NEW ISSUE-BOOK-ENTRY ONLY

Ratings: Moody's: Aa2
Fitch: AA
S&P: AA
See "RATINGS" herein.

In the opinion of Kutak Rock LLP, Special Tax Counsel, based upon an analysis of existing laws, regulations, rulings, and court decisions and assuming, among other matters, the accuracy of certain representations and compliance with certain covenants, interest on the 2022 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the "Code"), except for interest on any 2022 Bond for any period during which such 2022 Bond is held by a person who is a "substantial user" of facilities financed with the proceeds of the 2022 Bonds or a "related person" of such a substantial user (within the meaning of Section 147(a) of the Code). Interest on the 2022 Bonds is a specific preference item for purposes of the federal alternative minimum tax. In the opinion of Kaplan Kirsch & Rockwell LLP, Bond Counsel, the 2022 Bonds, their transfer and the income therefrom (including any profit made from their sale) will be exempt from taxation within The Commonwealth of Massachusetts. Bond Counsel expresses no opinion as to whether the 2022 Bonds or the interest thereon will be included in the measure of Massachusetts estate and inheritance taxes and certain Massachusetts corporation excise and franchise taxes. Neither Special Tax Counsel nor Bond Counsel expresses any opinion regarding any other federal or Massachusetts tax consequences, or regarding tax consequences of states other than The Commonwealth of Massachusetts. See "TAX MATTERS" herein.

$120,925,000
MASSACHUSETTS PORT AUTHORITY
Revenue Bonds, Series 2022-A (AMT) (Green Bonds)

Dated: Date of Delivery **Due: July 1, as shown on page (i) hereof**

The Massachusetts Port Authority (the "*Authority*") is issuing its Revenue Bonds, Series 2022-A (AMT) (the "*2022 Bonds*") to finance (i) certain capital improvements and related costs of the Authority, including capitalized interest thereon, (ii) the Reserve Requirement applicable to the 2022 Bonds, and (iii) costs of issuing the 2022 Bonds, all as described herein. The 2022 Bonds will be secured on a parity basis with the Authority's outstanding senior revenue bonds, as more fully described herein. **The 2022 Bonds will be payable solely from Revenues of the Authority which are pledged under the 1978 Trust Agreement, from passenger facility charges ("PFCs") irrevocably committed to such payment by the Authority from time to time, if any, and from certain funds and accounts held by the Trustee, all as described herein. The Authority has no taxing power. The 2022 Bonds will not constitute a debt, or a pledge of the faith and credit, of The Commonwealth of Massachusetts or of any political subdivision thereof.**

The 2022 Bonds will be issued as fully registered bonds and, when issued, will be registered in the name of Cede & Co., as registered owner and nominee for The Depository Trust Company, New York, New York ("DTC"). Purchasers will acquire beneficial ownership interests in the 2022 Bonds in denominations of $5,000 or integral multiples thereof and will not receive physical delivery of bond certificates. So long as Cede & Co. is the registered owner of the 2022 Bonds, principal, premium, if any, and interest will be payable by U.S. Bank Trust Company, National Association, Boston, Massachusetts, as trustee (the "Trustee"), to Cede & Co., as nominee for DTC. See "BOOK-ENTRY SYSTEM."

The 2022 Bonds will bear interest from their date of original delivery, payable each January 1 and July 1, commencing January 1, 2023.

The 2022 Bonds are subject to optional and mandatory redemption prior to maturity as described herein.

Based upon the expected use of proceeds of the 2022 Bonds (as described herein) to finance environmentally beneficial projects at the Airport (defined herein), the Authority has designated the 2022 Bonds as "Green Bonds." See "PLAN OF FINANCE – Designation of 2022 Bonds as Green Bonds."

See page (i) hereof for maturities, principal amounts, interest rates, and prices or yields.

The 2022 Bonds are offered when, as and if issued by the Authority and received by the Underwriters, subject to the receipt of unqualified approving opinions as to legality of Kaplan Kirsch & Rockwell LLP, Boston, Massachusetts, Bond Counsel, and, as to certain federal income tax matters, of Kutak Rock LLP, Denver, Colorado, Special Tax Counsel, and certain other conditions. Certain legal matters will be passed upon for the Authority by its Disclosure Counsel, Locke Lord LLP, Boston, Massachusetts, and for the Underwriters by their co-counsel, Hinckley, Allen & Snyder LLP, Boston, Massachusetts, and D. Seaton and Associates, P.A., Boston, Massachusetts. PFM Financial Advisors LLC, San Francisco, California, serves as Financial Advisor to the Authority. Delivery of the 2022 Bonds to DTC or its custodial agent is expected in New York, New York on or about July 20, 2022.

UBS

Cabrera Capital Markets LLC **Stern Brothers**

Bancroft Capital **Janney Montgomery Scott**

July 12, 2022

Massachusetts Port Authority
Capital Programs Department
April 2022

Approximate Massport Property

Massport Properties Harborwide

N

0 1500 3000
in feet

Notes:
This drawing is intended for informational purposes only and no use may be made of the same without the express written permission of the Massachusetts Port Authority ("Massport"). Massport does not certify the accuracy, information or title to the properties contained in this plan nor make any warranties of any kind, express or implied, in fact or by law, with respect to any boundaries, easements, restrictions, claims, overlaps or other encumbrances affecting such properties.

Aerial Imagery Source: NearMap; Aerial Imagery Date: 03/23/2022

Massachusetts Port Authority

$120,925,000
Revenue Bonds, Series 2022-A (AMT) (Green Bonds)

Maturity (July 1)	Amount	Interest Rate	Yield	CUSIP†	Maturity (July 1)	Amount	Interest Rate	Yield	CUSIP†
2028	$4,315,000	5.00%	2.78%	575896YL3	2036	$8,640,000	5.00%	3.58%*	575896YU3
2029	6,380,000	5.00	2.93	575896YM1	2037	9,075,000	5.00	3.63*	575896YV1
2030	8,450,000	5.00	3.02	575896YN9	2038	9,530,000	5.00	3.64*	575896YW9
2031	6,770,000	5.00	3.14	575896YP4	2039	10,005,000	5.00	3.68*	575896YX7
2032	7,110,000	5.00	3.23	575896YQ2	2040	10,505,000	5.00	3.71*	575896YY5
2033	7,465,000	5.00	3.33*	575896YR0	2041	11,030,000	5.00	3.73*	575896YZ2
2034	7,840,000	5.00	3.42*	575896YS8	2042	5,580,000	5.00	3.75*	575896ZA6
2035	8,230,000	5.00	3.50*	575896YT6					

† CUSIP numbers are included solely for the convenience of the owners of the 2022 Bonds. CUSIP is a registered trademark of the American Bankers Association. CUSIP data herein is provided by CUSIP Global Services, managed by FactSet Research Systems Inc. on behalf of the American Bankers Association. No assurance can be given that the CUSIP number for a particular maturity of the 2022 Bonds will remain the same after the date of delivery of the 2022 Bonds. This data is not intended to create a database and does not serve in any way as a substitute for the CUSIP Services. Neither the Authority nor the Underwriters shall be responsible for the selection, changes to, errors, or correctness of the CUSIP numbers set forth herein.

* Priced at the stated yield to the July 1, 2032 optional redemption date at a redemption price of 100%.

No dealer, broker, salesperson or other person has been authorized by the Authority or any of its agents or the Underwriters to give any information or to make any representations 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 an offer to buy nor shall there be any sale of the 2022 Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale. The information set forth herein has been furnished by the Authority and The Depository Trust Company and includes information from other sources that are believed to be reliable but, as to information from sources other than the Authority, is not to be construed as a representation of the Authority. The information and expressions of opinion contained herein are subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority since the date hereof.

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

This Official Statement contains forecasts, projections and estimates that are based on current expectations. In light of the important factors that may materially affect the financial condition of the Authority and the aviation industry generally and other economic and financial matters, the inclusion in this Official Statement of such forecasts, projections and estimates should not be regarded as a representation by the Authority or the Underwriters that such forecasts, projections and estimates will occur. Such forecasts, projections and estimates are not intended as representations of fact or guarantees of results.

References to website addresses presented herein, including the Authority's investor relations website, its sustainability website or any other website containing information about the Authority, 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 any purpose, including for purposes of Rule 15c2-12 promulgated by the Securities and Exchange Commission.

IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE 2022 BONDS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

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MASSACHUSETTS PORT AUTHORITY

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Patricia A. Jacobs

John A. Nucci

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Laura J. Sen

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David M. Gambone, *Chief Human Resources Officer*
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OFFICIAL STATEMENT

of the

MASSACHUSETTS PORT AUTHORITY

Relating to its

$120,925,000
Revenue Bonds
Series 2022-A (AMT) (Green Bonds)

INTRODUCTION

General

This Official Statement of the Massachusetts Port Authority (the "*Authority*") sets forth certain information concerning the Authority and its $120,925,000 Revenue Bonds, Series 2022-A (AMT) (Green Bonds) (the "*2022 Bonds*").

The Authority

The Authority, created pursuant to Chapter 465 of the Massachusetts Acts of 1956, as amended to date (the "*Enabling Act*"), is a body politic and corporate and a public instrumentality of The Commonwealth of Massachusetts (the "*Commonwealth*" or "*Massachusetts*"). The Authority owns, operates and manages the "*Airport Properties*," consisting of Boston-Logan International Airport (the "*Airport*," "*Logan*" or "*Logan Airport*"), Laurence G. Hanscom Field ("*Hanscom Field*") and Worcester Regional Airport ("*Worcester Regional Airport*"); and the "*Port Properties*," consisting of certain facilities in the Port of Boston (the "*Port*") and other properties. APPENDIX A – Information Statement of the Authority sets forth additional information concerning the Authority, the Airport Properties, the Port Properties, other activities of the Authority, its capital program, revenues and selected financial data of the Authority.

The 2022 Bonds

The 2022 Bonds are to be issued under and pursuant to the Enabling Act, a Trust Agreement by and between the Authority and U.S. Bank Trust Company, National Association (successor-in-interest to State Street Bank and Trust Company), as trustee (the "*Trustee*"), dated as of August 1, 1978, as amended and supplemented (the "*1978 Trust Agreement*"), and a resolution of the Authority pertaining to the issuance of the 2022 Bonds (the "*Bond Resolution*") adopted by the Authority on June 16, 2022. The 2022 Bonds are being issued to finance (i) certain capital improvements and related costs, including capitalized interest on the 2022 Bonds, (ii) the Reserve Requirement applicable to the 2022 Bonds and (iii) the costs of issuing the 2022 Bonds. Based upon the expected use of proceeds of the 2022 Bonds to finance environmentally beneficial projects at the Airport, the Authority has designated the 2022 Bonds as "Green Bonds." See "PLAN OF FINANCE," "DESIGNATION OF 2022 BONDS AS GREEN BONDS" and "SECURITY FOR THE 2022 BONDS – Pooled Reserve Subaccount" and APPENDIX A – Information Statement of the Authority – Capital Program – Funding Sources.

The 2022 Bonds and the outstanding Bonds that have been previously issued by the Authority under the 1978 Trust Agreement on a parity therewith, and any additional parity Bonds that may be issued hereafter under the 1978 Trust Agreement are collectively referred to herein as the "*Bonds*." For a description of the outstanding Bonds of the Authority and the pledge of Revenues of the Authority under the 1978 Trust Agreement, see "SECURITY FOR THE 2022 BONDS."

Investment Considerations

The purchase and ownership of the 2022 Bonds involve investment risks. Prospective purchasers of the 2022 Bonds should read this Official Statement, including the appendices hereto, in its entirety. For a discussion of certain risks relating to the 2022 Bonds, see APPENDIX A – Information Statement of the Authority under the headings "MANAGING THROUGH THE COVID-19 PANDEMIC," "AUTHORITY OPERATIONAL

FACTORS," "AUTHORITY ENVIRONMENTAL MATTERS" and "CERTAIN INVESTMENT CONSIDERATIONS."

Additional Information

This Official Statement includes a description of the Authority, its facilities and certain financial and operational factors relating to the Authority, and a description of the 2022 Bonds and the security therefor. Except where noted, all information presented in this Official Statement has been provided by the Authority. The following appendices are included as part of this Official Statement: APPENDIX A – Information Statement of the Authority; APPENDIX B – Financial Statements of the Authority for the fiscal years ended June 30, 2021 and 2020; APPENDIX C – Boston Logan International Airport Market Analysis (the "*Airport Market Analysis*") of ICF, Cambridge, Massachusetts ("*ICF*") dated June 27, 2022; APPENDIX D – Review of Airport Properties Net Revenues Projection (the "*Review of Revenue Forecasts*") of LeighFisher Inc., San Francisco, California ("*LeighFisher*") dated June 27, 2022; APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement; APPENDIX F – Form of Continuing Disclosure Certificate; APPENDIX G – Forms of Opinions of Bond Counsel and Special Tax Counsel; and APPENDIX H – Second Party Opinion Regarding Green Bonds delivered by Kestrel Verifiers. APPENDIX A has been provided by the Authority. APPENDIX E has been prepared by Kaplan Kirsch & Rockwell LLP, Bond Counsel to the Authority. APPENDIX F has been prepared by Locke Lord LLP, Disclosure Counsel to the Authority. APPENDIX G has been prepared by Kaplan Kirsch & Rockwell LLP, Bond Counsel to the Authority, and Kutak Rock LLP, Special Tax Counsel to the Authority. APPENDIX H has been prepared by Kestrel Verifiers.

Certain defined terms that are capitalized but not defined herein are defined in the 1978 Trust Agreement. See APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Certain Definitions. All references in this Official Statement to the 1978 Trust Agreement, the Bond Resolution, the 2022 Bonds, the Continuing Disclosure Certificate and all other agreements, statutes and instruments are qualified by reference to the complete document. Copies of the 1978 Trust Agreement and the Bond Resolution are available for examination at the offices of the Authority and the Trustee.

The Authority's principal office is located at One Harborside Drive, Suite 200S, East Boston, Massachusetts 02128-2909. Its telephone number is (617) 568-5000. Questions may be directed to Anna M. Tenaglia, Deputy Director of Administration and Finance, at atenaglia@massport.com. Copies of certain documents, including the Authority's Annual Comprehensive Financial Report for fiscal year 2021, are available electronically at the investors' page of the Authority's website at:

http://www.massport.com/massport/finance/investor-relations

References to website addresses presented herein, including the Authority's investor relations website noted above, its sustainability website or any other website containing information about the Authority, 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 any purpose, including for purposes of Rule 15c2-12 promulgated by the Securities and Exchange Commission ("*SEC*").

THE 2022 BONDS

General Provisions

The 2022 Bonds will be issued as fully registered bonds in the aggregate principal amounts as set forth on page (i) hereof, will be dated their date of initial delivery and will bear interest from that date to their respective maturities as set forth on page (i) hereof, subject to optional redemption prior to maturity as described below. Ownership interests in the 2022 Bonds will be available in denominations of $5,000 and integral multiples thereof. Interest on the 2022 Bonds will be payable on January 1 and July 1 of each year, commencing January 1, 2023.

So long as Cede & Co. is the registered owner of the 2022 Bonds, all payments of principal of, premium, if any, and interest on the 2022 Bonds are payable by wire transfer by the Trustee to Cede & Co., as nominee for DTC, which will, in turn, remit such amounts to the DTC Participants (as defined herein) for subsequent disposition to Beneficial Owners (as defined herein). See "BOOK-ENTRY SYSTEM" herein.

Redemption

Optional Redemption. The 2022 Bonds maturing on or prior to July 1, 2032 will not be subject to optional redemption prior to their respective maturity dates. The 2022 Bonds maturing after July 1, 2032 will be redeemable at the option of the Authority, in the order of maturity as directed by the Authority, on or after July 1, 2032, in whole or in part on any date, by lot within any single maturity of such Series, at 100% of the principal amount to be redeemed, together with accrued interest to the purchase or redemption date.

Selection of 2022 Bonds to Be Redeemed. If fewer than all the 2022 Bonds of any maturity are to be redeemed, the Trustee will select the 2022 Bonds of such maturity to be redeemed by lot; provided, however, that so long as DTC or its nominee is the Bondholder, the particular portions of the 2022 Bonds to be redeemed within a maturity shall be selected by DTC in such manner as DTC may determine. For this purpose, each 2022 Bond in a denomination larger than $5,000 will be considered to be separate 2022 Bonds each in the minimum Authorized Denomination.

Notice of Redemption. During the period that DTC or DTC's partnership nominee is the registered owner of the 2022 Bonds, the Trustee shall not be responsible for mailing notices of redemption to the Beneficial Owners (as defined herein) of the 2022 Bonds. See "BOOK-ENTRY SYSTEM" below. Not less than 30 nor more than 60 days before any redemption date, notice of the redemption will be filed with the Municipal Securities Rulemaking Board's Electronic Municipal Market Access ("*EMMA*") system, with the Paying Agents of the 2022 Bonds and mailed to the holders of the 2022 Bonds (DTC or DTC's partnership nominee, as long as the 2022 Bonds are so registered) to be redeemed in whole or in part at their address as shown on the registration books of the Trustee. Failure to mail any notice of redemption, however, will not affect the validity of the proceedings for such redemption. If at the time of notice of any optional redemption of 2022 Bonds moneys sufficient to redeem all of such 2022 Bonds shall not have been deposited or set aside as provided in the 1978 Trust Agreement, then the notice of redemption may state that it is conditional on the deposit of sufficient moneys by not later than one business day prior to the redemption date, and if the deposit is not timely made the notice shall be of no effect. The Trustee may make other arrangements with respect to the manner of giving notices of redemption to Bondholders of record or Beneficial Owners of the 2022 Bonds, as provided in the Bond Resolution.

BOOK-ENTRY SYSTEM

DTC and Book-Entry Only System

The Depository Trust Company ("*DTC*"), New York, New York, will act as securities depository for the 2022 Bonds. The 2022 Bonds will be issued in fully-registered form 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 certificate will be issued for each maturity of the 2022 Bonds, each in the aggregate principal amount of such maturity, and each such certificate will be deposited with DTC or the Trustee as DTC's nominee.

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*"). 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 2022 Bonds deposited with DTC must be made by or through Direct Participants, which will receive a credit for such 2022 Bonds on DTC's records. The ownership interest of each actual purchaser of each 2022 Bond deposited with DTC ("*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 2022 Bonds deposited with DTC 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 2022 Bonds deposited with DTC, except in the event that use of the book-entry system for such 2022 Bonds is discontinued.

To facilitate subsequent transfers, all 2022 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 2022 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 2022 Bonds deposited with it; DTC's records reflect only the identity of the Direct Participants to whose accounts such 2022 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.

Redemption notices shall be sent to DTC. If less than all of a maturity of the 2022 Bonds is being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such maturity to be redeemed.

Neither DTC nor Cede & Co. (nor such other DTC nominee) will consent or vote with respect to 2022 Bonds deposited with it 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 or the Trustee as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the 2022 Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on 2022 Bonds deposited with DTC 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 the payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC (nor its nominee), the Authority or the Trustee, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the 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 2022 Bonds held by it 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, physical certificates are required to be printed and delivered to Beneficial Owners.

The Authority may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, 2022 Bond certificates will be printed and delivered to DTC.

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the Authority believes to be reliable, but the Authority takes no responsibility for the accuracy thereof.

So long as Cede & Co. is the registered owner of the 2022 Bonds as nominee of DTC, references herein to the holders or registered owners of the 2022 Bonds shall mean Cede & Co. and shall not mean the Beneficial Owners of the 2022 Bonds.

Neither the Authority nor the Trustee will have any responsibility or obligation to the Participants of DTC or the persons for whom they act as nominees with respect to (i) the accuracy of any records maintained by DTC or by any Participant of DTC, (ii) payments or the providing of notice to the Direct Participants, the Indirect Participants or the Beneficial Owners, (iii) the selection by DTC or by any Participant of DTC of any Beneficial Owner to receive payment in the event of a partial redemption of the 2022 Bonds or (iv) any other action taken by DTC or its partnership nominee as owner of the 2022 Bonds.

No Responsibility of Authority, Underwriters or Trustee. NONE OF THE AUTHORITY, THE UNDERWRITERS OR THE TRUSTEE WILL HAVE ANY RESPONSIBILITY OR OBLIGATION TO DIRECT PARTICIPANTS OR INDIRECT PARTICIPANTS OF DTC OR ANY BENEFICIAL OWNER WITH RESPECT TO (I) THE ACCURACY OF ANY RECORDS MAINTAINED BY DTC OR ANY DIRECT PARTICIPANT OR INDIRECT PARTICIPANT OF DTC; (II) ANY NOTICE THAT IS PERMITTED OR REQUIRED TO BE GIVEN TO THE OWNERS OF THE 2022 BONDS UNDER THE 1978 TRUST AGREEMENT; (III) THE SELECTION BY DTC, ANY DIRECT PARTICIPANT OR INDIRECT PARTICIPANT OF DTC, OF ANY PERSON TO RECEIVE PAYMENT IN THE EVENT OF A PARTIAL REDEMPTION OF THE 2022 BONDS; (IV) THE PAYMENT BY DTC, ANY DIRECT PARTICIPANT OR INDIRECT PARTICIPANT OF DTC OF ANY AMOUNT WITH RESPECT TO THE PRINCIPAL OR REDEMPTION PREMIUM, IF ANY, OR INTEREST DUE WITH RESPECT TO THE 2022 BONDS; (V) ANY CONSENT GIVEN OR OTHER ACTION TAKEN BY DTC AS THE OWNER OF THE 2022 BONDS; OR (VI) ANY OTHER MATTER.

Transfer of 2022 Bonds

So long as Cede & Co., as nominee for DTC (or other nominee of DTC), is the Bondholder of record of the 2022 Bonds, beneficial ownership interests in the 2022 Bonds may be transferred only through a Direct Participant or Indirect Participant and recorded on the book-entry system operated by DTC. In the event the book-entry-only system is discontinued, 2022 Bond certificates will be delivered to the Beneficial Owners as described in the Bond Resolution. Thereafter, the 2022 Bonds, upon surrender thereof at the principal office of the Trustee with a written instrument of transfer satisfactory to the Trustee, duly executed by the holder thereof or such holder's duly authorized attorney, may be exchanged for an equal aggregate principal amount of 2022 Bonds of the same series and maturity and of any Authorized Denominations.

In all cases in which the privilege of exchanging or transferring 2022 Bonds is exercised, the Authority shall execute and the Trustee shall authenticate and deliver the 2022 Bonds in accordance with the provisions of the 1978 Trust Agreement. For every such exchange or transfer of 2022 Bonds, the Authority or the Trustee may make a charge sufficient to reimburse it for any tax, fee or other governmental charge required to be paid with respect to such exchange or transfer but may impose no other charge therefor. Neither the Authority nor the Trustee shall be required to make any such exchange or transfer of 2022 Bonds during the 15 days next preceding an Interest Payment Date or, in the case of any proposed redemption, during the 15 days next preceding the first publication or mailing of notice of redemption.

ESTIMATED SOURCES AND USES OF FUNDS

The estimated sources and uses of funds in connection with the issuance of the 2022 Bonds are summarized below:

Sources of Funds		
Principal of the 2022 Bonds		$120,925,000.00
Plus: Original Issue Premium		14,735,014.65
	Total	$135,660,014.65
Uses of Funds		
Deposit to Construction Fund for Project Costs		$116,412,000.00
Deposit to Construction Fund for Capitalized Interest		6,230,996.53
Deposit to Pooled Reserve Subaccount		11,757,403.77
Costs of Issuance[1]		893,874.98
Underwriters' Discount		365,739.37
	Total	$135,660,014.65

[1] Includes Trustee fees, the Authority's legal fees, rating agency fees, printing expenses and other miscellaneous fees and expenses.

PLAN OF FINANCE

The 2022 Bonds are being issued to finance a portion of the Authority's current capital program (the "*FY22-FY26 Capital Program*"), which covers a period from fiscal year 2022 through fiscal year 2026. The Authority's Board has approved a three-year capital program of approximately $1.3 billion, but the Authority uses a five year capital program for capital planning and budgeting purposes. See APPENDIX A – Information Statement of the Authority – Capital Program. The FY22-FY26 Capital Program includes forecasted total expenditures of approximately $2.1 billion by the Authority and approximately $732.4 million by third-party or non-recourse funding sources for ongoing projects and for projects to be commenced during the five-year program period, for a total of approximately $2.8 billion.

The Authority-funded portion of the FY22-FY26 Capital Program is funded from a variety of sources, including bond proceeds, grants, passenger facility charges ("*PFCs*"), Customer Facility Charges ("*CFCs*") and pay-as-you-go capital (from the Maintenance Reserve Fund and the Improvement and Extension Fund). The Authority's financing plan assumes the issuance of the 2022 Bonds to fund $116.4 million of projects costs (all of which is expected to be expended during fiscal years 2022 through 2024), relating to the Terminal E Modernization project. See APPENDIX A – Information Statement of the Authority – Capital Program, for a more detailed description of the FY22-FY26 Capital Program, including estimated funding sources and a summary of uses, as well as a more detailed description of the projects expected to be financed with proceeds of the 2022 Bonds.

DESIGNATION OF 2022 BONDS AS GREEN BONDS

Green Bonds Designation

Per the International Capital Market Association ("*ICMA*"), Green Bonds are any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bond Principles. The four core components are: (1) Use of Proceeds; (2) Process for Project Evaluation and Selection; (3) Management of Proceeds; and (4) Reporting.

Kestrel Verifiers has determined that the 2022 Bonds are in conformance with the four components of the ICMA Green Bond Principles, as described in Kestrel Verifiers' "Second Party Opinion," which is attached hereto as APPENDIX H – Second Party Opinion Regarding Green Bonds.

The purpose of designating the 2022 Bonds as "Green Bonds" is to allow owners of the 2022 Bonds to invest in bonds that have financed environmentally beneficial projects. The Authority does not make any representation as to the suitability of the 2022 Bonds to fulfill such environmental and sustainability criteria. The 2022 Bonds may not be a suitable investment for all investors seeking exposure to green or sustainable assets. There is currently no market consensus on what precise attributes are required for a particular project to be defined as "green" or "sustainable" and, therefore, no assurance can be provided to investors that the projects expected to be financed with proceeds of the 2022 Bonds will meet investor expectations regarding sustainability performance. The term "Green Bonds" is neither defined in nor related to the 1978 Trust Agreement. The use of such term in this Official Statement is solely for identification purposes and is not intended to provide or imply that the 2022 Bonds are entitled to any security other than as provided in the 1978 Trust Agreement.

Independent Second Party Opinion on Green Bonds Designation and Disclaimer

For over 20 years, Kestrel Verifiers has been consulting in sustainable finance. Kestrel Verifiers, a division of Kestrel 360, Inc. is an Approved Verifier accredited by the Climate Bonds Initiative ("*CBI*") and an Observer for the ICMA Green Bond Principles and Social Bond Principles. Kestrel Verifiers reviews transactions in all asset classes worldwide for alignment with ICMA Green Bond Principles, Social Bond Principles, Sustainability Bond Guidelines and the Climate Bonds Initiative Standards and criteria.

The Second Party Opinion issued by Kestrel Verifiers does not and is not intended to make any representation or give any assurance with respect to any other matter relating to the 2022 Bonds. Designations by Kestrel Verifiers are not a recommendation to any person to purchase, hold, or sell the 2022 Bonds and such labeling does not address the market price or suitability of the 2022 Bonds for a particular investor and does not and is not in any way intended to address the likelihood of timely payment of interest or principal when due.

In issuing the Second Party Opinion, Kestrel Verifiers has assumed and relied upon the accuracy and completeness of the information made publicly available by the Authority or that was otherwise made available to Kestrel Verifiers.

