifying such removal and the date when it shall become effective. Upon receipt of such notice of resignation or the giving of such notice of removal, the University shall promptly appoint a successor Calculation Agent, which appointment shall take effect prior to the effective date of such resignation or removal. For the avoidance of doubt, the effectiveness of such resignation or removal shall not be conditional upon or subject to the effectiveness of such appoint of a successor. If no successor shall have been so appointed and have accepted appointment within 30 days after the giving of such notice of resignation or removal, the resigning Calculation Agent may petition any court of competent jurisdiction for the appointment of a successor.

Any successor Calculation Agent appointed under the Series A Indenture shall execute and deliver to its predecessor and the University an instrument accepting such appointment under the Series A Indenture, and thereupon such successor Calculation Agent, without any further act, deed or conveyance, shall become vested with all the authority, rights, powers, immunities, duties and obligations of such predecessor with like effect as if originally named

as the Calculation Agent under the Series A Indenture, and such predecessor shall thereupon become obliged to transfer and deliver, and such successor Calculation Agent shall be entitled to receive, copies of any relevant records maintained by such predecessor Calculation Agent.

Amendments and Supplements

Amendments without Registered Owner Consent. Without the consent of the Registered Owners and notwithstanding any of the provisions set forth below under "—Amendments Requiring Registered Owner Consent", but with the prior written consent of the University, the Authority and the Trustee, from time to time and at any time, subject to the conditions and restrictions in the Series A Indenture contained and may enter into an indenture or indentures supplemental to the Series A Indenture, in addition to the supplemental indentures authorized to be entered into by the other provisions of the Series A Indenture, which indenture or indentures supplemental to the Series A Indenture shall hereafter form a part of the Series A Indenture, for any one or more of the following purposes:

- (a) To add to the covenants and agreements of the Authority in the Series A Indenture contained, other covenants and agreements thereafter to be observed, or to surrender any right or power in the Series A Indenture reserved to or conferred upon the Authority;
- (b) To modify any of the provisions of the Series A Indenture or to relieve the Authority of any of the obligations, conditions or restrictions contained in the Series A Indenture, provided that such modification or relief shall, by the express terms of the particular supplemental indenture, not become effective until all Bonds outstanding on the date of the execution and delivery of such supplemental indenture shall have given such consent to such modification or relief as shall be required by the provisions of the Series A Indenture or shall no longer be outstanding;
- (c) To cure any ambiguity or to cure, correct or supplement any defect, omission or inconsistent provision contained in the Series A Indenture or in any supplemental indenture;
- (d) To make such provision in regard to matters or questions arising under the Series A Indenture as may be necessary or desirable and not inconsistent with the Series A Indenture;
- (e) To qualify any of the Bonds for registration under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended;
- (f) To qualify the Series A Indenture as an "indenture" under the Trust Indenture Act of 1939, as amended;
- (g) To make such changes as may be necessary to comply with the Code, provided that such changes shall not have an adverse effect on the rights or security of the Registered Owners under the Series A Indenture;
- (h) To obtain, maintain or upgrade a rating on the Bonds;
- (i) To make such changes as may accomplish a merger, consolidation or reorganization of the University; provided, that any such merger, consolidation or reorganization shall be consistent with the provisions contained in the Series A Loan Agreement; or
- (j) To make any other amendment that is not materially adverse to the interests of the Trustee or the Registered Owners and does not involve a change described below under "—Amendments Requiring Registered Owner Consent" requiring consent of specific Registered Owners;

provided, however, that written notice of any amendment or supplement to the Series A Indenture shall be given to the Bank, the Remarketing Agent and the Tender Agent, and provided, further, that any amendment or supplemental indenture which is executed pursuant to the Series A Indenture shall be subject to the prior written consent of the

University and the Bank (so long as the Liquidity Facility remains in effect or any amount is owed to the Bank by the University in connection with the Liquidity Facility).

Amendments Requiring Registered Owner Consent. With the consent of the University and of the owners of a majority in aggregate principal amount of the Bonds then outstanding or of the owners of a majority in aggregate principal amount the Bonds then outstanding and affected by any such action (evidenced in each case as provided in the Series A Indenture), in case one or more but less than all of the Bonds then outstanding are so affected, the Authority and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental to the Series A Indenture for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of the Series A Indenture or of any supplemental indenture or of modifying in any manner the rights of the owners of the Bonds; provided, however, that no such supplemental indenture shall (i) extend the fixed maturity date of any Bond, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, without the consent of the owner of each Bond so affected, or (ii) permit the creation by the Authority of any lien upon any property which shall be a part of the Trust Estate, or reduce the aforesaid percentage of Bonds, the owners of which are required to consent to any such supplemental indenture, without the consent of the owners of all Bonds then outstanding. It shall not be necessary for the consent of the Registered Owners under the provisions described in this paragraph to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

Notwithstanding the foregoing, (1) written notice of any amendment or supplement to the Series A Indenture shall be given to the Bondholder, the Bank, the Remarketing Agent and the Tender Agent, and (2) any amendment or supplemental indenture which is executed pursuant to the Series A Indenture shall be subject to the prior written consent of the University and the Bank (so long as the Liquidity Facility remains in effect or any amount is owed to the Bank by the University in connection with the Liquidity Facility).

Defeasance

Defeasance of Bonds.

Any Bonds for the payment or redemption (whether pursuant to optional redemption or otherwise) of which sufficient funds, including interest to the date of payment or redemption and the premium, if any, or Government Securities or Escrowed Securities which, in aggregate, bear interest at such rates and mature at such times as to provide such funds (without assumed reinvestment thereof except at an interest rate contracted for with the United States or which is zero) as and when required for such payment or redemption, shall have been deposited with the Trustee, or provisions for such payment satisfactory to the Trustee shall have been made with the Trustee, whether upon or prior to the maturity or the date fixed for redemption of the Bonds, shall be deemed to be paid within the meaning of this paragraph, except that if the Bonds are to be redeemed prior to the maturity thereof, notice of such redemption shall have been duly given or provisions satisfactory to the Trustee shall have been made therefor. Bonds for the payment of which sufficient funds, including interest to the date of payment, or Government Securities or Escrowed Securities which, in aggregate, bear interest at such rates and mature at such times as to provide such funds (without assumed reinvestment thereof except at an interest rate contracted for with the United States or which is zero) as and when required for such payment, shall have been deposited with the Trustee, or provisions for such payment satisfactory to the Trustee shall have been made with the Trustee, whether upon or prior to the maturity of the Bonds, shall be deemed to be paid within the meaning of the section of this Appendix C captioned "—Defeasance of Bonds".

If any Bond shall not be presented for payment when the principal thereof shall become due, either at maturity or otherwise, and if the Authority shall have deposited with the Trustee or left with it in trust if previously so deposited, funds sufficient to pay the principal of the Bonds, together with all interest due thereon to the date of maturity thereof, for the benefit of the owners thereof, respectively, all liability of the Authority to the owner of such Bond for the payment of the principal thereof and the interest thereon shall forthwith cease, determine and be completely discharged, and thereupon it shall be the duty of the Trustee to hold said funds, without investment or liability for interest thereon, for the benefit of the owner of such Bond, who shall thereafter be restricted exclusively to said funds for any claim of whatsoever nature on such owner's part under the Series A Indenture or on, or with respect to, said Bond.

Provision for the payment in full of Bonds bearing interest shall have been deemed to have been made and the Bonds shall be deemed to be paid within the meaning of the Series A Indenture when the Trustee holds in the Debt Service Fund, (i) cash or immediately available funds in an amount sufficient to make all payments (including principal, premium, if any, and interest) specified in the immediately preceding paragraph with respect to the Bonds, (ii) Government Securities or Escrowed Securities maturing on or before the date or dates when the payments specified above shall become due, the principal amount of which and the interest thereon, when due, is or will be, in the aggregate, sufficient without reinvestment to make all such payments, or (iii) any combination of cash and such Government Securities or Escrowed Securities the amounts of which and interest thereon, when due, are or will be, in the aggregate, sufficient without reinvestment to make all such payments; provided that such amount on deposit shall be deemed sufficient only if (1) while the Bonds bear interest at Index, Flexible, Daily, Weekly, Monthly, Semiannual or Long Rates, it provides for payment of interest at the Maximum Interest Rate permitted to be borne by the Bonds to the first to occur of the first redemption date or the optional or mandatory tender date for the Bonds (or such other date if the Rating Agency shall have confirmed that its rating on the Bonds will not be reduced or withdrawn), and (2) in the case of the Bonds bearing interest at Monthly, Semiannual or Long Rates and for which notice of redemption shall have irrevocably been given (or shall be given in connection with payment therefor), it provides for the payment of interest at the Monthly, Semiannual or Long Rate then in effect to the date fixed for such redemption and such date precedes the next date on which a new interest rate would have become effective.

Neither moneys nor the Government Securities or Escrowed Securities deposited with the Trustee pursuant to the Series A Indenture shall be withdrawn or used for any purpose other than, and such Government Securities or Escrowed Securities and moneys shall be segregated and held in trust for, the payment of the principal of or Redemption Price of, premium, if any, on and interest on, the Bonds (or portions thereof).

The Trustee shall be provided with and be entitled to rely upon an Opinion of counsel selected by the University to the effect that the conditions precedent to the defeasance of the Bonds set forth above have been satisfied.

Deposit of Funds for Payment of Bonds. After the Authority deposits with the Trustee moneys or Government Securities sufficient to pay the principal of any Bond becoming due, either at maturity or otherwise, together with all interest accruing thereon to the due date, interest on the Bond or Bonds shall cease to accrue on the due date and all liability of the Authority with respect to such Bond or Bonds shall likewise cease except as provided above. Thereafter such Bond or Bonds shall be deemed not to be outstanding under the Series A Indenture, and (a) any surplus balance held by the Trustee with respect to the Bonds over the principal of and actual interest accrued on the Bonds shall be paid to the University and (b) the owner or owners of such Bond or Bonds shall be restricted exclusively to the funds so deposited for any claim of whatsoever nature with respect to such Bond or Bonds, and the Trustee shall hold such funds in trust for such owner or Registered Owners.

Discharge of Indenture. If the Authority, its successors or assigns, shall (as provided above) pay or cause to be paid unto the owners of all Bonds outstanding under the Series A Indenture the principal and interest to become due thereon at the times and in the manner stipulated therein, or if the Authority, its successors or assigns, shall deliver or cause to be delivered to the Trustee for cancellation all Bonds outstanding under the Series A Indenture, then the Series A Indenture and the estate, title, interest and rights hereby granted shall cease, determine and be void, and thereupon the Trustee shall, upon the written direction of the Authority, which request shall be made at the direction of the University, release, cancel and discharge the lien of the Series A Indenture, and execute and deliver to the Authority such instruments as shall be requisite to satisfy the lien thereof, shall discharge the Series A Indenture and the Series A Loan Agreement and reconvey to the Authority the estate, title, interest and rights hereby conveyed, and assign and deliver to the University any money and other property at the time subject to the lien of the Series A Indenture which may then be in the possession of the Trustee.

The release, cancellation and discharge of the Series A Indenture, however, shall be without prejudice to the right of the Trustee to be paid any compensation then due to it under the Series A Indenture, and to be protected and saved harmless by the Authority and the University from any and all losses, liabilities, costs and expenses, including counsel fees and expenses at any time incurred by the Trustee under the Series A Indenture, or connected with any Bond issued under the Series A Indenture, of and from which, if the Series A Indenture had not been released, canceled and discharged, the Authority would have been obligated by the terms of the Series A Indenture to protect and save the Trustee harmless of and from such losses, liabilities, costs and expenses.

Any moneys deposited with the Trustee by the Authority, pursuant to the terms of the Series A Indenture, for the payment of Bonds remaining unclaimed by the owners of the Bonds for six years after the date of their maturity shall upon the written direction of the University or of such officer, board or body as may then be entitled by law to receive the same, and if the Authority or any successor to the obligations of the Authority under the Series A Indenture and the Bonds shall not at the time, to the knowledge of the Trustee, be in default with respect to any of the terms and conditions contained in the Series A Indenture or in the Bonds, be paid to the University and the owners of the Bonds shall thereafter look only to the University for payment and then only to the extent of the amounts so received, without interest thereon. In the absence of any such written direction from the University, the Trustee shall from time to time deliver such unclaimed funds to or as directed by pertinent escheat authority, as identified by the Trustee in its sole discretion, pursuant to and in accordance with applicable unclaimed property laws, rules or regulations. Any such delivery shall be in accordance with the customary practices and procedures of the Trustee and the escheat authority. Any money held by the Trustee pursuant to this paragraph shall be held uninvested and without any liability for interest.

THE SERIES A LOAN AGREEMENT

Loan of Proceeds

The Authority shall issue the Bonds and shall lend the proceeds from the sale of the Bonds to the University for the payment of a portion of the costs of the 2022A Project in accordance with the provisions of the Series A Indenture. The Authority does not make any warranty, either express or implied, that the amounts to be deposited pursuant to the Series A Indenture will be sufficient to complete payment of the costs of the 2022A Project. The Authority shall have no obligation and makes no warranties respecting the condition or adequacy of the Capital Projects.

The University shall be obligated to complete the 2022A Project at its own expense regardless of the adequacy of the moneys made available to the University by the Authority. The University agrees that if, after exhaustion of the moneys made available by the Authority from proceeds of the Bonds, should the University pay any portion of the remaining costs of the 2022A Project, it shall not be entitled to any reimbursement therefore from the Authority, the Trustee or the owners of any of the Bonds, nor shall it be entitled to any diminution in or postponement of the amounts payable under the Series A Loan Agreement.

Loan Repayments

The University agrees to pay to the Trustee as the assignee of the Authority, for deposit to the Debt Service Fund, the following sums in immediately available funds on or before 10:00 o'clock a.m. Pittsburgh time on the dates provided in the Series A Indenture: the amounts required to pay the principal of, the interest on, and all other amounts becoming due in respect of the Bonds on each such date, and on each date hereafter fixed for payment of any of the Bonds, whether at maturity or pursuant to acceleration or otherwise, subject in each case to a credit equal to the amount of other funds then deposited to the credit of the Debt Service Fund and available for payment for such purpose.

Debt Service Fund Insufficiency

If for any reason the amounts paid by the University pursuant to the Series A Loan Agreement or pursuant to any other section of the Series A Loan Agreement, together with any other amounts available therefor in the Debt Service Fund, are at any time insufficient to make payments of the principal of and interest on the Bonds when due, whether at maturity, upon acceleration or otherwise, the University shall forthwith pay to the Trustee for the account of the Authority, for deposit in the Debt Service Fund the amount required to make up such insufficiency.

Option to Prepay

The University shall have, and is granted under the Series A Loan Agreement, the option to prepay from time to time amounts due by it under the Series A Loan Agreement in amounts sufficient to pay at maturity the Bonds, in whole or in part, in accordance with the provisions of the applicable Bonds and the Series A Indenture. Such

instructions may be given by the University in lieu of the Authority in the manner required by the Series A Indenture. Upon the agreement of the University to deposit prepaid loan payments with the Trustee to the credit of the Debt Service Fund in an amount sufficient to make such payment of Bonds, the Authority shall forthwith take all steps necessary on its part under the applicable payment provisions of the Series A Indenture to effect payment of all or part of the Bonds as may be specified by the University.

General Obligation

The University's obligations to repay the loan made under the Series A Loan Agreement and to pay all other amounts due under the Series A Loan Agreement are unsecured, uncollateralized, general and unconditional obligations of the University.