SECURITY FOR THE 2022 BONDS

General

The principal of, premium, if any, and interest on the 2022 Bonds and each of the Authority's Revenue Bonds, Series 2014-A (Non-AMT) (the "*2014-A Bonds*"), Revenue Bonds, Series 2014-B (AMT) (the "*2014-B Bonds*"), Revenue Refunding Bonds, Series 2014-C (Non-AMT) (the "*2014-C Bonds*" and, with the 2014-A Bonds and the 2014-B Bonds, the "*2014 Bonds*"), Revenue Bonds, Series 2015-A (Non-AMT) (the "*2015-A Bonds*"), Revenue Bonds, Series 2015-B (AMT) (the "*2015-B Bonds*"), Revenue Refunding Bonds, Series 2015-C (Non-AMT) (the "*2015-C Bonds*," and, with the 2015-A Bonds and the 2015-B Bonds, the "*2015 Bonds*"), Revenue Refunding Bonds, Series 2016-A (Non-AMT) (the "*2016-A Bonds*"), Revenue Bonds, Series 2016-B (AMT) (the "*2016-B Bonds*," and, with the 2016-A Bonds, the "*2016 Bonds*"), Revenue Bonds, Series 2017-A (AMT) (the "*2017 Bonds*"), Revenue Bonds, Series 2019-A (AMT) (the "*2019-A Bonds*"), Revenue Bonds, Series 2019-B (Non-AMT) (the "*2019-B Bonds*"), Revenue Bonds, Series 2019-C (AMT) (the "*2019-C Bonds*" and, with the 2019-A Bonds and 2019-B Bonds, the "*2019 Bonds*"), Revenue Refunding Bonds, Series 2020-A (AMT) (the "*2020-A Bonds*"), Revenue Bonds, Series 2020-B (Taxable) (the "*2020-B Bonds*," and with the 2020-A Bonds, the "2020 Bonds"), Revenue Refunding Bonds, Series 2021-A (Non-AMT) (the "*2021-A Bonds*"), Revenue Refunding Bonds, Series 2021-B (AMT) (the "*2021-B Bonds*"), Revenue Refunding Bonds, Series 2021-C (Taxable) (the "*2021-C Bonds*," and, with the 2021-A Bonds and the 2021-B Bonds, the "*2021 Refunding Bonds*"), Revenue Bonds, Series 2021-D (Non-AMT) (the "*2021-D Bonds*") and Revenue Bonds, Series 2021-E (AMT) (the "*2021-E Bonds*," and, with the 2021-D Bonds, the "*2021 New Money Bonds*") (each as described in the table below) and any additional Bonds that may be issued hereafter under the 1978 Trust Agreement, are payable from, and secured by a pledge of, the Authority's Revenues, which include all tolls, rates, fees, rentals and other charges from its Projects (subject to limited exclusions) and certain investment income and other revenues, all as more fully described in APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement. For information about historical Revenues, see APPENDIX A – Information Statement of the Authority – Selected Financial Data. The pledge of the Revenues is subject to the provisions of the 1978 Trust Agreement regarding the application of Revenues. See "Flow of Funds" below. Exclusions from Revenues pledged to secure the Bonds include (i) PFCs assessed by the Authority on eligible enplaning passengers at the Airport, (ii) CFCs charged to rental car patrons and (iii) certain revenues derived from facilities financed by debt that has limited recourse to the Authority. See below under "Other Revenues of the Authority Not Pledged as Security for the Bonds – Passenger Facility Charges" and "– Customer Facility Charges" and APPENDIX A – Information Statement of the Authority – Other Obligations – CFC Revenue Bonds and – Special Facilities Revenue Bonds. While PFCs are specifically excluded from Revenues, they may be applied to pay principal of and interest on Bonds as described herein. See “SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service” below for a discussion of the Authority’s expectation to use PFCs to pay a portion of the debt service on certain Bonds of the Authority, including the 2022 Bonds.

As of July 2, 2022, the Authority has outstanding under the 1978 Trust Agreement 19 Series of Bonds in the aggregate principal amount of $2,460,440,000, consisting of the Series listed in the following table.

BONDS OUTSTANDING UNDER THE 1978 TRUST AGREEMENT
as of July 2, 2022

Series	Issued	Amount Outstanding
Revenue Bonds, Series 2014-A (Non-AMT)	July 2014	$40,075,000
Revenue Bonds, Series 2014-B (AMT)	July 2014	42,545,000
Revenue Refunding Bonds, Series 2014-C (Non-AMT)	July 2014	108,005,000
Revenue Bonds, Series 2015-A (Non-AMT)	July 2015	96,250,000
Revenue Bonds, Series 2015-B (AMT)	July 2015	61,720,000
Revenue Refunding Bonds, Series 2015-C (Non-AMT)	June 2015	79,370,000
Revenue Refunding Bonds, Series 2016-A (Non-AMT)	July 2016	42,430,000
Revenue Bonds, Series 2016-B (AMT)	July 2016	180,285,000
Revenue Bonds, Series 2017-A (AMT)	July 2017	131,785,000
Revenue Bonds, Series 2019-A (AMT)	February 2019	284,395,000
Revenue Bonds, Series 2019-B (Non-AMT)	July 2019	156,680,000
Revenue Bonds, Series 2019-C (AMT)	July 2019	292,525,000
Revenue Refunding Bonds, Series 2020-A (AMT)	April 2020	89,195,000
Revenue Bonds, Series 2020-B (Taxable)	April 2020	162,380,000
Revenue Refunding Bonds, Series 2021-A (Non-AMT)	February 2021	35,630,000
Revenue Refunding Bonds, Series 2021-B (AMT)	February 2021	21,900,000
Revenue Refunding Bonds, Series 2021-C (Taxable)	February 2021	229,740,000
Revenue Bonds, Series 2021-D (Non-AMT)	March 2021	56,450,000
Revenue Bonds, Series 2021-E (AMT)	March 2021	349,080,000
Total		$2,460,440,000

The Bonds on the foregoing list are the only Bonds currently outstanding under the 1978 Trust Agreement. All of the currently outstanding Bonds are fixed rate bonds. See Note 5 to the Authority’s financial statements attached hereto as APPENDIX B for more information about the Authority’s bonds and notes payable as of June 30, 2021. For a description of the Authority’s subordinated obligations, also issued under the 1978 Trust Agreement but not on parity with the Bonds, see APPENDIX A – Information Statement of the Authority – Other Obligations – Subordinated Indebtedness. For a description of other obligations of the Authority not issued on parity with the Bonds, see APPENDIX A – Information Statement of the Authority – Other Obligations.

The Authority has no power to levy any taxes or pledge the credit or create any debt of the Commonwealth or any political subdivision thereof. The Authority’s Bonds and certain other obligations are payable only out of Revenues of the Authority as described herein or the proceeds of Bonds subsequently issued, and are not debts of the Commonwealth or of any such subdivision, nor are they guaranteed by any of them. Under the Enabling Act and the 1978 Trust Agreement, the Authority does not have the power to mortgage the Airport Properties or the Port Properties, or any additional revenue-producing facilities hereafter acquired or constructed by the Authority or extensions, enlargements and improvements of the foregoing. Under its Enabling Act, the Authority has the power to acquire improvements to its Projects and, in certain instances, to sell property included in the Projects. Acquisitions of new facilities unrelated to the Projects and sales of all or substantially all of any existing Project would require authorizing legislation.

Flow of Funds

The Authority’s pledge of its Revenues to secure the Bonds is subject to the provisions of the 1978 Trust Agreement regarding the application of Revenues. A brief description of the flow of funds of the Revenues is presented below. For a more detailed summary, see APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Application of Revenues.

The 1978 Trust Agreement provides that all Revenues are deposited daily in the Revenue Fund and are then transferred to the credit of the Operating Fund as soon and as often as practicable. The Authority shall pay when due all Operating Expenses from the Operating Fund and, once each month, shall transfer from the Operating Fund amounts, if any, to be deposited to its pension, post-retirement health benefits and self-insurance accounts. Any amounts deposited in the pension and post-retirement health benefit accounts will, upon the occurrence of an event of default under the 1978 Trust Agreement, first be applied to present and accrued pension benefits and post-retirement health benefits of the Authority's employees. See APPENDIX A – Information Statement of the Authority – General Operational Factors – Financial Considerations – Authority Pension Funding and APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Pledge Effected by the 1978 Trust Agreement.

The Authority retains in the Operating Fund as working capital such amounts as the Authority may determine necessary, provided that the balance therein shall not exceed 15% of the annual Operating Expenses established in the Authority's current annual budget. The balance of the Operating Fund is transferred monthly to the Trustee and applied as follows:

(a) First, to deposit to the credit of the Bond Service Account of the Interest and Sinking Fund, the amount required to make the balance of the Bond Service Account equal to the sum of the interest accrued and to accrue until the first day of the next month on all outstanding Bonds and the principal accrued and to accrue until the first day of the ensuing month of all serial Bonds, if any, which will become payable within the next twelve (12) months, less the amount of Available Funds (defined herein) irrevocably committed by the Authority by resolution or held by the Trustee and set aside exclusively for the payment of principal of, interest or premium, if any, on specified Bonds. See "SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service" herein.

(b) Second, to deposit to the credit of the Redemption Account of the Interest and Sinking Fund, the amount, if any, required to make the amounts deposited in the Redemption Account for the current fiscal year equal to the portion of the Amortization Requirement, if any, for such fiscal year for the outstanding term Bonds of each Series, accrued and to accrue until the first day of the next month.

(c) Third, to deposit to the credit of the applicable subaccount of the Reserve Account of the Interest and Sinking Fund, the amount necessary to make the amount on deposit therein equal to the Reserve Requirement for such subaccount, provided, however that the Authority may elect to fully fund the applicable subaccount in the Reserve Account over a period not to exceed sixty (60) months. See "SECURITY FOR THE 2022 BONDS – Pooled Reserve Subaccount" herein.

(d) Fourth, to deposit to the credit of the Maintenance Reserve Fund, the amount required to make the deposit in the Fund during such month equal to one-twelfth (1/12) of one percent (1%) of the Replacement Cost of all Projects of the Authority as determined by the Consulting Engineer for the then-current fiscal year, or a greater amount as may have been specified by the Authority in its annual budget for the fiscal year (not to exceed in any fiscal year five percent (5%) of the Replacement Cost of all Projects).

(e) Fifth, to deposit to the credit of the Payment in Lieu of Taxes Fund, the amount, if any, required to make the balance of the Payment in Lieu of Taxes Fund equal to the amount that should be on deposit therein, assuming that the amounts payable on the respective next following payment dates pursuant to the in-lieu-of tax agreements referred to in the 1978 Trust Agreement were paid in equal monthly installments from each respective preceding payment date.

(f) Sixth, to deposit to the credit of the Capital Budget Fund, the amount, if any, required to make the balance of the Capital Budget Fund equal to the sum of the remaining portion of the Capital Budget for the then-current fiscal year budgeted to be paid from the Capital Budget Fund plus all amounts in the Capital Budget Fund obligated with respect to prior fiscal years but not yet expended; provided, that the Authority by resolution may increase or reduce the amount otherwise required to be deposited in the Capital Budget Fund. It has been the Authority's practice not to fund the Capital Budget Fund but instead to deposit amounts in the Improvement and Extension Fund to be used for capital projects.

(g) Seventh, to the Authority for deposit to the credit of the Improvement and Extension Fund any amounts remaining in the Operating Fund after compliance with the above provisions. The 1978 Trust Agreement provides that moneys held in the Improvement and Extension Fund may be used for any lawful purpose of the Authority. Within the Improvement and Extension Fund, the Authority has established separate accounts held for the benefit of the holders of certain subordinated obligations of the Authority, Note Payment Accounts for repayment of the Authority's commercial paper notes, and rebate accounts for the benefit of the United States. See APPENDIX A – Information Statement of the Authority – Other Obligations under the headings "Subordinated Indebtedness" and "Commercial Paper."

A chart summarizing the foregoing flow of funds is set forth on the following page.

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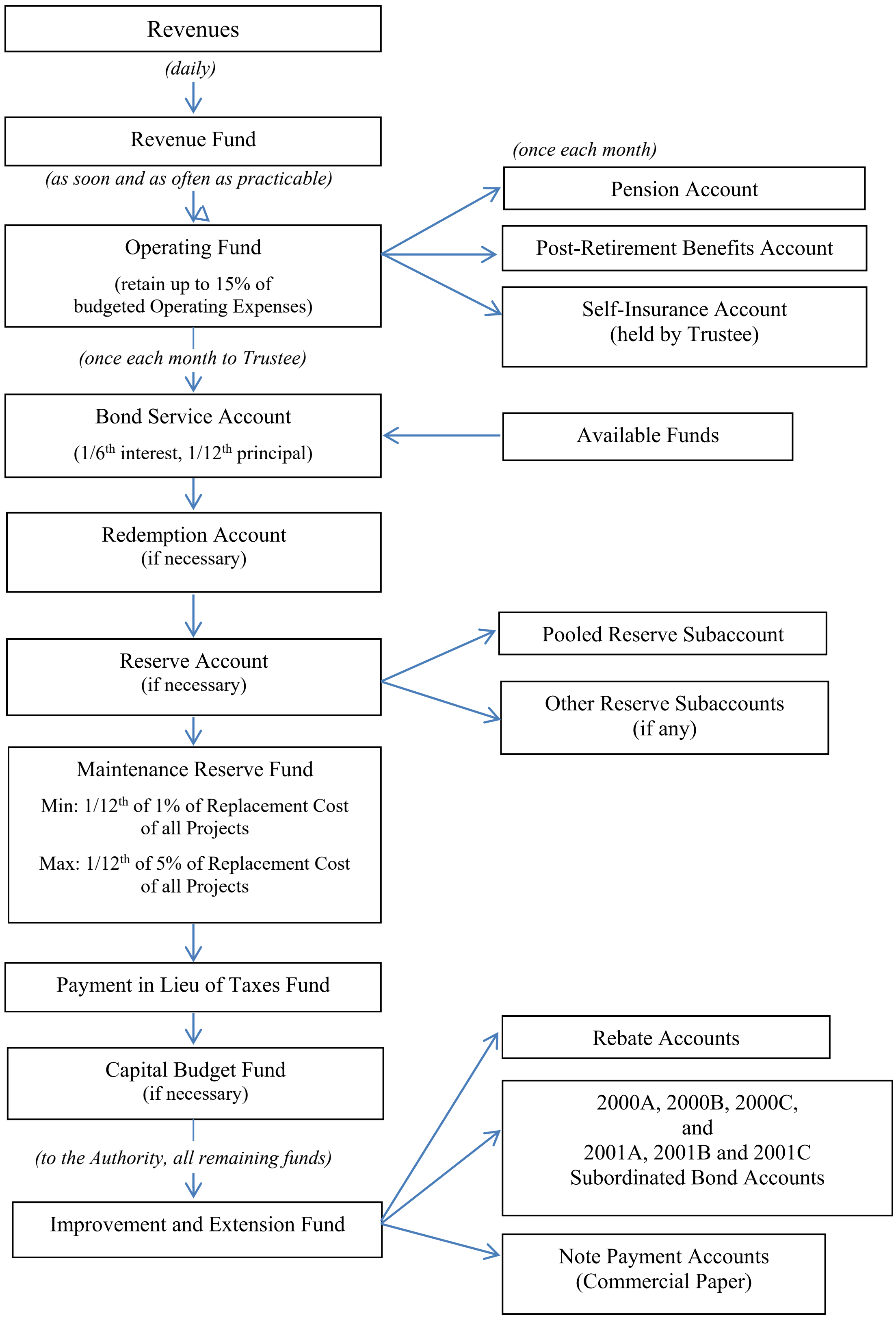
APPLICATION OF REVENUES



Use of Available Funds to Pay Debt Service

Pursuant to the 1978 Trust Agreement, the Authority may approve a resolution or resolutions that shall specify whether and to what extent any Available Funds, will either (i) be pledged to secure or be irrevocably committed to or (ii) be included in the definition of Revenues and, in either case, be used to pay principal of, premium, if any, and interest on one or more Series of Bonds. The term "*Available Funds*" shall mean for any period of time, (i) the amount of PFCs and/or CFCs to be received by the Authority during such period and not previously pledged or irrevocably committed to payment of principal of, interest on or premium, if any, on a Series of Bonds, and (ii) the amount of any other future income or revenue source not then included in the definition of "Revenues" that the Authority designates as "Available Funds" in a future resolution adopted by the Authority supplementing the 1978 Trust Agreement. Available Funds are transferred to the Trustee monthly and deposited directly into an Authority-designated Bond Service Account to be used to pay debt service on a specific Series of Bonds. In 2020 and 2021, the Authority elected to designate a portion of the CARES Act, CRRSAA and ARPA (each as defined and discussed further in Appendix A) grant funds received as Available Funds for fiscal years 2021 and 2022, respectively, to be included in the definition of Revenues. See APPENDIX A – Information Statement of the Authority under the heading "MANAGEMENT'S DISCUSSION OF HISTORICAL OPERATING RESULTS." The Authority expects to designate the remaining CRRSAA and ARPA grant funds received as Available Funds in fiscal years 2023 and 2024 to be included in the definition of Revenues. The Authority also expects, to the extent approved by the FAA, to designate in each annual budget certain PFCs as Available Funds to pay a portion of the debt service on the 2019-A Bonds, the 2019-C Bonds, the 2021-C Bonds, the 2021-E Bonds and the 2022 Bonds, as further described below. Debt service to be paid with PFCs that have been designated as Available Funds will not be included in the calculation of the rate covenant set forth in the 1978 Trust Agreement.

The FY22-FY26 Capital Program assumes that the Authority will issue additional debt that will be payable from PFC revenues that will be designated as Available Funds ("*PFC Backed Debt*"). In particular, the Authority expects that 36.1% of the debt service on the 2022 Bonds will be payable from PFC revenues that will be designated as Available Funds. See APPENDIX A – Information Statement of the Authority – Capital Program – Funding Sources – 2022 Bond Proceeds. The Authority has received FAA approval to pay a portion of the debt service on the 2019-A Bonds, the 2019-C Bonds, the 2021-C Bonds, the 2021-E Bonds and the 2022 Bonds with PFCs, and expects to authorize annually the irrevocable application of PFCs to pay a portion of the principal of and interest on the 2019-A Bonds, the 2019-C Bonds, the portion of the 2021-C Bonds used to refund a portion of the 2019-A Bonds and the 2019-C Bonds, the 2021-E Bonds and the 2022 Bonds. Notwithstanding the foregoing, no assurance can be given that the Authority will, in any future fiscal year, irrevocably authorize application of PFCs to pay a portion of the debt service on any of the above-referenced Bonds. See APPENDIX A – Information Statement of the Authority under the headings "Capital Programs – Funding Sources – 2022 Bond Proceeds", "Capital Programs – Funding Sources – Future Bond Proceeds" and "Management's Discussion of Financial Projection Assumptions."

Covenants as to Fees and Charges

The Authority covenants under the 1978 Trust Agreement to fix and revise as necessary the tolls, rates, fees, rentals and other charges for use of its Projects. The 1978 Trust Agreement requires that in each fiscal year Revenues be at least equal to the greater of (i) Operating Expenses plus 125% of Principal and Interest Requirements (as defined in the 1978 Trust Agreement) for such year on all outstanding Bonds, and (ii) the sum of (A) Operating Expenses and Principal and Interest Requirements (as defined in the 1978 Trust Agreement) and Reserve Requirements on all outstanding Bonds, plus (B) amounts, if any, required to be deposited to the Maintenance Reserve Fund, the Payment in Lieu of Taxes Fund and the Capital Budget Fund, plus (C) amounts required to be deposited to the credit of the Improvement and Extension Fund pursuant to the Twelfth Supplemental Agreement, between the Authority and the Trustee (which was entered into in connection with the issuance of Subordinated Indebtedness). See APPENDIX A – Information Statement of the Authority – Other Obligations – Subordinated Indebtedness. In addition, the Authority has covenanted to set tolls, rates, fees, rentals and other charges sufficient to reimburse the letter of credit provider under the Authority's commercial paper program, if necessary. If in any year Revenues are less than the amount required, the Authority is required to cause recognized experts to recommend revised schedules of rates and charges and, if the Authority shall comply with all such recommendations, the failure of Revenues to equal the amount specified will not, of itself, constitute a default under the 1978 Trust Agreement. See APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Covenants as to Fees and Charges.

For purposes of the calculation of the debt service requirements on all outstanding Bonds, any "Principal and Interest Requirements" (as defined in the 1978 Trust Agreement) on outstanding Bonds is reduced by the amount of Available Funds that have been irrevocably committed or are held by the Trustee or another fiduciary and are to be set aside exclusively to be used to pay principal of, interest or premium, if any, on specified Bonds pursuant to a resolution of the Authority (and are not otherwise required for payment of another Series of Bonds). See "SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service" herein.

Pooled Reserve Subaccount

The 1978 Trust Agreement establishes a Reserve Account within the Interest and Sinking Fund, and within that account there has been established a Pooled Reserve Subaccount. The Pooled Reserve Subaccount secures all Bonds that are currently outstanding, other than the 2020-A Bonds and the 2020-B Bonds, on a parity basis. In addition, the Pooled Reserve Subaccount will secure any additional Bonds the Authority elects to participate in the Pooled Reserve Subaccount on a parity basis. In the Bond Resolution, the Authority has elected to have the 2022 Bonds participate in the Pooled Reserve Subaccount. Such Pooled Reserve Subaccount shall be used to pay debt service on the Bonds secured thereby to the extent of deficiencies in the applicable Bond Service Account. The Bonds currently outstanding under the 1978 Trust Agreement (other than the 2020-A Bonds and the 2020-B Bonds), the 2022 Bonds and any additional Bonds the Authority elects to have participate in the Pooled Reserve Subaccount are collectively referred to in this Official Statement as the "*Pooled Reserve Subaccount Participating Bonds*."

Pursuant to the 1978 Trust Agreement, there may be created within the Reserve Account by the resolution of the Authority authorizing a Series of Bonds a separate subaccount for such Series of Bonds; provided that (i) the Authority may elect in such resolution that any then-existing subaccount within the Reserve Account (including without limitation the Pooled Reserve Subaccount) shall secure such additional Series of Bonds on a parity basis; and (ii) with respect to any Series of Bonds, the Authority may elect in the resolution that such Series of Bonds shall not be secured by any subaccount in the Reserve Account and, accordingly, not to establish any subaccount in the Reserve Account to secure such Series of Bonds. Any resolution of the Authority providing for the issuance of a Series of Bonds that establishes a separate subaccount within the Reserve Account shall specify (a) whether such subaccount shall secure only such Series of Bonds or may secure additional Series of Bonds and (b) the Reserve Requirement (as defined below) applicable to such subaccount.

The 1978 Trust Agreement also permits the Authority to determine whether to fully fund a subaccount in the Reserve Fund at the time of issuance of a Series of Bonds or to fully fund the Reserve Requirement over a period of time. In particular, the Authority may elect, by the resolution of the Authority authorizing issuance of a Series of Bonds, to fully fund the applicable subaccount in the Reserve Account over a period specified in such resolution, not to exceed sixty (60) months, commencing with the next succeeding fiscal year of the Authority, during which it shall make substantially equal monthly installments in order that the amounts on deposit therein at the end of such period shall equal the Reserve Requirement for such Series of Bonds.

The term "Reserve Requirement" means (a) with respect to the Pooled Reserve Subaccount, the maximum annual Principal and Interest Requirements on all of the outstanding Bonds secured by the Pooled Reserve Subaccount, and (b) with respect to each Series of Bonds not secured by the Pooled Reserve Subaccount, as of any date of calculation for a particular subaccount within the Reserve Account other than the Pooled Reserve Subaccount, the amount of money, if any, required by the resolution adopted by the Authority authorizing the issuance of such Series of Bonds to be maintained in a subaccount in the Reserve Account with respect to such Series of Bonds, which amount shall be available for use only with respect to such Series of Bonds. There is no Reserve Requirement for the 2020-A Bonds and 2020-B Bonds.

As a result of the deposits previously made to the Pooled Reserve Subaccount upon the issuance of Bonds under the 1978 Trust Agreement, plus subsequent monthly deposits, the balance in the Pooled Reserve Subaccount as of March 31, 2022 was approximately $167.6 million. The balance in the Pooled Reserve Subaccount is currently held in cash and Investment Securities (as that term is defined in the 1978 Trust Agreement). It is the Authority's policy to fund its reserve funds with cash, cash equivalents and Investment Securities; the Authority has not used any surety policies to fund the Pooled Reserve Subaccount. Upon issuance of any additional Pooled Reserve Subaccount Participating Bonds (other than certain refunding Bonds), the 1978 Trust Agreement requires that there be deposited to the Pooled Reserve Subaccount an amount at least equal to one-half of the difference between (a) the amount of the increase in the maximum annual debt service requirement on such Pooled Reserve Subaccount Participating Bonds and all then-outstanding Pooled Reserve Subaccount Participating Bonds and (b) the amount, if any, in the Pooled Reserve Subaccount in excess of the maximum annual debt service requirement on all then-outstanding Pooled Reserve Subaccount Participating Bonds.

The Reserve Requirement applicable to the 2022 Bonds will be funded with proceeds of the 2022 Bonds. At the time of issuance of the 2022 Bonds, the Pooled Reserve Subaccount is expected to be fully funded with respect to all outstanding Pooled Reserve Subaccount Participating Bonds (including the 2022 Bonds). See APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Application of Revenues.

Permitted Investments

Moneys held for the credit of the funds and accounts established under the 1978 Trust Agreement may, with certain exceptions, be invested only in "Investment Securities" as defined in the 1978 Trust Agreement. See APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Certain Definitions. The exceptions are that moneys held for the credit of any special separate pension account in the Operating Fund may be invested in such manner as provided in the resolution of the Authority establishing such account, and that moneys held for the credit of certain other accounts may be invested solely in Government Obligations. See APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Investments in Funds and Accounts. For a description of the Authority's investment policy, see APPENDIX A – Information Statement of the Authority – General Operational Factors – Investment Policy.

Additional Bonds

Under the 1978 Trust Agreement the Authority may, on the fulfillment of certain conditions, issue additional Bonds. The Enabling Act does not limit the amount of additional Bonds that may be issued by the Authority. Bonds may be issued under provisions of the 1978 Trust Agreement to finance, among other things, the cost of acquiring and constructing Additional Facilities and Additional Improvements and to refund outstanding Bonds, Subordinated Obligations or other obligations not issued under the provisions of the 1978 Trust Agreement. These provisions of the 1978 Trust Agreement permit the issuance of a series of additional Bonds if, among other conditions, the Authority complies with one or more tests based on historical or projected Net Revenues and debt service requirements. See APPENDIX E – Summary of Certain Provisions of the 1978 Trust Agreement – Issuance of Additional Bonds.

In connection with the issuance of the 2022 Bonds, the following test will be applicable: that the Net Revenues of the Authority (the excess of Revenues over Operating Expenses during the applicable period) for any 12 consecutive months of the last 18 months have been at least 125% of the maximum annual Principal and Interest Requirements on all Outstanding Bonds, after giving effect to the issuance of the 2022 Bonds (and any subsequent additional Bonds estimated to be issued under the 1978 Trust Agreement to complete Additional Improvements or Additional Facilities partially financed by Bonds now Outstanding). When the 2021 New Money Bonds were issued, the calculation of the additional Bonds test at the time included the expected issuance of the 2022 Bonds. The Authority does not expect to issue any additional Bonds in addition to the 2022 Bonds to complete the Terminal E Modernization project. For the purpose of this calculation, annual Principal and Interest Requirements on Outstanding Bonds means, for any fiscal year of the Authority, interest accrued on such Bonds during such fiscal year, excluding interest for such period paid or to be paid from the Construction Fund, and maturing principal and mandatory amortization requirements due and payable on the July 1 immediately following such fiscal year, excluding principal, interest and/or premium to be paid from Available Funds or earnings thereon. See "SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service." In the case of Bonds that bear interest at a variable rate, the interest component of maximum annual Principal and Interest Requirements is computed at the rate estimated by a nationally known investment banking firm selected by the Authority as the rate at which such Bonds would bear interest if issued at par with a fixed rate of interest and the same maturity.

Coverage for purposes of the additional Bonds test described in the preceding paragraph was 239%, based upon (i) Net Revenues for the 12 months ended March 31, 2022 of $462.4 million and (ii) maximum annual Principal and Interest Requirements of approximately $193.3 million, determined as described above, after giving effect to the issuance of the 2022 Bonds.

Other Revenues of the Authority Not Pledged as Security for the Bonds

Passenger Facility Charges. Under the 1978 Trust Agreement, PFCs assessed by the Authority on eligible enplaning passengers at the Airport have been excluded from Revenues at the election of the Authority, and the proceeds of PFCs are collected, held and expended outside the Funds and Accounts established under the 1978 Trust Agreement, and are not security for the Bonds. See APPENDIX A – Information Statement of the Authority – Capital Program – Funding Sources. As described under the subheading "– Use of Available Funds to Pay Debt Service" above, however, pursuant to the 1978 Trust Agreement, the Authority may approve a resolution or resolutions that shall specify whether and to what extent any PFCs will either (i) be pledged to secure or be irrevocably committed to or (ii) be included in the definition of Revenues and, in either case, be used to pay principal of, premium, if any, and interest on one or more Series of Bonds. The Authority expects to authorize the irrevocable application of PFCs annually to pay a portion of the principal of and interest on certain Bonds currently outstanding, as well as Bonds to be issued under the 1978 Trust Agreement in the future.

Customer Facility Charges. In December 2008, the Authority instituted a CFC for each transaction day that a car is rented at Logan Airport. The purpose of the CFC is to fund the evaluation, design, financing and development of the Rental Car Center ("*RCC*") and related facilities at the Airport, which opened in September 2013. On June 8, 2011, the Authority issued its first series of special facilities revenue bonds (the "*CFC Revenue Bonds*") under a Trust Agreement dated as of May 18, 2011 (the "*CFC Trust Agreement*") by and between the Authority and U.S. Bank Trust Company, National Association (successor to U.S. Bank National Association), as trustee, for the purpose of providing funds sufficient, together with other available funds, to finance the development and construction of the RCC and related improvements. Pursuant to the CFC Trust Agreement, the CFC revenues are pledged as security for the CFC Revenue Bonds, and the CFC revenues are not included in Revenues securing the 2022 Bonds and other Bonds issued under the 1978 Trust Agreement. As described under the subheading "– Use of Available Funds to Pay Debt Service" above, however, pursuant to the 1978 Trust Agreement, the Authority may approve a resolution or resolutions that shall specify whether and to what extent any CFCs will either (i) be pledged to secure or be irrevocably committed to or (ii) be included in the definition of Revenues and, in either case, be used to pay principal of, premium, if any, and interest on one or more Series of Bonds. The Authority currently has no expectation to authorize the irrevocable application of CFCs to pay debt service on Bonds issued under the 1978 Trust Agreement. For a further description of the RCC and the CFC Revenue Bonds, see (i) APPENDIX A – Information Statement of the Authority – Airport Properties – Airport Facilities – Service and Support Facilities and (ii) APPENDIX A – Information Statement of the Authority – Other Obligations – CFC Revenue Bonds. The CFC Revenue Bonds are not issued under or secured by the 1978 Trust Agreement.

Other Obligations and Commitments. The Authority is permitted by the 1978 Trust Agreement to incur borrowings or issue other obligations, including bond anticipation notes issued in the form of commercial paper, that are generally subordinate to the rights of holders of the Bonds and are payable solely from moneys in the Improvement and Extension Fund, proceeds of borrowings or obligations subsequently incurred or issued and, in certain circumstances, Bonds subsequently issued. For a description of such borrowings, including the Authority's commercial paper program, see APPENDIX A – Information Statement of the Authority – Other Obligations – Subordinated Indebtedness. The Authority has also issued special facilities revenue bonds for various capital projects on a non-recourse basis. The principal of and interest on the special facilities revenue bonds issued by the Authority are special obligations of the Authority, payable solely from the sources provided; none of such special facilities revenue bonds is secured by the Revenues of the Authority. For a description of these bonds, see APPENDIX A – Information Statement of the Authority – Other Obligations – Special Facilities Revenue Bonds.

Additional Facilities. The Authority may acquire or construct revenue-producing facilities (in addition to Additional Improvements to the Airport Properties or the Port Properties) that serve a public purpose as may hereafter be authorized by the Legislature of the Commonwealth. Under the 1978 Trust Agreement, the Authority may not construct, acquire or operate any other building, structure or other facility financed other than by additional Bonds, unless the Consulting Engineer or another Consultant files a statement to the effect that in their opinion the operation of such facility will not materially adversely affect the Net Revenues or impair the operating efficiency of the Projects taken as a whole. Such a statement was delivered by the Consulting Engineer in connection with the issuance of each series of non-recourse bonds issued by the Authority. See "Other Obligations and Commitments" above and APPENDIX A – Information Statement of the Authority – Other Obligations.

Separately, the 1978 Trust Agreement permits the Authority to contract with any municipality or political subdivision of the Commonwealth, or with any public agency or instrumentality thereof or of the United States of

America or the Commonwealth, to provide for the construction, operation and maintenance and/or administration of any facility or improvement, whether or not connected with or made a part of the Airport Properties or the Port Properties, if permitted by law. The Authority may expend or contribute moneys for such purpose from the Improvement and Extension Fund, but only, in the case of construction, if the construction of such facility or improvement (i) will result in increasing the average annual Net Revenues of the Authority, during the period of sixty (60) months immediately following the placing of such facility or improvement in operation, by an amount not less than 5% of the amount of moneys to be so expended or contributed by the Authority, and (ii) will not impair the operating efficiency or materially adversely affect the Revenues of any Project.

TAX MATTERS

Federal Tax Matters

General. In the opinion of Kutak Rock LLP, Special Tax Counsel (*"Special Tax Counsel"*), based on existing laws, regulations, rulings and court decisions, and assuming, among other matters, compliance with certain covenants, as described herein, interest on the 2022 Bonds is excluded from gross income for federal income tax purposes under Section 103 of the Internal Revenue Code of 1986, as amended (the "*Code*"), except for interest on any 2022 Bond for any period during which such 2022 Bond is held by a person who is a "substantial user" of facilities financed with the proceeds of the 2022 Bonds or a "related person" of such a substantial user (within the meaning of Section 147(a) of the Code). In addition, interest on the 2022 Bonds is a specific preference item for purposes of the federal alternative minimum tax. A copy of the proposed form of the opinion of Special Tax Counsel, is set forth as part of APPENDIX G.

The Code imposes various restrictions, conditions and requirements relating to the exclusion from gross income for federal income tax purposes of interest on obligations such as the 2022 Bonds. These requirements include requirements for "exempt facility bonds" issued under Section 142(a)(1) of the Code, which include the 2022 Bonds. The Authority has covenanted to comply with certain restrictions and requirements designed to assure that the interest on the 2022 Bonds will not be included in gross income for federal income tax purposes. Failure to comply with these covenants may result in such interest being included in gross income for federal income tax purposes, possibly from the original issuance date of the 2022 Bonds. The opinion of Special Tax Counsel assumes compliance with these covenants. Special Tax Counsel has not undertaken to determine (or to inform any person) whether any actions taken (or not taken) or events occurring (or not occurring) after the issuance of the 2022 Bonds may adversely affect the tax status of the interest on the 2022 Bonds. Accordingly, the opinion of Special Tax Counsel is not intended to, and may not, be relied upon in connection with any such actions, events or matters.

The opinion of Special Tax Counsel relies on factual representations made by the Authority and other persons. These factual representations include but are not limited to certifications by the Authority regarding its reasonable expectations regarding the use and investment of bond proceeds. Special Tax Counsel has not verified these representations by independent investigation. Special Tax Counsel does not purport to be an expert in asset valuation and appraisal, financial analysis, financial projections or similar disciplines. Failure of any of these factual representations to be correct may result in interest on the 2022 Bonds being included in gross income for federal income tax purposes, possibly from the original issuance date of the 2022 Bonds.

Although Special Tax Counsel is of the opinion that interest on the 2022 Bonds is excluded from gross income for federal income tax purposes, the ownership or disposition of, or the accrual or receipt of interest on, the 2022 Bonds may otherwise affect a beneficial owner's federal tax liability. The nature and extent of these other tax consequences will depend upon the particular tax status of the beneficial owner or the beneficial owner's other items of income or deduction. Special Tax Counsel expresses no opinion regarding any such other tax consequences.

Current and future legislative proposals, if enacted into law, clarification of the Code or court decisions may cause interest on the 2022 Bonds to be subject, directly or indirectly, to federal income taxation or otherwise prevent the beneficial owners of the 2022 Bonds from realizing the full current benefit of the tax status of such interest. For example, from time to time, legislative proposals have been advanced which generally would limit the exclusion from gross income of interest on obligations like the 2022 Bonds to some extent for taxpayers who are individuals and whose income is subject to higher marginal tax rates. Other proposals have been made that could significantly reduce the benefit of, or otherwise affect, the exclusion from gross income of interest on obligations like the 2022 Bonds. The introduction or enactment of any such legislative proposals, clarification of the Code or court decisions may also affect, perhaps significantly, the market price for, or marketability of, the 2022 Bonds.

Such future legislation, if enacted, possibly could apply to obligations issued before such legislation is enacted and some or all of the 2022 Bonds possibly could be treated for purposes of such future legislation as issued on one or more dates after the dates of original issuance of the 2022 Bonds. Prospective purchasers of the 2022 Bonds should consult their own tax advisors regarding any pending or proposed federal or state legislation, regulations or litigation, and regarding the impact of future legislation, regulations or litigation, as to which Special Tax Counsel expresses no opinion.

The opinion of Special Tax Counsel speaks only as of its date and is based on current legal authorities, covers certain matters not directly addressed by such authorities, and represents Special Tax Counsel's judgment regarding the proper treatment of the 2022 Bonds for federal income tax purposes. It is not binding on the Internal Revenue Service (the "*IRS*") or the courts, and it is not a guarantee of any particular result. Furthermore, Special Tax Counsel cannot give and has not given any opinion or assurance about the future activities of the Authority or about the effect of changes to the Code, the applicable regulations, the interpretation thereof or the enforcement thereof by the IRS. The Authority has covenanted, however, to comply with the applicable requirements of the Code.

Special Tax Counsel is not obligated to defend the Authority regarding the tax-exempt status of the 2022 Bonds in the event of an examination by the IRS. Under current IRS procedures, the Beneficial Owners and parties other than the Authority would have little, if any, right to participate in an IRS examination of the 2022 Bonds. Moreover, because obtaining judicial review in connection with an IRS examination of tax-exempt bonds is difficult, obtaining independent review of IRS positions with which the Authority legitimately disagrees may not be practicable. Any action of the IRS, including but not limited to selection of the 2022 Bonds for examination, or the course or result of such an examination, or an examination of bonds presenting similar tax issues may affect the market price, or the marketability, of the 2022 Bonds, and may cause the Authority or the Beneficial Owners to incur significant expense.

Payments of interest on tax-exempt obligations, including the 2022 Bonds, are generally subject to IRS Form 1099-INT information reporting requirements. If a Beneficial Owner of a 2022 Bond is subject to backup withholding under those requirements, then payments of interest will also be subject to backup withholding. Those requirements do not affect the exclusion of such interest from gross income for federal income tax purposes.

Premium. 2022 Bonds purchased, whether at original issuance or otherwise, for an amount greater than their principal amount payable at maturity (or, in some cases, at their earlier call date) ("*Tax-Exempt Premium Bonds*") will be treated as having amortizable bond premium. No deduction is allowable for the amortizable bond premium in the case of bonds, like the Tax-Exempt Premium Bonds, the interest on which is excluded from gross income for federal income tax purposes. However, the amount of tax-exempt interest received, and a beneficial owner's basis in a Tax-Exempt Premium Bond, will be reduced by the amount of amortizable bond premium properly allocable to such beneficial owner. Beneficial owners of Tax-Exempt Premium Bonds should consult their own tax advisors with respect to the proper treatment of amortizable bond premium in their particular circumstances.

State Tax Exemption

In the opinion of Kaplan Kirsch & Rockwell LLP, Bond Counsel, under existing Massachusetts law, the 2022 Bonds, their transfer and the income therefrom (including any profit made on the sale thereof) are exempt from taxation within the Commonwealth. Bond Counsel expresses no opinion as to whether the 2022 Bonds or the interest thereon will be included in the measure of Massachusetts estate and inheritance taxes and certain Massachusetts corporation excise and franchise taxes. Bond Counsel expresses no opinion regarding any federal tax consequences or any other Massachusetts tax consequences, or regarding tax consequences of states other than The Commonwealth of Massachusetts. A copy of the proposed form of the opinion of Bond Counsel is set forth as part of APPENDIX G.

ELIGIBILITY FOR INVESTMENT

The Enabling Act provides that the 2022 Bonds are eligible for investment by all Massachusetts insurance companies, trust companies in their commercial departments, banking associations, executors, trustees and other fiduciaries.

RATINGS

The 2022 Bonds have been assigned ratings of "AA" (outlook: stable) by Fitch, Inc. ("*Fitch*"), "Aa2" (outlook: stable) by Moody's Investors Service ("*Moody's*") and "AA" (outlook: stable) by S&P Global Ratings ("*S&P*"), respectively. Such ratings reflect only the respective views of Fitch, Moody's and S&P, and an explanation of the significance of such ratings may be obtained from the rating agency furnishing the same. There is no assurance that such ratings will continue for any given period of time or that they will not be revised or withdrawn entirely by any or all of such rating agencies if, in its or their judgment, circumstances so warrant. Any such downward revision or withdrawal of such ratings may have an adverse effect on the market price of the 2022 Bonds.

FORWARD-LOOKING STATEMENTS

If and when included in this Official Statement, the words "expects," "forecasts," "projects," "intends," "anticipates," "estimates" and analogous expressions are intended to identify forward-looking statements as defined in the Securities Act of 1933, as amended, and any such statements inherently are subject to a variety of risks and uncertainties that could cause actual results to differ materially from those projected. Such risks and uncertainties include, among others, general economic and business conditions, changes in political, social and economic conditions, regulatory initiatives and compliance with governmental regulations, litigation and various other events, conditions and circumstances affecting airports and the airline industry, seaports, maritime and commercial real estate, the COVID-19 pandemic, the outbreak of any other disease or public health threat, other future global health concerns, and other events or circumstances beyond the control of the Authority. These forward-looking statements speak only as of the date of this Official Statement. The Authority disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statement contained herein to reflect any change in the Authority's expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.

CERTAIN LEGAL MATTERS

The unqualified approving opinions of Kaplan Kirsch & Rockwell LLP, Boston, Massachusetts, Bond counsel to the Authority, and Kutak Rock LLP, Denver, Colorado, Special Tax Counsel to the Authority, will be furnished upon delivery of the 2022 Bonds; the proposed forms of such opinions are set forth in APPENDIX G. Certain legal matters will be passed on for the Authority by Catherine M. McDonald, Esquire, its Chief Legal Counsel, and by Locke Lord LLP, Boston, Massachusetts, its Disclosure Counsel. Certain legal matters will be passed on for the Underwriters by their co-counsel, Hinckley, Allen & Snyder LLP, Boston, Massachusetts, and D. Seaton and Associates, P.A., Boston, Massachusetts.

INDEPENDENT AUDITORS

The financial statements of the Authority as of and for the years ended June 30, 2021 and 2020 included in APPENDIX B of this Official Statement have been audited by Ernst & Young LLP, independent auditors, as stated in their report appearing therein.

The prospective financial information (projected Operating Results and Debt Service Coverage) included within this Official Statement and the appendices hereto was prepared by the Authority in accordance with accounting principles required by the 1978 Trust Agreement in order to show projected debt service coverage and ability to meet other required fund deposits; such information was not prepared with a view toward compliance with the guidelines established by the American Institute of Certified Public Accountants for preparation and presentation of prospective financial information. The prospective financial information included in this Official Statement has been prepared by and is the responsibility of the Authority's management. Neither Ernst & Young LLP nor any other independent auditor has examined, compiled, reviewed, audited or performed any procedures with respect to the accompanying financial projections, and accordingly, neither Ernst & Young LLP nor any other independent auditor expresses an opinion or any other form of assurance with respect thereto.

MARKET ANALYSIS AND REVIEW OF AIRPORT PROPERTIES NET REVENUES PROJECTION

The Airport Market Analysis set forth in APPENDIX C was prepared by ICF in connection with the issuance of the 2022 Bonds. Such report is set forth herein in reliance upon the knowledge and experience of such firm as airport consultants. ICF has consented to the inclusion of their report herein.

The Review of Airport Properties Net Revenues Projection set forth in APPENDIX D was prepared by LeighFisher in connection with the issuance of the 2022 Bonds. The review should be read in its entirety for an understanding of the projections and the key assumptions therein. Such review is set forth herein in reliance upon the knowledge and experience of such firm as airport financial consultants. The review covers a projection period through fiscal year 2026. LeighFisher has consented to the inclusion of their report herein.

The projected financial results of the Airport Properties presented in the Review of Airport Properties Net Revenues Projection are based upon certain assumptions and estimates concerning future events and circumstances described in the review, which the Authority believes to be reasonable. However, any projection is subject to uncertainties and some assumptions will not be realized and unanticipated events and circumstances may occur. Therefore, there will be differences between the projected and actual results, and those differences may be material.

UNDERWRITING

UBS Financial Services Inc. is the representative of the Underwriters and Stern Brothers & Co. and Cabrera Capital Markets LLC comprise the co-managers of the underwriting group (collectively, the "*Underwriters*"). Janney Montgomery Scott and Bancroft Capital comprise the selling group.

The 2022 Bonds are being purchased by the Underwriters, for whom UBS Financial Services Inc. is acting as representative. The Underwriters have agreed, subject to certain conditions, to purchase all of the 2022 Bonds from the Authority at an aggregate underwriters' discount from the initial public offering prices or yields set forth on page (i) hereof equal to $365,739.37 and to reoffer such 2022 Bonds at public offering prices not higher than or at yields not lower than those set forth on page (i) hereof. The Underwriters are obligated to purchase all such 2022 Bonds if any are purchased. The obligation of the Underwriters to make such purchase and any such reoffering will be subject to certain terms and conditions set forth in the purchase contract relating to the 2022 Bonds (the "*Purchase Contract*"), the approval of certain legal matters by counsel and certain other conditions.

The 2022 Bonds may be offered and sold by the Underwriters to certain dealers (including dealers depositing such 2022 Bonds in unit investment trusts or mutual funds, some of which may be managed by the Underwriters) and certain dealer banks and banks acting as agents at prices lower (or yields higher) than the public offering prices (or yields) set forth on page (i) of this Official Statement. Subsequent to such initial public offering, subject to the Purchase Contract, the Underwriters may change the public offering prices (or yields) as they may deem necessary in connection with the offering of such 2022 Bonds.

The following language has been provided by the Underwriters named therein. The Authority takes no responsibility as to the accuracy or completeness thereof.

UBS Financial Services Inc., one of the Underwriters of the 2022 Bonds, has entered into a distribution and service agreement with its affiliate UBS Securities LLC ("*UBS Securities*") for the distribution of certain municipal securities offerings, including the 2022 Bonds. Pursuant to such agreement, UBS Financial Services, Inc. will share a portion of its underwriting compensation with respect to the 2022 Bonds with UBS Securities. UBS Financial Services, Inc. and UBS Securities are each subsidiaries of UBS Group AG.

Stern Brothers & Co., one of the Underwriters of the 2022 Bonds, has entered into an agreement (the "*Stern Brothers Agreement*") with InspereX LLC ("*InspereX*") for the distribution of certain municipal securities offerings at the original issue price. Pursuant to the Stern Brothers Agreement, Stern Brothers & Co. may sell the 2022 Bonds to InspereX and will share a portion of its selling concession compensation, if applicable.

Each of the Underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. Certain of the

Underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various investment banking services for the Authority for which they received or will receive customary fees and expenses. In the ordinary course of their various business activities, each of the Underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (which may include bank loans and/or credit default swaps) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve securities and instruments of the Authority.

One or more of the Underwriters may have from time to time entered into, and may in the future enter into, distribution agreements with other broker-dealers (that have not been designated by the Authority as Underwriters) for the distribution of the 2022 Bonds at the original issue prices. Such agreements generally provide that the relevant Underwriter will share a portion of its underwriting compensation or selling concession with such broker-dealers.

FINANCIAL ADVISOR

PFM Financial Advisors LLC ("*PFM*") is serving as financial advisor to the Authority for the issuance of the 2022 Bonds. PFM is not obligated to undertake, and has not undertaken, either to make an independent verification of or to assume responsibility for the accuracy, completeness, or fairness of the information contained in this Official Statement. PFM is an independent financial advisory firm and is not engaged in the business of underwriting, trading or distributing securities. PFM is a registered municipal advisor with the Securities and Exchange Commission and the Municipal Securities Rulemaking Board under the Dodd-Frank Act of 2010.

CONTINUING DISCLOSURE

1978 Trust Agreement Information

The Authority is required by the 1978 Trust Agreement to prepare, file with the Trustee and mail to all Bondholders of Record (DTC or DTC's partnership nominee, as long as the 2022 Bonds are so registered), within 60 days of the end of each fiscal year, a report setting forth, among other things, the status of all funds and accounts created under the 1978 Trust Agreement, and to prepare, file with the Trustee and mail to all such Bondholders of Record within three months of the end of each fiscal year a report on the audit of the books and accounts of the Authority by the Authority's independent public accountants. The Authority is also required by the 1978 Trust Agreement to send certain documents and reports to all Bondholders of Record. The Director of Administration and Finance of the Authority, or his or her designee from time to time, shall be the contact person on behalf of the Authority from whom the foregoing information, data and notices may be obtained. The name, address and telephone number of the initial contact person are Anna M. Tenaglia, Deputy Director of Administration and Finance, Massachusetts Port Authority, One Harborside Drive, Suite 200S, East Boston, Massachusetts 02128-2909, Tel: (617) 568-5000.

Continuing Disclosure Undertakings

The Authority has undertaken for the benefit of the owners of the 2022 Bonds to provide certain continuing disclosure pursuant to the provisions of Rule 15c2-12(b)(5) under the Securities Exchange Act of 1934, as amended. Specifically, the Authority executed and delivered a Continuing Disclosure Certificate dated as of July 17, 2019 (the "*Continuing Disclosure Certificate*") for the benefit of the owners of all Bonds (including the 2022 Bonds) issued by or on behalf of the Authority that are designated by the Authority as subject to and having the benefits of the Continuing Disclosure Certificate. The Continuing Disclosure Certificate requires the Authority to provide certain financial information and operating data relating to the Authority's preceding fiscal year by no later than January 1 of each year (the "*Annual Filing*") and to provide notices of the occurrence of certain enumerated events. The nature of the information to be included in the Annual Filing and the notices of enumerated events is set forth in APPENDIX F – Form of Continuing Disclosure Certificate.

The Authority has previously undertaken, for the benefit of the owners of its Bonds issued prior to the 2019-B Bonds, to provide certain continuing disclosure pursuant to a Continuing Disclosure Certificate dated as of July 19, 2012 (the "*2012 Continuing Disclosure Certificate*"). All outstanding Bonds of the Authority issued prior to the 2019-B Bonds are subject to and have the benefits of the 2012 Continuing Disclosure Certificate. In connection with the issuance of its CFC Revenue Bonds, the Authority has agreed to provide annual updated data with respect to certain other information regarding the Authority and the Airport pursuant to a Continuing Disclosure Certificate dated as of June 15, 2011 with respect to the CFC Revenue Bonds.

In order to provide certain continuing disclosure with respect to its Bonds previously issued under the 1978 Trust Agreement and its CFC Revenue Bonds, the Authority entered into a Disclosure Dissemination Agent Agreement with Digital Assurance Certification, L.L.C. ("*DAC*"), dated as of January 8, 2010. The Authority shall amend the Disclosure Dissemination Agent Agreement to include coverage of the 2022 Bonds by this agreement.

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

MASSACHUSETTS PORT AUTHORITY

By: *<u>/s/ Lisa S. Wieland</u>*
Lisa S. Wieland, Chief Executive Officer and Executive Director

APPENDIX A

INFORMATION STATEMENT OF THE AUTHORITY

TABLE OF MAPS:

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THE AUTHORITY

Purpose

This Information Statement provides certain information concerning the Massachusetts Port Authority (the "*Authority*" or "*Massport*") in connection with the sale by the Authority of its Revenue Bonds, Series 2022-A (AMT) (the "*2022 Bonds*"). Capitalized terms not defined in this Appendix A are used as defined in the Official Statement, except as otherwise noted herein. The 2022 Bonds are being issued under the 1978 Trust Agreement and are secured solely by the Revenues pledged thereunder.

The Authority

The Authority, created pursuant to Chapter 465 of the Massachusetts Acts of 1956, as amended to date (the "*Enabling Act*"), is a body politic and corporate and a public instrumentality of The Commonwealth of Massachusetts (the "*Commonwealth*" or "*Massachusetts*"). The Authority owns, operates and manages the following two Projects (as defined in the Enabling Act): the "*Airport Properties*," which consist of Boston-Logan International Airport (the "*Airport*," "*Logan*" or "*Logan Airport*"), Laurence G. Hanscom Field ("*Hanscom Field*") and Worcester Regional Airport ("*Worcester Regional Airport*"); and the "*Port Properties*," which consist of certain facilities in the Port of Boston (the "*Port*") and other properties further described herein.

Powers and Facilities

Under the Enabling Act, the Authority has general power, *inter alia* (a) to issue its revenue bonds and to borrow money in anticipation thereof, (b) to fix, revise, charge and collect tolls, rates, fees, rentals and charges for use of the Projects, (c) to maintain, repair and operate and to extend, enlarge and improve the Projects, and (d) to construct or acquire Additional Facilities (as defined in the Enabling Act) within the Commonwealth when authorized by the Legislature of the Commonwealth. The Authority has the power to acquire property by purchase or through the exercise of the right of eminent domain in certain circumstances and, in certain instances, to sell or exchange property owned by it when the same shall, in the opinion of the Authority, cease to be needed for the purposes of the Enabling Act. The Authority has no taxing power and generally receives no money from the Commonwealth's budget.

The Authority's facilities include the Airport Properties, consisting of the Airport, Hanscom Field and Worcester Regional Airport and the Port Properties, consisting of Moran Terminal, Hoosac Pier (site of Constitution Center and Marina), Mystic Piers 1, 48, 49 and 50 and the Medford Street Terminal, all of which are located in Charlestown; Conley Terminal, the North Jetty and Fargo Street Terminals, the former Army Base (including Flynn Cruiseport Boston), the Boston Fish Pier, Commonwealth Pier (site of World Trade Center Boston) and a portion of Commonwealth Flats, all of which are located in South Boston; and the East Boston Piers and the Boston Marine Works, both located in East Boston.