Covenants of the University

For so long as the University has any obligations under the Series A Loan Agreement, it shall:

(a) preserve its corporate existence and all its rights and licenses to the extent necessary or desirable in the operation of its business affairs and be qualified to do business in each jurisdiction where its ownership of property or the conduct of its business requires such qualification; provided, however, that nothing contained in the Series A Loan Agreement shall be construed to obligate it to retain or preserve any of its rights or licenses no longer used or, in the judgment of the University, useful in the conduct of its business;

(b) at all times cause its business to be carried on and conducted in an efficient manner and its properties to be maintained, preserved and kept in good repair, working order and condition and all needful and proper repairs, renewals and replacements thereof to be made; provided, however, that nothing contained in the Series A Loan Agreement shall be construed (i) to prevent it from ceasing to operate any portion of its properties, if in the judgment of the University it is advisable not to operate the same for the time being, or if it intends to sell or otherwise dispose of the same as permitted under the Series A Loan Agreement and within a reasonable time endeavors to effect such sale or other disposition, or (ii) to obligate it to use, retain, preserve, repair, renew or replace any property, leases, rights, privileges or licenses no longer used or, in the judgment of the University, useful in the conduct of its business;

(c) conduct its affairs and carry on its business and operations in such manner as to comply with any and all applicable laws of the United States and the several states thereof and duly observe and conform to all valid orders, regulations or requirements of any governmental authority relative to the conduct of its business and the ownership of its properties; provided, nevertheless, that nothing contained in the Series A Loan Agreement shall require it to comply with, observe and conform to any such law, order, regulation or requirement of any governmental authority so long as the validity or application thereof shall be contested in good faith;

(d) promptly pay all lawful taxes, governmental charges and assessments at any time levied or assessed upon or against it or any of its properties; provided, however, that it shall have the right to contest in good faith by appropriate proceedings any such taxes, charges or assessments or the collection of any of such sums;

(e) promptly pay or otherwise satisfy and discharge all of its obligations and indebtedness and all demands and claims against it as and when the same become due and payable, other than any thereof (exclusive of obligations of the University under the Series A Loan Agreement) whose validity, amount or collectability is being contested in good faith by appropriate proceedings;

(f) at all times comply with all terms, covenants and provisions contained in any lien or security interest at such time existing upon its properties or any part thereof or securing any of its indebtedness and pay or cause to be paid, or to be renewed, refunded or extended, or to be taken up, by it, all of its indebtedness secured by a lien or security interest, as and when the same shall become due and payable;

(g) procure and maintain all licenses, permits, approvals, certifications and accreditations issued by any governmental agencies or private accrediting bodies which are necessary for the maintenance of its properties, conduct of operations and performance of its obligations under the Series A Loan Agreement;

(h) take no action or suffer any action to be taken by others within its control which will adversely affect any applicable exclusion from gross income from federal income taxation of the interest on any Bond or the exemption of any Bond and the interest thereon from Commonwealth personal property taxes and from Commonwealth personal and corporate net income taxes, and at all times comply with the requirements of the Tax Certificate;

(i) maintain insurance in such amounts with respect to its properties and liabilities as the University shall deem appropriate to its circumstances and, upon request, furnish the Authority with a certificate evidencing coverages with respect thereto;

(j) not merge or consolidate with or sell or convey substantially all of its assets to any Person unless (A) the successor corporation shall be a corporation organized and existing under the laws of the United States of America or a state thereof and shall expressly assume the due and punctual payment of the principal of and interest on and all other amounts payable in respect of all Bonds and other outstanding indebtedness related to the Bonds incurred under the Series A Loan Agreement, according to their tenor, and the due and punctual performance and observance of all of the covenants and conditions of the Series A Loan Agreement and the Series A Indenture to be performed or observed by the University; (B) the University or such successor corporation, as the case may be, immediately after such merger or consolidation, or such sale or conveyance, would not be in default in the performance or observance of any covenant or condition under the Series A Loan Agreement; and (C) there shall have been delivered to the Trustee an opinion of nationally recognized bond counsel selected by the University to the effect that the consummation of such merger, consolidation, sale or conveyance is permitted under the Series A Loan Agreement and will not adversely affect any applicable exclusion from gross income from federal income taxation of the interest payable on any outstanding Bonds which were previously issued pursuant to the Series A Indenture or the exemption of any outstanding Bonds which were previously issued pursuant to the Series A Indenture and the interest thereon from Commonwealth personal property taxes and from Commonwealth personal and corporate net income taxes;

(k) if there is any amount required to be paid to the United States pursuant to Section 148(f) of the Code and the provisions of the Series A Indenture and the Series A Loan Agreement relating to arbitrage rebate, the University shall pay such amount to the Trustee for deposit to the Rebate Fund created under the Series A Indenture, and the Trustee, if so directed in writing by the University, shall submit the payment to the United States;

(l) provide the information and notices required to be filed pursuant to SEC Rule 15c2-12 under the Securities Exchange Act of 1934, as amended, if any, as set forth in a continuing disclosure agreement entered into by the University for the benefit of the Holders of the Bonds. Notwithstanding any contrary provision of the Series A Loan Agreement, the failure by the University to comply with the foregoing covenant shall not be an Event of Default under the Series A Loan Agreement or under the Series A Indenture, and that the remedies of the Trustee (if it is a party to such continuing disclosure agreement) and/or Bondholders in the event of such a failure to comply shall be limited to an action for specific performance;

(m) keep complete and accurate lists and other records containing all information necessary to reflect the use of proceeds of the Bonds loaned to it pursuant to the Series A Loan Agreement, and from time to time upon request of the Authority, will furnish copies thereof to the Authority;

(n) provide to the Authority upon written request therefor copies of its annual audited financial statements as soon as practicable after the end of University's Fiscal Year; and

(o) pursuant to the Series A Indenture, agree to perform such Authority covenants and other obligations (excepting only any approvals or consents permitted or required to be given by the Authority thereunder, except for the provisions of Sections 8.04, 8.05 and 8.07 of the Series A Indenture, and any exceptions to the performance by the University of the Authority's covenants and other obligations thereunder.

Tax Exemption

The University (a) shall take whatever actions are necessary to preserve and maintain its status as an organization exempt from federal income taxation and described in Section 501(c)(3) of the Code, (b) shall not perform any acts nor enter into any agreements which shall cause any revocation or adverse modification of such status, (c) shall not carry on or permit to be carried on any trade or business the conduct of which would adversely affect the exclusion from gross income of interest on any Bond from federal income taxation or any exemption of any Bond and the interest thereon from personal property taxes and from personal and corporate net income taxes in the Commonwealth, and (d) shall not take any other action or permit any action to be taken on its behalf if such action would adversely affect the exclusion from gross income of interest on any Bond from federal income taxation or any exemption of any Bond and the interest thereon from personal property taxes and from personal and corporate net income taxes in the Commonwealth.

Bonds Not to Become "Arbitrage Bonds"

As provided in the Series A Indenture, the Trustee shall invest moneys held by the Trustee under the Series A Indenture as directed in writing by the University. The University covenants with the Authority and the owners of the Bonds that, notwithstanding any other provision of the Series A Loan Agreement or any other instrument, it shall neither make nor instruct the Trustee to make any investment or other use of the proceeds of the Bonds, or take or omit to take any other action which would cause any of the Bonds to be "arbitrage bonds" under Section 148 of the Code and the regulations thereunder, and that it shall comply with the requirements of the Code and regulations throughout the terms of the Bonds in order that the interest on the Bonds shall remain exempt from federal income taxation.

Events of Default

Each of the following shall constitute an Event of Default:

(a) the University fails to make any payment to the Trustee when due pursuant to the Series A Loan Agreement, subject to such grace periods as are set forth in the Series A Indenture and described herein under the caption "THE SERIES A INDENTURE—Events of Default; Remedies – Events of Default"; or

(b) the University shall default in the performance of any other covenant under the Series A Loan Agreement for a period of thirty (30) days after delivery of notice thereof from the Trustee to the University; or

(c) the University proposes or makes an assignment for the benefit of creditors or a composition agreement with all or a material part of its creditors, or a trustee, receiver, executor, conservator, liquidator, sequestrator or other judicial representative, similar or dissimilar, is appointed for the University or any of its assets or revenues, or there is commenced any proceeding in liquidation, bankruptcy, reorganization, arrangement of debts, debtor rehabilitation, creditor adjustment or insolvency, local, state or federal, by or against the University and if such is not vacated, dismissed or stayed on appeal within sixty (60) days; or

(d) an Event of Default under the Series A Indenture shall have occurred and be continuing;
or

(e) if any of the representations or warranties of the University contained in the Series A Loan Agreement are determined to have been false in any material respect as of the date when made.

Notice of Defaults; Opportunity to Cure Such Defaults

No default under clause (b) above under "Events of Default" shall constitute an Event of Default until actual notice of such default by registered or certified mail shall be given to the University by the Authority or the Trustee and the University shall have had ninety (90) days after receipt of such notice to correct the default and shall not have corrected it; provided, however, if the default cannot be corrected within such ninety (90) day period, it shall not constitute an Event of Default if corrective action is instituted by the University within the period and diligently pursued until the Event of Default is corrected; provided that the Trustee and the Authority are provided with a certification from the University to the effect that such default cannot be corrected within such ninety (90) day period and the University has instituted or will institute corrective action within such period and diligently pursue such corrective action until the Event of Default is corrected.

Remedies on Default

If an Event of Default under the Series A Loan Agreement occurs and is continuing, the Trustee (as assignee of the Authority) may exercise any right or remedy granted to it under the Series A Loan Agreement or the Series A Indenture or otherwise as authorized or permitted by law, including taking any one or more of the following remedial steps:

(i) If the maturity of any Bonds shall have been accelerated as a result of such Event of Default, then the Trustee, or the Authority with the prior written consent of the Trustee, may (and shall at the written direction of the owners of a majority in aggregate principal amount of all outstanding Bonds) declare all amounts payable under the Series A Loan Agreement for the entire term of the Series A Loan Agreement to be immediately due and payable, whereupon the same shall become due and payable. For the purposes of this provision, such amounts payable shall be equal to the principal amount of all such Bonds plus all interest accrued thereon to the date of payment.

(ii) The Trustee, or the Authority with the prior written consent of the Trustee, may (and shall at the written direction of the owners of a majority in aggregate principal amount of all outstanding Bonds) take any action at law or in equity to collect amounts then due and thereafter to become due under the Series A Loan Agreement, or to require the performance and observance of any obligation, agreement or covenant of the University under the Series A Loan Agreement, or any other action provided for in the Series A Indenture.

Any amounts collected pursuant to action taken under this provision shall be applied in accordance with the Series A Indenture.

If the Trustee or the Authority shall have proceeded to enforce the rights of the Authority under the Series A Loan Agreement and such proceedings shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Trustee or the Authority, as the case may be, or if each Event of Default theretofore existing shall have been cured or provision satisfactory to the Trustee shall theretofore been made, then and in every such case the University, the Authority and the Trustee shall be restored respectively to their several positions and rights under the Series A Loan Agreement, and all rights, remedies and powers of the University, the Authority and the Trustee shall continue as though no such proceedings had been taken.

Remedies Not Exclusive

No remedy conferred upon or reserved to the Authority or the Trustee in the Series A Loan Agreement is intended to be exclusive of any other remedy or remedies, and each and every such remedy shall be cumulative and shall be in addition to every other remedy given under the Series A Loan Agreement or now or hereafter existing at law or in equity or by statute. Any right or power accruing upon any default under the Series A Loan Agreement may be exercised from time to time and as often as may be deemed expedient. In order to entitle the Authority or the Trustee to exercise any remedy conferred upon or reserved to it in the Series A Loan Agreement, it shall not be necessary to give any notice, other than such notice as may be expressly required in the Series A Loan Agreement.

Amendments

The Series A Loan Agreement may be amended or supplemented from time to time by a supplemental Loan Agreement executed in writing by the parties to the Series A Indenture (a) to correct any irregularity or formal defect therein, (b) for the purpose of curing any ambiguity, defect, inconsistent provision or omission in the Series A Loan Agreement, (c) obtain, maintain or upgrade any rating on the Bonds, (d) with the consent of the Trustee, otherwise to implement the requirements of the Series A Indenture or any amendment thereof, or (e) in connection with any other change therein which, in the judgment of the Trustees, is not materially adverse to the interests of the Trustee or the holders of the Bonds. No amendment under the Series A Loan Agreement shall be effective unless the Trustee shall have received an Opinion of counsel to the effect that such amendment, if adopted, is not inconsistent with the terms of the Series A Indenture (including, for such purpose, any amendment of the Series A Indenture then being proposed in conjunction with an amendment of the Series A Loan Agreement). The University shall reimburse the Authority and the Trustee for all reasonable costs and expenses, paid or incurred by the Authority and the Trustee in connection with any amendments or modifications of the Series A Loan Agreement or to the Series A Indenture and any document, instrument or agreement related thereto, and the discussion, negotiation, preparation, approval, execution and delivery of any and all documents necessary or desirable to effect such amendments or modifications.

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APPENDIX D

Summary of Certain Provisions of the Series B Indenture and the Series B Loan Agreement

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SUMMARY OF CERTAIN PROVISIONS OF THE SERIES B INDENTURE AND THE SERIES B LOAN AGREEMENT

THE FOLLOWING SUMMARIES ARE OF CERTAIN PROVISIONS OF THE SERIES B INDENTURE AND THE SERIES B LOAN AGREEMENT. THEY ARE NOT FULL STATEMENTS OF ANY OF THE DOCUMENTS AND REFERENCE SHOULD BE MADE TO THE DOCUMENTS THEMSELVES FOR ALL OF THEIR TERMS AND PROVISIONS.

DEFINITIONS OF CERTAIN TERMS

The following are certain terms used in the Series B Indenture (referred to in this Appendix D as the "Indenture"), the Series B Loan Agreement (referred to in this Appendix D as the "Loan Agreement") and/or the Official Statement.

"2022 Project" shall mean the 2022B Project together with the 2022C Project.

"2022A Bonds" shall mean the \$50,230,000 Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Bonds, Series A of 2022 (SOFR Index Rate Bonds), which are part of the same "issue" as the 2022B Bonds for federal income tax purposes and are being issued by the Authority pursuant to a separate trust indenture.

"2022B Bonds" shall mean the \$27,240,000 Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Bonds, Series B of 2022.

"2022B Project" shall consist of the payment of all or a portion of the costs of (a) currently refunding the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bonds, Series A of 2012, and (b) paying the costs related to the issuance of the 2022B Bonds.

"2022C Bonds" shall mean the Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Bonds, Series C of 2022, which are being issued in an aggregate principal amount as set forth in the First Supplemental Indenture subsequent to the issuance of the 2022B Bonds.

"2022C Project" shall consist of (a) the payment of a portion of the costs of the Capital Project, and (b) the payment of all or a portion of the costs related to the issuance of the 2022C Bonds.

"Affiliate" shall mean any Person directly or indirectly controlling, controlled by or under common control with the University, as certified by the University to the Trustee.

"Authority" shall mean the Allegheny County Higher Education Building Authority, a body politic and corporate organized and existing under the Municipality Authorities Act, as amended and supplemented, and its successors.

"Bond" or "Bonds" shall mean, collectively, the 2022B Bonds and the 2022C Bonds.

"Bonds outstanding under the Indenture" or "outstanding", when used with reference to the Bonds, shall mean, at any date for which the amount of outstanding Bonds is to be determined, the aggregate of all Bonds authenticated and delivered under the Indenture except--

- (a) Bonds canceled at or prior to such date;
- (b) Bonds for the payment of which funds shall have been theretofore irrevocably deposited in trust with the Trustee and which shall have matured by their terms but shall not have been surrendered for payment;

(c) Bonds for the payment of which moneys or Government Securities (which bear interest at such rates and mature at such times as to permit the timely payment of the Bonds) shall have been theretofore irrevocably deposited in trust with the Trustee, whether upon or prior to the maturity;

(d) Bonds in lieu of and in substitution for which other Bonds shall be authenticated by the Trustee and delivered by the Authority under the provisions of the Indenture relating to lost and stolen Bonds.

Any reference to a majority or a particular percentage or proportion of the Registered Owners of the Bonds, shall mean the owners at the particular time of a majority or of the specified percentage or proportion in aggregate principal amount of all Bonds then outstanding under the Indenture, exclusive of Bonds held by or on behalf of the Authority, the University or an Affiliate (whether or not theretofore issued); but for the purpose of determining whether the Trustee shall be protected in relying upon any direction or consent given or action taken by Registered Owners, only the Bonds which the Trustee actually knows are so held shall be excluded.

"Bonds issued", when used with respect to any Bond, shall mean sold or otherwise disposed of for value by the Authority.

"Bond Registrar" shall mean the Trustee, which shall serve as Bond Registrar for the Bonds.

"Business Day" shall mean any day other than a Saturday or Sunday on which banks in Pittsburgh, Pennsylvania and New York, New York and the other city or cities in which the Designated Offices of the Trustee, Paying Agent and Bond Registrar are located are open for commercial banking purposes and on which the New York Stock Exchange is not closed.

"Capital Project" shall mean payment of a portion of the costs of constructing the University's Richard King Mellon Science Building facility and related capital expenditures.

"Certified Authority Resolution" shall mean a copy of a resolution or resolutions certified by the Secretary, Assistant Secretary, or authorized designate of the Authority, under its corporate seal, to have been duly adopted by its Board and to be in full force and effect on the date of such certification.

"Certified University Resolution" shall mean a copy of a resolution or resolutions certified by the Secretary or an Assistant Secretary of the University, under its corporate seal, to have been duly adopted by the Board of Trustees of the University, its Executive Committee or any special committee appointed by the said Board of Trustees, to be in full force and effect on the date of such certification.

"Code" shall mean the Internal Revenue Code of 1986, as amended, and the regulations and decisions thereunder, as in effect from time to time.

"Cost", when used with reference to the 2022 Project, shall mean the amounts required to be paid to complete the 2022 Project.

"Debt Service Fund" shall mean the Debt Service Fund created pursuant to the Indenture, and subdivided into the following subaccounts: the "Principal Subaccount" and the "Interest Subaccount".

"Designated Office" shall mean, with respect to the Trustee, the Paying Agent and the Registrar, the office specified in the Indenture or such other address as may hereafter be specified in writing by the Trustee, the Paying Agent and the Registrar for purposes of notices to be given and actions to be taken under the Indenture; provided, however, that with respect to payments on the Bonds and any exchange, transfer, or other surrender of the Bonds, the Designated Office shall mean the corporate trust office of the Trustee, Paying Agent and Registrar in St. Paul, Minnesota or such other office or location designated by the Trustee, Paying Agent or Registrar by written notice.