Members and Management

The Enabling Act provides that the Authority shall consist of seven Members (collectively, the "*Board*"). Six Members are appointed by the Governor of the Commonwealth, including the Secretary of Transportation of the Commonwealth; the seventh Member is appointed by the Massachusetts Port Authority Community Advisory Committee. Four Members of the Board constitute a quorum and the affirmative vote of four Members is necessary for any action taken by the Board. With the exception of the Secretary of Transportation, the Members are appointed for staggered seven-year terms. Members completing a term in office are eligible for reappointment and remain in office until their successors are appointed, except that any Member appointed to fill a vacancy shall serve only for the unexpired term. The Members of the Board serve without compensation, although they are reimbursed for expenses they incur in carrying out their duties.

The Chairman of the Board is elected annually by the Members. The Members also annually elect a Vice Chairman and a Secretary-Treasurer (who need not be a Member of the Board), both of whom serve at the pleasure of the Members. The current Members of the Board and the expiration dates of their terms are as follows:

Members of the Board	**Expiration of Term (June 30)**
Jamey Tesler Secretary of Transportation and Chief Executive Officer of the Massachusetts Department of Transportation (“*MassDOT*”), Commonwealth of Massachusetts	*
Lewis Evangelidis, Chairman Worcester County Sheriff	2027
Warren Q. Fields Chief Executive Officer, Pyramid Hotel Group, LLC Board Member, Rockland Trust Company	2025
Patricia A. Jacobs President, AT&T New England Board Member, Avangrid, Inc.	2023
John A. Nucci** Senior Vice President for External Affairs, Suffolk University	2029
Sean M. O’Brien General President of the International Brotherhood of Teamsters	2026
Laura J. Sen Board Member, Massachusetts Mutual Life Insurance Company Board Member, Burlington Stores, Inc.	2024

* The Secretary of Transportation is an *ex officio* Member of the Board.
** Community Advisory Committee Board appointee.

The management of the Authority and its operations is carried out by a staff headed by the Chief Executive Officer and Executive Director, who is appointed by and reports directly to the Board.

The Authority has two operating Departments – Aviation and Maritime – each of which is charged with profit and loss responsibility. The staff members overseeing the operation of the Authority’s facilities are charged with balancing financial performance with operational demands, customer service and community impacts, as well as forecasting the implications of any proposed capital programs or operating initiatives, and for the collection of accounts receivable.

The senior staff of the Authority currently includes the following persons, who are each aided by administrative, operating and maintenance personnel:

Lisa Wieland, Chief Executive Officer and Executive Director, joined the Authority in 2006 and became Chief Executive Officer and Executive Director in August 2019. As CEO, she oversees the Authority’s operation of all of its properties, including Boston Logan International Airport, Hanscom Field, Worcester Regional Airport, the Port of Boston’s Conley Container Terminal and Flynn Cruiseport Boston, and management of real estate holdings in South Boston, East Boston and Charlestown. Before being named CEO, Ms. Wieland served as Port Director since January 2016, Acting Port Director since March 2015 and previously as Maritime’s Chief Administrative Officer. Before joining the Maritime team, Ms. Wieland served in several roles at the Authority, including the Director of Corporate Planning and Analysis and the Director of HR Strategy & Employment. Prior to joining the Authority, Ms. Wieland worked as a Consultant for Bain & Company, serving health care and consumer products clients, and previous to that, for CNN in various news and political assignments. Ms. Wieland received a B.A. degree in Political Science from UCLA and an M.B.A. from Harvard Business School.

John P. Pranckevicius, Director of Administration and Finance/Secretary-Treasurer, joined the Authority in May 2007. After serving as Acting Chief Executive Officer and Executive Director of the Authority from November 2018 through August 2019, he returned to his prior role. He oversees the Authority’s financial responsibilities including treasury, budgeting, accounting, debt and investment management and administration, and serves as

Treasurer-Custodian of the Massachusetts Port Authority Employees' Retirement System and Chair of the Authority's Retiree Benefits Trust. Prior to joining the Authority, Mr. Pranckevicius served as the Chief Financial Officer for the City of Worcester, Massachusetts. He is licensed in the Commonwealth as a Certified Public Accountant, and holds a B.A. degree and a Master's in Public Administration from the University of Maine and an M.S. in Accountancy from Bentley University.

Anna M. Tenaglia, Deputy Director of Administration and Finance, joined the Authority in June 2008 and was appointed to her current position in August 2019 after having served as Acting Director of Administration and Finance/Secretary-Treasurer since November 2018, during the Authority's search for a new CEO. She also served as the Authority's Director of Treasury from March 2015 to November 2018. Prior to joining the Authority, Ms. Tenaglia was the Chief Financial Officer for the City of Gloucester, the Treasurer/Assistant Finance Director for the City of Chelsea and was also a Vice President at State Street Bank's Institutional Investor Services Division. She holds a B.S. in finance from Suffolk University and an M.B.A. with a concentration in finance from the University of Southern New Hampshire. She is a designated Certified Treasury Professional (CTP).

Joel A. Barrera, Director of Strategic and Business Planning, joined the Authority in October 2018. He is responsible for overseeing the department charged with master planning, aviation planning, transportation planning, and environmental planning and permitting for the Authority. Prior to joining the Authority, he was Deputy Chief of Staff for Strategic Innovation in the Office of Governor Charlie Baker, and prior to that he served as Deputy Director for the Metropolitan Area Planning Council, the regional planning agency for metropolitan Boston. He has a B.A. from Princeton University and an M.A. from Worcester College, Oxford University.

Tiffany Brown-Grier, Director of Diversity & Inclusion/Compliance, joined the Authority in 1995 and was appointed to her current position in September 2021. She served as Deputy Director of Diversity & Inclusion/Compliance from 2015 to 2021. In this position, she oversees and manages the Authority's multiple diversity programs, including business and supplier diversity, workforce diversity, airport concessions, construction and design, as well as all compliance initiatives associated with the Authority's Minority/Women/ Disadvantaged/ Business Enterprise programs. Ms. Brown-Grier holds a B.A. degree from Virginia State University.

Luciana Burdi, Director Capital Programs and Environmental Affairs, joined the Authority in July 2012 as Deputy Director of Capital Programs and Environmental Affairs and was appointed as Director of Capital Programs and Environmental Affairs in December 2020. Prior to joining the Authority, she held several positions at The Commonwealth of Massachusetts Division of Capital Asset Management and Maintenance. She is a member of the Construction Management Association of America (CMAA) National Board of Directors, and the Chair of the CMAA Emerging Technologies Committee. She earned her Certified Construction Manager (CCM) credential in 2019. She received her Doctorate from Harvard Graduate School of Design. Previously, she was a Special Program in Urban and Regional Studies Fellow at MIT and she graduated summa cum laude from the Instituto Universitario di Architettura di Venezia (IUAV) in Venice, Italy, with a master's degree.

Kwang Chen, Chief Information Officer, joined the Authority in June 2019 and has over 20 years of experience in the Information Technology (IT) industry, primarily within the transportation sector. He is responsible for the IT systems and infrastructure for both employees and customers of the Authority, across all of the Authority's facilities. These systems span areas including cyber and information security, aviation and maritime operations, passenger information, financial operations, and telecommunications. Prior to joining the Authority, Mr. Chen served as a Vice President and in other senior IT leadership roles at such places as Abu Dhabi Terminals, Global Container Terminals Canada, Yusen Terminals Inc., and APM Terminals. In addition to his roles in IT operations and administration, he has led strategic IT planning initiatives and business transformation efforts. Mr. Chen has a B.S. in Management Information Systems from California State University Long Beach, and an M.B.A. from the University of Northern British Columbia.

Alaina Coppola, Director of Community Relations & Government Affairs, joined the Authority's Community Relations department in 2003 and was appointed to her current position in January 2019 after serving as Assistant Director of Administration and Community Giving since July 2017. She is responsible for directing the development and implementation of community and government relations and charitable giving initiatives designed to strengthen the relationship between the Authority and its neighboring communities. Ms. Coppola holds a B.S. degree from Suffolk University.

Brian M. Day, Director of Labor Relations/Labor Counsel, joined the Authority in September 2006. He is responsible for all matters related to each of the Authority's union collective bargaining agreements and all other union related matters affecting the Authority's mission and its tenants, customers, employees and the public. Mr. Day is responsible for negotiating and properly administering the Authority's union collective bargaining agreements, as well as overseeing the resolution of all union labor disputes. Prior to joining the Authority, he was a Senior Labor Relations Representative for the MBTA and prior to that was the Chief of Staff for the Massachusetts House of Representatives' Chairman of the Joint Committee on Transportation. He has a B.A. in Politics from Fairfield University and received his J.D. from Suffolk University Law School.

Edward C. Freni, Director of Aviation, joined the Aviation Division of the Authority in 2000 as the Deputy Director of Aviation Operations at Logan Airport, Hanscom Field and Worcester Regional Airport and was appointed to his current position in 2007. He is responsible for administering, coordinating and managing all airside and landside activities and operations at all three airports. Prior to joining the Authority, Mr. Freni worked for 23 years at American Airlines. He holds a B.S. degree from the University of New Hampshire.

David M. Gambone, Chief Human Resources Officer, joined the Authority in March 2004. He oversees all core functions of Human Resources, including recruitment, compensation, benefits, training and development, performance management, employee relations, health and wellness, leave management and human resources management systems. Mr. Gambone has over 25 years of human resources management experience having worked in the private sector as the head of human resources for consulting firms and training organizations focused on executive leadership development. He holds a B.A. in Philosophy from Boston College. He is also certified as a Senior Professional in Human Resources (SPHR).

Andrew G. Hargens, Chief Development Officer, joined the Authority in 1995 and has served in a variety of planning, asset management, and real estate development roles since that time. Prior to his designation as Chief Development Officer in June 2018, Mr. Hargens served as Deputy Director for Real Estate Development. Before joining the Authority, Mr. Hargens worked as an environmental consultant for TRC Corporation and Eastern Research Group. Mr. Hargens has a B.A. in Geology from Harvard University and a Master's in Public Policy and Planning from Tufts University.

Catherine M. McDonald, Chief Legal Counsel, joined the Authority in 1999 and was appointed to her current position in January 2016. She also served as the Authority's Chief of Staff from October 2017 to November 2018. She oversees legal activity in all functional areas including real estate, construction, litigation, employment and ethics, maritime, aviation, security and public finance. Prior to joining the Authority, Ms. McDonald was an Assistant Chief of Staff in the Governor's Office, an Associate at McDermott, Will and Emery and a law clerk to the Honorable A. David Mazzone of the United States District Court for Massachusetts. Ms. McDonald holds degrees from Northeastern University and Suffolk University School of Law.

Jennifer B. Mehigan, Director of Media Relations, joined the Authority in June 2014 as the Assistant Director of Media Relations. Prior to joining the Authority, Ms. Mehigan was the Director of Media Relations for Boston EMS, and Deputy Press Secretary under former Boston Mayor Thomas Menino. Ms. Mehigan has a Master's in Journalism from American University in Washington, D.C. and a bachelor's degree from Wheaton College, Norton, Massachusetts.

Joseph Morris, Acting Port Director, joined the Authority in March 2020 as Deputy Port Director, and has been the Acting Port Director since February 2022. In this role, he leads all financial management, business planning, strategic initiatives, process improvement, special projects, and the day-to-day management of the Maritime division. Prior to joining the Authority, Mr. Morris had more than 20 years of global port experience, serving in various management and senior management positions at APM Terminals and within the A.P. Moller – Maersk Group. Mr. Morris has a B.S. in Business Management from the University of Phoenix.

Reed Passafaro, Chief of Staff, joined the Authority in March 2014 and was appointed to his current position in November 2018 after serving as Senior Business and Policy Manager for the Authority's Maritime Division. Prior to joining the Authority, Mr. Passafaro worked for the City of Boston as the Director of Speechwriting under former Mayor Thomas M. Menino. He has a B.A. from Saint John Fisher College and an M.B.A from Northeastern University's D'Amore-McKim School of Business.

John Raftery, Chief Marketing Officer, joined the Authority in February 2019. He oversees external and internal communications and marketing strategies, advertising, branding, promotional campaigns and event planning both for the Authority and its facilities. Mr. Raftery also serves as Adjunct Professor at Boston University teaching evening graduate and undergraduate courses in advertising, marketing and new media. Prior to joining the Authority, Mr. Raftery was SVP, Director of Brand Experience at Arnold Worldwide and has over 20 years of marketing leadership experience on both the agency and client side. He has a B.A. in English and Communications from the University of Massachusetts.

Christine Reardon, Director of Internal Audit, joined the Authority in September 2017 and was appointed to her current position in September 2021. She is responsible for all activities within the Authority's Internal Audit function, which reviews the integrity and effectiveness of internal controls across Authority operations and services. Ms. Reardon reports directly to the Audit Committee of the Board to ensure the function's independence and objectivity. Prior to joining the Authority, she worked in audit services at Kevin P. Martin & Associates, P.C., a regional CPA and business consulting firm. She is a CPA with a B.A. in Accounting from Assumption College and holds an M.S. in Accounting from Northeastern University.

Harold H. Shaw, Chief Security Officer, joined the Authority in January 2019. He is responsible for all security matters relevant to the Authority with oversight of the corporate security and emergency preparedness programs and the respective security teams in the functional and staff departments. Mr. Shaw is responsible for establishing security plans, protocols and exercises, implementing a threat-based approach to counter security risks to the aviation and maritime sectors inherent to the Authority, and collaborating across federal, state, and local law enforcement, as well as with applicable private sector security managers. Fundamental to his responsibilities, he works across departments to develop processes to counter the terrorism and cyber threats of the future. Prior to joining the Authority, Mr. Shaw was a FBI Special Agent, serving in a variety of leadership positions, with a broad-range of experiences within the counterterrorism, counterintelligence, cyber and criminal programs. He previously served as the Special Agent in Charge of the FBI Boston Division, responsible for all operations, intelligence functions, and liaison activities within the states of Massachusetts, Maine, New Hampshire and Rhode Island. A United States Army veteran, Mr. Shaw has a B.S. in Communications from Norwich University.

MANAGING THROUGH THE COVID-19 PANDEMIC

This section contains "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended. Such statements may involve known and unknown risks, uncertainties, and other factors which may cause the actual results, performance and achievements to be different from future results, performance and achievements expressed or implied by such forward-looking statements. Investors are cautioned that the actual results could differ materially from those set forth in the forward-looking statements.

Authority's Response to COVID-19 Pandemic

In March 2020, the novel coronavirus disease ("*COVID-19*") was declared a global pandemic by the World Health Organization. Work-at-home requirements, mandated closures of offices and businesses, and other restrictions imposed to contain the COVID-19 pandemic caused serious economic contraction, unemployment and financial hardship. Airlines reported unprecedented reductions in passenger volumes, causing the cancellation of numerous flights and a dramatic reduction in network capacity. As a result, airports in the United States, including the Airport and Worcester Regional Airport, were acutely impacted by interruptions in travel, reductions in passenger volumes and flights, as well as by the broader economic shutdown resulting from the COVID-19 pandemic.

As summarized in this section, the COVID-19 pandemic and related restrictions had an adverse effect on airlines serving the Airport and Worcester Regional Airport, retail concessionaires at the Airport Properties and Airport Revenues over the past two years. The safety and health of passengers and employees was and remains the Authority's top priority as it has managed through the COVID-19 pandemic, and the Authority worked in coordination with the Centers for Disease Control and Prevention (the "*CDC*"), airline partners, building cleaning contractors, local public health and emergency response organizations, and other stakeholders to keep travel safe. The Authority implemented a COVID-19 mitigation response plan across all of its facilities and departments. The response plan included enhanced cleaning, health advisories and temperature checks at construction sites with protocols in place to ensure job site safety.

In addition to ensuring the health and safety of passengers, contractors and employees, however, the Authority was also keenly focused on maintaining its prudent financial management and fiscal responsibility. Prior to the start of the pandemic, the Authority continued to experience strong business activity growth and financial results; and this strong financial position enabled the Authority to be flexible in its response to the pandemic. As reflected herein, the Authority had at its disposal experienced management and a variety of tools that it proactively deployed to not only maintain financial stability during this sustained period of contracted activity, but also continue to invest in its assets to better position the Authority and its properties for the expected return to growth once the pandemic is under control. In particular, the Authority's ability to implement operating expense reductions quickly and prudently, avail itself of liquidity strategies (including restructuring its debt and revising its commercial paper program), effectively utilize available federal funding, and take advantage of the benefit of its existing, modular capital program to move forward in a prudent manner with strategically chosen capital projects, allowed the Authority to weather the adverse impacts of the COVID-19 pandemic and has positioned the Authority to emerge on the other side in a strong operating position.

As reflected herein, the Airport's current growth in passengers and operations have been encouraging, and indications suggest that these trends will continue. On a month-to-month basis, the Airport's total passenger recovery for April 2022 achieved 84.7% of April 2019 levels, and the Authority is currently projecting to achieve 33.6 million annual passengers in fiscal year 2023. As the Authority continues to see positive growth in its operating metrics, management has shifted its focus from managing through the pandemic to managing for continued passenger and airline service growth. Management believes that all of the tools that enabled the Authority to manage through the COVID-19 pandemic successfully will also allow it to manage, efficiently and effectively, the return of passenger growth at the Airport Properties. There can be no assurance, however, that a resurgence or new variant of COVID-19 or another public health emergency will not once again materially and adversely affect the Authority's finances and operations.

The COVID-19 pandemic is ongoing, and its dynamic nature leads to uncertainties, including those related to the severity of the disease; the duration of the pandemic; actions that may be taken by governmental authorities to contain the outbreak or to treat its impact; any travel restrictions on the demand for air travel, including at the Airport and Worcester Regional Airport, on port and cruise activity, or on Authority revenues and expenses; the impact of the outbreak on the local or global economy or on the airlines and concessionaires serving the Airport, or on the airline or travel industry generally; and the efficacy and distribution of vaccines. Due to the evolving nature of the COVID-19 pandemic and the response of governments, businesses and individuals to the COVID-19 pandemic, the Authority cannot predict, among other things: (i) the duration or extent of the COVID-19 pandemic or another outbreak or pandemic; (ii) the scope or duration of restrictions or warnings related to air travel, gatherings or any other activities, and the duration or extent to which airlines will reduce services at the Airport or Worcester Regional Airport, or whether airlines will cease operations at the Airport or Worcester Regional Airport or shut down in response to such restrictions or warnings; (iii) what effect the COVID-19 pandemic or any other outbreak or pandemic-related restrictions or warnings may have on air travel, cruise demand and port activity and the resulting impact on Authority revenues and expenses; (iv) whether and to what extent the COVID-19 pandemic or another outbreak or pandemic may disrupt the local, state, national or global economies, manufacturing or supply chain; (v) whether any such disruption may adversely impact Airport- or Port- related construction, the cost, sources of funds, schedule or implementation of the Authority's capital program, or other Authority operations; (vi) the extent to which the COVID-19 pandemic or another outbreak or pandemic, or the resultant disruption to the local, state, national or global economies, may result in changes in demand for air travel, or may have an impact on the airlines or concessionaires serving the Airport, or the airline and travel industry, generally; (vii) whether or to what extent the Authority may provide deferrals, forbearances, adjustments or other changes to the Authority's arrangements with its tenants and Airport concessionaires; or (viii) the duration of, and the Authority's response to, the adverse effect of the foregoing on the finances and operations of the Authority.

Government Relief Efforts

The United States government and the Federal Reserve Board have taken, and may continue to take further, legislative and regulatory actions and implemented various measures to mitigate the broad disruptive effects of the COVID-19 pandemic on the U.S. economy. There have been three federal relief bills passed by Congress and signed into law by the President since the COVID-19 pandemic began that provide relief proceeds ("*Federal Relief Proceeds*" or "*FRPs*"), each of which are discussed below.

CARES Act. The Coronavirus Aid, Relief, and Economic Security Act (the "*CARES Act*") was signed into law on March 27, 2020, and provides, among other things, $10 billion of assistance to U.S. commercial airports. The Authority was allocated approximately $143.6 million of CARES Act grant funds, allocated to each of the three airports as follows:

	CARES Act Funding
Logan Airport	$141.3 million
Worcester Regional Airport	$1.3 million
Hanscom Field	$1.0 million
TOTAL	**$143.6 million**

The Authority has drawn all of its CARES Act allocation and applied it to the reimbursement or payment of certain operating expenses in fiscal year 2020 (the Authority's fiscal year ends June 30) and to help offset commercial parking, transportation service and concession losses at Logan Airport in fiscal year 2021.

CRRSAA. The Coronavirus Response and Relief Supplemental Appropriation Act ("*CRRSAA*"), was signed into law on December 27, 2020, and includes approximately $2 billion of financial relief for airports. The Authority was allocated approximately $36.92 million of CRRSAA grant funds (inclusive of concessions relief funding of $4.46 million), allocated to each of the three airports as follows:

	CRRSAA Funding
Logan Airport	$35.542 million
Worcester Regional Airport	$1.323 million
Hanscom Field	$0.057 million
TOTAL	**$36.922 million**

As of May 1, 2022, the Authority has drawn and used $26.6 million of these funds for the reimbursement of operating and concessionaire relief expenses in fiscal year 2021, and expects to draw the remaining $10.3 million of funds for concessions and expense reimbursement in fiscal year 2022.

ARPA. The American Rescue Plan Act ("*ARPA*"), which became law on March 11, 2021, provides an additional $8 billion of direct aid for airports. The Authority was allocated approximately $146.7 million of ARPA grant funds (inclusive of concession relief funding of $17.8 million), allocated to each of the three airports as follows:

	ARPA – Airport Assistance	**ARPA – Concessions**	**Total ARPA Funding**
Logan Airport	$127.0 million	$17.7 million	$144.7 million
Worcester Regional Airport	$1.7 million	$0.1 million	$1.8 million
Hanscom Field	$0.2 million	-	$0.2 million
TOTAL	**$128.9 million**	**$17.8 million**	**$146.7 million**

Of the $146.7 million of ARPA funding allocated to the Authority's airports as described above, the Authority expects to apply $80 million towards operating expenses and debt service associated with commercial parking, transportation service, concession related expenses and vacant terminal space in fiscal year 2022, with the balance ($64.8 million) being used at the Airport in fiscal years 2023 and 2024. The Authority must draw down and spend its ARPA grant funds within four years.

The following table summarizes the Federal Relief Proceeds allocated to Logan Airport by federal program, as well as the utilization and expected utilization of these proceeds. The Authority has used Federal Relief Proceeds to pay operating expenses and debt service associated with commercial parking, transportation service, concession related expenses and vacant terminal space.

Summary of Federal Relief Proceeds (FRPs) Allocable to Logan Airport
($ in millions)

	CARES Act	CRRSAA	ARPA	Total
FAA Grant Award Amounts	**$141.3**	**$35.6**	**$144.7***	**$321.6**
Logan Parking				
Parking Operating Expenses	$76.4	$20.0	-	**$96.4**
Debt Service – Parking Debt	29.9	-	-	**29.9**
Total Parking	$106.3	$20.0	-	**$126.3**
Concessions and Vacant Terminal Space				
Concessions and Vacant Terminal Space Expenses	$26.6	$6.6	-	**$33.2**
Debt Service – Concessions & Vacant Space Debt	8.5	-	-	**8.5**
Total Concessions and Vacant Terminal Space	$35.1	$6.6	-	**$41.7**
Total Grant Submission	**$141.4**	**$26.6**	**-**	**$168.0**
Total Balance to be Billed	**-**	**$8.9**	**$144.7**	**$149.3**

* Includes $17.7m Concession Relief Fund.

Impact of COVID-19 on Airport Properties

During the first eight months of fiscal year 2020, prior to the COVID-19 pandemic, the Authority continued to experience strong business activity. Logan Airport, the principal source of the Authority's Revenues, Operating Expenses and Net Revenues and the dominant factor in the determination of the Authority's financial condition, reached another milestone in calendar year 2019, ending the year with 42.5 million passengers, an increase of approximately 4% over the prior year. Passenger volumes in January and February were up 8% and 6%, respectively, over the prior year totals, and as of February 2020, the Authority's operating margin for fiscal year 2020 was 7.1% (or $47 million) ahead of plan.

Since the start of the COVID-19 pandemic in March 2020, however, Logan Airport, similar to other airports around the nation, saw steep declines in many financial and operating metrics. For fiscal year 2021, Logan Airport continued to experience a decline in many financial and operating metrics as compared to fiscal year 2019, however, during the fourth quarter of fiscal year 2021, passenger and cargo volumes began increasing, with leisure travel activity improving as more of the public received their COVID-19 vaccinations. This has continued into fiscal year 2022. Compared to the fiscal year 2022 budget, total Logan passengers for April 2022 were 82.8% higher than forecast, and total April 2022 passengers of 3,090,710 were 84.7% of pre-pandemic April 2019 volume, reflecting the highest level of traffic recovery since the onset of the pandemic.

The following tables show the change in Logan Airport passengers for the period from fiscal year 2019 through fiscal year 2021, and the period from July 2021 to March 2022 during fiscal year 2022, and compares those numbers to fiscal year 2019. The period commencing in mid-March during fiscal year 2020 reflects the effects of the COVID-19 pandemic. As reflected in the tables below, both domestic and international traffic has continued to grow through fiscal year 2022, although both segments continue to trail fiscal year 2019 numbers.

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CHANGE IN MONTHLY PASSENGERS AT LOGAN AIRPORT

Domestic Passengers:

	Monthly Passengers				Percent Change From FY 2019 (Same Month)		
	FY2019	**FY2020**	**FY2021**	**FY2022**	**FY2020**	**FY2021**	**FY2022**
July	3,201,033	3,180,440	665,784	2,266,670	(0.6)%	(79.2)%	(29.2)%
August	3,222,709	3,222,178	627,928	2,236,686	0.0	(80.5)	(30.6)
September	2,696,562	2,822,755	567,564	1,965,554	4.7	(79.0)	(27.1)
October	3,026,084	3,085,149	712,398	2,335,779	2.0	(76.5)	(22.8)
November	2,757,084	2,712,039	683,525	2,202,224	(1.6)	(75.2)	(20.1)
December	2,515,946	2,768,033	692,396	2,079,889	10.0	(72.5)	(17.3)
January 2021	2,188,680	2,361,444	633,420	1,458,578	7.9	(71.1)	(33.4)
February	2,256,675	2,403,071	654,281	1,649,836	6.5	(71.0)	(26.9)
March	2,825,504	1,359,486	954,339	2,431,030	(51.9)	(66.2)	(14.0)
April	2,940,117	89,509	1,285,233	2,593,773	(97.0)	(56.3)	(11.8)
May	3,104,319	197,112	1,599,810	-	(93.7)	(48.5)	-
June	3,098,529	419,619	1,914,638	-	(86.5)	(38.2)	-
Total	**33,833,242**	**24,620,835**	**10,991,316**	**21,220,019**	**(27.2)%**	**(67.5)%**	**(23.2)%**

International Passengers:

	Monthly Passengers				Percent Change From FY 2019 (Same Month)		
	FY2019	**FY2020**	**FY2021**	**FY2022**	**FY2020**	**FY2021**	**FY2022**
July	798,900	891,642	72,351	304,010	11.6%	(90.9)%	(61.9)%
August	821,417	898,759	73,699	350,377	9.4	(91.0)	(57.3)
September	697,082	724,791	65,793	260,481	4.0	(90.6)	(62.6)
October	651,839	686,063	69,357	244,004	5.3	(89.4)	(62.6)
November	539,610	552,066	72,352	269,238	2.3	(86.6)	(50.1)
December	577,998	621,349	112,436	329,483	7.5	(80.5)	(43.0)
January 2021	521,356	579,541	106,827	262,119	11.2	(79.5)	(49.7)
February	460,049	487,442	76,748	243,817	6.0	(83.3)	(47.0)
March	631,858	274,615	115,832	399,323	(56.5)	(81.7)	(36.8)
April	707,159	5,843	142,054	496,937	(99.2)	(79.9)	(29.7)
May	775,024	6,216	144,375	-	(99.2)	(81.4)	-
June	847,877	18,647	206,547	-	(97.8)	(75.6)	-
Total	**8,030,169**	**5,746,974**	**1,258,371**	**3,159,789**	**(28.4)%**	**(84.3)%**	**(50.7)%**

Total Passengers:

	Monthly Passengers				Percent Change From FY 2019 (Same Month)		
	FY2019	**FY2020**	**FY2021**	**FY2022**	**FY2020**	**FY2021**	**FY2022**
July	3,999,933	4,072,082	738,135	2,570,680	1.8%	(81.5)%	(35.7)%
August	4,044,126	4,120,937	701,627	2,587,063	1.9	(82.7)	(36.0)
September	3,393,644	3,547,546	633,357	2,226,035	4.5	(81.3)	(34.4)
October	3,677,923	3,771,212	781,755	2,579,783	2.5	(78.7)	(29.9)
November	3,296,694	3,264,105	755,877	2,471,462	(1.0)	(77.1)	(25.0)
December	3,093,944	3,389,382	804,832	2,409,372	9.5	(74.0)	(22.1)
January 2021	2,710,036	2,940,985	740,247	1,720,697	8.5	(72.7)	(36.5)
February	2,716,724	2,890,513	731,029	1,893,653	6.4	(73.1)	(30.3)
March	3,457,362	1,634,101	1,070,171	2,830,353	(52.7)	(69.0)	(18.1)
April	3,647,276	95,352	1,427,287	3,090,710	(97.4)	(60.9)	(15.2)
May	3,879,343	203,328	1,744,125	-	(94.8)	(55.0)	-
June	3,946,406	438,266	2,121,185	-	(88.9)	(46.3)	-
Total	**41,863,411**	**30,367,809**	**12,249,627**	**24,379,808**	**(27.5)%**	**(70.7)%**	**(28.4)%**

As reflected above, passenger traffic continues to grow, with the domestic passenger growth outpacing the international passenger growth to date through April 2022. See APPENDIX C – Boston Logan International Airport Market Analysis under the heading "Boston Logan International Airport Traffic and Service Characteristics – Airport Passengers" (Section 4.3) and "– Scheduled Airline Service" (Section 4.4) for a further discussion of passenger traffic and airline service at the Airport, and in particular subsection 4.3.1 thereof, for a discussion of the Airport's recovery to date since the onset of the COVID-19 pandemic, compared to a peer group of U.S. large hub coastal airports of a similar profile.

Hanscom Field operations have rebounded to near pre-pandemic levels. For the nine-months ended March 31, 2022, total operations at Hanscom totaled 91,010, which was 2.6% higher than the same period through March 31, 2019. At Worcester Regional Airport, JetBlue resumed service to New York-JFK in August 2021 with one daily flight, increasing to two daily flights in October 2021, and also resumed service to Fort Lauderdale in October 2021. Delta began service to New York-LaGuardia in November 2021, and American resumed service to Philadelphia in November 2021. On January 4, 2022, American replaced its service to Philadelphia with service to New York-JFK.

As a result of the decrease in passengers and airline service because of the COVID-19 pandemic, the Authority experienced impacts to certain operations and revenue sources commencing in fiscal year 2020. The following information is provided to show percentage variances for certain Authority operating and financial data for fiscal year 2021, as well as for the ten months ended April 30, 2022, as compared to the same respective periods in fiscal year 2019. As reflected in the table below, the Authority is seeing improvement in virtually all of these operational metrics, as compared with fiscal year 2019, through the first ten months of fiscal year 2022. For additional information on fiscal year 2021 operating and financial results, see "MANAGEMENT'S DISCUSSION OF HISTORICAL OPERATING RESULTS" herein.

Percentage Change – Fiscal Year 2021 vs Fiscal Year 2019

	Jul 2020	**Aug 2020**	**Sep 2020**	**Oct 2020**	**Nov 2020**	**Dec 2020**	**Jan 2021**	**Feb 2021**	**Mar 2021**	**Apr 2021**	**May 2021**	**Jun 2021**
Operational Metrics												
Domestic Passengers	(79.2)%	(80.5)%	(79.0)%	(76.5)%	(75.2)%	(72.5)%	(71.1)%	(71.0)%	(66.2)%	(56.3)%	(48.5)%	(38.2)%
International Passengers	(90.9)	(91.0)	(90.6)	(89.4)	(86.6)	(80.5)	(79.5)%	(83.3)	(81.7)	(79.9)	(81.4)	(75.6)
Total Passengers	(81.5)	(82.7)	(81.3)	(78.7)	(77.1)	(74.0)	(72.7)%	(73.1)	(69.0)	(60.9)	(55.0)	(46.3)
Total Operations	(58.9)	(61.2)	(63.4)	(63.2)	(58.2)	(56.9)	(58.4)	(59.8)	(54.6)	(52.6)	(48.9)	(37.0)

Revenue Metrics:												
Parking	(82.3)	(85.0)	(83.9)	(82.2)	(80.5)	(79.6)	(78.8)	(75.4)	(70.4)	(59.3)	(53.3)	(47.6)
Concession	(78.9)	(75.6)	(75.1)	(52.1)	(68.2)	(38.0)	(78.9)	(65.2)	(64.5)	(58.3)	(52.7)	(75.5)
Rental Car	(45.4)	(57.7)	(59.0)	(40.5)	(51.8)	(0.2)	35.2	37.1	47.6	48.9	6.7	(17.3)

Percentage Change – Fiscal Year 2022 vs Fiscal Year 2019

	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022
Operational Metrics										
Domestic Passengers	(29.2)%	(30.6)%	(27.1)%	(22.8)%	(20.1)%	(17.3)%	(33.4)%	(26.9)%	(14.0)%	(11.8)%
International Passengers	(61.9)	(57.3)	(62.6)	(62.6)	(50.1)	(43.0)	(49.7)	(47.0)	(36.8)	(29.7)
Total Passengers	(35.7)	(36.0)	(34.4)	(29.9)	(25.0)	(22.1)	(36.5)	(30.3)	(18.1)	(15.3)
Total Operations	(32.5)	(31.1)	(25.3)	(24.6)	(16.6)	(17.1)	(20.8)	(19.2)	(14.5)	(13.2)
Revenue Metrics:										
Parking	(38.7)	(40.9)	(43.1)	(38.6)	(33.1)	(31.7)	(44.6)	(34.5)	(21.4)	(13.1)
Concession	(41.0)	(25.5)	(10.3)	(38.3)	(7.2)	(14.7)	(30.5)	(34.0)	(9.4)	11.6
Rental Car	(45.8)	(71.6)	(65.3)	(47.1)	(56.4)	(18.5)	5.4	(12.9)	(9.6)	47.9

Impact of COVID-19 on Port Properties

The COVID-19 pandemic also adversely affected the Authority's port properties. Conley Terminal, the Authority's cargo container port, processed 247,845 TEUs (twenty-foot equivalent units) for the 12-month period ending June 30, 2021, or 12.4% below the TEU volume for the 12-month period ending June 30, 2020. The decrease was largely driven by global supply chain issues brought on by the COVID-19 pandemic. These declines continued through the first nine months of fiscal year 2022 (through March), as TEUs were down 46.0% when compared to the same nine months in fiscal year 2021, and down 54.4% when compared to the same nine months in fiscal year 2019. Port business activity year to date for fiscal year 2022 (through March 2022) has been adversely impacted by ongoing COVID-19 pandemic-related issues, including port closures in Asia, global port congestion, vessel schedule disruption, sailing capacity limitations and shipping equipment shortages. The Authority believes these disruptions to be temporary, and not permanent or systemic, in nature, but cannot predict when such disruptions will be resolved.

With respect to Flynn Cruiseport Boston, due to the COVID-19 pandemic, the CDC issued a No Sail Order in March 2020, which effectively cancelled the 2020 cruise season. On October 30, 2020, the CDC lifted the No Sail Order and replaced it with a Conditional Sail Order, issuing detailed protocols and requirements that cruise lines must meet before the CDC can allow their ships to sail in the United States. Commencing in August 2021, limited cruises had resumed, and the Authority currently expects 126 sailings in the 2022 cruise season (which runs from April to November 2022) and has 132 sailings currently scheduled for the 2023 cruise season (which runs from April to November 2023).

The following table presents activity at the Authority's port properties for the period from fiscal year 2019 through fiscal year 2021, as well as for the nine months ended March 31, 2022, as compared to the same respective periods in fiscal year 2019. For additional information on fiscal year 2021 operating and financial results, see "MANAGEMENT'S DISCUSSION OF HISTORICAL OPERATING RESULTS" herein.

PORT ACTIVITY

	Fiscal Year 2019	Fiscal Year 2020	% Change from FY2019	Fiscal Year 2021	% Change from FY2019	Nine Months Ended 3/31/22	% Change from Nine Months Ended 3/31/19
Containers	174,849	161,171	(7.82)%	140,750	(19.50)%	59,461	(54.58)%
TEUs	307,331	283,061	(7.90)	247,845	(19.36)	104,985	(54.43)
Cruise Passengers	395,971	298,029	(24.73)	-	(100.00)	1,668	(99.43)
Automobiles	49,613	50,499	1.79	46,650	(5.97)	23,677	(38.85)
Bulk Tonnage	83,884	111,875	33.37	122,839	46.44	95,724	40.16

Summary of Authority Actions Taken in Response to COVID-19

The severe drop in passenger volumes that commenced with the start of the pandemic and continued throughout fiscal year 2021 resulted in what was initially conservatively forecasted as a $400 million financial gap through fiscal year 2023. In response to this projected multi-year financial gap, the Authority developed a plan (the "*FY 2021-2023 Financial Sustainability Plan*"), which consisted of the following four specific strategies:

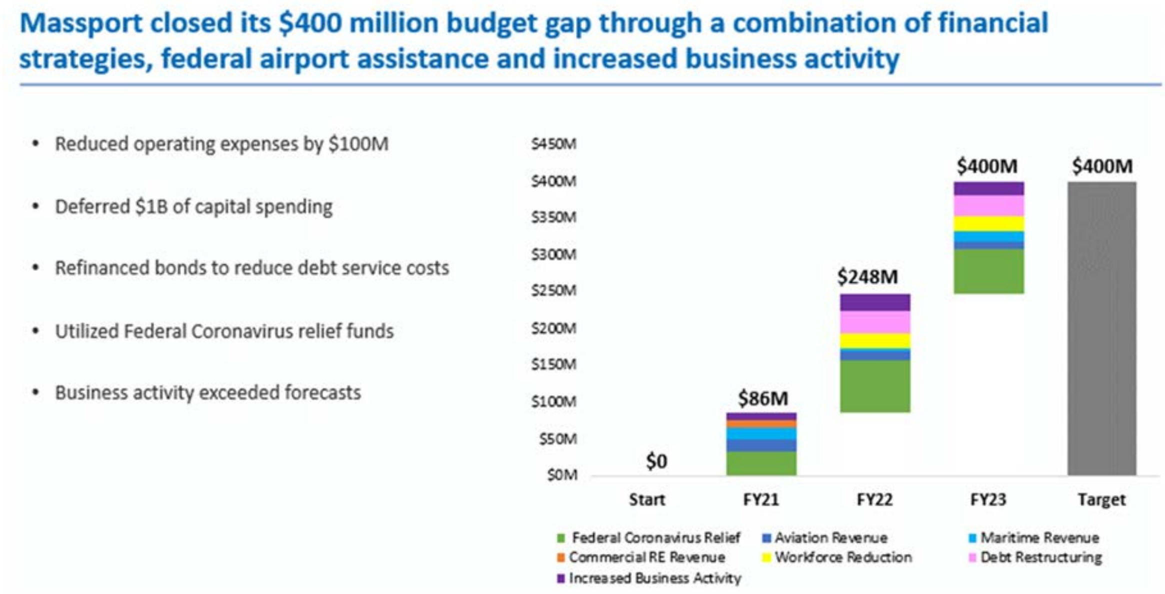
- **Identify New Revenue Opportunities.** The Authority worked to identify new revenue streams, including maximizing the Authority's real estate assets, increasing existing fees and/or implementing new fees, the potential sale of non-core assets, and temporarily repurposing certain facilities to maximize revenue opportunities, among other revenue producing activities.

- **Implement Additional Operating Expenses Reductions.** The Authority implemented a variety of operating expense reductions throughout fiscal years 2020 and 2021, including but not limited to: a hiring freeze on open positions; reducing overtime and limiting approved overtime to safety and critical operations; suspending certain employee benefits and eliminating all non-essential employee travel; postponing certain Authority initiatives and discretionary spending; reducing spending on professional services; temporarily closing the economy parking garage and suspending certain Logan Express and other busing services; and undertaking a workforce reduction program that was intended to reduce the Authority's then-current labor force and lower operating expenses by approximately $25 million per year, after taking into account all employee separation expenses, beginning in fiscal year 2022.

- **Undertake Additional Liquidity and Funding Strategies.** Since the start of the COVID-19 pandemic, the Authority has taken several actions relating to its capital program and outstanding debt to enhance the Authority's current and future liquidity position. Taking advantage of the modularity of the capital program, the Authority reduced its portion of its then-current capital program by either suspending or deferring certain projects totaling approximately $1.4 billion. See "CAPITAL PROGRAM – COVID-19 Impact and Capital Program Prioritization" herein. In addition, since the last quarter of fiscal year 2020 and through calendar year 2021, the Authority undertook several debt financing and restricting actions to further secure its liquidity position. The overall impact of these debt refinancing and restructuring actions included not only near-term debt service savings, but also additional liquidity and capital project funding sources, a reduction in maximum annual debt service and a reshaping of the Authority's annual debt service profile.

- **Continued Effective Use and Pursuit of Additional Federal Funding.** The Authority utilized Federal Relief Proceeds to assist in closing certain financial gaps (as described above). The Authority continues to pursue additional federal grant funding contained in various federal legislation filed in Congress.

As a result of the four strategies listed above, coupled with business activity through fiscal year 2022 that is exceeding forecasts, the Authority has closed the $400 million originally projected budget gap from fiscal year 2021 through fiscal year 2023, as reflected in the chart below.



Other Authority Actions – Tenant Relief

In response to requests for rate relief, the Board approved several tenant sustainability and recovery plans in fiscal years 2020 through 2023 designed to support tenants and business partner relationships during the height of the COVID-19 pandemic. These measures included delays to planned adjustments to activity based rates and charges for airlines, temporary reductions or waivers of minimum annual guaranteed ("*MAG*") rent payments for airport tenants and deferred rent for maritime tenants. With respect to activity based rates and charges for airlines, in fiscal year 2021 the Authority established the Temporary Airline Cost Center Relief ("*TACCR*") program to offset certain airline activity charges (landing fees and Terminal E passenger fees) in an amount not to exceed a total of $43 million (the "*TACCR Amount*"). Under this program, the Authority entered into an agreement (the "*TACCR Agreement*") with each participating airline to repay, as part of the annual rates and charges, its applicable share of the TACCR Amount over a period of three (3) years, commencing July 1, 2021 and ending June 30, 2024 (the "*Accommodation Period*"), payable in equal monthly installments over the Accommodation Period, plus interest thereon at the then current thirty (30)-day Treasury bill interest rate, and pre-payable at any time without penalty. The Authority entered into TACCR Agreements with 31 airlines (which reflects 60% of the airlines to which the program was offered). The actual TACCR Amount for the fiscal year ended 2021 was reduced to $28.6 million as a result of overall cost savings and lower than anticipated international passenger traffic at Logan's Terminal E. To date, the Authority has received $16.2 million in TACCR Amount payments from the participating airlines.

Fiscal Year 2022 Budget; Year to Date Performance

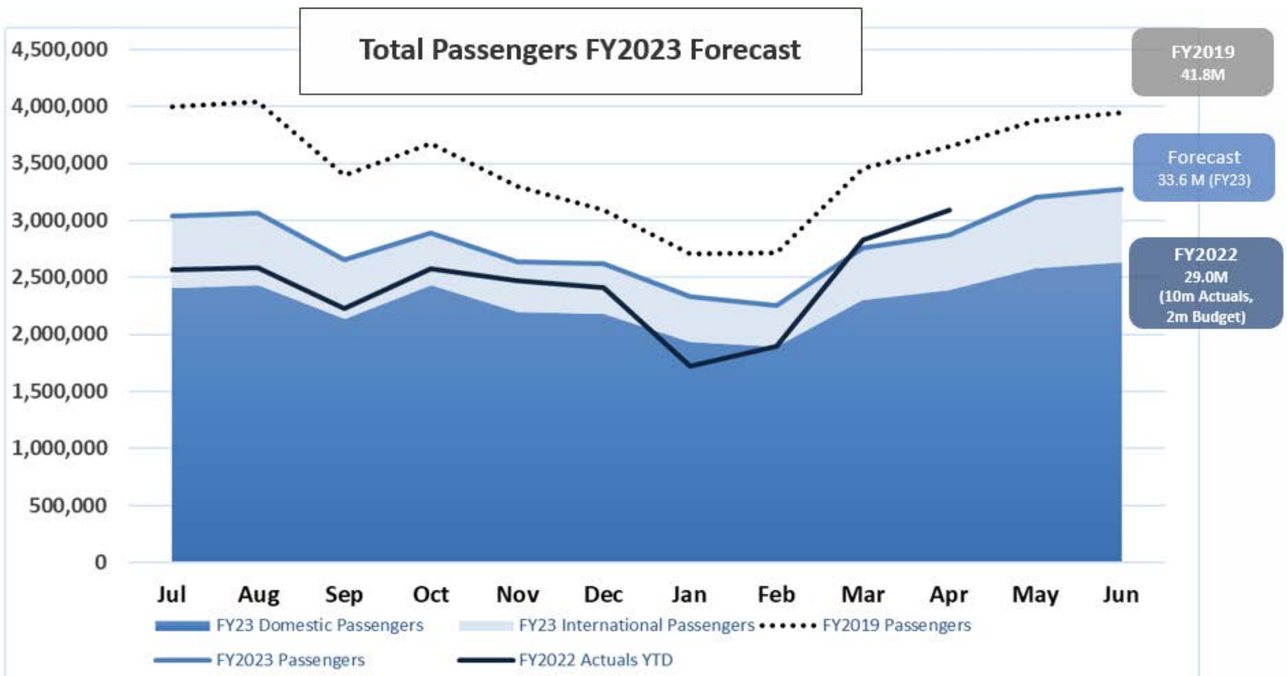
On June 24, 2021, the Authority's Board approved the Authority's fiscal year 2022 operating budget (the "*FY22 Budget*"), which was prepared in accordance with the 1978 Trust Agreement and was based on an expectation of an incremental and measured recovery in passenger volumes and business activity. The FY22 Budget forecasted 18.5 million passengers at Logan in fiscal year 2022 (six million passengers higher than fiscal year 2021), and maritime container volume to be 140,000 (or 35% higher than fiscal year 2021), resulting in a revenue budget of $685 million. The fiscal year 2022 revenue budget was $85 million (or 14%) more than fiscal year 2021 as a result of this expected improvement in business activity.

The Authority-wide expense budget was set at $725 million for fiscal year 2022, a 1.7% increase over fiscal year 2021, and included cost savings from a combination of the Authority's workforce reductions, a reduction in actuarially determined Pension and OPEB contributions, and other departmental cost containment initiatives. Increasing Logan passenger volume required Logan to resume certain transportation services previously suspended and frequencies were added to existing service to help reduce traffic congestion. Higher budgeted container volume at Conley Terminal required added expense for container handling services, and the Authority budgeted its OPEB payment for the year. The Authority established a new Recovery Reserve for additional service restoration, if needed, should business activity exceed current forecasts. The FY22 Budget was balanced using $40 million in available federal ARPA funding.

Fiscal year to date through April 2022, Logan passenger volumes have already reached 24.4 million passengers, and are now projected to reach 29.0 million passengers for fiscal year 2022, which is 56.8% above budgeted traffic for fiscal year 2022. As a result of this increased passenger activity, as well as additional operating expense savings due to lower stevedoring costs and other service items, the Authority is currently projecting to finish fiscal year 2022 $94.0 million ahead of plan.

Logan Airport Passenger Projection

The Authority's current fiscal year 2022 and fiscal year 2023 passenger projections for Logan Airport, based on actual data through April and projected volume for May and June, is reflected below.



(in millions)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
FY2019 Passengers	4.0	4.0	3.4	3.7	3.3	3.1	2.7	2.7	3.5	3.6	3.9	3.9	41.8
FY2022 YTD Actuals	2.6	2.6	2.2	2.6	2.5	2.4	1.7	1.9	2.8	3.1	2.3	2.3	29.0
FY2023 Passenger Forecast	3.0	3.1	2.7	2.9	2.6	2.6	2.3	2.3	2.7	2.9	3.2	3.3	33.6

As reflected in the chart above, for the first ten months of fiscal year 2022 (through April 2022), the Airport has achieved 71.7% of fiscal year 2019 passenger enplanement levels, and the Authority is currently projecting to achieve 33.6 million passengers in fiscal year 2023. For additional information regarding projected passenger growth at the Airport, see Chapter 4 of APPENDIX C – Boston Logan International Airport Market Study.

Fiscal Year 2023 Budget

On June 16, 2022, the Authority's Board approved the Authority's fiscal year 2023 operating budget (the "*FY23 Budget*"). The fiscal year 2023 revenue budget is $873 million, and reflects increasing business demand at all Authority facilities. The revenue budget is based on the following assumptions (among others): (i) the Logan Airport passenger projection is targeted to reach approximately 80% of its pre-pandemic levels, (ii) cruise passengers are expected to incrementally return to Boston in fiscal year 2023, and (iii) Conley Terminal will service two new container lines. Port congestion and supply disruptions, however, remain a concern. The fiscal year 2023 operating expense budget is $518 million, reflecting service restoration to keep pace with increasing business activity, higher energy costs and inflationary pressures. Budgeted net revenues of $355 million will contribute towards the Authority's capital investment in pay-go and annual debt service.

AIRPORT PROPERTIES

Boston-Logan International Airport

The Airport is the principal source of the Authority's Revenues, Operating Expenses and Net Revenues and is the dominant factor in the determination of the Authority's financial condition. In fiscal year 2021, the Airport Properties accounted for approximately 78.2% of the Authority's Revenues and approximately 87.7% of the Authority's Net Revenues (as defined in the 1978 Trust Agreement), before application of other Available Funds (as defined in the 1978 Trust Agreement). The Airport is situated principally in East Boston (with a small portion situated in the Town of Winthrop), approximately three miles from downtown Boston and adjacent to Boston Harbor. The total land area of the Airport is approximately 2,400 acres.

Air Service Region. The Airport serves the greater Boston area and plays the leading role in New England's air service infrastructure. Based upon information provided by the United States Department of Transportation ("*USDOT*") for fiscal year 2021, approximately 96.7% of total passengers (domestic and international) at the Airport began or ended their air travel ("*origin-destination*" travel) at Logan Airport.

The high percentage of origin-destination passengers in both the business and leisure markets is in contrast to many other major airports that are used in large part by airlines as connecting hubs for passengers en route to another point as their final destination. As a result of this traffic base, overall activity levels at Logan Airport are less vulnerable to fluctuations in connecting traffic resulting from route restructuring by individual airlines or other factors affecting particular airlines. Rather, Airport activity levels tend to reflect general economic conditions, regional economic and demographic trends and the economics of the airline industry. See APPENDIX C – Boston Logan International Airport Market Study.

The Boston metropolitan area was the 11th largest metropolitan area in the United States in terms of population as of July 2021 (the most recent data available), and it ranked 10th in the nation with 2.7 million employed individuals as of March 2022. The Boston metropolitan area has historically had one of the nation's lowest unemployment rates, when compared to other large metro areas, but that trend reversed when the COVID-19 pandemic began. It has since recovered and, as of March 2022, the unemployment rate in the Boston metropolitan area was 3.3%, down from a peak of 17.0% in June 2020 and down from 6.5% in December 2020. This rate mirrors the national average and is near the midrange of the nation's large metropolitan areas (i.e., those with populations of larger than one million). In the greater Boston area, the following six major sectors have contributed to the Boston region's economic growth since the early 1990s and currently account for approximately one half of the Boston area employment base: high technology, biotechnology, health care, financial services, higher education and tourism. The Boston metropolitan area's average per capita personal income in calendar year 2019 (the most recent data available) was 44.3% above the national average and 16.8% above the New England average. While the Authority cannot predict the impact of the COVID-19 pandemic on the Boston metropolitan area's average per capital personal income, it expects these percentages to be lower in fiscal year 2020 than what is reflected here for calendar year 2019. For more information regarding the economic characteristics of the Boston metropolitan, see Chapter 3 of APPENDIX C – Boston Logan International Airport Market Study.

Airport Traffic Levels. The following table summarizes Airport operations and passenger traffic statistics for the most recent five fiscal years and the nine-month periods ending March 31, 2020, March 31, 2021 and March 31, 2022. Both operations and passengers are grouped by origin and destination regardless of whether the carrier was a U.S. air carrier or a foreign flag carrier.

SELECTED BOSTON-LOGAN INTERNATIONAL AIRPORT TRAFFIC STATISTICS
(Fiscal Year Ended June 30, except as noted)

	2017	2018	2019	2020	2021	Nine Months Ending 3/31/2020	Nine Months Ending 3/31/2021	Nine Months Ending 3/31/2022
Aircraft Operations (1)								
Domestic (2)	244,857	257,296	263,545	208,986	111,889	194,275	77,133	139,083
International (3)	51,500	52,483	54,736	39,318	15,784	38,226	28,981	21,362
Regional	68,223	71,198	77,809	71,285	44,163	63,214	11,047	61,626
General Aviation	31,300	31,186	30,420	21,534	15,706	19,654	10,308	20,888
Total Operations	395,880	412,163	426,510	341,123	187,542	315,369	127,469	242,959
Aircraft Landed Weights (1,000 pounds) (4)	24,040,957	25,249,192	26,547,968	21,462,516	11,355,731	20,036,816	7,842,221	14,622,131
Passengers Traffic								
Domestic (2)								
Enplaned	14,257,124	14,995,819	15,620,740	11,281,039	5,045,352	10,966,517	2,919,596	8,214,896
Deplaned	14,348,544	15,079,032	15,696,004	11,285,569	5,078,662	10,949,700	2,886,848	8,213,026
International (3)								
Enplaned	3,493,005	3,609,751	4,011,290	2,820,055	651,054	2,803,745	393,413	1,312,963
Deplaned	3,506,567	3,649,730	4,018,879	2,926,919	607,317	2,912,523	371,982	1,349,889
Regional								
Enplaned		1,030,643	1,200,779	995,484	405,660	970,423	174,426	1,060,636
Deplaned	871,399	1,028,876	1,204,503	980,667	404,688	956,613	173,523	1,061,162
Subtotal	37,358,579	39,393,851	41,752,195	30,289,733	12,192,733	29,559,521	6,919,788	21,212,572
General Aviation ("GA")								
Total Passengers	111,772	112,658	111,216	78,076	56,954	71,342	37,242	76,526
Total Passengers	37,470,351	39,506,509	41,863,411	30,367,809	12,249,687	29,630,863	6,957,030	21,289,098
Total Enplaned Passengers (excluding GA)	18,632,069	19,636,213	20,832,809	15,096,578	6,102,066	14,740,685	3,487,435	10,588,495
Average Passengers Per Flight								
Domestic (2)	116.8	116.9	118.8	108.0	90.5	112.8	75.3	118.1
International (3)	135.9	138.3	146.7	146.2	79.7	149.5	26.4	124.7
Regional	25.7	28.9	30.9	27.7	18.3	30.5	31.5	34.4
Air Carrier and Passenger Metrics								
Primary carrier (5)	JetBlue	JetBlue	JetBlue	JetBlue	JetBlue	JetBlue	JetBlue	JetBlue
Primary carrier market share (5)	27.2%	27.9%	28.5%	29.3%	33.6%	29.2%	34.0%	28.4%
Two top carriers market share (5)	44.3%	44.1%	43.9%	43.9%	51.6%	43.7%	51.7%	45.6%
Origination & destination share (6)	94.4%	94.2%	94.5%	94.4%	96.7%	N/A	N/A	N/A
Compensatory airline payments to Massport per enplaned passenger (7)	$13.98	$14.37	$14.63	$20.21	$50.97	N/A	N/A	N/A
Logan Airport revenue per enplaned passenger (8)	$34.25	$35.39	$35.40	$44.02	$85.68	N/A	N/A	N/A
Total Cargo & Mail (1,000 pounds)	672,402	727,175	733,465	657,848	610,444	526,237	277,073	454,314

(1) Includes all-cargo flights.