"Escrowed Securities" shall mean pre-refunded obligations of a state or any political subdivision thereof, which pre-refunded obligations are rated, at the time of purchase, in the highest rating category by the Rating Agency.

"Event of Default" shall mean any Event of Default specified below under "Events of Default", which continues beyond the period of time, if any, therein designated as a grace or cure period with respect to such event.

"First Supplemental Indenture" means the First Supplemental Trust Indenture, to be dated as of February 1, 2022, to be entered into by and between the Authority and Trustee, providing for certain terms and provisions with respect to the 2022C Bonds.

"Government Securities" shall mean direct obligations of the United States of America and obligations on which the timely payment of principal and interest is fully and unconditionally guaranteed by the United States of America.

"Indenture" or **"the Indenture"** shall mean the Trust Indenture dated as of January 1, 2022 between the Authority and the Trustee, as the same may from time to time be amended and supplemented.

"Independent Public Accountant" shall mean a Person who is a certified public accountant or firm of certified public accountants under the laws of the Commonwealth, who is engaged in the accounting profession, who is in fact independent (although such Person may be regularly retained by the Authority or the University), and who is appointed by the Authority or the University, in respect of the accounts of such entity. If such Person is an individual, such Person shall not be a member of the board, an officer or employee of the Authority or of the University. If such Person is a partnership or corporation, such Person shall not have a partner, director, officer or substantial stockowner that is a member of the Board of the Authority or of the Board of Trustees of the University or an officer or employee of the Authority or of the University.

"Issue Date" means (a) with respect to the 2022B Bonds, January 27, 2022, the date of issuance of the 2022B Bonds, and (b) with respect to the 2022C Bonds, the date of issuance of the 2022C Bonds as set forth in the First Supplemental Indenture.

"Loan Agreement" shall mean the Loan Agreement dated as of January 1, 2022 between the Authority and the University, as the same may from time to time hereafter be amended and supplemented and any agreement supplemental thereto executed and delivered by the Authority and the University in accordance with the Indenture.

"Moody's" shall mean Moody's Investors Service, Inc., Moody's Investors Service, 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, for the purpose of the definition of Qualified Investments only, "Moody's" shall be deemed to refer to any other nationally recognized securities rating agency designated by the University, with written notice to the Authority and the Trustee.

"Opinion of counsel" shall mean an opinion or opinions in writing signed by counsel.

"Paying Agent" shall mean the Trustee, which shall serve as Paying Agent for the Bonds.

"Person" shall mean an individual, a corporation, a partnership, an association, a joint stock company, a trust, an unincorporated organization, an authority or similar body, a municipality, or a government or political subdivision thereof.

"Project Fund" shall mean the fund established by the Trustee pursuant to the Indenture.

"Qualified Investments" shall mean, to the extent permitted by law from time to time:

- (i) Government Securities;
- (ii) stripped securities where the principal-only and interest-only strips of non-callable obligations are issued by the U.S. Treasury and REFCORP Securities stripped by the Federal Reserve Bank of New York;

(iii) direct obligations of any agency or instrumentality of the United States of America including, without limitation, Federal Home Loan Bank System, Federal National Mortgage Association, Export-Import Bank of the United States, Federal Land Bank and Government National Mortgage Association;

(iv) deposits, demand deposits, including interest bearing money market accounts, time deposits, trust funds, trust accounts, overnight bank deposits, interest-bearing deposits, and certificates of deposit, including those placed with a third party pursuant to agreement of the Trustee and the University, federal funds or bankers' acceptances of any bank, including the Trustee or any of its affiliates, which (A) has an unsecured, uninsured and unguaranteed long- or short-term obligation rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds; or (B) is the lead bank of a parent bank holding company with an uninsured, unsecured and unguaranteed obligation meeting the rating requirements in (A) above at the time of investment;

(v) demand deposits, including interest bearing money market accounts, time deposits, trust funds, trust accounts, overnight bank deposits, interest-bearing deposits, certificates of deposit including those placed by a third party pursuant to agreement of the Trustee and the University and bankers' acceptances of any bank or savings and loan association including the Trustee or any of its affiliates, which has combined capital, surplus and undivided profits of not less than \$100,000,000, provided such deposits are fully insured by the Federal Deposit Insurance Corporation or Federal Savings and Loan Insurance Corporation or, if applicable, collateralized to the extent required by regulations applicable to national banking associations;

(vi) repurchase agreements, if the provider of any such repurchase agreement, which may include the Trustee or any of its affiliates, has, or if the parent corporation of such provider has, an uninsured, unsecured and unguaranteed obligation rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds;

(vii) commercial paper rated at the time of investment by a Rating Agency in one of its two top commercial paper rating categories;

(viii) direct obligations of any state of the United States of America or any subdivision or agency thereof whose unsecured general obligation debt is rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds or any obligation fully and unconditionally guaranteed by any state, subdivision or agency whose unsecured general obligation debt is rated by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds,

(ix) Escrowed Securities;

(x) investment agreements with a bank, including the Trustee or any of its affiliates, insurance company or any other entity which has an unsecured, uninsured and unguaranteed obligation (or claims-paying ability) rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds, or is the lead bank of a parent bank holding company with an uninsured, unsecured and unguaranteed obligation meeting such rating requirements at the time of investment, provided that (A) moneys invested thereunder may be withdrawn to the extent necessary to make any payment required under the Indenture without any penalty, premium or charge upon not more than ten Business Days' notice and provided further that charges may be levied upon withdrawal caused by the Trustee's early termination of any such investment agreement, to the extent use of such moneys are not required under the Indenture, and (B) the agreement is not subordinated to any other obligations of such insurance company, bank or other entity, and provides that if the issuer defaults under the investment agreement or if the rating agency subsequently downgrades the issuer's uninsured, unsecured and unguaranteed obligation (or claims paying ability) below "A" or withdraws or suspends its rating, then within fifteen (15) days after such downgrading, withdrawal or suspension, (1) the issuer's payment obligations under any such investment agreements shall be fully collateralized by cash or Government Securities or (2) the agreement may be terminated at any time without penalty;

(xi) collateralized obligations which represent certificates or other evidence of ownership in a pool of securities, which certificates or other evidence of ownership are rated at the time of investment by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds ;

(xii) shares of money market funds registered under the Investment Company Act of 1940, as amended, that invest solely in Government Securities and repurchase agreements backed by such Government Securities, including, without limitation, any such fund for which the Trustee or an affiliate of the Trustee serves as investment manager, administrator, shareholder servicing agent and/or custodian or subcustodian, notwithstanding the fact that (A) the Trustee or an affiliate of the Trustee receives fees from such funds for services rendered, (B) the Trustee charges and collects fees for services rendered pursuant to the Indenture, which fees are separate from the fees received from such funds, and (C) services performed for such funds and pursuant to the Indenture may at times duplicate those provided to such funds by the Trustee or its affiliates; and

(xiii) shares of money market funds registered under the Investment Company Act of 1940, as amended, that are rated, at the time of investment, at least as high by a Rating Agency then rating the Bonds at least as highly as its rating on the Bonds . Qualified Investments include money market mutual funds, including, without limitation, any money market mutual fund or any other mutual fund or which the Trustee or an affiliate of the Trustee serves as investment manager, administrator, shareholder servicing agent, and/or custodian or subcustodian, notwithstanding that (A) the Trustee or an affiliate of the Trustee receives fees from such funds for services rendered, (B) the Trustee charges and collects fees for services rendered pursuant to this Indenture, which fees are separate from the fees received by such funds and (C) services performed for such funds and pursuant to this Indenture may at times duplicate those provided to such funds by the Trustee or its affiliate.

"Rating Agency" shall mean each nationally recognized securities rating agency rating the Bonds at the request of the University, which at the time of issuance of the Bonds means S&P. For purposes of the definition of Qualified Investments, "Rating Agency" shall mean S&P or Moody's.

"Rebate Fund" shall mean the special fund created pursuant to the Indenture.

"Refunded Bonds" shall mean the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bonds, Series A of 2012.

"Registered Owners" or **"owner"** or **"owner of the Bonds"** shall mean the Person(s) in whose name the Bond(s) are registered as reflected in the registration books of the Bond Registrar.

"Regular Record Date" shall mean the date (other than a Special Record Date) specified in any Bond upon which, at the close of business, the Trustee shall determine the Persons entitled to receive interest on such Bond on the next succeeding Scheduled Interest Payment Date and the amount of interest then payable to the Registered Owners of such Bond, which date shall be the fifteenth day (whether or not a Business Day) of the calendar month next preceding each Scheduled Interest Payment Date.

"Responsible Officer" shall mean, when used with respect to the Trustee, any officer within the corporate trust department of the Trustee, including any vice president, assistant vice president, assistant secretary, assistant treasurer, trust officer or any other officer of the Trustee who customarily performs functions similar to those performed by the persons who at the time shall be such officers, respectively, or to whom any corporate trust matter is referred because of such person's knowledge of and familiarity with the particular subject and who shall have direct responsibility for the administration of this Indenture.

"S&P" shall mean S&P Global Ratings, a business unit of Standard & Poor's Financial Services LLC, its successors and assigns, and, if such entity shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, for the purpose of the definition of Qualified Investments only, "S&P" shall be deemed to refer to any other nationally recognized securities rating agency designated by the University, with written notice to the Authority and the Trustee.

"Scheduled Interest Payment Date" shall have the meaning set forth in this Official Statement under the caption "THE BONDS – General Description".

"Special Interest Payment Date" shall mean, in the event sufficient funds for the payment of interest becoming due on any Scheduled Interest Payment Date are not on deposit with the Paying Agent on such date, and if sufficient funds thereafter become available for the payment of such overdue interest, the special interest payment date to be established by the Paying Agent for such payment as of the close of business on the Special Record Date relating thereto.

"Special Record Date" shall mean any date established by the Trustee for payment of defaulted interest on the Bonds, which date shall be established by notice mailed to the Registered Owners of the Bonds at least ten (10) days prior to the Special Record Date, but not more than thirty (30) days prior to the Special Interest Payment Date so established.

"Supplemental indenture" or "indenture supplemental thereto" shall mean any indenture amending or supplementing the Indenture and entered into in accordance with the provisions of the Indenture.

"Trust Agreement" shall mean an agreement between the Authority and the Trustee, with the consent of the University, pursuant to which funds are provided to provide for the payment of the Bonds in accordance with the Indenture.

"Trustee" shall mean U.S. Bank National Association, a national banking association organized under the laws of the United States of America, and its successors under the Indenture.

"University" shall mean Carnegie Mellon University and its permitted successors and assigns.

THE INDENTURE

Provisions Relating to the Bonds

Registration of Bonds. The Authority shall keep or cause to be kept, at the office of the Bond Registrar, books for the registration, transfer or exchange of Bonds entitled to registration, transfer and exchange; and the Authority will register, transfer or exchange or cause to be registered, transferred or exchanged therein, as provided in the Indenture and under such reasonable regulations as it may prescribe, any Bonds entitled to be so registered, transferred or exchanged upon presentation thereof at such office or agency.

Manner of Effecting Transfer or Exchange. Any Bond may be exchanged and the transfer of any Bond may be registered at the agency or agencies of the Authority to be maintained by it as provided in the Indenture, upon surrendering such Bond for cancellation accompanied by delivery of a written instrument of transfer in a form approved by the Trustee, duly executed by the Registered Owner of such Bond or such Owner's duly authorized attorney or legal representative; and thereupon, but subject to such rights of transfer and exchange as such Bond shall have, the Authority shall execute in the name of the transferee or transferees or exchange for, and the Trustee shall authenticate and deliver, a new Bond or Bonds of the applicable series, in authorized forms for the same aggregate principal amount. Such transfers and exchanges shall be made without cost to the Registered Owner, but any taxes or other governmental charges required to be paid with respect to the same shall be paid by the Registered Owner requesting such transfer or exchange as a condition precedent to the exercise of such privilege.

Status of Registered Owners. The Person in whose name any Bond shall be registered shall be deemed and regarded as the absolute owner thereof for all purposes of the Indenture; and payment of or on account of the principal of such Bond shall be made only to or upon the order in writing of such Registered Owner; but such registration may be changed as provided in the Indenture. Each such payment shall be valid and effectual to satisfy and discharge the liability upon such Bond to the extent of the sum or sums so paid.

Bonds Equally and Ratably Secured; Exceptions. The Indenture creates a security interest in amounts payable to the Authority pursuant to the Loan Agreement (except the Authority's administrative expenses and its right to reimbursement and indemnification pursuant to the Loan Agreement). In the Loan Agreement the University agrees to repay the loan made thereunder in amounts sufficient and at such times as may be necessary to provide for the full and final payment of, the principal of and the interest on Bonds which may, from time to time, be executed, authenticated and delivered under the Indenture. Except as aforesaid, the Authority has assigned all of its rights and interests in the Loan Agreement to the Trustee. Subject to the provisions of the Indenture and the provisions of any Trust Agreement, all Bonds shall in all respects be equally and ratably secured hereby without preference, priority or distinction on account of the actual time or times of the authentication or delivery or maturity of the Bonds or any of them, so that all Bonds at any time outstanding under the Indenture shall have the same right, lien and preference under and by virtue of the Indenture, and shall all be equally secured hereby, with like effect as if they had all been executed, authenticated and delivered simultaneously on the date of the Indenture, whether the same, or any of them, shall actually be sold or disposed of on such date, or whether they, or any of them, shall be sold or disposed of on some future date.

Indenture Funds

Debt Service Fund; Accounts of the Debt Service Fund.

In respect of the Bonds, the Trustee shall establish and maintain the Debt Service Fund. The Debt Service Fund shall be subdivided into a separate account for the 2022B Bonds and the 2022C Bonds, and within each account, the following subaccounts: the "Principal Subaccount", and the "Interest Subaccount" The Trustee shall deposit into the account of the Debt Service Fund for a series of Bonds, (A) all amounts required to be deposited in such Fund with respect to such series of Bonds pursuant to Section 3.02(f) of the Indenture, if any; (B) all payments hereafter made by the University for deposit in such Accounts with respect to such series of Bonds as provided in the Loan Agreement provisions described below under "Loan Repayments", which amounts shall be deposited into the Principal Subaccount and the Interest Subaccount, as indicated in the Loan Agreement, and (C) all other amounts required under the Indenture or pursuant to the Loan Agreement to be deposited in such Fund.

Subject to the provisions described below under "—Moneys to Be Held for All Registered Owners, with Certain Exceptions" (to the extent applicable), moneys on deposit in the Debt Service Fund shall be applied as follows:

- (i) from the Principal Subaccount of the Debt Service Fund account for a series of Bonds, to the payment of principal of the Bonds of such series; and
- (ii) from the Interest Subaccount of the Debt Service Fund account for a series of Bonds, to the payment of interest on the Bonds of such series.

Pursuant to the Loan Agreement, by 10:00 a.m., Pittsburgh time, on each Scheduled Interest Payment Date, each date fixed for optional or mandatory redemption and the maturity date of the Bonds, the Trustee shall have received funds in the Debt Service Fund from the University to pay on such Scheduled Interest Payment Date, optional or mandatory redemption date or maturity date, as the case may be, the principal of and interest on the Bonds due on such date.

Moneys to Be Held for All Registered Owners, with Certain Exceptions.

Until applied as herein provided, the moneys and investments held in all funds and accounts, other than the Rebate Fund established under the Indenture and the proceeds of any remedies exercised under "Events of Default" hereof, shall be held in trust for the ratable benefit of the owners of all outstanding Bonds except that: (a) on and after the date on which the interest on or principal of any particular Bond or Bonds is due and payable from the Debt Service Fund, the unexpended balance of the amount deposited or reserved in such Fund for the making of such payments shall, to the extent necessary therefor, be held for the benefit of the Registered Owner or Registered Owners entitled thereto and, after all Registered Owners have been paid, then for the benefit of the University; and (b) the rights of any Registered Owners with respect to principal or interest payments extended by their agreement beyond their due dates hereof shall be subordinate to the rights of Registered Owners with respect to payments not so extended.

Project Fund.

The University authorizes and directs the Trustee to establish the Project Fund, into which a portion of the proceeds of the 2022C Bonds shall be deposited on the Issue Date of the 2022C Bonds. The Project Fund shall be held by the Trustee, separate and apart from all other accounts and funds of the University and the Trustee, and shall be maintained until (1) all funds therein are transferred to the Debt Service Fund upon the occurrence of a declaration of acceleration, or (2) all amounts in the Project Fund have been applied to pay Costs of the Capital Project, or (3) Costs of the Capital Project have been paid and the balance of funds transferred to the Debt Service Fund. The funds in the Project Fund shall be held in trust by the Trustee for the benefit of the Beneficial Owners of the Bonds as described in the granting clauses, and shall be applied solely in accordance with the provisions of the Indenture.

Immediately upon giving a declaration of acceleration, the Trustee shall transfer all funds in the Project Fund to a special account in the Debt Service Fund, to be applied as provided in the Indenture; provided, that if such declaration of acceleration is rescinded prior to the close of the Trustee's business on the acceleration date as provided in the Indenture, the Trustee shall not cause the transfer of such funds to the Debt Service Fund but shall hold and apply such funds as provided in this section "Indenture Funds—Project Fund" unless and until the Trustee gives a new declaration of acceleration.

The Trustee shall pay Costs of the Capital Project (or reimburse the University for Costs of the Capital Project previously paid by the University) from the funds in the Project Fund (1) within two (2) Business Days following receipt by the Trustee of a written request of the University for payment, which request shall be in the form attached to the Indenture, or (2) if later, the payment date specified by the University in such request.

Payments through Paying Agent. All payments of the principal of and interest on the Bonds shall be made by the Paying Agent. Not later than the opening of business on the due date of each such payment, the Trustee (if other than the Paying Agent) shall transfer from the Debt Service Fund, as applicable, to the Paying Agent such amount as shall be necessary to enable the Paying Agent to make the payment coming due on such date. The Paying Agent, upon receipt of funds from the Trustee, shall hold the same in trust for the Registered Owners entitled thereto, subject to the provisions of the Indenture governing the Debt Service Fund, and shall make payment thereof to the Registered Owners by 12 o'clock noon Pittsburgh time on the date each such payment is due.

Investment or Deposit of Funds. Moneys on deposit in the accounts and funds established under the Indenture shall be invested and reinvested by the Trustee in accordance with the provisions summarized below. Moneys in the Debt Service Fund representing principal of or interest on any Bonds which are deemed paid under the defeasance provisions of the Indenture shall be invested only if and as provided in the Indenture provisions described below under "Defeasance".

All moneys and funds held by the Trustee under the Indenture shall be invested in Qualified Investments at the written direction of the University. The Trustee may rely on such written direction as to the legality and suitability of such investments and such written direction shall be deemed to be a certification that such directed investments constitute Qualified Investments. Ratings of Qualified Investments shall be determined at the time of initial purchase of such Qualified Investments and without regard to ratings subcategories and the Trustee shall have no responsibility to monitor the ratings of Qualified Investments after the initial purchase of such Qualified Investments, including at the time of reinvestment of earnings thereof. Any investments with a maturity greater than one year shall be valued annually by the Trustee. In the absence of a written direction from the University, such moneys and funds shall remain uninvested without liability for interest.

In any such case the full purchase price of such investments or obligations, including premium and accrued interest, shall be paid out of the moneys to the credit of the appropriate Fund. Upon a written request by the University, or whenever the moneys in a particular Fund or Account are to be applied and paid out pursuant to any provisions of the Indenture, the Trustee shall sell all or any part of the Qualified Investments in which the moneys in such Fund or Account shall be invested, and the proceeds of such sale shall be deposited to the credit of such Fund or Account. Except as hereinafter provided, the interest received and profits realized on the Qualified Investments in which moneys to the credit of such account shall be invested shall (except as otherwise provided in any supplemental indenture in respect of any Fund or Account or otherwise) be transferred when received to the Debt Service Fund (for deposit in the Interest Subaccount or the Principal Subaccount, as the University shall in writing direct) and any loss sustained

shall be charged to the Fund or Account sustaining such loss, provided that all amounts earned in the Rebate Fund shall be retained in the Rebate Fund.

Events of Default and Remedies

Events of Default. Each of the following events shall be an "Event of Default", that is to say, if

(a) Payment of any installment of interest on any of the Bonds shall not be made within five (5) days of the date when due and payable as therein expressed; or

(b) Payment of any part of the principal of any of the Bonds shall not be made within three (3) days of the date when the same shall become due and payable, whether at maturity as therein expressed, by declaration or otherwise; or

(c) An Event of Default under the Loan Agreement shall occur and be continuing; or

(d) Final judgment shall be rendered against the Authority, which materially and adversely affects the enforceability of the Indenture or the Bonds and any such judgment shall not be discharged within sixty (60) days from the entry thereof, or an appeal shall not be taken therefrom, or from the order, decree or process upon which or pursuant to which such judgment was granted or entered, in such manner as to set aside conclusively the execution or levy under such judgment, order, decree or process, or the enforcement thereof; or

(e) An order or decree shall be entered with the consent or acquiescence of the Authority or the University, as the case may be, appointing a receiver or receivers of the Authority or the University, as the case may be, or of the receipts and revenues thereof, or any proceeding shall be instituted with the consent or acquiescence of the Authority or the University, as the case may be, for the purpose of effecting a composition between the Authority or the University, as the case may be, 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 out of the receipts and revenues of the Authority or the University, as the case may be, or if such order or decree having been entered without the consent or acquiescence of the Authority or the University, as the case may be, shall not be vacated or discharged within sixty (60) days after the entry thereof, or if such proceeding having been instituted without the consent or acquiescence of the Authority or the University, as the case may be, shall not be withdrawn, or any order entered therein shall not be vacated or discharged, within sixty (60) days after the institution of such proceeding or the entry of such order; or

(f) The Authority shall default in the due and punctual performance or observance of any of the other covenants, conditions, agreements or provisions contained in the Bonds or in the Indenture on the part of the Authority required to be kept, performed or observed, and any such default shall have continued for a period of thirty (30) days after written notice specifying such default and requiring the same to be remedied shall have been given to the Authority by the Trustee (with a copy of such notice also to be delivered to the University), which may give such notice in its discretion and shall give such notice at the request of the owners of not less than 25% of the Bonds then outstanding.

Acceleration. Upon the occurrence and continuation of an Event of Default under the Indenture, then the Trustee may, subject to the provisions described below under "—Enforcement of Remedies", and at the direction of the owners of a majority in aggregate principal amount of all outstanding Bonds, shall, by notice in writing to the Authority and the University, declare the principal of all of the Bonds then outstanding and the interest accrued thereon to be due and payable immediately; provided, however, that no such declaration shall be made if the Authority or the University cures such Event of Default prior to the date of the declaration.

If, after the principal of the Bonds shall have been so declared to be due and payable, all arrears of interest upon the Bonds and all other sums payable under the Indenture shall have been paid by or on behalf of the Authority, the Trustee may, subject to the provisions described below under "—Rescission or Annulment of Defaults", annul

such declaration and thereafter the consequences of such declaration and such annulment shall be binding upon the Trustee and upon all owners of Bonds issued under the Indenture.

Rescission or Annulment of Defaults. The provisions described above under "—Acceleration" are subject to the condition that at any time after the principal of all of the Bonds shall have been so declared due and payable, the owners of a majority in aggregate principal amount of the Bonds then outstanding may, by written notice to the Authority and the Trustee with a copy to the University, rescind and annul such declaration and its consequences if--

(a) All arrears of interest upon all of the Bonds then outstanding under the Indenture, except interest accrued since the last Scheduled Interest Payment Date, with interest on overdue installments of interest (to the extent that the payment thereof is enforceable under applicable law) at the respective rates provided in the Bonds, shall have been paid or payment thereof provided for; and

(b) The expenses of the Trustee and all other indebtedness secured hereby, except the principal of any of the Bonds not then due by their express terms, shall have been paid or payment thereof provided for; and

(c) Every other default known to the Trustee in the observance or performance of any covenant, condition or agreement contained in the Bonds or in the Indenture shall have been remedied or a remedy therefor satisfactory to the Trustee shall have been provided for; and

(d) All the obligations set forth in subparagraphs (a), (b) and (c) above requiring payment which have not been paid have been provided for by depositing with the Trustee for the credit of the Debt Service Fund moneys sufficient for the payment thereof.

No such rescission or annulment shall extend to or affect any subsequent default or impair any right of the Trustee or the Registered Owners arising therefrom.

Enforcement of Remedies. Upon the happening and continuance of any Event of Default, then and in every such case the Trustee may, and upon the written direction of the owners of a majority in aggregate principal amount of the Bonds then outstanding, and the provision of indemnity satisfactory to the Trustee in accordance with the Indenture, shall, proceed to protect and enforce its rights and the rights of the Registered Owners under the Indenture by the exercise of any proper legal or equitable right or remedy as the Trustee being advised by counsel shall deem most effectual to protect and enforce the rights of the Registered Owners. The rights and remedies which the Trustee may or shall exercise include all or any of the following:

(a) The right in its own name by mandamus or other suit, action or proceeding at law or in equity to enforce all rights of the Registered Owners, including the right to require the Authority to carry out the covenants and agreements of the Authority contained in the Indenture and to require the Authority to carry out any agreements with or for the benefit of the Registered Owners and to perform its duties under the Act;

(b) The right to bring suit upon the Bonds outstanding under the Indenture, provided, however, that any judgment obtained in any such suit shall be payable only out of the receipts and revenues of the Authority under the Loan Agreement;

(c) The right by action or suit in equity to enjoin any acts or things which may be unlawful or in violation of the rights of the Registered Owners;

(d) The right to the appointment of a receiver of the University's facilities and of the revenues and receipts therefrom;

(e) The right to apply all moneys and funds held under the Indenture (except the Rebate Fund and except moneys and funds which shall theretofore have been set aside for the payment of particular Bonds) to the payments and as provided below under "—Application of Remedies"; and

(f) The right to exercise any or all other rights or remedies provided by the Act, or by any other law or by any other suit, action or other special proceeding in equity or at law either for the specific performance of any covenant or agreement contained in the Indenture or in aid or execution of any power in the Indenture granted.

Application of Moneys. All moneys received by the Trustee or by any receiver under the foregoing provisions shall, and all moneys and funds held by the Trustee under the Indenture (except the Rebate Fund and except moneys and funds which shall theretofore have been set aside for the payment of particular Bonds) shall be applied by the Trustee or receiver in the following order of priority:

(a) To the payment of all costs, expenses and liabilities reasonably incurred by the Trustee or receiver, as the case may be (including reasonable compensation to the Trustee or receiver, its agents, attorneys and counsel), to the payment of the Trustee's outstanding fees and expenses, if any, and to the repayment of all advances made by the Trustee or receiver, as the case may be, and the creation of a reasonable reserve for anticipated fees, costs and expenses;

(b) Unless the principal of all the Bonds outstanding under the Indenture shall have become due, whether at the due dates expressed therein, or by declaration as provided in the Indenture or otherwise, then

(1) To the payment of any overdue installments of interest on the Bonds in the order of the expressed maturity of the installments of such interest, with interest on overdue installments of interest (to the extent that the payment of such interest is enforceable under applicable law) at the respective rates provided in the Bonds; and, if the amount to be applied to the payment of any installment of interest shall not be sufficient to pay such installment in full, then to the payment thereof ratably, according to the amounts due on such installment, to the Persons entitled thereto without any discrimination or preference; and

(2) After the payment of all such overdue installments of interest with the interest thereon, then to the payment of the principal of all of the Bonds which shall have become due by their express terms, with interest on the Bonds at the rate or rates provided for in the Bonds from the respective dates upon which they became due in the order of maturity dates expressed in the Bonds, and if the amount to be distributed at any particular time shall not be sufficient to pay in full all of the Bonds due on any particular date, to the payment thereof ratably according to the amounts due thereon; and

(3) After all payments required by the preceding subparagraphs of this paragraph (b) shall have been made, then to the payment of the principal of and the interest on the Bonds in accordance with the provisions of the Indenture; and

(4) Any surplus thereof remaining after the payment of the full principal of and interest on all Bonds, to the University or to whomsoever may be lawfully entitled to receive the same.

(c) In case the principal of all of the Bonds shall have become due, whether at the due dates expressed therein, by declaration or otherwise, then

(1) To the payment of the full amount then owing and unpaid upon all Bonds outstanding for principal and interest with interest on overdue installments of interest (to the extent that the payment of such interest is enforceable under applicable law) at the respective rates provided in the Bonds then outstanding, and if the amount to be applied to such payment shall not be sufficient to pay such payment in full, then to the payment of such principal and interest without preference or priority of principal over interest or of interest over principal or of any installment of interest over any other installment of interest ratably to the aggregate of such principal and interest; and

(2) Any surplus thereof remaining after the payment of the full principal of and interest on all Bonds, to the University or to whomsoever may be lawfully entitled to receive the same.

Whenever moneys are to be applied by the Trustee or by any receiver pursuant to the provisions of this section "Events of Default and Remedies—Application of Moneys", such moneys shall be applied by the Trustee or receiver at such times, and from time to time, as the Trustee or receiver in its sole discretion shall determine, having due regard to the amount of such moneys available for application in the future. The deposit of such moneys with the bank or trust company at which the Bonds shall be payable, or otherwise setting aside of such moneys, in trust for the proper purpose, shall constitute proper application by the Trustee or receiver; and the Trustee or receiver 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 or receiver acts with reasonable diligence, having due regard to the circumstances, and ultimately applies the same in accordance with such provisions of the Indenture as may be applicable at the time of application by the Trustee or receiver. Whenever the Trustee or receiver shall exercise such discretion in applying such moneys, it shall fix the date upon which such application is to be made, including determination of a Special Record Date and the provision of notice thereof as provided in the Indenture, and upon such date interest on the amounts of principal to be paid on such date shall cease to accrue. The Trustee or receiver shall give notice of any Special Record Date as provided in the Indenture and shall give such other notice as it may deem appropriate of the fixing of any such date, and shall not be required to make payments to the owner of any Bond until such Bond shall be surrendered to the Trustee or receiver for stamping with reference to such payment.

Discontinuance of Proceedings. In case any proceeding taken by the Trustee on account of any default shall have been discontinued or abandoned for any reason, or shall have been determined adversely to the Trustee, 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 Indenture, respectively, and all rights, remedies, powers and duties of the Trustee shall continue as though no such proceeding had been taken.

Instructions from Registered Owners. Anything in the Indenture to the contrary notwithstanding, the owners of a majority in aggregate principal amount of the Bonds then outstanding under the Indenture shall have the right, by an instrument in writing executed and delivered to the Trustee and upon delivery to the Trustee of satisfactory indemnity in accordance with the Indenture and subject to the provisions in the next succeeding paragraph, to direct the method and place of conducting all remedial proceedings to be taken by the Trustee under the Indenture. The Trustee shall not be obligated to follow any direction described in the preceding sentence if, in the opinion of the Trustee, the proposed action is not to the advantage of all Registered Owners.

Limitation on Registered Owners' Rights. Except as provided in the Act, no owner of any of the Bonds shall have any right to institute any suit, action or proceeding in equity or at law for the execution of any trust under the Indenture, or for any other remedy under the Indenture, unless such 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 taken; nor unless also the owners of a majority in aggregate principal amount of the Bonds then outstanding shall have made written request of the Trustee, after the right to exercise such powers or rights of action shall have accrued, and shall have afforded the Trustee a reasonable opportunity either to proceed to exercise the powers granted under the Indenture, or to institute such action, suit or proceeding in its name; nor unless, also, there shall have been offered to the Trustee security and indemnity satisfactory to it 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 every such case, at the option of the Trustee, to be conditions precedent to the execution of the powers and trusts of the Indenture or for any other remedy under the Indenture; it being understood and intended that no one or more Owners of the Bonds hereby secured shall have any right in any manner whatever by such Owner(s) action to affect, disturb or prejudice the security of the Indenture, or to enforce any right under the Indenture, except in the manner provided in the Indenture, and that all proceedings at law or in equity shall be instituted, and maintained in the manner provided in the Indenture and for the prior and equal benefit of all Owners of outstanding Bonds, subject to the provisions of the Indenture.

Enforcement of Remedies. All rights of action under the Indenture, or under any of the Bonds secured hereby, 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 proceedings relative thereto, and any such suit, action or proceeding instituted by the Trustee shall

be brought in its name and as Trustee of an express trust for the equal and ratable benefit of the owners of all Bonds, subject to the provisions of the Indenture.

Provisions Relating to the Trustee

Acceptance of Trust. The Trustee accepts and agrees to execute the trusts hereby created, but only upon the additional terms set forth herein under "Provisions Relating to Trustee", to all of which the parties to the Indenture, the University and the respective owners of the Bonds agree. The Trustee prior to the occurrence of an event of default and after the curing of all events of default which may have occurred, undertakes to perform such duties and only such duties as are specifically set forth in the Indenture and no implied covenants or obligation shall be read into the Indenture against the Trustee. If any event of default under the Indenture shall have occurred and be continuing, the Trustee shall exercise such of the rights and powers vested in it by the Indenture and shall use the same degree of care as a prudent person would exercise or use in the circumstance in the conduct of such person's own affairs.