(2) Includes domestic flights on jets and charters.

(3) Includes international flights on jet, charter and commuter carriers.

(4) Excludes general aviation and non-tenant.

(5) Data consists of mainline activity only.

(6) Source: the Authority and U.S. DOT, Air Passenger Origin-Destination Survey, reconciled to Schedule T1, as reported in Appendix CFC-1 to the Authority's ACFR; this statistic is calculated based on outbound passengers only as of fiscal year end this statistic is calculated based on outbound passengers only as of fiscal year end.

(7) Consists of landing fees, terminal rents, certain non-PFC passenger fees and aircraft parking fees.

(8) Consists of landing fees, terminal rents, parking, utilities, non-terminal and ground rent, concessions and baggage fees.

Source: Authority reports.

Passenger traffic at the Airport totaled 12.2 million passengers for fiscal year 2021 (including general aviation), a 59.7% decrease from the 30.4 million passengers who used the Airport in the prior fiscal year, primarily as a result of domestic and international travel restrictions that were placed into effect beginning in March 2020 due to the COVID-19 pandemic. Passenger traffic decreased by 27.5% in fiscal year 2020 and increased by 6.0% in fiscal year 2019. For the nine-month period ending March 31, 2022, passenger traffic was 206.5% higher than the nine-month period ending March 31, 2021, as travel restrictions were eased, but passenger traffic remained 30.0% lower than the nine-month period ended March 31, 2019, as traffic continued its recovery. Landed weights for fiscal year 2021 were 47.1% lower than fiscal year 2020, following a 19.2% decrease in landed weights from fiscal year 2019 to fiscal year 2020. In the nine-month period ending March 31, 2022, landed weights were 186.5% higher than for the same nine month period ending March 31, 2020, but remained 27.0% lower than for the same nine month period ending in 2019. See "MANAGING THROUGH THE COVID-19 PANDEMIC," "AUTHORITY REVENUES – Airport Properties Revenues" and "MANAGEMENT'S DISCUSSION OF HISTORICAL OPERATING RESULTS."

On a calendar year basis, passenger traffic at the Airport totaled approximately 22.7 million passengers in 2021 (including general aviation). This represented a 79.7% increase from the 12.6 million passengers who used the Airport in calendar year 2020, as domestic and international travel restrictions that were placed into effect beginning in March 2020 due to the COVID-19 pandemic were relaxed. Passenger traffic decreased 70.3% in calendar year 2020, and increased by 3.9% in calendar year 2019 and 6.6% in calendar year 2018.

According to data from Airports Council International ("*ACI*"), Logan Airport was the most active airport in New England and the 20th most active airport in North America in reporting year 2020 (the most recent data available), based upon total passenger volume. In reporting year 2020 (the most recent year for which data is available), Logan Airport was the 68th most active in the world according to data from ACI..

The following tables summarize regional,* international and domestic passenger traffic statistics (including general aviation) for Logan Airport on a fiscal year and calendar year basis, since 2017 through the most current year for which data is available.

Passengers by Traffic Type

Fiscal Year				
Period	**Regional**	**International**	**Domestic**	**Total**
FY2017	1,753,339	6,999,572	28,717,440	37,470,351
FY2018	2,059,519	7,259,481	30,187,509	39,506,509
FY2019	2,405,282	8,030,169	31,427,960	41,863,411
FY2020	1,976,151	5,746,974	22,644,684	30,367,809
FY2021	810,348	1,258,371	10,180,968	12,249,687

Calendar Year				
Period	**Regional**	**International**	**Domestic**	**Total**
CY2017	1,969,890	7,199,595	29,242,934	38,412,419
CY2018	2,184,819	7,583,887	31,173,219	40,941,925
CY2019	2,603,100	8,317,993	31,601,318	42,522,411
CY2020	759,744	1,838,292	10,020,092	12,618,128
CY2021	2,177,202	2,549,976	17,951,321	22,678,499

Market Share by Traffic Type

Fiscal Year			
Period	**Regional**	**International**	**Domestic**
FY2017	4.7	18.7	76.6
FY2018	5.2	18.4	76.4
FY2019	5.7	19.2	75.1
FY2020	6.5	18.9	74.6
FY2021	6.6	10.3	83.1

Calendar Year			
Period	**Regional**	**International**	**Domestic**
CY2017	5.1	18.7	76.1
CY2018	5.3	18.5	76.1
CY2019	6.1	19.6	74.3
CY2020	6.0	14.6	79.4
CY2021	9.6	11.2	79.2

* For purposes of the Authority's data compilation, regional airlines are defined as domestic commuter carriers that exclusively operate smaller regional jet and turbo-prop aircraft with up to 90 seats.

Source: Authority

Year over Year Variances by Traffic Type

Fiscal Year				
Period	**Regional**	**International**	**Domestic**	**Total**
FY2017	(8.4)	15.9	6.6	7.4
FY2018	17.5	3.7	5.1	5.4
FY2019	16.8	10.6	4.1	6.0
FY2020	(17.8)	(28.4)	(27.9)	(27.5)
FY2021	(59.0)	(78.1)	(55.0)	(59.7)

Calendar Year				
Period	**Regional**	**International**	**Domestic**	**Total**
CY2017	14.2	9.3	4.5	5.9
CY2018	10.9	5.3	6.6	6.6
CY2019	19.1	9.7	1.4	3.9
CY2020	(70.8)	(77.9)	(68.3)	(70.3)
CY2021	186.6	38.7	79.2	79.7

Domestic jet passengers (including charters) accounted for 83.1% of passenger traffic in fiscal year 2021 and 74.6% of passenger traffic in fiscal year 2020. The Airport's domestic jet passenger traffic totaled 10.2 million in fiscal year 2021, declining from 22.6 million in 2020 after reaching the Airport's record for domestic jet passengers of 31.4 million set in fiscal year 2019. This represents a 55.0% decrease for fiscal year 2021 as compared to the previous decrease for fiscal year 2020 of 27.9%.

In fiscal years 2021 and 2020, passengers traveling domestically on regional airlines accounted for approximately 6.6% and 6.5% of total passenger traffic at the Airport, respectively, or approximately 0.8 million and 2.0 million passengers each fiscal year, respectively. The number of regional passengers (excluding passengers traveling internationally) decreased by 59.0% in fiscal year 2021, following a 17.8% decrease in fiscal year 2020 and 16.8% increase in fiscal year 2019.

International passengers, including those traveling on foreign flag and U.S. flag carriers (including U.S. regional carriers) accounted for 10.3% of passenger traffic in fiscal year 2021, or approximately 1.3 million passengers. This segment decreased by 78.1% in fiscal year 2021, following a decrease of 28.4% in fiscal year 2020 and an increase of 10.6% in fiscal year 2019. Of the 10.3% passengers traveling internationally in fiscal year 2021, 41.0% traveled to or from Europe, 33.8% to or from Bermuda and the Caribbean, 10.3% to or from Middle East, 6.8% to or from Canada, 6.4% to or from Central and South America, and 1.6% to or from the Trans-Pacific.

In fiscal year 2021, there were approximately 187,542 aircraft operations (including both commercial and general aviation) at the Airport, a decrease of 45.0% from fiscal year 2020. Aircraft operations at the Airport decreased 20.0% from 426,510 to 341,123 between fiscal year 2020 and 2019.

The following table shows monthly growth in enplaned passengers (including general aviation) for the 12 months ended March 31, 2019, 2020, 2021 and 2022. As shown on the table below, for the 12 months ending March 31, 2022, the number of enplaned passengers at the Airport (including general aviation) was 242.8% higher than for the same period in 2021, but 35.9% lower than for the same period in 2019. The table below illustrates the decline in Airport traffic as a result of the COVID-19 pandemic beginning in March 2020, as well as its current growth trajectory.

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BOSTON-LOGAN INTERNATIONAL AIRPORT
MONTHLY GROWTH IN ENPLANED PASSENGER (Year over Year)
12 Months ended 3/31/2019, 3/31/2020, 3/31/2021 and 3/31/2022

	12 Months Ended				Growth %		
	3/31/2019	**3/31/2020**	**3/31/2021**	**3/31/2022**	**2022 vs. 2019**	**2022 vs. 2020**	**2022 vs. 2021**
April	1,743,389	1,801,974	45,867	723,778	(58.5)%	(59.8)%	1,478.0%
May	1,831,420	1,920,832	102,119	848,457	(53.7)	(55.8)	730.9
June	1,914,165	1,971,225	211,274	1,052,252	(45.0)	(46.6)	398.1
July	1,984,023	2,013,206	364,776	1,282,810	(35.3)	(36.3)	251.7
August	2,013,897	2,043,711	347,151	1,264,737	(37.2)	(38.1)	264.3
September	1,674,035	1,762,417	315,943	1,093,168	(34.7)	(38.0)	246.0
October	1,858,207	1,892,965	400,080	1,309,096	(29.6)	(30.8)	227.2
November	1,659,933	1,647,750	389,282	1,236,537	(25.5)	(25.0)	217.6
December	1,598,397	1,753,195	445,348	1,250,506	(21.8)	(28.7)	180.8
January	1,328,493	1,434,514	339,750	822,669	(38.1)	(42.7)	142.1
February	1,384,498	1,460,333	372,272	987,326	(28.7)	(32.4)	165.2
March	1,692,903	768,265	531,454	1,379,909	(18.5)	79.6	159.6
Total 12 months	**20,683,360**	**20,470,387**	**3,865,316**	**13,251,245**	**(35.9)%**	**(35.3)%**	**242.8%**

Source: Authority

Airline Passenger Services. As primarily an origin-destination airport, Logan Airport is served today, as it has been in the past, by a wide variety of carriers. Prior to the COVID-19 pandemic and through December 31, 2019, scheduled airline service at the Airport was provided by 59 airlines, including ten domestic large jet carriers, 37 non-U.S. flag ("*foreign flag*") and 12 domestic regional and commuter airlines ("*regional airlines*" or "*regional carriers*"). As of March 2022, airline service at the Airport was provided by 45 airlines, as listed in the table below, including 11 domestic large jet carriers, 26 foreign flag carriers and eight regional airlines or regional carriers.

BOSTON-LOGAN INTERNATIONAL AIRPORT
AIRLINES SERVING THE AIRPORT*
(Actual as of March 2022)

U.S. Domestic Large Jet Carriers		U.S. Domestic Regional Carriers[1]	
		Independent:	*Affiliated:*
Alaska	JetBlue	Boutique Air	Endeavor Air (Delta Connection)
Allegiant	Southwest	Cape Air	Envoy (American Eagle)
American	Spirit		Mesa (United Express)
Delta	Sun Country		Piedmont (American Eagle)
Frontier	United		Republic Airlines (American Eagle, Delta Connection and United Express)
Hawaiian			Skywest (United Express)

Foreign Flag Carriers

Aer Lingus	Iberia	Qatar
Air Canada[2]	Icelandair	SAS
Air France	ITA Airways[3]	SATA
British Airways	Japan	Swiss
COPA	KLM	TAP
Condor[4]	Korean	Turkish
El Al Israel	LATAM[4]	Virgin Atlantic
Emirates	Lufthansa	WestJet
Fly Play[4]	Porter	

* Excludes charter-only airlines, includes scheduled activity for the last six months.

1 The independent U.S. domestic regional carriers operate their own routes. The affiliated U.S. domestic regional carriers serving Logan are either wholly owned by a network carrier or operate under joint marketing agreements with network carriers. One affiliated U.S. domestic regional carrier—Republic—operates at the Airport for more than one network carrier.

2 Includes regional carrier Jazz Air, which operates as part of Air Canada Express.

3 Replaces Alitalia.

4 LATAM is currently scheduled to resume service in November 2022. Fly Play and Condor commenced service at the Airport in May 2022.

The Authority maintains separate statistical data for regional airlines. For purposes of the Authority's data compilation, regional airlines are defined as domestic commuter carriers that exclusively operate smaller regional jet and turbo-prop aircraft with up to 90 seats. Most of these carriers are generally subsidiaries or affiliates of major domestic carriers, as noted above, with the exception of Boutique Air, Cape Air and Silver Airlines (which operates seasonal service only), which operate their own routes. As of March 31, 2022, the top five regional airlines were Republic Airlines with 80.0% of domestic regional passengers, followed by Endeavor Air with 8.2%, Cape Air with 5.4%, Piedmont Airlines with 3.2% and Envoy Airlines with 2.3% of domestic regional passengers.

The five largest U.S. air carrier airlines currently consist of Alaska Airlines ("*Alaska*"), American Airlines ("*American*"), Delta Air Lines ("*Delta*"), Southwest Airlines ("*Southwest*") (which is also a low cost carrier) and United Airlines ("*United*"), all of which currently serve the Airport. Various low cost carriers ("*LCCs*") and ultra-low cost carriers ("*ULCCs*") also provide service at the Airport. Six domestic LCCs and ULCCs currently operate at the Airport—JetBlue Airways ("*JetBlue*"), Southwest, Spirit Airlines ("*Spirit*"), Sun Country Airlines, Frontier Airlines ("*Frontier*") and Allegiant Air. As of March 31, 2022, these airlines collectively lease (either directly from the Authority or through sublease arrangements with other carriers) 33 gates at the Airport. As discussed further below, JetBlue has grown to become the largest carrier at the Airport with a market share of 33.7% in fiscal year 2021. In addition to these domestic LCCs, two foreign flag LCCs—Porter and WestJet—currently provide service at the Airport. Collectively, LCCs provided 133 daily departures as of December 2021 compared to 80 daily departures as of December 2020 and 207 daily departures in December 2019. LCCs and ULCCs accounted for 39.9% of Airport-wide passengers in calendar year 2021.

Jet Blue and American have proposed a strategic partnership to create more competitive options and choices for customers in the Northeast by offering codeshares, loyalty benefits, additional travel options and new routes. According to a July 16, 2020 JetBlue press release, the partnership will pair JetBlue's domestic network with American's international network, creating additional connectivity in the Northeast and enhancing each carrier's offerings in New York and Boston. This strategic partnership is currently undergoing USDOT and Department of Justice review. In September 2021, the Department of Justice and Attorneys General in six states and the District of Columbia filed a civil antitrust complaint in the U.S. District Court of Massachusetts, alleging that the partnership would reduce competition in the Northeast region, and could drive up airfares and lower service quality. In November 2021, American and JetBlue sought a dismissal of the complaint. On June 9, 2022, U.S. District Court Judge Leo T. Sorokin ruled that the antitrust action can proceed to trial, which has been set for September 26, 2022.

In February 2022, Spirit and Frontier announced a merger to create the fifth largest airline based on seat capacity and the seventh largest based on annual revenue. In April 2022, however, JetBlue made an unsolicited offer to buy Spirit. Spirit rejected JetBlue's first offer as well as a second offer subsequently made by JetBlue, citing anti-trust concerns. In May 2022, JetBlue made a third offer for Spirit, entreating shareholders in a more hostile approach. Spirit shareholders are expected to vote on the Spirit-Frontier merger at its June 30, 2022 meeting.

The following tables show passenger traffic for the carriers providing service from Logan Airport for the past five fiscal years and for the nine months ended March 31, 2019, March 31, 2020, March 31, 2021 and March 31, 2022. For the nine months ended March 31, 2022, the Airport experienced an aggregate 206.5% increase in passenger traffic, compared to the nine months ended March 31, 2021, but remained 30.0% lower than for the same nine month period ending in 2019.

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BOSTON-LOGAN INTERNATIONAL AIRPORT
ANNUAL PASSENGERS BY CARRIER
(Fiscal Year Ended June 30, except as noted)

Air Carrier	2017	2018	2019	2020	2021
American [(1)]	6,693,236	6,632,752	6,610,856	4,548,670	2,399,939
Delta [(2)]	5,582,876	6,491,173	7,617,548	6,054,515	2,236,841
JetBlue	10,174,855	11,007,911	11,928,487	8,889,649	4,113,090
Southwest	3,064,506	2,990,557	2,767,926	1,747,658	724,607
United [(3)]	3,953,232	3,982,764	4,038,102	2,684,906	1,016,730
Foreign Flag	5,412,118	5,626,482	6,094,152	4,248,129	412,142
Regional U.S. Carriers [(4)]	235,438	221,944	192,235	146,960	81,237
Other U.S. Carriers [(5)]	2,242,318	2,440,268	2,502,889	1,969,246	1,120,751
Total [(6)]	**37,358,579**	**39,393,851**	**41,752,195**	**30,289,733**	**12,192,733**

	Nine Months Ended				Growth %		
Air Carrier	3/31/2019	3/31/2020	3/31/2021	3/31/2022	2022 vs. 2019	2022 vs. 2020	2022 vs. 2021
American [(1)]	4,904,938	4,311,718	1,314,265	4,061,148	(17.2)%	(5.8)%	209.0%
Delta [(2)]	5,365,666	5,981,437	1,119,669	5,141,156	(4.2)	(14.1)	359.2
JetBlue	8,705,958	8,649,009	2,366,272	6,049,897	(30.5)	(30.1)	155.7
Southwest	2,062,710	1,673,836	412,400	920,143	(55.4)	(45.0)	123.1
United [(3)]	3,000,096	2,644,642	738,966	2,042,555	(31.9)	(22.8)	176.4
Foreign Flag	4,368,702	4,236,664	261,463	1,415,962	(67.6)	(66.6)	441.6
Regional U.S. Carriers [(4)]	144,325	139,988	47,867	120,054	(16.8)	(14.2)	150.8
Other U.S. Carriers [(5)]	1,758,585	1,922,227	658,886	1,461,657	(16.9)	(24.0)	121.8
Total [(6)]	**30,310,980**	**29,559,521**	**6,919,788**	**21,212,572**	**(30.0)%**	**(28.2)%**	**206.5%**

(1) Includes American Eagle and associated regional carriers.

(2) Includes Delta Shuttle and Delta Connection.

(3) Includes United Express.

(4) Includes PenAir (through June 30, 2018), Boutique Air (commencing June 1, 2018), Silver Airways (summer seasonal commencing July 1, 2018) and Cape Air.

(5) Includes Alaska, Allegiant (commencing September 2020), Eastern (commencing December 2020), Frontier, Hawaiian, Spirit Airlines, Sun Country, Virgin America (merged with Alaska effective January 11, 2018) and charter/non-scheduled domestic service.

(6) Excludes general aviation figures.

Source: Authority.

The relative share of various carriers at the Airport has fluctuated with no individual carrier having a market share of over 33.7% in any of the past ten fiscal years. The following tables present the relative shares of the U.S. air carrier airlines carrying the highest shares of total passenger traffic at the Airport, as well as the relative shares of the independent regional airlines and foreign flag carriers, during the last five fiscal years and the nine-month periods ended March 31, 2019, 2020, 2021 and 2022. Since commencing service at Logan in 2004, JetBlue has made Logan Airport its second largest focus airport after New York-JFK. As a result, as reflected in the tables below, in fiscal year 2021 and fiscal year 2020, JetBlue had the largest market share with 33.7% and 29.3%, respectively. Delta, however, continues to make a strong effort at expansion at Logan, as reflected in the table flow. The carriers with the highest market shares—American, Delta, JetBlue, Southwest and United—carried an aggregate of 86.0% of all passengers traveling through the Airport in fiscal year 2021. For more information regarding air carrier market shares at the Airport, see Chapter 4, Section 4.3.2 of APPENDIX C – Boston Logan International Airport Market Study.

BOSTON-LOGAN INTERNATIONAL AIRPORT
MARKET SHARES OF TOTAL PASSENGER TRAFFIC
(Fiscal Year Ended June 30, except as noted)

Air Carrier	2017	2018	2019	2020	2021
American [1]	17.9%	16.8%	15.8%	15.0%	19.7%
Delta [2]	14.9	16.5	18.2	20.0	18.3
JetBlue	27.2	27.9	28.6	29.3	33.7
Southwest	8.2	7.6	6.6	5.8	5.9
United [3]	10.6	10.1	9.7	8.9	9.1
Foreign Flag	14.5	14.3	14.6	14.0	3.4
Regional U.S. Carriers [4]	0.6	0.6	0.5	0.5	0.7
Other U.S. Carriers [5]	6.0	6.2	6.0	6.5	9.2
Total[6]	100.0%	100.0%	100.0%	100.0%	100.0%

	Nine Months Ended				Percentage Point Change in Market Share		
Air Carrier	3/31/2019	3/31/2020	3/31/2021	3/31/2022	2022 vs. 2019	2022 vs. 2020	2022 vs. 2021
American [1]	16.2%	14.6%	19.0%	19.1%	2.9	4.5	0.1
Delta [2]	17.7	20.2	16.2	24.2	6.5	4.0	8.0
JetBlue	28.7	29.3	34.2	28.5	(0.2)	(0.8)	(5.7)
Southwest	6.8	5.7	6.0	4.3	(2.5)	(1.4)	(1.7)
United [3]	9.9	8.9	10.7	9.6	(0.3)	0.7	(1.1)
Foreign Flag	14.4	14.3	3.8	6.7	(7.7)	(7.6)	2.9
Regional U.S. Carriers [4]	0.5	0.5	0.7	0.6	0.1	0.1	(0.1)
Other U.S. Carriers [5]	5.8	6.5	9.5	6.9	1.1	0.4	(2.6)
Total[6]	100.0%	100.0%	100.0%	100.0%			

(1) Includes American Eagle and associated regional carriers.

(2) Includes Delta Shuttle and Delta Connection.

(3) Includes United Express.

(4) Includes PenAir (through June 30, 2018), Boutique Air (commencing June 1, 2018), Silver Airways (summer seasonal commencing July 1, 2018) and Cape Air.

(5) Includes Alaska, Allegiant (commencing September 2020), Eastern (commencing December 2020), Frontier, Hawaiian, Spirit Airlines, Sun Country, Virgin America (merged with Alaska effective January 11, 2018) and charter/non-scheduled domestic service.

(6) Excludes general aviation figures.

Source: Authority.

The following table shows changes in passenger traffic for the largest carriers serving Logan Airport for the past five fiscal years and for the nine months ended March 31, 2019, 2020, 2021 and 2022.

BOSTON-LOGAN INTERNATIONAL AIRPORT
ANNUAL CHANGE IN PASSENGERS BY CARRIER
(Fiscal Year Ended June 30, except as noted)

	Fiscal Year Ended June 30,					Nine Months Ended March 31,				
Air Carrier	**2017**	**2018**	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**	**2022**	**CAGR* 2017-21**
American [(1)]	(6.1)%	(0.9)%	(0.3)%	(31.2)%	(47.2)%	2.5%	(12.1)%	(69.5)%	209.0%	(22.6)%
Delta [(2)]	9.4	16.3	17.4	(20.5)	(63.1)	16.5	11.5	(81.3)	359.2	(20.4)
JetBlue	10.0	8.2	8.4	(25.5)	(53.7)	9.9	(0.7)	(72.6)	155.7	(20.3)
Southwest	8.4	(2.4)	(7.4)	(36.9)	(58.5)	(4.9)	(18.9)	(75.4)	123.1	(30.3)
United [(3)]	3.4	0.7	1.4	(33.5)	(58.9)	3.5	(11.8)	(72.1)	176.4	(27.3)
Foreign Flag	19.2	4.0	8.3	(30.3)	(90.3)	7.9	(3.0)	(93.8)	441.6	(47.5)
Regional U.S. Carriers [(4)]	(2.3)	(5.7)	(13.4)	(23.6)	(44.7)	(13.3)	(3.0)	(65.8)	150.8	(23.4)
Other U.S. Carriers [(5)]	19.8	8.8	2.6	(21.3)	(43.1)	(0.5)	9.3	(65.7)	121.8	(15.9)
Total [(6)]	**7.4%**	**5.4%**	**6.0%**	**(27.5)%**	**(59.7)%**	**6.8%**	**(2.5)%**	**(76.6)%**	**206.5%**	**(24.4)%**

(1) Includes American Eagle and associated regional carriers.
(2) Includes Delta Shuttle and Delta Connection.
(3) Includes United Express.
(4) Includes PenAir (through June 30, 2018), Boutique Air (commencing June 1, 2018), Silver Airways (summer seasonal commencing July 1, 2018) and Cape Air.
(5) Includes Alaska, Allegiant (commencing September 2020), Eastern (commencing December 2020), Frontier, Hawaiian, Spirit Airlines, Sun Country, Virgin America (merged with Alaska effective January 11, 2018) and charter/non-scheduled domestic service.
(6) Excludes general aviation figures.
* CAGR stands for Compound Annual Growth Rate.
Source: Authority.

International Passenger Services. International passenger traffic grew by 10.6%, 3.7%, 15.9% and 15.1% in fiscal years 2019, 2018, 2017 and 2016, respectively, increasing by 33.0% from fiscal year 2016 to fiscal year 2019. For fiscal year 2020, based on international passenger traffic through February, the Authority was on track for another year of continued growth; however, as a result of the COVID-19 pandemic, overall international passenger traffic ultimately ended with a 28.4% year-over-year decline. In fiscal year 2021, international passengers (including those traveling on foreign flag and regional carriers) accounted for 10.3% of passenger traffic, or approximately 1.3 million passengers. This is a decrease of 78.1% or 4.5 million passengers compared to the prior year. The carriers with the largest market shares of international enplanements in fiscal year 2021 were JetBlue with 53.6%, Delta with 5.9%, Spirit with 5.9%, and Turkish Airways with 4.1%. The market share of foreign flag carriers serving the Airport increased over the five years ending in fiscal year 2019, from 13.0% of passenger traffic in fiscal year 2016 to 14.6% in fiscal year 2019, before dropping to 14.0% in fiscal year 2020 as a result of the COVID-19 pandemic. For fiscal year 2021, the shares of international passengers at the Airport were 21.8% for Europe, 2.0% for Canada, 9.9% for the Middle East, 1.7% for Trans-Pacific, and 4.9% for Central/South America.

The following tables show passenger enplanements for the carriers providing international service from Logan Airport for the past five fiscal years and for the nine months ended March 31, 2019, 2020, 2021 and 2022. For the nine months ended March 31, 2022, the Airport experienced an aggregate 333.7% increase in international passenger enplanements, compared to the same period the prior year, but remained 53.2% lower than for the same nine month period ending in 2019 due to the COVID-19 pandemic.