Trustee May Act Through Agents. The Trustee may execute any of the trusts or powers of the Indenture and perform the duties required to be performed by it either directly or by or through attorneys, agents, receivers or employees, and shall be entitled to consult counsel and, in good faith, to rely conclusively upon the advice of counsel concerning all matters of trust of the Indenture and its duties under the Indenture, and the Trustee shall not be answerable for the default of any such attorney, agent or employee selected by it with reasonable care. The Trustee shall not be liable for any action taken, omitted or suffered on the advice of counsel subject to the immediately preceding sentence. The Trustee shall not be answerable for the exercise of any discretion or power under the Indenture or for anything whatsoever in connection with the trusts, except only its own bad faith, willful misconduct, negligence or gross negligence.

Trustee Not Obligated to Act. Except as otherwise provided by law, the Trustee shall be under no obligation to take any action in respect to any default, Event of Default or otherwise, or toward the execution or enforcement of any of the trusts hereby created, or to institute, appear in or defend any suit or other proceeding in connection therewith, unless requested so to do in writing by the owners of a majority in aggregate principal amount of the Bonds then outstanding, and, if in its opinion such action may tend to involve it in expense or liability, unless furnished, from time to time and as often as it may require, with security and indemnity satisfactory to it; but the foregoing provisions are intended only for the protection of the Trustee, and shall not affect any discretion or power given by any provision of the Indenture to the Trustee to take action in respect of any default, Event of Default or otherwise without such notice or request from the Registered Owners or without such security or indemnity.

Trustee May Make Advances. If the Authority or the University shall fail to perform any of the covenants or agreements contained in the Indenture or in the Loan Agreement which are applicable to it, the Trustee may, in its uncontrolled discretion and without notice to the Registered Owners, at any time and from time to time, make advances to effect performance of the same on behalf of the Authority or the University, as the case may be, but the Trustee shall be under no obligation so to do; and any and all moneys paid or advanced by the Trustee for any such purpose, together with interest thereon at the prime rate of its primary banking affiliate shall be a lien in favor of the Trustee upon any moneys coming into its hands prior to the lien of the Bonds provided that no such advance shall operate to relieve the Authority or the University from any default under the Indenture or under the Loan Agreement.

Trustee May Rely in Good Faith Upon Others. The Trustee shall be protected and shall incur no liability in acting or proceeding in good faith upon any resolution, notice, telegram, request, consent, waiver, certificate, statement, affidavit, voucher, bond or other paper or document which it shall in reasonable good faith believe to be genuine and to have been passed or signed by the proper board or Person, or to have been prepared and furnished pursuant to any of the provisions of the Indenture or the Loan Agreement, and the Trustee shall be under no duty to make any investigation or inquiry as to any statements contained or matters referred to in any such instrument, but may accept and rely upon the same as conclusive evidence of the truth and accuracy of such statements. The Trustee shall not be responsible for any loss or damage resulting from any action or inaction taken by the Trustee in good faith in reliance upon an opinion of counsel or, with respect to non-legal matters, upon the report of such other professional as the Trustee shall deem appropriate. The Trustee shall not be bound to recognize any Person as an owner of any Bond or to take any action at such Person's request unless such Bond shall be registered in the name of such Person.

Resignation of Trustee. The Trustee may resign and be discharged of the trusts created by the Indenture by executing a written instrument resigning such trusts and specifying the date when such resignation shall take effect, by filing the same with the Authority and with the University not less than sixty (60) days before the resignation date specified in such instrument. Concurrently with the giving of such notice the Trustee shall also mail copies thereof to the Registered Owners of all Bonds at their addresses as shown in the registration books of the Authority. Such resignation shall take effect on the resignation date specified in such instrument and notice, unless (a) no successor shall theretofore have been appointed and qualified, in which case such resignation shall be of no effect until such a successor Trustee has so accepted and qualified or (b) a successor Trustee previously shall have been appointed as provided in the Indenture, in which event such resignation shall take effect immediately on the appointment and acceptance of such successor Trustee.

Removal of Trustee. The Trustee may be removed upon thirty (30) days' written notice at any time by the vote of the owners of a majority in aggregate principal amount of the Bonds then outstanding. The Trustee may be removed at any time by the Authority at the direction of the University if the Trustee shall have failed or refused to perform its material obligations under the Indenture and such failure or refusal shall have continued for a period of thirty (30) days after written notice thereof shall have been given by the Authority to the Trustee. Any such removal by the owners or the Authority shall not take effect until a successor Trustee has been appointed and qualified and has accepted such appointment. If at any time the Trustee shall be dissolved, the Trustee shall no longer be eligible to act as such and a vacancy shall forthwith and ipso facto exist in the office of Trustee.

Merger of Trustee. Any corporation, association or other entity into which the Trustee may be converted or merged, or with which it may be consolidated, or to which it may sell or otherwise transfer all or substantially all of its municipal corporate trust business, or any corporation, association or other entity resulting from any such merger, conversion, consolidation, sale or other transfer, shall ipso facto, be and become successor Trustee under the Indenture, vested with all of the powers, discretions, immunities, privileges and all other matters as was its predecessor, without the execution or filing of any instrument or any further act on the part or any of the parties to the Indenture, anything in the Indenture to the contrary notwithstanding.

Amendments and Supplements

Amendments without Registered Owner Consent. Without the consent of the Registered Owners and notwithstanding any of the provisions set forth below under "—Amendments Requiring Registered Owner Consent", but with the prior written consent of the University, the Authority and the Trustee, from time to time and at any time, subject to the conditions and restrictions in the Indenture contained and may enter into an indenture or indentures supplemental thereto, in addition to the supplemental indentures authorized to be entered into by the other provisions of the Indenture (including the First Supplemental Indenture, which shall not require the consent of any Registered Owner), which indenture or indentures supplemental thereto shall hereafter form a part of the Indenture, for any one or more of the following purposes:

(a) To add to the covenants and agreements of the Authority in the Indenture contained, other covenants and agreements thereafter to be observed, or to surrender any right or power in the Indenture reserved to or conferred upon the Authority;

(b) To modify any of the provisions of the Indenture or to relieve the Authority of any of the obligations, conditions or restrictions contained in the Indenture, provided that such modification or relief shall, by the express terms of the particular supplemental indenture, not become effective until all Bonds outstanding on the date of the execution and delivery of such supplemental indenture shall have given such consent to such modification or relief as shall be required by the provisions of the Indenture or shall no longer be outstanding;

(c) To cure any ambiguity or to cure, correct or supplement any defect, omission or inconsistent provision contained in the Indenture or in any supplemental indenture;

(d) To make such provision in regard to matters or questions arising under the Indenture as may be necessary or desirable and not inconsistent with the Indenture;

(e) To qualify any of the Bonds for registration under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended;

(f) To qualify the Indenture as an "indenture" under the Trust Indenture Act of 1939, as amended;

(g) To make such changes as may be necessary to comply with the Code, provided that such changes shall not have an adverse effect on the rights or security of the Registered Owners under the Indenture;

(h) To obtain, maintain or upgrade a rating on the Bonds;

(i) To make such changes as may accomplish a merger, consolidation or reorganization of the University; provided, that any such merger, consolidation or reorganization shall be consistent with the provisions contained in the Loan Agreement; or

(j) To make any other amendment that is not materially adverse to the interests of the Trustee or the Registered Owners and does not involve a change described below under "—Amendments Requiring Registered Owner Consent" requiring consent of specific Registered Owners.

Amendments Requiring Registered Owner Consent. With the consent of the University and of the owners of a majority in aggregate principal amount of the Bonds then outstanding or of the owners of a majority in aggregate principal amount of the Bonds then outstanding and affected by any such action (evidenced in each case as provided in the Indenture), in case one or more but less than all of the Bonds then outstanding are so affected, the Authority and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental thereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of the Indenture or of any supplemental indenture or of modifying in any manner the rights of the owners of the Bonds; provided, however, that no such supplemental indenture shall (i) extend the fixed maturity date of any Bond, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, without the consent of the owner of each Bond so affected, or (ii) permit the creation by the Authority of any lien upon any property which shall be a part of the Trust Estate, or reduce the aforesaid percentage of Bonds, the owners of which are required to consent to any such supplemental indenture, without the consent of the owners of all Bonds then outstanding. It shall not be necessary for the consent of the Registered Owners under this section "Amendments and Supplements—Amendments Requiring Registered Owner Consent" to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such consent shall approve the substance thereof.

Defeasance

Defeasance of Bonds.

Bonds for the payment of which sufficient funds, including interest to the date of payment, or Government Securities or Escrowed Securities which, in aggregate, bear interest at such rates and mature at such times as to provide such funds (without assumed reinvestment thereof except at an interest rate contracted for with the United States or which is zero) as and when required for such payment, shall have been deposited with the Trustee, or provisions for such payment satisfactory to the Trustee shall have been made with the Trustee, whether upon or prior to the maturity of the Bonds, shall be deemed to be paid within the meaning of this section "—Defeasance of Bonds".

If any Bond shall not be presented for payment when the principal thereof shall become due, either at maturity or otherwise, and if the Authority shall have deposited with the Trustee or left with it in trust if previously so deposited, funds sufficient to pay the principal of the Bonds, together with all interest due thereon to the date of maturity thereof, for the benefit of the owners thereof, respectively, all liability of the Authority to the owner of such Bond for the payment of the principal thereof and the interest thereon shall forthwith cease, determine and be completely discharged, and thereupon it shall be the duty of the Trustee to hold said funds, without investment or liability for interest thereon, for the benefit of the owner of such Bond, who shall thereafter be restricted exclusively to said funds for any claim of whatsoever nature on such owner's part under the Indenture or on, or with respect to, said Bond.

Provision for the payment in full of Bonds bearing interest shall have been deemed to have been made and the Bonds shall be deemed to be paid within the meaning of the Indenture when the Trustee holds in the Debt Service Fund, (i) cash or immediately available funds in an amount sufficient to make all payments (including principal, premium, if any, and interest) specified in the immediately preceding paragraph with respect to the Bonds, (ii) Government Securities or Escrowed Securities maturing on or before the date or dates when the payments specified above shall become due, the principal amount of which and the interest thereon, when due, is or will be, in the aggregate, sufficient without reinvestment to make all such payments, or (iii) any combination of cash and such Government Securities or Escrowed Securities the amounts of which and interest thereon, when due, are or will be, in the aggregate, sufficient without reinvestment to make all such payments.

Neither moneys nor the Government Securities or Escrowed Securities deposited with the Trustee pursuant to this section "—Defeasance of Bonds" shall be withdrawn or used for any purpose other than, and such Government Securities or Escrowed Securities and moneys shall be segregated and held in trust for, the payment of the principal of, and interest on, the Bonds (or portions thereof).

The Trustee shall be provided with and be entitled to rely upon an Opinion of counsel selected by the University to the effect that the conditions precedent to the defeasance of the Bonds set forth above have been satisfied.

Deposit of Funds for Payment of Bonds. After the Authority deposits with the Trustee moneys or Government Securities sufficient to pay the principal of any Bond becoming due, either at maturity or otherwise, together with all interest accruing thereon to the due date, interest on the Bond or Bonds shall cease to accrue on the due date and all liability of the Authority with respect to such Bond or Bonds shall likewise cease except as provided above and in section "Discharge of Indenture". Thereafter such Bond or Bonds shall be deemed not to be outstanding under the Indenture, and (a) any surplus balance held by the Trustee with respect to the Bonds over the principal of, premium (if any) on and actual interest accrued on the Bonds shall be paid to the University and (b) the owner or owners of such Bond or Bonds shall be restricted exclusively to the funds so deposited for any claim of whatsoever nature with respect to such Bond or Bonds, and the Trustee shall hold such funds in trust for such owner or Registered Owners.

Discharge of Indenture. If the Authority, its successors or assigns, shall (as provided above) pay or cause to be paid unto the owners of all Bonds outstanding under the Indenture the principal and interest to become due thereon and the premium thereon, if any, at the times and in the manner stipulated therein, or if the Authority, its successors or assigns, shall deliver or cause to be delivered to the Trustee for cancellation all Bonds outstanding under the Indenture, then the Indenture and the estate, title, interest and rights hereby granted shall cease, determine and be void, and thereupon the Trustee shall, upon the written direction of the Authority, which request shall be made at the direction of the University, release, cancel and discharge the lien of the Indenture, and execute and deliver to the Authority such instruments as shall be requisite to satisfy the lien thereof, shall discharge the Indenture and the Loan Agreement and reconvey to the Authority the estate, title, interest and rights hereby conveyed, and assign and deliver to the University any money and other property at the time subject to the lien of the Indenture which may then be in the possession of the Trustee.

The release, cancellation and discharge of the Indenture, however, shall be without prejudice to the right of the Trustee to be paid any compensation then due to it under the Indenture, and to be protected and saved harmless by the Authority and the University from any and all losses, liabilities, costs and expenses, including counsel fees and expenses at any time incurred by the Trustee under the Indenture, or connected with any Bond issued under the Indenture, of and from which, if the Indenture had not been released, canceled and discharged, the Authority would have been obligated by the terms of the Indenture to protect and save the Trustee harmless of and from such losses, liabilities, costs and expenses.

Any moneys deposited with the Trustee by the Authority, pursuant to the terms of the Indenture, for the payment of Bonds remaining unclaimed by the owners of the Bonds for six years after the date of their maturity shall upon the written direction of the University or of such officer, board or body as may then be entitled by law to receive the same, and if the Authority or any successor to the obligations of the Authority under the Indenture and the Bonds shall not at the time, to the knowledge of the Trustee, be in default with respect to any of the terms and conditions contained in the Indenture or in the Bonds, be paid to the University and the owners of the Bonds shall thereafter look only to the University for payment and then only to the extent of the amounts so received, without interest thereon.

In the absence of any such written direction from the University, the Trustee shall from time to time deliver such unclaimed funds to or as directed by pertinent escheat authority, as identified by the Trustee in its sole discretion, pursuant to and in accordance with applicable unclaimed property laws, rules or regulations. Any such delivery shall be in accordance with the customary practices and procedures of the Trustee and the escheat authority. Any money held by the Trustee pursuant to this paragraph shall be held uninvested and without any liability for interest.

THE LOAN AGREEMENT

Loan of Proceeds

The Authority shall issue the Bonds and shall lend the proceeds from the sale of the Bonds to the University for the payment of a portion of the costs of the 2022 Project in accordance with the provisions of the Indenture. The Authority does not make any warranty, either express or implied, that the amounts to be deposited pursuant to the Indenture will be sufficient to complete payment of the costs of the 2022 Project. The Authority shall have no obligation and makes no warranties respecting the condition or adequacy of the 2022 Project.

The University shall be obligated to complete the 2022 Project at its own expense regardless of the adequacy of the moneys made available to the University by the Authority. The University agrees that if, after exhaustion of the moneys made available by the Authority from proceeds of the Bonds, should the University pay any portion of the remaining costs of the 2022 Project, it shall not be entitled to any reimbursement therefore from the Authority, the Trustee or the owners of any of the Bonds, nor shall it be entitled to any diminution in or postponement of the amounts payable under the Loan Agreement.

Loan Repayments

The University agrees to pay to the Trustee as the assignee of the Authority, for deposit to the Debt Service Fund, the following sums in immediately available funds on or before 10:00 o'clock a.m. Pittsburgh time on the dates provided in the Indenture: the amounts required to pay the principal of, the interest on, and all other amounts becoming due in respect of the Bonds on each such date, and on each date hereafter fixed for payment of any of the Bonds, whether at maturity or pursuant to acceleration or otherwise, subject in each case to a credit equal to the amount of other funds then deposited to the credit of the Debt Service Fund and available for payment for such purpose.

Debt Service Fund Insufficiency

If for any reason the amounts paid by the University pursuant to the Loan Agreement or pursuant to any other Section of the Loan Agreement, together with any other amounts available therefor in the Debt Service Fund, are at any time insufficient to make payments of the principal of and interest on the Bonds when due, whether at maturity, upon acceleration or otherwise, the University shall forthwith pay to the Trustee for the account of the Authority, for deposit in the Debt Service Fund the amount required to make up such insufficiency.

Option to Prepay

The University shall have, and is granted under the Loan Agreement, the option to prepay from time to time amounts due by it under the Loan Agreement in amounts sufficient to pay at maturity the Bonds, in whole or in part, in accordance with the provisions of the applicable Bonds and the Indenture. Such instructions may be given by the University in lieu of the Authority in the manner required by the Indenture. Upon the agreement of the University to deposit prepaid loan payments with the Trustee to the credit of the Debt Service Fund in an amount sufficient to make such payment of Bonds, the Authority shall forthwith take all steps necessary on its part under the applicable payment provisions of the Indenture to effect payment of all or part of the Bonds as may be specified by the University.

General Obligation

The University's obligations to repay the loan made under the Loan Agreement and to pay all other amounts due under the Loan Agreement are unsecured, uncollateralized, general and unconditional obligations of the University.

Covenants of the University

For so long as the University has any obligations under the Loan Agreement, it shall:

(a) preserve its corporate existence and all its rights and licenses to the extent necessary or desirable in the operation of its business affairs and be qualified to do business in each jurisdiction where its ownership of property or the conduct of its business requires such qualification; provided, however, that nothing contained in the Loan Agreement shall be construed to obligate it to retain or preserve any of its rights or licenses no longer used or, in the judgment of the University, useful in the conduct of its business;

(b) at all times cause its business to be carried on and conducted in an efficient manner and its properties, including the Capital Project, to be maintained, preserved and kept in good repair, working order and condition and all needful and proper repairs, renewals and replacements thereof to be made; provided, however, that nothing contained in the Loan Agreement shall be construed (i) to prevent it from ceasing to operate any portion of its properties, if in the judgment of the University it is advisable not to operate the same for the time being, or if it intends to sell or otherwise dispose of the same as permitted under the Loan Agreement and within a reasonable time endeavors to effect such sale or other disposition, or (ii) to obligate it to use, retain, preserve, repair, renew or replace any property, leases, rights, privileges or licenses no longer used or, in the judgment of the University, useful in the conduct of its business;

(c) conduct its affairs and carry on its business and operations in such manner as to comply with any and all applicable laws of the United States and the several states thereof and duly observe and conform to all valid orders, regulations or requirements of any governmental authority relative to the conduct of its business and the ownership of its properties; provided, nevertheless, that nothing contained in the Loan Agreement shall require it to comply with, observe and conform to any such law, order, regulation or requirement of any governmental authority so long as the validity or application thereof shall be contested in good faith;

(d) promptly pay all lawful taxes, governmental charges and assessments at any time levied or assessed upon or against it or any of its properties; provided, however, that it shall have the right to contest in good faith by appropriate proceedings any such taxes, charges or assessments or the collection of any of such sums;

(e) promptly pay or otherwise satisfy and discharge all of its obligations and indebtedness and all demands and claims against it as and when the same become due and payable, other than any thereof (exclusive of obligations of the University under the Loan Agreement) whose validity, amount or collectability is being contested in good faith by appropriate proceedings;

(f) at all times comply with all terms, covenants and provisions contained in any lien or security interest at such time existing upon its properties or any part thereof or securing any of its indebtedness and pay or cause to be paid, or to be renewed, refunded or extended, or to be taken up, by it, all of its indebtedness secured by a lien or security interest, as and when the same shall become due and payable;

(g) procure and maintain all licenses, permits, approvals, certifications and accreditations issued by any governmental agencies or private accrediting bodies which are necessary for the maintenance of its properties, conduct of operations and performance of its obligations under the Loan Agreement;

(h) take no action or suffer any action to be taken by others within its control which will adversely affect any applicable exclusion from gross income from federal income taxation of the interest on

any Bond or the exemption of any Bond and the interest thereon from Commonwealth personal and corporate net income taxes, and at all times comply with the requirements of the Tax Certificate;

(i) maintain insurance in such amounts with respect to its properties and liabilities as the University shall deem appropriate to its circumstances and, upon request, furnish the Authority with a certificate evidencing coverages with respect thereto;

(j) not merge or consolidate with or sell or convey substantially all of its assets to any Person unless (A) the successor corporation shall be a corporation organized and existing under the laws of the United States of America or a state thereof and shall expressly assume the due and punctual payment of the principal of and interest on and all other amounts payable in respect of all Bonds and other outstanding indebtedness related to the Bonds incurred under the Loan Agreement, according to their tenor, and the due and punctual performance and observance of all of the covenants and conditions of the Loan Agreement and the Indenture to be performed or observed by the University; (B) the University or such successor corporation, as the case may be, immediately after such merger or consolidation, or such sale or conveyance, would not be in default in the performance or observance of any covenant or condition under the Loan Agreement; and (C) there shall have been delivered to the Trustee an opinion of nationally recognized bond counsel selected by the University to the effect that the consummation of such merger, consolidation, sale or conveyance is permitted under the Loan Agreement and will not adversely affect any applicable exclusion from gross income from federal income taxation of the interest payable on any outstanding Bonds which were previously issued pursuant to the Indenture or the exemption of any outstanding Bonds which were previously issued pursuant to the Indenture and the interest thereon from Commonwealth personal and corporate net income taxes;

(k) if there is any amount required to be paid to the United States pursuant to Section 148(f) of the Code and the provisions of the Indenture and the Loan Agreement relating to arbitrage rebate, the University shall pay such amount to the Trustee for deposit to the Rebate Fund created under the Indenture, and the Trustee, if so directed in writing by the University, shall submit the payment to the United States;

(l) provide the information and notices required to be filed pursuant to SEC Rule 15c2-12 under the Securities Exchange Act of 1934, as amended, if any, as set forth in a continuing disclosure agreement entered into by the University for the benefit of the Holders of the Bonds. Notwithstanding any contrary provision of the Loan Agreement, the failure by the University to comply with the foregoing covenant shall not be an Event of Default under the Loan Agreement or under the Indenture, and that the remedies of the Trustee (if it is a party to such continuing disclosure agreement) and/or Bondholders in the event of such a failure to comply shall be limited to an action for specific performance;

(m) keep complete and accurate lists and other records containing all information necessary to reflect the use of proceeds of the Bonds loaned to it pursuant to the Loan Agreement, and from time to time upon request of the Authority, will furnish copies thereof to the Authority;

(n) provide to the Authority copies of its annual audited financial statements as soon as practicable after the end of University's Fiscal Year; and

(o) pursuant to the Indenture, agree to perform such Authority covenants and other obligations (excepting only any approvals or consents permitted or required to be given by the Authority thereunder, except for the provisions of Sections 8.04, 8.05 and 8.07 of the Indenture (relating to maintaining an office, preserving and protecting the security of the Bonds and the rights of the Trustee and the Registered Owners of the Bonds under the Indenture, compliance with applicable Commonwealth laws, and not causing the Bonds to be "arbitrage bonds" under Section 148 of the Code), and any exceptions to the performance by the University of the Authority's covenants and other obligations thereunder.

Tax Exemption

The University (a) shall take whatever actions are necessary to preserve and maintain its status as an organization exempt from federal income taxation and described in Section 501(c)(3) of the Code, (b) shall not perform any acts nor enter into any agreements which shall cause any revocation or adverse modification of such status, (c) shall not carry on or permit to be carried on any trade or business the conduct of which would adversely affect the exclusion from gross income of interest on any Bond from federal income taxation or any exemption of any Bond and the interest thereon from personal and corporate net income taxes in the Commonwealth, and (d) shall not take any other action or permit any action to be taken on its behalf if such action would adversely affect the exclusion from gross income of interest on any Bond from federal income taxation or any exemption of any Bond and the interest thereon from personal and corporate net income taxes in the Commonwealth.

Bonds Not to Become "Arbitrage Bonds"

As provided in the Indenture, the Trustee shall invest moneys held by the Trustee under the Indenture as directed in writing by the University. The University covenants with the Authority and the owners of the Bonds that, notwithstanding any other provision of the Loan Agreement or any other instrument, it shall neither make nor instruct the Trustee to make any investment or other use of the proceeds of the Bonds, or take or omit to take any other action which would cause any of the Bonds to be "arbitrage bonds" under Section 148 of the Code and the regulations thereunder, and that it shall comply with the requirements of the Code and regulations throughout the terms of the Bonds in order that the interest on the Bonds shall remain exempt from federal income taxation.

Events of Default

Each of the following shall constitute an Event of Default:

- (a) the University fails to make any payment to the Trustee when due pursuant to the Loan Agreement, subject to such grace periods as are set forth in the Indenture and described herein under the caption "THE INDENTURE—Events of Default; Remedies – Events of Default"; or
- (b) the University shall default in the performance of any other covenant under the Loan Agreement for a period of thirty (30) days after delivery of notice thereof from the Trustee or the Authority to the University; or
- (c) the University proposes or makes an assignment for the benefit of creditors or a composition agreement with all or a material part of its creditors, or a trustee, receiver, executor, conservator, liquidator, sequestrator or other judicial representative, similar or dissimilar, is appointed for the University or any of its assets or revenues, or there is commenced any proceeding in liquidation, bankruptcy, reorganization, arrangement of debts, debtor rehabilitation, creditor adjustment or insolvency, local, state or federal, by or against the University and if such is not vacated, dismissed or stayed on appeal within sixty (60) days; or
- (d) an Event of Default under the Indenture shall have occurred and be continuing; or
- (e) if any of the representations or warranties of the University contained in the Loan Agreement are determined to have been false in any material respect as of the date when made.

Notice of Defaults; Opportunity to Cure Such Defaults

No default under clause (b) above under "Events of Default" shall constitute an Event of Default until actual notice of such default by registered or certified mail shall be given to the University by the Authority or the Trustee and the University shall have had ninety (90) days after receipt of such notice to correct the default and shall not have corrected it; provided, however, if the default cannot be corrected within such ninety (90) day period, it shall not constitute an Event of Default if corrective action is instituted by the University within the period and diligently pursued until the Event of Default is corrected; provided that the Trustee and the Authority are provided with a

certification from the University to the effect that such default cannot be corrected within such ninety (90) day period and the University has instituted or will institute corrective action within such period and diligently pursue such corrective action until the Event of Default is corrected.

Remedies on Default

If an Event of Default under the Loan Agreement occurs and is continuing, the Trustee (as assignee of the Authority) may exercise any right or remedy granted to it under the Loan Agreement or the Indenture or otherwise as authorized or permitted by law, including taking any one or more of the following remedial steps:

(i) If the maturity of any Bonds shall have been accelerated as a result of such Event of Default, then the Trustee, or the Authority with the prior written consent of the Trustee, may (and shall at the written direction of the owners of a majority in aggregate principal amount of all outstanding Bonds) declare all amounts payable under the Loan Agreement for the entire term of the Loan Agreement to be immediately due and payable, whereupon the same shall become due and payable. For the purposes of this section "Remedies on Default", such amounts payable shall be equal to the principal amount of all such Bonds plus all interest accrued thereon to the date of payment.

(ii) The Trustee, or the Authority with the prior written consent of the Trustee, may (and shall at the written direction of the owners of a majority in aggregate principal amount of all outstanding Bonds) take any action at law or in equity to collect amounts then due and thereafter to become due under the Loan Agreement, or to require the performance and observance of any obligation, agreement or covenant of the University under the Loan Agreement, or any other action provided for in the Indenture.

Any amounts collected pursuant to action taken under this section "Remedies on Default" shall be applied in accordance with the Indenture.

If the Trustee or the Authority shall have proceeded to enforce the rights of the Authority under the Loan Agreement and such proceedings shall have been discontinued or abandoned for any reason or shall have been determined adversely to the Trustee or the Authority, as the case may be, or if each Event of Default theretofore existing shall have been cured or provision satisfactory to the Trustee shall theretofore been made, then and in every such case the University, the Authority and the Trustee shall be restored respectively to their several positions and rights under the Loan Agreement, and all rights, remedies and powers of the University, the Authority and the Trustee shall continue as though no such proceedings had been taken.

Remedies Not Exclusive

No remedy conferred upon or reserved to the Authority or the Trustee in the Loan Agreement is intended to be exclusive of any other remedy or remedies, and each and every such remedy shall be cumulative and shall be in addition to every other remedy given under the Loan Agreement or now or hereafter existing at law or in equity or by statute. Any right or power accruing upon any default under the Loan Agreement may be exercised from time to time and as often as may be deemed expedient. In order to entitle the Authority or the Trustee to exercise any remedy conferred upon or reserved to it in the Loan Agreement, it shall not be necessary to give any notice, other than such notice as may be expressly required in the Loan Agreement.

Amendments

The Loan Agreement may be amended or supplemented from time to time by a supplemental Loan Agreement executed in writing by the parties to the Indenture (a) to correct any irregularity or formal defect therein, (b) for the purpose of curing any ambiguity, defect, inconsistent provision or omission in the Loan Agreement, (c) to amend the provisions of the Loan Agreement in order to obtain, maintain or upgrade any rating on the Bonds, (d) with the consent of the Trustee, otherwise to implement the requirements of the Indenture or any amendment thereof, or (e) in connection with any other change therein which, in the judgment of the Trustees, is not materially adverse to the interests of the Trustee or the holders of the Bonds. No amendment under the Loan Agreement shall be effective unless the Trustee shall have received an Opinion of counsel to the effect that such amendment, if adopted, is not

inconsistent with the terms of the Indenture (including, for such purpose, any amendment of the Indenture then being proposed in conjunction with an amendment of the Loan Agreement). The University shall reimburse the Authority and the Trustee for all reasonable costs and expenses, paid or incurred by the Authority and the Trustee in connection with any amendments or modifications of the Loan Agreement or to the Indenture and any document, instrument or agreement related to the Indenture or thereto, and the discussion, negotiation, preparation, approval, execution and delivery of any and all documents necessary or desirable to effect such amendments or modifications.

APPENDIX E

Proposed Form of Opinion of Bond Counsel – Series A Bonds

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January 27, 2022

Re: \$50,230,000, Aggregate Principal Amount,
Allegheny County Higher Education Building Authority
Carnegie Mellon University Revenue Bonds, Series A of 2022
(SOFR Index Rate Bonds)

To the Purchasers of the Within-Described Bonds:

We have served as bond counsel in connection with the issuance by the Allegheny County Higher Education Building Authority ("Authority"), a body politic and corporate created and existing pursuant to the Pennsylvania Municipality Authorities Act, 53 Pa. C.S.A. §5601 et seq. ("Act"), of \$50,230,000, aggregate principal amount, Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Bonds, Series A of 2022 (SOFR Index Rate Bonds) ("Bonds").

The Bonds are issued pursuant to the Act, a resolution adopted by the Authority on December 16, 2021 ("Resolution"), and a Trust Indenture, dated as of January 1, 2022 ("Indenture"), between the Authority and U.S. Bank National Association, as trustee ("Trustee").

The proceeds of the Bonds will be applied by Carnegie Mellon University ("Borrower") to finance all or a portion of the costs of (a) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bond, Series B of 2012 and (b) paying certain costs and expenses of issuing the Bonds.

The proceeds of the Bonds will be loaned by the Authority to the Borrower pursuant to a Loan Agreement, dated as of January 1, 2022 ("Loan Agreement"), between the Authority and the Borrower. The Authority has assigned all of its right, title and interest in the Loan Agreement (except for rights related to certain approvals, consents and notices, certain modifications, supplements and amendments to the Loan Agreement, the right to pursue remedies, the right to payment of certain expenses and the right to indemnification) to the Trustee for the benefit of the Registered Owners (as defined in the Indenture).

As a basis for this opinion we have examined such matters of law and such documents, certifications, instruments and records as we deemed necessary to enable us to render the opinion set forth below, including without limitation: the Act; applicable provisions of the Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder or made applicable with respect thereto (collectively, "Code"); original counterparts or certified copies of the Resolution, the Indenture and the Loan Agreement; a certificate dated the date hereof ("Tax Compliance Certificate") of certain Authority officials having responsibility for issuing the Bonds and of the Borrower given pursuant to the Code; opinions as to various matters delivered by the Authority's counsel and counsel to the Borrower, including without limitation the opinion of counsel to the Borrower as to the status of the Borrower as an organization described in Section 501(c)(3) of the Code; and the other documents, certifications, instruments and records listed in the Closing Memorandum in respect of the Bonds filed this date with the Trustee. We have also examined a fully executed and authenticated Bond or a true copy thereof, and we assume all other Bonds are in such form and are similarly executed and authenticated. In rendering this opinion, we have relied on

the opinions referred to above as to all matters of fact and law set forth therein, and on the genuineness, truthfulness and completeness of all documentation examined as referred to above.

Based on the foregoing and the other qualifications and limitations set forth herein, we are of the opinion that:

1. The Authority is validly existing under the Act, and at all relevant times had and has full power and authority thereunder to adopt the Resolution, execute the Indenture and the Loan Agreement, and perform the obligations thereunder, and to issue the Bonds.

2. The Indenture and the Loan Agreement have been duly authorized, executed and delivered by the Authority, and the obligations of the Authority thereunder are valid, binding and enforceable in accordance with the respective terms thereof, except to the extent that enforcement may be affected by bankruptcy, insolvency, reorganization, moratorium or other similar laws or legal or equitable principles affecting the enforcement of creditors' rights ("Creditors' Rights Limitations").

3. The Bonds have been duly authorized, executed and issued by the Authority, and are valid and binding special, limited obligations of the Authority payable solely from the sources described in the Indenture, and enforceable in accordance with their terms, except to the extent that enforcement may be affected by Creditors' Rights Limitations, and the Bonds are entitled to the benefit and security of the Indenture to the extent provided therein.

4. Under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof, interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax; however, under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof, any profits, gains or income derived from the sale, exchange or other disposition of the Bonds will be subject to Commonwealth of Pennsylvania taxes and local taxes within the Commonwealth of Pennsylvania.

5. Under the existing statutes, regulations, rulings and court decisions, interest on the Bonds will not be includible in the gross income of the holders thereof for federal income tax purposes, assuming continuing compliance by the Authority and the Borrower with the requirements of the Code. Interest on the Bonds will not be a specific preference item for purposes of computing the federal alternative minimum tax on individuals.