BOSTON-LOGAN INTERNATIONAL AIRPORT
ANNUAL INTERNATIONAL ENPLANEMENTS BY CARRIER
(Fiscal Year Ended June 30)

Air Carrier		2017	2018	2019	2020	2021
Aer Lingus		222,246	190,159	200,142	143,999	14,163
Air Canada [1]		302,105	321,306	330,651	222,995	11,366
Air France		107,685	103,528	122,632	82,165	14,816
Alitalia/ITA [2]		56,410	58,161	60,544	37,039	1,251
American Airlines		28,219	24,463	12,870	10,497	7,493
British Airways		288,971	285,467	295,515	195,074	20,382
Cathay Pacific	**	62,708	87,088	87,119	51,045	-
COPA Airlines		42,958	57,721	66,231	42,213	2,735
Delta Airlines		294,973	339,962	376,482	279,599	38,261
El AL		25,437	26,021	30,567	20,918	-
Emirates		166,240	110,337	109,074	96,864	19,566
Frontier		-	-	-	-	-
Hainan	**	110,592	114,554	113,568	71,783	-
IBERIA		45,969	58,581	65,574	43,755	-
Icelandair		117,344	110,955	111,608	66,601	12,284
Japan Airlines		61,061	62,424	65,132	43,623	3,485
JetBlue		471,084	455,040	585,761	444,302	348,933
KLM		-	-	10,748	26,348	5,991
Korean		-	-	12,876	33,040	5,710
Level	**	-	6,606	39,048	27,240	-
Lufthansa German Airlines		215,581	216,658	229,124	152,592	24,498
Porter Airlines Inc.		104,925	102,082	106,583	67,664	-
Qatar Airway		68,626	74,048	92,248	75,479	18,128
Royal Air Maroc	**	-	-	1,144	13,902	-
SATA Internacional		67,193	71,800	66,758	46,242	11,734
Scandinavian		20,645	25,724	29,541	21,553	-
Spirit Airlines		-	-	-	9,506	38,499
Swiss International		85,582	89,381	98,181	67,828	3,406
TACV-Cabo Verde Airlines	**	-	3,343	6,743	5,600	-
TAM - Linhas Aereas		-	-	38,084	37,095	756
Transportes Aereos Portugueses S.A.		74,909	77,741	75,698	51,563	17,941
Turkish		60,355	77,037	81,221	65,205	26,916
Virgin Atlantic Airways, Ltd.		76,144	80,454	101,721	104,344	2,431
WestJet Encore		78,720	102,683	73,108	38,163	-
Discontinued Service [3]		230,994	275,418	314,063	122,840	-
Non-Signatory/Charter [4]		5,329	1,009	931	1,379	-
Total		**3,493,005**	**3,609,751**	**4,011,290**	**2,820,055**	**650,745**

(1) Includes Jazz Air and Sky Regional, which are feeder operations for Air Canada.
(2) Alitalia Airways ceased operations in October 2021, but re-emerged as ITA Airways shortly thereafter.
(3) Includes: (i) AirBerlin, which commenced seasonal service in May 2016 and ceased operations on September 30, 2017, then declared bankruptcy; (ii) Air Europa, which discontinued after summer 2017; (iii) Primera, which ceased operations on September 30, 2018; (iv) Aeromexico, which terminated service in January 2019; (v) WOW Air, which ceased operations in March 2019; (vi) Avianca, which terminated service in April 2019; (vii) TACA, which terminated service in May 2019; (viii) Thomas Cook, which terminated service in September 2018; (ix) Norwegian, which discontinued service in November 2020; and (x) Eastern, which discontinued service in February 2021.
(4) Includes Eurowings, which commenced service in June 2016 and stopped service by September 2016.
** Denotes suspended, cancelled or cargo only service due to the COVID-19 pandemic.

BOSTON-LOGAN INTERNATIONAL AIRPORT
ANNUAL INTERNATIONAL ENPLANEMENTS BY CARRIER
(Nine Months Ended March 31)

Air Carrier		Nine Months Ended 3/31/2019	Nine Months Ended 3/31/2020	Nine Months Ended 3/31/2021	Nine Months Ended 3/31/2022
Aer Lingus		140,320	142,928	10,501	55,109
Air Canada [(1)]		242,361	221,943	10,159	72,060
Air France		93,330	82,165	8,688	52,106
Alitalia/ITA [(2)]		40,734	37,039	1,251	1,122
American Airlines		10,283	10,490	3,195	41,662
British Airways		211,215	191,960	14,572	61,337
Cathay Pacific	**	64,847	51,045	-	115
COPA Airlines		48,962	42,213	2,184	16,101
Delta Airlines		249,413	279,599	22,607	122,573
El AL		21,687	20,918	-	280
Emirates		79,378	96,864	12,346	34,857
Frontier		-	-	-	12,896
Hainan	**	81,797	71,619	-	-
IBERIA		42,943	43,755	-	21,267
Icelandair		77,921	65,551	5,572	49,534
Japan Airlines		49,053	43,473	2,121	6,803
JetBlue		410,254	434,659	210,482	405,307
KLM		176	26,348	2,929	14,914
Korean		-	33,040	3,566	8,923
Level	**	28,669	27,240	-	-
Lufthansa German Airlines		161,882	152,592	12,649	71,702
Porter Airlines Inc.		76,898	67,664	-	15,145
Qatar Airway		65,250	75,479	12,516	50,293
Royal Air Maroc	**	-	13,902	-	-
SATA Internacional		46,282	46,242	6,062	28,942
Scandinavian		14,369	21,553	-	80
Spirit Airlines		-	9,497	22,775	42,033
Swiss International		73,629	67,828	1,289	30,899
TACV-Cabo Verde Airlines	**	4,841	5,486	-	-
TAM - Linhas Aereas		27,749	36,966	756	-
Transportes Aereos Portugueses S.A.		51,971	51,563	10,970	33,781
Turkish		58,141	65,205	14,541	43,435
Virgin Atlantic Airways, Ltd.		60,546	104,344	1,373	17,624
WestJet Encore		51,633	38,163	-	1,776
Discontinued Service [(3)]		241,064	122,840	309	-
Non-Signatory/Charter [(4)]		436	1,572	-	287
Total		**2,828,034**	**2,803,745**	**393,413**	**1,312,963**

[(1)] Includes Jazz Air and Sky Regional, which are feeder operations for Air Canada.
[(2)] Alitalia Airways ceased operations in October 2021, but re-emerged as ITA Airways shortly thereafter.
[(3)] Includes: (i) AirBerlin, which commenced seasonal service in May 2016 and ceased operations on September 30, 2017, then declared bankruptcy; (ii) Air Europa, which discontinued after summer 2017; (iii) Primera, which ceased operations on September 30, 2018; (iv) Aeromexico, which terminated service in January 2019; (v) WOW Air, which ceased operations in March 2019; (vi) Avianca, which terminated service in April 2019; (vii) TACA, which terminated service in May 2019; (viii) Thomas Cook, which terminated service in September 2018; (ix) Norwegian, which discontinued service in November 2020; and (x) Eastern, which discontinued service in February 2021.
[(4)] Includes Eurowings, which commenced service in June 2016 and stopped service by September 2016.
** Denotes suspended, cancelled or cargo only service due to the COVID-19 pandemic.

Passenger Markets. As of March 2022, non-stop service from the Airport was offered to 87 domestic and 44 international destinations (including seasonal activity). This represents one more domestic destination and five more international destinations as compared to March 2021, and ten more domestic destinations and 17 fewer international destinations compared to March 2019. As of March 2022, of the total domestic markets served by the Airport, 52 are served by two or more carriers, compared to 49 total domestic markets served by two more carriers in fiscal year 2019.

The destinations chosen by passengers using the Airport have changed over the years, reflecting the impacts of domestic and international economic cycles, security screening and convenience and the relative cost of air travel. The Florida market, which includes traffic to Orlando, Fort Lauderdale, Miami, Tampa, Fort Myers and Palm Beach, is currently the Airport's largest market.

The following table shows the percentage of origin and destination passengers traveling on U.S. air carriers between the Airport and other final domestic destinations for the twelve months ended December 31, 2021 (the most recent 12 month period for which data is available), as reported by USDOT. The percentage of origin and destination passengers does not include passengers only connecting at an airport such as JFK (e.g., JetBlue). Passengers traveling on international flights are also not included. It also shows the comparative rankings of the top 20 domestic destinations for calendar year 2011.

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BOSTON-LOGAN INTERNATIONAL AIRPORT
TOP TWENTY DOMESTIC ORIGIN & DESTINATION PASSENGER MARKETS
DOMESTIC CARRIERS
(12 Months Ended December 31, 2011 and December 31, 2021)

Market	12 Months Ended 12/31/21 (%)	12 Months Ended 12/31/21 Rank	12 Months Ended 12/31/11 Rank	Major U.S. Carriers Serving Market (2021)* # of Carriers	
MCO : Orlando, FL, US	6.5%	1	6	6	AA, D, JB, U
LAX Area (LAX & LGB)	4.8	2	5	7	AA, D, JB, SW, SP, U
FLL: Fort Lauderdale , FL	4.6	3	8	6	AA, D, JB, U
Chicago, IL (ORD, MDW) (1)	4.4	4	3	6	AK, D, F, JB, SW, SC, U
MIA: Miami, FL	4.0	5	23	7	AA, AK, D, F, JB, SW, SP, SC, U
Washington DC (IAD, DCA) (2)	3.9	6	1	4	AA, D, F, JB, SW, SP, U
SFO Area (SFO & SJC)	3.8	7	4	6	AA, D, JB, SW, SP, U
ATL : Atlanta, GA, US	3.4	8	9	7	AA, D, JB
TPA : Tampa, FL, US	3.2	9	14	7	AA, D, JB, SW, SP, U
DEN : Denver, CO, US	3.0	10	11	7	AA, AK, D, F, JB, SW, SP, SC, U
NY Area (JFK, LGA, EWR) (3)	2.8	11	2	5	AA, D, JB, SW, SP
RSW : Fort Myers, FL, US	2.8	12	12	7	AA, D, JB, SW, SP, U
Dallas/Fort Worth, TX (DFW & DAL) (4)	2.4	13	13	7	AA, D, JB, SW, SP, U
JSJ: San Juan, PR	2.2	14	25	7	AA, D, F, JB, SW, SP, U
SEA : Seattle, WA, US	2.0	15	20	6	AA, D, JB, SW, SP, U
LAS : Las Vegas, NV, US	1.9	16	18	6	AA, D, JB, SW, SP, SC, U
CLT: Charlotte, NC	1.8	17	15	6	AA, AK, D, F, JB, SW, SP, SC, U
PHX: Phoenix, AZ	1.8	18	22	5	AA, AK, D, F, JB, SW, SP, SC, U
PBI: Palm Beach, FL	1.8	19	17	5	AA, D, JB, SW, SP, U
MSP: Minneapolis/St. Paul	1.7	20	19	6	AA, D, JB, SW, SP, U
Total for Cities Listed	62.8%				

(1) Includes Chicago O'Hare Airport and Midway Airport.

(2) Includes Dulles Airport & National Airport.

(3) Includes JFK, La Guardia and Newark Liberty International Airports.

(4) Includes Dallas/Fort Worth Airport and Dallas Love Field Airport.

Source: Airline Data Inc.: USDOT, O&D Survey.

* Reflects all carriers providing service to the listed market; includes those that do not provide direct point-to-point service to/from Logan.

Key: American/USAir (AA); Alaska (AK); Delta (D); Frontier (F); JetBlue (JB); Southwest (SW); Spirit Airlines (SP); Sun Country (SC); United (U). Does not include Hawaiian Airlines.

Note: The figures above may vary slightly from those reflected in Exhibit 4-24 of APPENDIX C – Boston Logan International Airport Market Analysis (the "ICF Report") due to differences in the proprietary data processing methods used by Airline Data Inc. (the source for the data above) and Database Products (the source for the data in the ICF Report) to scale up the U.S. DOT O&D Survey data.

In fiscal year 2021, the top five international markets served (by scheduled seats) were London, Santo Domingo, Amsterdam, Santiago (Dominican Republic), and Aruba. The following table reflects new international service that commenced from the Airport since 2012 and remained in place prior to the COVID-19 pandemic. As a result of international travel restrictions due to the COVID-19 pandemic, however, service on many of these routes has been suspended, as noted in the table below.

International Service

Destination	**Commencement Date**	**Carrier**	**Suspended Date**	**Reinstated Date**
Tokyo	April 2012	Japan Airlines	June 2020	August 2020
Panama City	July 2013	Copa Airlines	April 2020	December 2020
Dubai	March 2014	Emirates	April 2020	August 2020
Istanbul	May 2014	Turkish Airlines	April 2020	August 2020
Beijing **	June 2014	Hainan Airlines	March 2020	-
Hong Kong **	May 2015	Cathay Pacific	March 2020	-
Tel Aviv	June 2015	El AL	April 2020	March 2022
Shanghai **	June 2015	Hainan Airlines	March 2020	-
Doha	March 2016	Qatar Airlines	April 2020	June 2020
Copenhagen	March 2016	Scandinavian (SAS)	April 2020	March 2022
Toronto	March 2016	WestJet	April 2020	December 2021
Manchester, England **	March 2017	Virgin Atlantic	April 2020	-
Lisbon	June 2016	TAP-Portugal	April 2020	August 2020
Vancouver	June 2017	Air Canada	April 2020	June 2022
Praia **	January 2018	TACV Cabo Verde	April 2020	-
Barcelona **	March 2018	Level	April 2020	May 2022
Aruba	June 2018	Delta	April 2020	December 2021
Sao Paulo **	July 2018	LATAM	May 2020	-
Amsterdam	March 2019	KLM Royal Dutch Airlines	April 2020	May 2020
Seoul	April 2019	Korean Air	April 2020	August 2020
Edinburgh	May 2019	Delta	April 2020	May 2022
Lisbon	May 2019	Delta	April 2020	May 2022
Casablanca **	June 2019	Royal Air Maroc	April 2020	-
Sal Island **	December 2019	TACV Cabo Verde	April 2020	-
London	November 2021	American		
London	April 2022	United		
Toronto	April 2022	American		
Athens	May 2022	Delta		
Reykjavik	May 2022	Play		
Frankfurt	May 2022	Condor		
Halifax	June 2022*	American		
London Gatwick	August 2022*	JetBlue		
London Heathrow	September 2022*	JetBlue		
Tel Aviv	September 2022*	Delta		
Toronto	September 2022*	Delta		

Note: Includes existing routes served by new carriers, new routes served by existing carriers and new routes served by new carriers.

* Expected.

** Service remains suspended due to COVID-19 pandemic.

There are two regional airports in New England—T.F. Green Airport in Providence, Rhode Island ("*T.F. Green*") and Manchester-Boston Regional Airport in Manchester, New Hampshire ("*Manchester*")—that compete with Logan Airport. Logan Airport is by far the largest airport in the region with the broadest range of direct service to domestic destinations, as well as to Europe, the Caribbean, the Middle East, Central America, Asia, Canada and South America. In recent years, growth of low cost service at Logan, airline retrenchment from smaller, secondary markets (such as these regional airports) and expansion of direct international service from Logan has resulted in a shift in the market dynamics between the three airports, with Logan's passenger traffic growing, T.F. Green experiencing moderate growth (but not at the expense of Logan Airport) and Manchester experiencing decreased passenger traffic. The following table shows passenger activity at T.F. Green, Manchester and Logan Airport for the five most recent calendar years. In calendar year 2020, consistent with the experience at Logan, the number of enplaned passengers at T.F. Green and Manchester decreased sharply as passenger demand plummeted due to the COVID-19 pandemic; in calendar year 2021, passenger demand has begun to recover at these airports.

Airport Passengers
(Calendar Year)
(in millions)

Airport	2017	% of Total	2018	% of Total	2019	% of Total	2020	% of Total	2021	% of Total	(2020-2021) % Change
Logan Airport	38.4	*86.7%*	40.9	*87.0%*	42.5	*88.1%*	12.6	*86.6%*	22.7	*87.4%*	79.7%
T.F. Green	3.9	*8.9*	4.3	*9.1*	4.0	*8.3*	1.3	*9.0*	2.3	*9.0*	78.0
Manchester	2.0	*4.4*	1.8	*3.9*	1.7	*3.6*	0.6	*4.4*	0.9	*3.6*	48.7
Total	**44.2**		**47.0**		**48.2**		**14.5**		**25.9**		

Source: Authority, Manchester and T.F. Green reports

Cargo Airline Services. The Airport plays an important role as a center for processing domestic and international air cargo. According to ACI, in reporting year 2020 (the most recent year for which data is available), the Airport ranked 25th in North America in total air cargo volume. As of June 30, 2021, the Airport was served by six all-cargo and small package/express carriers. All-cargo carriers carry only cargo and these companies include 21 Air, Atlas, Federal Express, Kalitta, United Parcel Service and Wiggins Airways. For fiscal year 2021, the companies with the largest shares of enplaned and deplaned cargo at the Airport, based upon cargo tonnage, were Federal Express, United Parcel Service, Icelandair, Delta, Atlas Air and British Airways. Together, these six carriers accounted for 78.7% of total cargo and mail handled at the Airport in fiscal year 2021.

Cargo and Mail Traffic. In fiscal year 2021, total combined cargo and mail volume was approximately 610.4 million pounds. Total volume consisted of 64.7% small package/express, 30.5% freight and 4.8% mail. The total volume of air cargo and mail handled at the Airport decreased in fiscal year 2021 by 7.2% compared to fiscal year 2020, after decreasing by 10.3% in fiscal year 2020 relative to fiscal year 2019. Fiscal year 2021 cargo and mail volume was 8.5% above that of fiscal year 2017. A large percentage of the total volume of air cargo for the period was attributable to integrated all-cargo companies and small package/express carriers, including Federal Express (with Wiggins), United Parcel Service and DHL (with Atlas Air, 21 Air, Kalitta). Integrated carriers, accounted for 65.8% and 61.7% of total domestic and international cargo (including mail) volume in fiscal years 2021 and 2020, respectively. Nevertheless, much of the remaining air cargo was carried as belly cargo in commercial passenger flights.

Airport Facilities

Airside Facilities. As reflected in the table below, the Airport has four major runways, all of which can accept Group V types of aircraft. The Airport's two longest runways—Runway 4R/22L and Runway 15R/33L—can also accommodate Group VI aircraft (the B747-800 and the A380). In addition, Logan has a 5,000 foot uni-directional runway (Runway 14/32), and a 2,557-foot runway (Runway 15L/33R) used primarily by general aviation aircraft and small commuter aircraft. The Authority has undertaken a number of projects to enhance safety at the Airport. These include the construction of inclined safety over-run areas at the end of three of the Airport's runways and a fire and rescue access road at the approach end of two runways that provides emergency access in the event of a water rescue operation. In addition, the Airport has an Engineered Material Arresting System ("*EMAS*") installed at the end of two of its runways (Runway 15R/33L and Runway 4L/22R). EMAS is an engineered bed of ultra-light, crushable concrete blocks, designed to slow and stop an aircraft that has overrun the end of a runway. Further, the Airport has a Foreign Object Debris detection system on one runway (Runway 9-27) and has installed runway status lights at various locations on the airfield where runway incursions (areas where an aircraft, vehicle or person has entered the runway environment without authorization) have the potential to occur. Status lights provide the pilots with additional safety cues beyond verbal guidance from air traffic control and work in concert with Airport Surface Detection Equipment ("*ASDE*"). Takeoff Hold Lights ("*THLs*") and Runway Intersection Lights ("*RILs*") were installed on Runways 15R, 33L, 9 and 27; and Runway Entrance Lights ("*RELs*") were installed at various taxiways intersecting runways at critical locations. The table below provides an overview of the Airport's runways and certain of the above-described related safety features.

Runway	Length (ft)	EMAS	Status Lights	Inclined Safety Area	Foreign Object Debris Detection System
15R/33L	10,083	Yes – at 33L	Yes (THL, RIL, REL)	--	--
4R/22L	10,006	--	Yes (REL)	Yes – at 22L	--
4L/22R	7,864	Yes – at 22R	Yes (REL)	Yes – at 22R	--
9/27	7,001	--	Yes (THL, RIL, REL)	Yes – at 27	Yes
14/32	5,000	--	--	--	--
15L/33R	2,557	--	--	--	--

The Airport has approximately 93 acres of concrete apron, 144 acres of asphalt apron and 16.3 miles of taxiway. The airfield is equipped with a 250-foot high control tower staffed by the FAA; high intensity runway edge and centerline lights; four approach light systems; threshold lights and touchdown zone lights; airport surveillance radar; aircraft radio communication facilities; radio navigation installations; Category III Instrument Landing Systems ("*ILS*") operational at two runway approaches; and Category I ILS systems at two other runway approaches. Navigational equipment is operated and maintained by the FAA. The Airport has a fire and rescue facility and a satellite fire and rescue facility on the airfield.

The Authority is planning and executing significant airside facility renovations and enhancements to the Airport as part of the FY22-FY26 Capital Program. See "CAPITAL PROGRAM" herein.

Terminal Facilities. As of March 31, 2022, the Airport has four commercial passenger terminals (the "*Terminals*") that provide 100 contact gates, including three under construction in Terminal C. The Airport also has general aviation facilities located in the North Cargo Area currently occupied by Signature Flight Support. As of March 31, 2022, the Terminals in operation included:

Terminal A. Terminal A, which has 21 gates, opened in March 2005, with 670,000 square feet of lobby and gate space, divided between an 11-gate main terminal building and a ten-gate satellite terminal. Terminal A is used by WestJet and Delta (including Delta Shuttle and Delta Connection).

Terminal B. Terminal B is the largest terminal at Logan with 39 contact gates, or 39% of total Airport gates. In addition, two new gates are currently under construction as part of the Terminal C Optimization and Terminal B to C Connector project (see "CAPITAL PROGRAM") herein. Terminal B is used by Air Canada, Alaska, American/American Shuttle, Boutique Air, Southwest, Spirit Airlines and United/United Express.

Terminal C. Terminal C is the second largest terminal at Logan with 28 contact gates, although three are currently closed for renovations as noted below. Terminal C is used by Aer Lingus, Cape Air, JetBlue and TAP.

Terminal E. Terminal E, which has 12 gates, including three gates providing two-level jet bridges that can accommodate Group VI aircraft, is used for all arriving international flights requiring federal inspection services and most departures by foreign flag carriers. In addition, four new gates are under construction as part of the Terminal E Modernization project (see "CAPITAL PROGRAM" herein). The majority of charter flights utilize Terminal E, although charter flights also operate from other Terminals. As of September 1, 2020, JetBlue is leasing Gate E1 on a preferential basis. As of March 31, 2022, all of the gates in Terminal E aside from Gate E1 are common use facilities; however, there are five domestic carriers (Allegiant, Frontier, Hawaiian, JetBlue and Sun Country) that serve U.S. destinations that currently lease gates on a preferential hourly basis during off peak hours. In addition, Silver Airlines, which operates summer seasonal service only, uses the common use facilities.

In addition to the gates listed above, (i) three gates that are currently closed for renovations in Terminal C are expected to be put back into service during the summer of 2022, (ii) two new gates are expected to be put into service in Terminal B in Summer 2022 upon completion of the Terminal C Optimization and Terminal B to C Connector project (see "CAPITAL PROGRAM" herein), and (iii) four new gates are expected to be put into service in Terminal E in Summer 2023 upon completion of the Terminal E Modernization project (see "CAPITAL PROGRAM" herein).

See the inside back cover of this Official Statement for a map of the Airport's terminal facilities. For information regarding recently completed, ongoing and planned improvements to terminal facilities, see "CAPITAL PROGRAM" herein.

Lease Arrangements for Terminal Facilities. The Authority exercises significant control over Terminal facilities at Logan Airport through the leasing arrangements it has entered into with the carriers operating at the Airport. The Authority uses a combination of short-term leases, preferential use provisions, recapture provisions and forced subletting provisions to allow it to allocate its gate resources effectively and accommodate new entrant carriers.

In general, the Authority prefers to lease space on a short term basis—either on a month-to-month or year-to-year basis. This provides the Authority the flexibility to allocate gates so that carriers will maximize usage of these facilities. The Authority also has adopted a preferential gate use policy applicable to all gates at Logan Airport. Under the conditions specified in the policy, the Authority may schedule arrivals and departures at a gate by carriers other than the tenant for any period that the tenant is not using the gate. The tenant carrier must permit the carrier being accommodated under the policy to use the facilities required for the functional use of the gate, and may assess reasonable fees for such use. If a tenant carrier fails to accommodate a carrier under the terms of the preferential use policy, then the Authority may convert the gate to a common use gate.

The table below reflects the Authority's lease arrangements as of March 31, 2022 for contact gates at the Airport.

Terminal	Carrier	# of Gates	Lease Term	Expiration Date
Terminal A	Delta	21	5 years	*
Terminal B	Air Canada	3	Monthly	n/a
	Alaska	2	Monthly	n/a
	American	18	Varied*****	September 30, 2023
	Southwest	5	1 year	**
	Spirit	2	Monthly	n/a
	United	9	1 year	***
Terminal C	JetBlue	25†	1 year	****
Terminal E	JetBlue	1	1 year	****
	Total:	**86**		

* The Delta lease was entered into on July 1, 2006, with an original term of ten years. Effective as of July 1, 2016, the lease was amended to extend the term with automatic one-year extensions, until terminated by either party. Delta subleases one gate to WestJet. Effective September 1, 2019, Delta and the Authority further amended the lease to extend the term for five years through August 31, 2024, and Delta will have the option to extend the term for an additional five years.

** The Southwest lease was entered into on August 29, 2019, with an original term of one year and automatic one-year extensions thereafter, until terminated by either party.

*** The United lease was entered into on May 1, 2014, with an original term of one year and automatic one-year extensions thereafter, until terminated by either party.

**** The JetBlue lease was entered into on March 18, 2005, with an effective date of May 1, 2005 and an original term of five years with 20 automatic one-year extensions thereafter, unless terminated by either party.

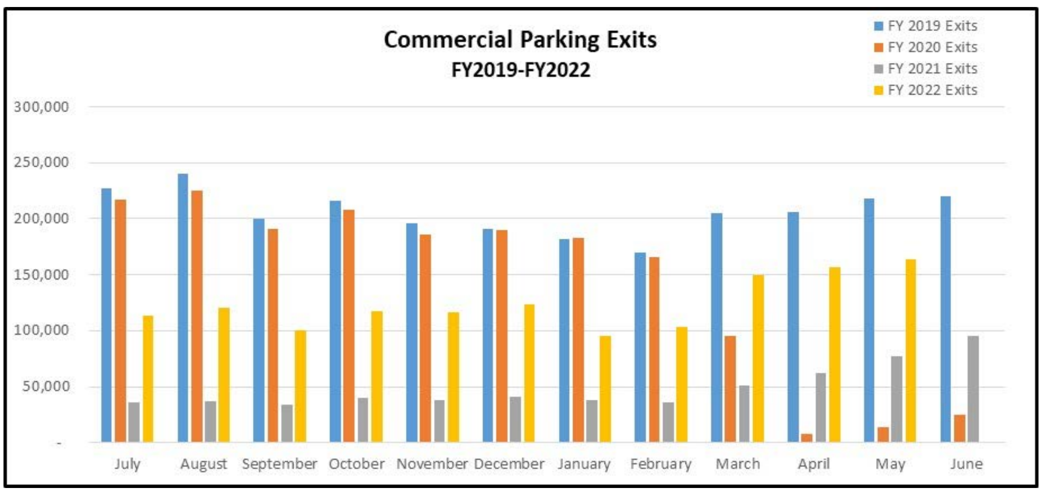
***** American has 18 contact gates. Ten gates are subject to a lease expiring September 30, 2023. Eight gates are subject to a lease originally expiring June 13, 2021 and extended to September 30, 2023.

† JetBlue subleases one gate to Cape Air. It also allows Aer Lingus to operate out of three of its gates pursuant to a Facility Use Agreement and allows TAP to operate out of one of its gates pursuant to a Facility Use Agreement.

The leases with Delta, American, Southwest, United and JetBlue provide for the "recapture" of gates by the Authority if the tenant carrier's average usage (measured in the number of daily operations per gate) falls below a certain Airport-wide average for such usage. These leases also generally require that, at the request of the Authority, the tenant carrier sublease a certain number of gates, as specified in the lease. The monthly leases with Spirit, Alaska and Air Canada do not contain "recapture" language, but rather provide the Authority with the right to terminate portions of the premises on 30-days' notice.