In rendering this opinion, Bond Counsel has assumed compliance by the Authority and the Borrower with their respective covenants contained in the Indenture and the Loan Agreement and the representations and covenants in the Tax Compliance Certificate executed by the Authority and the Borrower on the date of issuance of the Bonds relating to actions to be taken, or caused to be taken, by the Authority and the Borrower after the issuance of the Bonds necessary to effect or maintain the exclusion from gross income of the interest on the Bonds for federal income tax purposes. These covenants and representations relate to, *inter alia*, the use and investment of proceeds of the Bonds and the rebate to the United States Department of Treasury of specified arbitrage earnings, if any. Failure to comply with such covenants could result in the interest on the Bonds becoming includible in gross income for federal income tax purposes from the date of issuance of the Bonds.

We call your attention to the fact that the Bonds are special, limited obligations of the Authority, and neither the faith nor credit of the Commonwealth of Pennsylvania or any of its political subdivisions is pledged to the payment of the principal of, premium, if any, or interest on the Bonds. The Authority has no taxing power.

We express no opinion as to any matter not set forth in the numbered paragraphs herein. This opinion is rendered on the basis of federal law and the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof. This opinion is given as of the date hereof and we assume no obligation to supplement this opinion to reflect changes in the law that may hereafter occur or changes in the facts or circumstances that may hereafter come to our attention. Without limiting the generality of the foregoing, we express no opinion with respect to, and assume no responsibility for, the accuracy, adequacy or completeness of the preliminary official statement or the official statement prepared in respect of the offering of the Bonds and make no representation that we have independently verified the contents thereof.

Very truly yours,

ECKERT SEAMANS CHERIN & MELLOTT, LLC

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APPENDIX F

Proposed Form of Opinion of Bond Counsel – Series B Bonds

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January 27, 2022

Re: \$27,240,000, Aggregate Principal Amount,
Allegheny County Higher Education Building Authority
Carnegie Mellon University Revenue Bonds, Series B of 2022

To the Purchasers of the Within-Described Bonds:

We have served as bond counsel in connection with the issuance by the Allegheny County Higher Education Building Authority ("Authority"), a body politic and corporate created and existing pursuant to the Pennsylvania Municipality Authorities Act, 53 Pa. C.S.A. §5601 et seq. ("Act"), of \$27,240,000, aggregate principal amount, Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Bonds, Series B of 2022 ("Bonds").

The Bonds are issued pursuant to the Act, a resolution adopted by the Authority on December 16, 2021 ("Resolution"), and a Trust Indenture, dated as of January 1, 2022 ("Indenture"), between the Authority and U.S. Bank National Association, as trustee ("Trustee").

The proceeds of the Bonds will be applied by Carnegie Mellon University ("Borrower") to finance all or a portion of the costs of (a) the current refunding of all of the outstanding Allegheny County Higher Education Building Authority Carnegie Mellon University Revenue Refunding Bonds, Series A of 2012 and (b) paying certain costs and expenses of issuing the Bonds.

The proceeds of the Bonds will be loaned by the Authority to the Borrower pursuant to a Loan Agreement, dated as of January 1, 2022 ("Loan Agreement"), between the Authority and the Borrower. The Authority has assigned all of its right, title and interest in the Loan Agreement (except for rights related to certain approvals, consents and notices, certain modifications, supplements and amendments to the Loan Agreement, the right to pursue remedies, the right to payment of certain expenses and the right to indemnification) to the Trustee for the benefit of the Registered Owners (as defined in the Indenture).

As a basis for this opinion we have examined such matters of law and such documents, certifications, instruments and records as we deemed necessary to enable us to render the opinion set forth below, including without limitation: the Act; applicable provisions of the Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder or made applicable with respect thereto (collectively, "Code"); original counterparts or certified copies of the Resolution, the Indenture and the Loan Agreement; a certificate dated the date hereof ("Tax Compliance Certificate") of certain Authority officials having responsibility for issuing the Bonds and of the Borrower given pursuant to the Code; opinions as to various matters delivered by the Authority's counsel and counsel to the Borrower, including without limitation the opinion of counsel to the Borrower as to the status of the Borrower as an organization described in Section 501(c)(3) of the Code; and the other documents, certifications, instruments and records listed in the Closing Memorandum in respect of the Bonds filed this date with the Trustee. We have also examined a fully executed and authenticated Bond or a true copy thereof, and we assume all other Bonds are in such form and are similarly executed and authenticated. In rendering this opinion, we have relied on the opinions referred to above as to all matters of fact and law set forth therein, and on the genuineness, truthfulness and completeness of all documentation examined as referred to above.

Based on the foregoing and the other qualifications and limitations set forth herein, we are of the opinion that:

1. The Authority is validly existing under the Act, and at all relevant times had and has full power and authority thereunder to adopt the Resolution, execute the Indenture and the Loan Agreement, and perform the obligations thereunder, and to issue the Bonds.

2. The Indenture and the Loan Agreement have been duly authorized, executed and delivered by the Authority, and the obligations of the Authority thereunder are valid, binding and enforceable in accordance with the respective terms thereof, except to the extent that enforcement may be affected by bankruptcy, insolvency, reorganization, moratorium or other similar laws or legal or equitable principles affecting the enforcement of creditors' rights ("Creditors' Rights Limitations").

3. The Bonds have been duly authorized, executed and issued by the Authority, and are valid and binding special, limited obligations of the Authority payable solely from the sources described in the Indenture, and enforceable in accordance with their terms, except to the extent that enforcement may be affected by Creditors' Rights Limitations, and the Bonds are entitled to the benefit and security of the Indenture to the extent provided therein.

4. Under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof, interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax; however, under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof, any profits, gains or income derived from the sale, exchange or other disposition of the Bonds will be subject to Commonwealth of Pennsylvania taxes and local taxes within the Commonwealth of Pennsylvania.

5. Under the existing statutes, regulations, rulings and court decisions, interest on the Bonds will not be includible in the gross income of the holders thereof for federal income tax purposes, assuming continuing compliance by the Authority and the Borrower with the requirements of the Code. Interest on the Bonds will not be a specific preference item for purposes of computing the federal alternative minimum tax on individuals.

In rendering this opinion, Bond Counsel has assumed compliance by the Authority and the Borrower with their respective covenants contained in the Indenture and the Loan Agreement and the representations and covenants in the Tax Compliance Certificate executed by the Authority and the Borrower on the date of issuance of the Bonds relating to actions to be taken, or caused to be taken, by the Authority and the Borrower after the issuance of the Bonds necessary to effect or maintain the exclusion from gross income of the interest on the Bonds for federal income tax purposes. These covenants and representations relate to, *inter alia*, the use and investment of proceeds of the Bonds and the rebate to the United States Department of Treasury of specified arbitrage earnings, if any. Failure to comply with such covenants could result in the interest on the Bonds becoming includible in gross income for federal income tax purposes from the date of issuance of the Bonds.

We call your attention to the fact that the Bonds are special, limited obligations of the Authority, and neither the faith nor credit of the Commonwealth of Pennsylvania or any of its political subdivisions is pledged to the payment of the principal of, premium, if any, or interest on the Bonds. The Authority has no taxing power.

We express no opinion as to any matter not set forth in the numbered paragraphs herein. This opinion is rendered on the basis of federal law and the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof. This opinion is given as of the date hereof and we assume no obligation to supplement this opinion to reflect changes in the law that may hereafter occur or changes in the facts or circumstances that may hereafter come to our attention. Without limiting the generality of the foregoing, we express no opinion with respect to, and assume no responsibility for, the accuracy, adequacy or completeness of the preliminary official statement or the official statement prepared in respect of the offering of the Bonds and make no representation that we have independently verified the contents thereof.

Very truly yours,

ECKERT SEAMANS CHERIN & MELLOTT, LLC

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APPENDIX G

Form of Continuing Disclosure Certificate

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CONTINUING DISCLOSURE CERTIFICATE

of

CARNEGIE MELLON UNIVERSITY

Dated as of January 1, 2022

Relating to:

\$77,470,000

**ALLEGHENY COUNTY HIGHER EDUCATION BUILDING AUTHORITY
CARNEGIE MELLON UNIVERSITY REVENUE BONDS,
consisting of**

\$50,230,000

**Carnegie Mellon University Revenue Bonds,
Series A of 2022 (SOFR Index Rate Bonds)**

and

\$27,240,000

**Carnegie Mellon University Revenue Bonds,
Series B of 2022**

CONTINUING DISCLOSURE CERTIFICATE

This Continuing Disclosure Certificate, dated as of January 1, 2022 (this “Disclosure Certificate”), is executed and delivered by Carnegie Mellon University, a Pennsylvania nonprofit corporation (the “University”), in connection with the issuance by the Allegheny County Higher Education Building Authority (the “Authority”) of its Carnegie Mellon University Revenue Bonds, Series A of 2022 (SOFR Index Rate Bonds) in the original aggregate principal amount of \$50,230,000 (the “Series 2022 A Bonds”) and its Carnegie Mellon University Revenue Bonds, Series B of 2022 in the original aggregate principal amount of \$27,240,000 (the “Series 2022 B Bonds” and, together with the Series 2022 A Bonds, the “Series 2022 Bonds”). The Series 2022 Bonds are being issued by the Authority pursuant to a resolution of the governing body of the Authority and separate Trust Indentures, each dated as of January 1, 2022 (collectively, the “Indentures”), each by and between the Authority and U.S. Bank National Association, as trustee, (the “Trustee”). Capitalized terms used but not otherwise defined in this Disclosure Certificate shall have the meanings assigned thereto in the Indentures.

WITNESSETH:

WHEREAS, pursuant to (i) a Bond Purchase Contract relating to the Series 2022 A Bonds (the “Series 2022 A Bond Purchase Contract”) dated January 20, 2022, by and among the Authority, the University and BofA Securities, as managing representative for the underwriters set forth in the Series 2022 A Bond Purchase Contract (the “Series A Underwriter”) and (ii) a Bond Purchase Contract relating to the Series 2022 B Bonds (the “Series 2022 B Bond Purchase Contract” and, together with the Series 2022 A Bond Purchase Contract, the “Series 2022 Bond Purchase Contracts”) dated January 19, 2022, by and among the Authority, the University and BofA Securities, as managing representative for the underwriters set forth in the Series 2022 B Bond Purchase Contract (the “Series B Underwriter” and, together with the Series A Underwriter, the “Underwriter” or the “Participating Underwriter”), the Authority is selling its Series 2022 B Bonds to the Series B Underwriter;

WHEREAS, the proceeds of the Series 2022 A Bonds are being loaned to the University by the Authority pursuant to a Loan Agreement relating to the Series 2022 A Bonds dated as of January 1, 2022 between the Authority and the University (the “Series A Loan Agreement”); and

WHEREAS, the proceeds of the Series 2022 B Bonds are being loaned to the University by the Authority pursuant to a Loan Agreement relating to the Series 2022 B Bonds dated as of January 1, 2022 between the Authority and the University (the “Series B Loan Agreement” and, together with the Series A Loan Agreement, the “Loan Agreements”); and

WHEREAS, Rule 15c2-12(b)(5) promulgated under the Securities Exchange Act of 1934, as amended (the “Rule”), provides that a participating underwriter (as defined in the Rule) shall not purchase or sell municipal securities in connection with an offering (as defined in the Rule) unless the participating underwriter has reasonably determined that an issuer of municipal securities or an obligated person for whom financial or operating data is presented in the final official statement has undertaken, either individually or in combination with other issuers of such municipal securities or obligated persons, in a written agreement or contract for the benefit of holders of such securities, to provide, either directly or indirectly through an indenture trustee or a designated agent, certain specified financial information and operating data and notices of certain material events; and

WHEREAS, the University is the only Obligated Person with respect to the Series 2022 Bonds for purposes of the Rule; and

WHEREAS, in order to induce the Underwriter to purchase the Bonds, the University desires to undertake to provide the information and notices required by the Rule;

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto, intending to be legally bound hereby agree as follows:

Section 1. Purpose of Disclosure Certificate. This Disclosure Certificate is being executed and delivered by the University for the benefit of the Registered Owners of the Series 2022 Bonds (for such purpose beneficial owners of the Series 2022 Bonds shall also be considered Registered Owners of the Series 2022 Bonds) and to assist the Participating Underwriter, in complying with the Rule (as defined herein).

Section 2. Defined Terms.

“Annual Report” means the financial information and operating data required to be transferred by the University to the Dissemination Agent pursuant to the Section 3(a) of this Disclosure Certificate.

“Authority” means the Allegheny County Higher Education Building Authority, its successors and assigns.

“Beneficial Owner” means any person which (a) has the power, directly or indirectly, to vote or consent with respect to, or to dispose of ownership of, any Series 2022 Bonds (including persons holding Bonds through nominees, depositories or other intermediaries), or (b) is treated as the owner of any Series 2022 Bonds for federal income tax purposes.

“Dissemination Agent” means the party appointed by the University pursuant to the provisions of this Disclosure Certificate to perform the duties described herein to ensure compliance with the provisions of the Rule. Initially, the University shall perform all duties of the Dissemination Agent hereunder and no third party has been appointed by the University as Dissemination Agent. During any period in which the University is performing the duties of the Dissemination Agent hereunder, all references in this Disclosure Certificate to “Dissemination Agent” shall mean the University unless the context otherwise requires.

“EMMA” means the Electronic Municipal Market Access system operated by the MSRB and the primary portal for complying with the continuing disclosure requirements of the Rule.

“Event Notices” means a notice required to be given by the University pursuant to Section 5 of this Disclosure Certificate.

“Indentures” means, collectively, the Trust Indenture relating to the Series 2022 A Bonds, dated as of January 1, 2022, by and between the Authority and Trustee and the Trust Indenture relating to the Series 2022 B Bonds, dated as of January 1, 2022, by and between the Authority and the Trustee.

“MSRB” means the Municipal Securities Rulemaking Board established pursuant to Section 15B(b)(1) of the Securities Exchange Act of 1934 or any other entity designated or authorized by the SEC to receive reports pursuant to the Rule. Until otherwise designated by the MSRB or the SEC, filings with the MSRB are to be made through the EMMA website of the MSRB, currently located at <http://emma.msrb.org>.

“Obligated Person” shall have the meaning given such term in the Rule.

“Official Statement” means the Official Statement, dated January 20, 2022, relating to the Series 2022 Bonds.

“*Participating Underwriter*” or “*Underwriter*” means BofA Securities, Inc., as original purchaser of the Series 2022 Bonds, its successors and assigns.

“*Repository*” means EMMA or any other repository designated or authorized by the SEC to receive reports for purposes of the Rule.

“*Rule*” means SEC Rule 15c2-12(b)(5) promulgated by the SEC under the Securities Exchange Act of 1934, as amended or supplemented by the SEC from time to time.

“*SEC*” means the Securities and Exchange Commission, its successors and assigns.

“*Series 2022 Bonds*” means, collectively, the Series 2022 A Bonds and the Series 2022 B Bonds.

“*Trustee*” means U.S. Bank National Association, its successors and assigns.

“*University*” means Carnegie Mellon University, a Pennsylvania nonprofit corporation, its successors and assigns.

Section 3. Provision of Annual Reports and Operating Data.

(a) *Annual Reports.* Not later than one hundred eighty (180) days after the end of the University’s fiscal year, commencing with the fiscal year ending June 30, 2022, the University shall provide to the Repository, or shall cause the Dissemination Agent to provide to the Repository, an Annual Report which is consistent with the requirements of Section 4 of this Disclosure Certificate. In each case, the Annual Report may be submitted as a single document or as separate documents comprising a package, and may cross-reference other information as provided in Section 4 of this Disclosure Certificate; provided, that the audited financial statements of the University may be submitted separately from the balance of the Annual Report and later than the date required above for the filing of the Annual Report if the audited financial statements are not available by that date, provided the unaudited financial information available on such date is submitted. The Annual Report shall be provided at least annually notwithstanding a fiscal year longer than twelve (12) calendar months. The University may change its current fiscal year, but must notify the Authority and the Repository or any other filing system approved by the SEC, of each such change within thirty (30) days after the later of the adoption of a new fiscal year and the end of the fiscal year that occurs before the former fiscal year would have ended.

(b) As soon as is practicable after the completion of any of the disclosure reports required by paragraph (a) (collectively referred to as the “Disclosure Reports”), the University shall provide each Disclosure Report to the Dissemination Agent. The Dissemination Agent shall, at the University’s cost, transmit the information contained in the Disclosure Reports in accordance with the requirements of Section 7 hereof. If the University delivers the Annual Report directly to the Repository, it shall provide a report to the same effect to the Authority, the Dissemination Agent and, if the Dissemination Agent is not the Trustee, to the Trustee.

(c) If the University does not provide to the Dissemination Agent a copy of an Annual Report by the applicable date required in Section 3(a) above, the Dissemination Agent (or, if there is no third party Dissemination Agent, the University) shall send a notice to the University, the Repository, and the Participating Underwriter, in substantially the form attached as EXHIBIT A. If the University files the Disclosure Reports directly with the Repository on or before the date required in Section 3(a) above, the University shall promptly provide the Dissemination Agent with a certification, or other documentation reasonably required by the Dissemination Agent, that the filing of the Disclosure Report

was made in a timely manner on or before the date required herein and such filing contained the information required by this Disclosure Certificate.

(d) The Dissemination Agent shall:

(i) determine each year prior to the date for providing the Annual Report the name and address (physical or electronic, as applicable) of the Repository; and

(ii) provided the Annual Report has been provided to the Dissemination Agent by the University, file a report with the University certifying that the Annual Report has been provided pursuant to this Disclosure Certificate, stating the date it was provided, and listing the Repository to which it was provided.

Section 4. Content of Annual Reports.

(a) *Annual Reports.* The Annual Report shall contain or include by reference the audited financial statements of the University for the prior fiscal year and shall further provide financial and operating data, including information generally consistent in presentation, duration and scope with the following information contained in Appendix A of the Official Statement:

- (1) The first, third and fourth tables under the heading “ADMISSION AND ENROLLMENT.”
- (2) The table under the heading “ADMISSION AND ENROLLMENT – Student Retention.”
- (3) The table under the heading “STUDENT TUITION AND FEES.”
- (4) The table under the heading “STUDENT FINANCIAL AID.”
- (5) The table under the heading “FINANCIAL OVERVIEW - Net Assets.”
- (7) The table under the heading “FINANCIAL OVERVIEW - Historical Operating Results.”
- (8) The table under the heading “FUNDRAISING.”
- (9) All tables under the heading “ENDOWMENT AND INVESTMENTS,” including the tables under the subheadings “- Investment Policy and Asset Allocation Targets.”

The foregoing information may be provided in the form of the University’s published annual report or, to the extent not included therein, in a supplemental report or schedules.

(b) The University prepares its financial statements in accordance with accounting principles generally accepted in the United States of America (“GAAP”).

(c) Any or all of the Disclosure Reports may be incorporated by reference from other documents, including official statements, which have been submitted to the Repository. If the Disclosure Report information is changed or this Disclosure Certificate is amended in accordance with its terms, then the University is to include in the next Disclosure Report to be delivered thereunder, to the extent necessary, an explanation of the reasons for the amendment and the effect of any change in the type of financial information or operating data provided.

Section 5. Event Notices.

(a) The University agrees to provide or cause to be provided, in a timely manner not in excess of ten (10) business days after the occurrence of any of the following events (each, a “Listed Event”), (i) to the Participating Underwriter and (ii) to the Repository or to any other filing system

approved by the SEC, notice of the occurrence of any of the following events (each an “Event Notice”) with respect to the Series 2022 Bonds:

- (i) Principal and interest payment delinquencies;
- (ii) Non-payment related defaults, if material;
- (iii) Unscheduled draws on debt service reserves reflecting financial difficulties;
- (iv) Unscheduled draws on credit enhancements reflecting financial difficulties;
- (v) Substitution of credit or liquidity providers, or their failure to perform;
- (vi) 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 Series 2022 Bonds, or other material events affecting the tax status of the Series 2022 Bonds;
- (vii) Modifications to rights of holders of the Series 2022 Bonds, if material;
- (viii) Bond calls, if material, and tender offers;
- (ix) Defeasances;
- (x) Release, substitution, or sale of property securing repayment of the Series 2022 Bonds, if material;
- (xi) Rating changes;
- (xii) Bankruptcy, insolvency, receivership or similar event of the Obligated Person;
- (xiii) The consummation of a merger, consolidation, or acquisition involving an Obligated Person or the sale of all or substantially all of the assets of the Obligated Person, 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;
- (xiv) Appointment of a successor or additional trustee or the change of name of a trustee, if material;
- (xv) Incurrence of a Financial Obligation of the Obligated Person, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the Obligated Person, any of which affect Bondholders, if material; and
- (xvi) Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a Financial Obligation of the Obligated Person, any of which reflect financial difficulties.

For purposes of item (xii) above, the described event shall be deemed to occur when any of the following shall occur: the appointment of a receiver, fiscal agent or similar officer for the Obligated Person in a proceeding under the United States 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 Obligated Person, 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 other governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority have supervision or jurisdiction over substantially all of the assets or business of the Obligated Person.

With respect to events (xv) and (xvi) above, “Financial Obligation” means (A) debt obligation; (B) derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation; or (C) guarantee of (A) or (B), but shall not include municipal securities as to which a final official statement has been provided to the MSRB consistent with the Rule.

In determining the materiality of the Listed Events specified in Section 5(a)(ii), (vii), (viii), (x), (xiii), (xiv) or (xv) above, the University may, but shall not be required to, rely conclusively on an opinion of counsel.

(b) If a third party has been appointed as Dissemination Agent, the Dissemination Agent shall have no obligation under this Disclosure Certificate to provide, or to monitor the University’s obligation to provide, notification of the occurrence of any of the Listed Events set forth in this Section 5.

(c) The University shall give, or cause to be given, in a timely manner, notice of a failure to provide any Disclosure Report on or before the date specified in Section 3 hereof, as provided in Section 3(a) hereof.

(d) Whenever the University obtains knowledge of the occurrence of an event requiring an Event Notice described in Section 5(a) hereof, the University shall within ten (10) business days of occurrence file a notice of such occurrence with the MSRB in electronic format, accompanied by such identifying information as is prescribed by the MSRB.

Section 6. EMMA. The SEC has designated the EMMA system operated by the MSRB as the nationally recognized municipal securities information repository and the exclusive portal for complying with continuing disclosure requirements of the Rule. Until the EMMA system is amended or altered by the MSRB or the SEC, the Dissemination Agent and the University shall make all filings required under this Disclosure Certificate solely with EMMA.

Section 7. Dissemination Agent. Initially the University has not appointed a third party Dissemination Agent, but instead shall comply with all of the requirements of this Disclosure Certificate. In the event the University appoints a third party to serve as Dissemination Agent, the following provisions shall apply to such Dissemination Agent:

(a) The University shall send all Disclosure Reports required by Section 3 hereof, and Event Notices required by Section 5 hereof, to the Dissemination Agent. The Dissemination Agent shall, within ten (10) days of receipt of such Disclosure Report and promptly after its receipt from the University of a notice of the occurrence of an event requiring an Event Notice, forward such information to (i) the Repository and/or the MSRB or any other filing system approved by the SEC, as appropriate; (ii) the Authority; (iii) the Participating Underwriter; and (iv) any Registered or Beneficial Owner of the Series 2022 Bonds identified in writing by the Participating Underwriter.

(b) The University shall be responsible for all reasonable fees and associated expenses of the Dissemination Agent as agreed upon between the University and the Dissemination Agent, including any reasonable costs incurred by the Dissemination Agent as a result of disseminating information to any requesting Registered or Beneficial Owners of the Series 2022 Bonds.

(c) The University may discharge the Dissemination Agent or any successor Dissemination Agent with or without appointing a successor Dissemination Agent.

The Dissemination Agent does not have any duty to review the materials described in this paragraph prior to disseminating such materials.

Section 8. Termination of Obligations. Pursuant to paragraph (b)(5)(iii) of the Rule, the University's obligation to provide the Disclosure Reports and any Event Notice, as set forth in this Disclosure Certificate, shall terminate if and when the University no longer remains an obligated person with respect to the Series 2022 Bonds, which shall occur upon either payment of the Series 2022 Bonds in full or the legal defeasance of the Series 2022 Bonds in accordance with the Indentures.

Section 9. Enforceability and Remedies. This Disclosure Certificate is intended to be for the sole benefit of the Registered Owners of the Series 2022 Bonds (for such purpose Beneficial Owners of the Series 2022 Bonds shall also be considered Registered Owners of the Series 2022 Bonds) and the Participating Underwriter and shall create no rights in any other person or entity.

This Disclosure Certificate shall be enforceable by or on behalf of any such Registered Owner of the Series 2022 Bonds, provided, however, that the right of any Registered Owner to challenge the adequacy of the information furnished pursuant to this Disclosure Certificate shall be limited to an action by or on behalf of Registered Owners representing at least 25% of the aggregate outstanding principal amount of the Series 2022 Bonds. This Disclosure Certificate is also enforceable on behalf of the Registered Owners of the Series 2022 Bonds by the Trustee, and the Trustee may, and, upon the written direction of (i) the Registered Owners of not less than 25% of the aggregate outstanding principal amount of the Series 2022 Bonds, (ii) the Participating Underwriter or (iii) any Registered Owner, shall, proceed to protect and enforce the rights of the Registered Owners of the Series 2022 Bonds pursuant to this Disclosure Certificate; provided that in all cases the Trustee shall be entitled to the indemnification and other provisions of the Indentures with regard to any actions. Prior to proceeding at the request or direction of the Participating Underwriter the Trustee may require the same types of indemnification and related protections from the Participating Underwriter to which the Trustee would otherwise be entitled under the Indentures if so requested or directed by the Registered Owners under the terms of the Indentures. Any failure by the University to comply with the provisions of this Disclosure Certificate shall not be an Event of Default under the Loan Agreement or the Indentures.

The Registered Owners' and the Trustee's rights to enforce the provisions of this Disclosure Certificate shall be limited solely to a right, by action in mandamus or for specific performance, to compel the University to perform the University's obligations under this Disclosure Certificate, and the University, its trustees, officers and employees shall incur no liability under this Disclosure Certificate by reason of any act or failure to act hereunder. Without limiting the generality of the foregoing, neither the commencement nor the successful completion of an action to compel performance under this Section 9 entitles the Trustee or any other person to attorneys' fees, financial damages of any sort or any other relief other than an order or injunction compelling performance; provided that the Trustee shall nevertheless be entitled to attorneys' fees and such other rights and amounts as provided in the Indentures.

Section 10. Amendment. Notwithstanding any other provision of this Disclosure Certificate, the University and the Dissemination Agent may amend this Disclosure Certificate, and any provision of this Disclosure Certificate may be waived, without the consent of the Registered Owners under the following conditions:

(a) The amendment or waiver may only be made in connection with a change in circumstances that arises from a change in legal requirements, change in law or change in the identity, nature or status of the University, or type of business conducted;

(b) This Disclosure Certificate as amended or with the provision so waived, would have complied with the requirements of the Rule at the time of the original issuance of the Series 2022 Bonds, after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances; and

(c) The amendment or waiver does not materially impair the interest of Registered Owners of the Series 2022 Bonds, as determined either by parties unaffiliated with the University (which shall include a nationally recognized bond counsel firm, or any other party determined by any of them to be unaffiliated), or by approving vote of Registered Owners of the Series 2022 Bonds pursuant to the terms of the Indentures at the time of the amendment or waiver.

The University shall provide notice of each amendment or waiver to the Repository or any other filing system approved by the SEC. The initial annual financial or operating information provided by the University after the amendment or waiver shall explain, in narrative form, the reasons for the amendment or waiver and the effect of the change in the type of operating data or financial information being provided.

Section 11. Notices. All notices and other communications required or permitted under this Disclosure Certificate shall be in writing and shall be deemed to have been duly given, made and received only when delivered (personally, by recognized national or regional courier service, or by other messenger, for delivery to the intended addressee) or when deposited in the United States mails, registered or certified mail, postage prepaid, return receipt requested, addressed as set forth below:

(i) If to the Authority:

Allegheny County Higher Education Building Authority
One Chatham Center, Suite 900
112 Washington Place
Pittsburgh, Pennsylvania, 15219
Attention: Manager

(ii) If to the Trustee:

U.S. Bank National Association
225 W. Station Square Drive, Suite 380
Pittsburgh, Pennsylvania 15219
Attention: Global Corporate Trust Services

(iii) If to the University:

Carnegie Mellon University
Office of the Treasurer
5000 Forbes Avenue
Pittsburgh, Pennsylvania 15213
Attention: Treasurer

(iv) If to the Participating Underwriter:

BofA Securities, Inc.
4 Penn Center
1600 JFK Blvd., Suite 1210
Philadelphia, PA 19103
Attention: Public Finance Group

Any party may alter the address to which communications are sent by giving notice of such change of address in conformity with the provision of this Section 11 for the giving of notice.

Section 12. Counterparts. This Disclosure Certificate may be executed in several counterparts, each of which shall be an original and all of which shall constitute one instrument.

Section 13. Choice of Law. This Disclosure Certificate shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania, provided that to the extent this Disclosure Certificate addresses matters of federal securities laws, including the Rule, this Disclosure Certificate shall be construed in accordance with such federal securities laws and official interpretations thereof and the Rule.

Section 14. Severability. If any portion of this Disclosure Certificate shall be held invalid or inoperative, then, so far as is reasonable and possible (i) the remainder of this Disclosure Certificate shall be considered valid and operative, and (ii) effect shall be given to the intent manifested by the portion held invalid or inoperative.

Section 15. Other Instruments. The University and the Dissemination Agent covenant and agree that they will execute such other and further instruments and documents as are or may become necessary or convenient to effectuate and carry out this Disclosure Certificate.

Section 16. Captions, Titles, and Headings. The captions, titles, and headings used in this Disclosure Certificate are for convenience only and shall not be construed in interpreting this Disclosure Certificate.

Section 17. Concerning the Dissemination Agent. In the event the University has appointed a third party as Dissemination Agent, in acting under this Disclosure Certificate, the following provisions shall apply:

The Dissemination Agent shall be entitled to all the rights, immunities and indemnifications provided to the Trustee under Article VII of the Indentures. The Dissemination Agent shall have only such duties as are specifically set forth in this Disclosure Certificate. The Dissemination Agent shall have no duty or obligation to review or verify any information provided to it by the University or to determine the materiality of a Listed Event and shall not be deemed to be acting in any fiduciary capacity for the University, the Authority, the Holders or any other party. The Dissemination Agent shall have no responsibility for a failure of the University to report a Listed Event to the Dissemination Agent. The Dissemination Agent shall have no power or authority to enforce performance of the University's duties and obligations hereunder and shall not be required to take any action to cause the University to comply with its obligations hereunder.

The fact that the Dissemination Agent or any affiliate thereof may have any fiduciary or banking relationship with the University apart from the relationship created by this Disclosure Certificate shall not be construed to mean that the Dissemination Agent has actual knowledge of any event or condition except

as may be provided by written notice from the University. Nothing in this Disclosure Certificate shall be construed to require the Dissemination Agent to interpret or provide an opinion concerning any information disseminated hereunder. If the Dissemination Agent receives a request for an interpretation or opinion, the Dissemination Agent may refer such request to the University for response.

Section 18. Entire Agreement. This Disclosure Certificate contains the entire understanding among the parties and supersedes any prior understandings or written or oral agreements between them respecting the subject matter of this Disclosure Certificate.

Section 19. Dissemination Agent Compensation. The University shall pay to or reimburse the Dissemination Agent for its fees and expenses for the Dissemination Agent's services (including attorneys' fees) rendered in accordance with this Disclosure Certificate.

Section 20. Indemnification of Dissemination Agent. In addition to any and all rights of the Dissemination Agent for reimbursement, indemnification and other rights pursuant to the Rule or under law or equity, the University shall indemnify and hold harmless the Dissemination Agent and its respective officers, directors, employees and agents from and against any and all claims, damages, losses, liabilities, reasonable costs and expenses whatsoever (including attorney fees) which such indemnified party may incur by reason of or in connection with the Dissemination Agent's performance under this Disclosure Certificate and in the enforcement of its indemnification rights hereunder; provided that the University shall not be required to indemnify the Dissemination Agent for any claims, damages, losses, liabilities, costs or expenses to the extent, but only to the extent, caused by the misconduct or gross negligence of the Dissemination Agent in such disclosure of information hereunder. The obligations of the University under this Section shall survive resignation or removal of the Dissemination Agent and payment of the Series 2022 Bonds.

IN WITNESS WHEREOF, we have set our hands as of the date set forth above.

CARNEGIE MELLON UNIVERSITY,
a Pennsylvania nonprofit corporation

By: _____
Its: _____

(SIGNATURE PAGE FOR THE CARNEGIE MELLON UNIVERSITY CONTINUING DISCLOSURE CERTIFICATE)

EXHIBIT A

**NOTICE TO REPOSITORY, UNIVERSITY AND PARTICIPATING UNDERWRITER
OF FAILURE TO FILE ANNUAL REPORT**

Name of Issuer: Allegheny County Higher Education Building Authority

Name of Bond Issues: Carnegie Mellon University Revenue Bonds,
Series A of 2022 (SOFR Index Rate Bonds

Carnegie Mellon University Revenue Bonds,
Series B of 2022

[Dissemination Agent: _____]

Name of University: Carnegie Mellon University

Date of Issuance: January 27, 2022

NOTICE IS HEREBY GIVEN that the University has not provided an Annual Report with respect to the above-named Bonds as required by the Continuing Disclosure Certificate, dated as of January 1, 2022, between the undersigned Dissemination Agent and the University. The University anticipates that the Annual Report will be filed by _____.

Dated: _____, 20__

[_____,
as Dissemination Agent]

By: _____
Authorized Officer

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