The Authority's preference is to lease space on a short-term basis. The only long-term lease arrangements currently in place are with Delta and American. American's lease arrangement was entered into in connection with the significant capital investments the carrier made in the Authority's Terminal B facilities, but now has less than two years before it expires. Such terminal improvements were largely financed with special facilities revenue bonds issued by the Authority for the benefit of US Airways (assumed by American) on a non-recourse basis. American has fully repaid these special facilities revenue bonds.

Parking Facilities. Private automobiles are one of the primary means of ground transportation to and from the Airport. Based upon a 2019 air passenger survey, the Authority estimated that, at that time, approximately 32.0% of all air passengers arrived at Logan Airport in private automobiles, and of those, approximately 9.3% of total passengers used the Airport's parking facilities for long-term duration parking. Prior to the start of the COVID-19 pandemic, overall demand for on-airport parking continued to increase, although more recently at a slower pace due to increased use of Ride Apps (including Uber and Lyft), limousines and high occupancy vehicles ("*HOV*"), including private buses and Logan Express park-and-ride services. For a further discussion on the impact of Ride Apps on the Airport, see "CERTAIN INVESTMENT CONSIDERATIONS – Technological Innovations in Ground Transportation." As passenger volumes have continued to grow at the Airport, the Authority has seen a similar improvement in parking utilization. The chart below presents monthly commercial parking exits from fiscal year 2019 through the first 11 months of fiscal year 2022.



The maximum number of parking spaces allowed by regulation at Logan Airport for commercial and employee parking is 26,088, of which 23,640 spaces are currently designated for commercial use and 2,448 spaces are set aside for employee parking. These limitations (the "*SIP Parking Limitation*") are pursuant to the State Implementation Plan ("*SIP*") filed by the Commonwealth in 1975 (and amended in 1990) with the United States Environmental Protection Agency ("*EPA*") under the federal Clean Air Act, as amended in 2017 pursuant to approvals by the Massachusetts Department of Environmental Protection (the "*DEP*") and the EPA to increase the permitted number of spaces by 5,000. Under the Airport SIP Parking Limitation, the Authority may shift the location of on-Airport parking spaces or convert the use of spaces from employee use to commercial use. Once parking spaces have been converted from employee to commercial use, however, they cannot be converted back to employee use. There is no regulatory limit on the number of parking spaces that are available to the rental car industry at the Airport.

The Board has deferred an increase in the parking rates of $3.00 per day that would have gone into effect on July 1, 2021. The table below reflects the current maximum daily parking rates.

Logan Airport Commercial Parking
Maximum Daily Parking Rates

	# of Spaces as of 3/31/2022	Current Rate
Central Parking Garage	11,093	$38.00
Terminal B Garage	2,212	$38.00
Terminal E Lots*	565	$38.00
Economy Parking	2,864	$29.00

* Terminal E Lot 3, consisting of 93 spaces, charges the Economy Parking rate.

The Board also approved a variable discount price pilot program that runs through June 30, 2023 and is available only for online Logan Parking reservation purchases. The program will help the Authority evaluate different variable pricing approaches to divert traffic from pickup/drop-off modes and to better align supply and demand for parking facilities. For the Economy Garage, the Authority is offering a limited flat $25 per day rate for online reservation purchases. The Authority is also piloting a duration-based discount at the Central Parking Garage and the Terminal B Garage (referred to as "*Terminal Parking*"). The pilot pricing structure is described in the following table.

Logan Airport Terminal Parking
Reservation-Only Duration Based Discount Parking Pricing Pilot

	Daily Rate
Day 1 and Day 2	$38.00
Day 3	$35.00
Day 4	$32.00
Day 5 and Subsequent Days	$29.00

The Authority temporarily closed the Economy Parking Garage commencing in March 2020, as a COVID-19 pandemic safety and cost containment measure. The Economy Parking Garage was subsequently re-opened in December 2021, as air passenger and parking demand recovered.

Cargo Facilities. As of March 31, 2022, Logan Airport's cargo facilities include seven buildings (one of which is currently unoccupied) containing approximately 267,703 square feet of warehouse space. Tenants of cargo facilities at the Airport include Federal Express (occupying 99,564 square feet of warehouse space), American, United, Delta, United Parcel Service ("*UPS*"), Southwest, Swissport and Worldwide Flight Services. The majority of the remaining cargo and passenger airlines contract services with the above listed cargo processing tenants in various areas of the Airport. In addition to the above, UPS took occupancy of a new cargo facility in April 2021. UPS's former cargo facility, which contained 16,946 square feet of cargo warehouse floor, is currently unoccupied and out for bid.

Aircraft Fuel Systems. Aircraft fuel is currently stored in and distributed through an integrated fuel storage and distribution system, which provides for a redundant underground distribution system for aircraft fuel to all gates at the Terminals. The fuel system, financed with special facilities revenue bonds of the Authority, is leased to BOSFUEL Corporation ("*BOSFUEL*"), a membership corporation whose members consist of the principal air carriers serving the Airport, and the system is operated by Swissport, Inc. See "OTHER OBLIGATIONS – Special Facilities Revenue Bonds." The lease between the Authority and BOSFUEL requires BOSFUEL to pay ground rent and other fees for the use of the fuel system, including amounts sufficient to pay the debt service on the BOSFUEL Bonds (defined herein), and BOSFUEL is responsible for the operation and maintenance of the fuel system.

Service and Support Facilities. Airport service and support facilities currently include two facilities for preparation of in-flight meals, a Hilton hotel, a Hyatt conference center and hotel and five aircraft maintenance hangars. In addition, a Rental Car Center ("*RCC*") provides integrated airport-related rental car operations and facilities by consolidating at the RCC all 11 rental car brands serving the Airport. The RCC is a consolidated rental car facility, consisting of a four-level garage with ready/return spaces, a customer service center, seven acres of quick-turn-around ("*QTA*") fueling and cleaning facilities and nine acres of on-site rental car storage. The RCC is served by a common bus fleet of clean fuel vehicles that also serves the Massachusetts Bay Transportation Authority's ("*MBTA*") Blue Line (Airport Station) riders. See "Ground Access to the Airport" below.

In addition, the Authority operates field maintenance facilities, a water pumping station, electrical sub-stations and distribution system, and a plant that supplies steam, hot water and chilled water. The Authority currently has a long-term agreement with Eversource Energy, pursuant to which Eversource Energy provides local network distribution services to the Authority. With respect to electric supply, the Authority currently has Master Power Agreements in place with seven suppliers, and currently has transaction agreements for base load supply in place with two of these suppliers through December 31, 2024. Additionally, the Authority purchases ancillary services and a portion of its electricity needs from the Independent Systems Operator of New England (ISO-NE) managed energy markets.

The Authority has installed in excess of 900kw of renewable energy generation systems on its properties. In the 12-month period ending March 31, 2022, these generation sites produced approximately 500 MWh of electricity, offsetting 361 metric tons of Carbon Dioxide (CO2) equivalent. The Authority's renewable energy generation portfolio includes both wind and solar generation systems. These projects are funded internally as well as through a long-term power purchase agreement generated through a public/private partnership.

Ground Access to the Airport. Access between the Airport and the central business district of Boston and the western and southern suburbs requires transportation under the Boston Harbor. The Ted Williams Tunnel ("*Ted Williams Tunnel*"), which is owned and operated by the Massachusetts Department of Transportation ("*MassDOT*"), provides direct highway access between the Airport, the Massachusetts Turnpike/Interstate Route 90 (the "*Massachusetts Turnpike*" or "*I-90*"), the Southeast Expressway/Interstate Route 93 ("*I-93*") and Boston's South Station passenger rail and intercity bus terminal. The Sumner Tunnel (the "*Sumner Tunnel*") and Lieutenant William F. Callahan Tunnel (the "*Callahan Tunnel*") lie side-by-side and function as a single tunnel, with the Callahan Tunnel leading from downtown Boston to East Boston and the Airport, and the Sumner Tunnel leading from East Boston and the Airport to I-93 northbound, Storrow Drive and other points in downtown Boston. Route 1A/McClellan Highway, a major arterial roadway, provides access between the Airport and points northeast. The Ted Williams Tunnel and the Sumner and Callahan Tunnels are tolled facilities owned and maintained by MassDOT.

In an effort to reduce congestion, the Authority encourages the use of HOV modes to reduce congestion on the roadways at and around the Airport. Available HOV options to access the Airport included private regional bus companies, various hotel and other courtesy shuttles, other commercial van transit services, the MBTA Blue Line subway, the MBTA Silver Line (a bus rapid transit service that is free for passengers leaving the Airport with connections to the MBTA Red Line subway and the MBTA commuter rail at South Station), MBTA scheduled water shuttle service, private water taxi service, and the Authority's Logan Express ("*Logan Express*" or "*LEX*") service, which offers scheduled motor coach service between the Airport and four suburban park-and-ride locations: Framingham, Braintree, Woburn and Peabody. The Authority recently reopened Peabody LEX service, which was suspended for a period of time during the COVID-19 pandemic, at a new location that the Authority believes offers improved accessibility. The Authority's Board also authorized a pilot LEX discount pricing program available exclusively through online bus ticket purchase, which is running through June 30, 2022.

In addition to Logan Express, the Authority has contracted for the operation of free shuttle bus service from the Terminals to the MBTA Airport Blue Line station and the RCC, and also to the Authority's on-Airport Economy Garage and remote employee parking lots. Similarly, the Authority provides free shuttle service between the Terminals and the Airport's Water Transportation Dock, from which customers can access on-demand water taxi service to downtown Boston, weather permitting. The MBTA operates additional scheduled water shuttle service from the Commonwealth's South Shore communities and Boston's Long Wharf to the Airport.

In May 2017, the Authority announced additional commitments to address certain impacts of activity at Logan Airport over the next ten years, including purchasing and maintaining additional Silver Line buses, increasing the capacity of the Logan Express service (as described above) and establishing a goal that 40% of air passengers access the Airport by HOV (including transport of parties of two or more in other commercial modes) by 2027. As part of this commitment, the Authority is also taking steps to reduce emissions, including increasing the electrification of the ground service equipment (GSE), increasing the number of electric vehicle charging stations in Logan Airport garages and promoting the use of electric vehicles among the Ride App, taxi and livery pools.

The Authority encourages the use of alternatives to private automobile transportation through public information and advertising campaigns and the development of reliable and innovative alternative transportation services. To further encourage the use of its Logan Express service, prior to the COVID-19 pandemic, the Authority had increased frequencies of Logan Express Braintree service and revitalized the Logan Express Back Bay service, which offers express shuttle services between Boston's Back Bay district and Logan Airport. Back Bay Logan Express service has been suspended throughout the COVID-19 pandemic, and Braintree frequencies have been reduced. The Authority is monitoring air passenger and ground access demand as it considers restoring these services and service levels. In addition to service improvements, the Authority made significant investments in Logan Express facilities, most notably the acquisition of the Braintree Logan Express site ($47.1 million) in 2014 as well as the construction of a new 1,100 space garage ($39.5 million) at its Framingham site in 2015.

Prior to the COVID-19 pandemic, the Authority had begun implementing a comprehensive Ground Transportation Plan. Among numerous initiatives, the plan aims to double LEX ridership from 1.9 million to 4.0 million passengers and to reduce the number of Ride App trips to and from Logan by encouraging ride share and by reducing the number of vehicles traveling to and from Logan with no customer on board ("*deadhead*" trips). The Authority began implementing Ground Transportation Plan initiatives for LEX and Ride Apps in fiscal year 2019 and in fiscal year 2020, including:

- Revitalizing Back Bay Logan Express service by moving the stop located at Copley to the MBTA's Back Bay Station, discounting the existing fare from $7.50 each way to free from Logan Airport and $3.00 to Logan Airport, and piloting priority access to the security checkpoint lines as an additional benefit to riders (May 2019). This service is currently suspended.
- Increasing service frequencies at Logan Express Braintree from every 30 minutes to every 20 minutes (May 2019). These frequencies were reduced to 60 minutes at the onset of the COVID-19 pandemic, and have now been increased to 30 minutes due to increasing demand.
- Centralizing Ride App pickups and drop-offs in the Central Parking Garage to reduce the number of deadhead trips by matching of passenger parties requesting a pickup to drivers recently dropping off departing air passenger parties (December 2019).
- Initiating a Ride App drop-off fee equivalent to the pickup fee of $3.25 to pay for facilities improvements and to further support HOV initiatives (December 2019).
- Offering reductions on Ride App pickup and drop-off fees for shared-ride trips. Ride App companies have suspended their shared-ride products to and from Logan Airport since the onset of the COVID-19 pandemic.
- Relocating the Logan Express Peabody service to a new site, which the Authority believes is more accessible to the population in the North Shore region (February 2022).

The Ground Transportation Plan includes several additional long-term initiatives for Logan Express. While the COVID-19 pandemic has slowed progress on these initiatives, the Authority expects to continue to explore these investments in LEX facilities and service in conjunction with the recovery of air travel and service demand:

- Initiating a new urban LEX service from North Station, with the same fare structure as the revitalized Back Bay Logan Express service (free from Logan Airport and $3.00 to Logan Airport).
- Improving service and amenities at existing suburban LEX sites, such as increasing service frequencies.
- Evaluating the construction of additional commercial parking capacity at existing sites.
- Identifying and commencing service from a new suburban LEX location.

The COVID-19 pandemic impacted the Airport ground transportation business in various ways. The decrease in overall demand for air travel reduced the total demand for ground transportation services. In addition, air passengers increasingly selected private vehicle modes of travel, diverting mode shares from commercial pickup and drop-off modes such as Ride App as well as HOV modes. As a result of the significant decrease in ridership due to the COVID-19 pandemic, the Authority initially suspended Logan Express Back Bay, Peabody and Woburn services, and reduced Logan Express Braintree and Framingham frequencies to one trip per hour. To preserve capital and align services with demand, the Authority also closed the Economy Parking and Chelsea Employee garages (as well as suspending shuttle services to those facilities) and reduced Airport shuttle services to the Rental Car Center, MBTA Blue Line subway station, and Water Transportation Dock.

Corresponding with the rollout of COVID-19 vaccines, air passenger travel began a sustained recovery in the spring of 2021. At the same time, air passenger ground access choices began to shift back in favor of shared-ride modes such as Ride Apps and HOV. To meet the increased demand for ground access services, the Authority enhanced Airport ground access services, including:

- Reopening the Economy Garage;
- Reopening Logan Express Woburn;
- Restoring frequencies at Logan Express Braintree, Framingham, and Woburn to every 30 minutes;
- Reopening Logan Express Peabody at a new site with improved access;
- Restoring additional Airport Shuttle Bus service, including to the Economy Garage, the Chelsea Employee Garage, the Rental Car Center and the MBTA Blue Line Airport Station;
- Initiating online parking reservations and Logan Express ticketing; and
- Launching discount pilot programs for online parking and Logan Express sales, with the goal of diverting traffic from pickup/drop-off modes.

Due in part to recent changes in mode preferences, as well as the availability of additional service offerings, Logan ground access mode shares are trending back in the direction of pre-pandemic levels. While the Authority expected a gradual reversion of behavior, it also continues to monitor other factors that may impact the Airport transportation business as compared to pre-pandemic experience. The mix of business and leisure travel, in particular, will have an impact on Airport ground access. For example, higher leisure travel historically translates to fewer parking transactions per enplanement, although leisure travel parties also tend to have longer parking durations. There is also some evidence that consumer preferences, in general, might have been altered during the pandemic, but it is unclear the extent to which these changes may continue in the future. Therefore, the Authority is closely monitoring not only the overall demand for air travel but also the evolving travel profiles and preferences of Logan's air passengers. The Authority expects to align its policies and future restoration or expansion of service commensurate with the recovery of air travel and service demand.

Hanscom Field

Hanscom Field is located principally in the Town of Bedford, Massachusetts, approximately 15 miles northwest of Boston. It encompasses approximately 1,300 acres, of which about 21 acres are occupied by the United States Air Force. Hanscom Field has two principal runways of 5,107 and 7,011 feet, respectively, hangars, a terminal building, taxiways and ramps. The Air Force owns approximately 872 acres adjacent to Hanscom Field. In July 1974, the Authority assumed full responsibility for operating and maintaining the airfield by agreement with the United States Air Force.

Hanscom Field is a corporate jet reliever for Logan Airport. It is anticipated that Hanscom Field will continue to develop as an alternative to the Airport for general aviation and may accommodate niche commercial passenger service. General aviation operations, including business-related activity, charters and light cargo, as well as flight training and recreational flying, currently represent 99% of the activity at Hanscom Field; military aircraft conduct less than 1% of the operations. For fiscal year 2021, Hanscom Field reported 118,051 total operations, of which 70,850 were single engine piston operations and 33,203 were jet and turboprop operations. For fiscal year 2022, through March 31, 2022, Hanscom Field reported 91,010 total operations, of which 46,443 were single engine piston operations and 32,678 were jet and turboprop operations. By comparison, for the same period of fiscal year 2021 (through March 31, 2021), Hanscom Field reported 84,025 total operations, of which 50,872 were single engine operations and 23,104 were jet and turboprop operations. The airfield is currently served by three full service fixed base operators, as well as several limited service fixed base operators. As of March 31, 2022, Hanscom Field had 299 aircraft based on site.

Worcester Regional Airport

Worcester Regional Airport is located approximately 53 miles west of Logan Airport. As of June 30, 2021, Worcester Regional Airport had 64 aircraft based on site and a total of 17,780 operations were recorded for fiscal year 2021, ranging from small single-engine aircraft to large corporate business jets to commercial airlines. For fiscal year 2022, through March 31, 2022, Worcester Regional Airport had 58 aircraft based on site and reported a total of 14,187 operations. By comparison, as of March 31, 2021, Worcester Regional Airport had 64 aircraft based on site and a total of 8,467 operations for the same nine months of fiscal year 2021. In November 2012, Rectrix Commercial Aviation Services, Inc. ("*Rectrix*") began operating as a full service fixed based operator at Worcester Regional Airport. Rectrix operates out of a 27,000 square foot facility that was completed in November 2015, providing full service fixed base operations as well as the base for the maintenance operation for its growing corporate fleet. Ross Aviation acquired Rectrix in February 2019. Rectrix has remained branded as such, and there are no changes in daily operations. In 2021, Ross Aviation and Atlantic Aviation announced agreement to combine companies and operate as Atlantic Aviation. Atlantic Aviation has fixed-base operators ("*FBOs*") across 30 US states and provides a wide range of aircraft ground handling and corporate flight support services.

On November 7, 2013, JetBlue began commercial service from Worcester Regional Airport with two daily flights to Orlando and Ft. Lauderdale. Annual passenger counts exceeded 100,000 as of calendar year 2014, the first full year of commercial air service. JetBlue expanded operations on May 3, 2018, with a daily flight to New York's JFK Airport. American introduced service from Worcester to their Philadelphia hub with two daily flights on October 4, 2018. In the spring of 2019, American reduced its Philadelphia service to once daily. On August 2, 2019, Delta began serving Worcester with a daily flight to their Detroit hub. Annual passenger counts consistently grew. Worcester passenger totals were 145,063 in calendar year 2018 and 194,625 in calendar year 2019, reflecting a 34% year-over-year growth, with a total of over 800,000 passengers using Worcester Regional Airport since the commencement of commercial air service in 2013 through the end of calendar year 2019.

Due to the effects of the COVID-19 pandemic on air travel, American and JetBlue suspended operations at Worcester Regional Airport in June 2020. Delta also suspended operations in October 2020. The three carriers have since restored service to Worcester Regional Airport as demand for air travel from the airport returned. JetBlue resumed service at Worcester Regional Airport in August 2021, but replaced its previous route to Detroit with a new once daily flight to New York-JFK, and then increasing to two daily flights in October 2021. In addition, JetBlue resumed service from Worcester Regional Airport to Fort Lauderdale in October 2021. Delta resumed service to New York-LaGuardia in November 2021, and American resumed service to Philadelphia in November 2021. On January 4, 2022, American replaced its service to Philadelphia with service to New York's JFK airport.

Airline	Service Inauguration Date	COVID-19 Service Interruption Date	Service Restoration Date
JetBlue	11/7/2013	6/15/2020	8/19/2021
American	10/4/2018	6/8/2020	11/1/2021
Delta	8/2/2019	9/30/2020	11/2/2021

PORT PROPERTIES

The Authority owns, develops, operates and maintains the Port Properties comprising certain waterfront properties and related backlands transferred to it from the Commonwealth in 1959, as well as additional properties subsequently acquired. The Authority's Maritime Department manages (i) Conley Terminal, a cargo terminal containing 3,275 feet of berthing space with a water depth ranging from 45 to 50 feet, which terminal is equipped with seven low profile ship-to-shore cranes, and (ii) Flynn Cruiseport Boston, a cruise ship passenger terminal. The Authority's Real Estate and Asset Management Department plans, develops and manages related maritime properties in the Port, including real estate for maritime, industrial and commercial uses. The Authority believes that in the long term, a diversified land use strategy will provide a non-maritime revenue stream to finance the continuing capital development of the Port's cargo and passenger terminals, reducing the burden on the Authority's other revenue sources. The Authority views the Port Properties as an important component of its goal to facilitate the participation of the Massachusetts economy in international trade and tourism.

In fiscal year 2021, the Port Properties accounted for approximately 17.8% of the Authority's Revenues and approximately 7.7% of the Authority's Net Revenues (as defined in the 1978 Trust Agreement).

Maritime Properties

The Authority owns, manages, develops, operates and markets the public cargo and passenger terminals and related maritime properties of the Port. Boston is New England's major port and the only port in the region providing a full range of container handling, cruise ship, bulk, breakbulk, automobile processing, petroleum, and ship repair services. The Authority's maritime business activities include cargo handling (including containers, bulk materials and automobiles), serving as a home port and port of call for cruise ships, and leasing property for maritime industrial uses.

A map of the Authority's maritime properties is set forth on the following page.

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Massachusetts Port Authority
Real Estate & Asset Management
April 2022

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LEGEND
Massport Property

Maritime Properties

Harbowide

Cargo activity during fiscal years 2017 through 2021 and for the nine-month periods ending March 31, 2019, March 31, 2021 and March 31, 2022 is summarized in the table below.

PORT OF BOSTON CARGO ACTIVITY
(Fiscal Years Ended June 30, except as noted)

Port Activity	2017	2018	2019	2020	2021	Nine Months Ended 03/31/2019	Nine Months Ended 03/31/2021	Nine Months Ended 03/31/2022
Containers [(1)]	145,540	161,130	174,849	161,171	140,750	130,918	110,308	59,461
Automobiles [(2)]	48,983	52,736	50,727	50,499	46,650	38,721	39,179	23,677
Bulk Tonnage	110,480	82,868	83,844	111,875	122,839	68,294	83,020	95,724

(1) Does not include over-the-road volumes.
(2) Does not include vehicles entered by over-the-road means.
Source: Authority reports.

Port business activity year to date for fiscal year 2022 (through March 2022) has been adversely impacted by ongoing COVID-19 pandemic-related issues, including port closures in Asia, global port congestion, vessel schedule disruption, sailing capacity limitations and shipping equipment shortages. The Authority believes these disruptions to be temporary, and not permanent or systemic, in nature, but cannot predict when such disruptions will be resolved. The commencement of new service at Conley Terminal by ZIM Integrated Shipping Services Ltd ("*ZIM*") is also expected to drive additional Port business activity. See "Conley Terminal" below.

All container operations are consolidated at Conley Terminal in South Boston with related chassis rental and repair services at Fargo Street Terminal North. The former Moran Terminal, Medford Street Terminal and Mystic Piers in Charlestown are collectively leased to Boston Autoport LLC ("*Boston Autoport*") and function as an automobile import, export, preparation, processing and distribution facility as well as a bulk cargo facility.

According to the most recent economic impact study of the Port of Boston, which was released in June 2019, the Port generated an estimated $8.2 billion in economic activity in calendar year 2018, up from $4.6 billion in calendar year 2012. The study further states that Port activities generated approximately 66,000 total jobs in calendar year 2018 (an increase of 32% from calendar year 2012), including approximately 9,000 direct jobs (up approximately 30% from calendar year 2012).

See "MANAGING THROUGH THE COVID-19 PANDEMIC – Impact of COVID-19 on Port Properties" above for information on the impact of COVID-19 on cargo activity and container operations at the Port.

Conley Terminal. Conley Terminal, a 101-acre facility in South Boston, is served via direct call by six of the world's top ocean carriers: China Ocean Shipping Corporation Limited ("*COSCO Shipping*"), Compagnie Maritime d'Affretement and Compagnie Generale Maritime (CMA CGM), Evergreen Line, Mediterranean Shipping Company, Orient Overseas Container Line (OOCL), and ZIM Integrated Shipping Services Ltd. ZIM is the newest customer of Conley Terminal, starting a bi-weekly service connecting Boston to South China and Vietnam via the Suez Canal in May 2022. Container volume is closely tied to overall economic conditions in Massachusetts, New England and international markets. As of March 31, 2022 (the most recent data available), the Port of Boston was ranked as the 13th largest container port on the Atlantic Coast of the U.S. by container volume. The Authority estimates that 40% of New England bound cargo moves through Conley Terminal. Its efficient connectivity to the state's interstate highway system allows for almost no congestion at the terminal, resulting in truck turn times of approximately 30 minutes. Businesses relying on Conley Terminal for import and export of their goods are located throughout New England, including the following Massachusetts businesses:

Shipper	Commodity
Autopart International	Auto Parts
BJ's Wholesale Club	General Merchandise
Bob's Discount Furniture	Furniture

Shipper	Commodity
Boston Hides and Furs	Hides
Eastern Fisheries	Seafood
Horizon Beverage	Wines/ Spirits
International Forest Products (Kraft Group)	Recoverable Paper
Jordan's Furniture	Furniture
King City Forwarding USA	Logs/ Lumber
Nantucket Distributing	General Merchandise
Nine Dragons (ND) Paper	Recoverable Paper
Ocean State Job Lot	General Merchandise
Rolf C. Hagen	Pet Supplies
Ruby Wines	Wines/ Spirits
Schnitzer Steel	Scrap Metal
Staples	General Merchandise
The Town Dock	Seafood
Trader Joe's	General Merchandise
United Liquors	Wines/ Spirits

Prior to the COVID-19 pandemic, Conley Terminal had seen steady growth in the number of containers handled annually, as reflected in the table entitled "Port of Boston Cargo Activity" above. In addition, prior to the pandemic, the volume of cargo handled was increasing. In fiscal year 2019, Conley Terminal marked its fourth straight record year with a total of 307,331 TEUs[1] handled, up 8.3% over fiscal year 2018. For fiscal year 2020, however, as a result of the COVID-19 pandemic, the number of containers handled decreased 7.8%. In fiscal year 2021, Conley Terminal had a steady year of TEUs, despite the pandemic and supply chain disruptions causing a 12.7% decrease in containers handled compared to fiscal year 2020. TEU growth at Conley Terminal for fiscal years 2017 through 2021 is summarized in the table below

CONLEY TERMINAL
TEUs PROCESSED
(Fiscal Year Ended June 30)
(in thousands)

Fiscal Year	TEUs
2017	257.0
2018	283.7
2019	307.3
2020	283.1
2021	247.8

The Authority is in the midst of modernizing Conley Terminal to better service the larger container vessels that are currently operating on the trade lanes that Conley Terminal serves, as well as to provide diversified service connectivity from various global markets to New England importers and exporters. The Conley Terminal Modernization Program includes both waterside and landside infrastructure improvements. On the waterside, the Authority partnered with the Army Corps of Engineers ("*USACE*") and the Commonwealth to deepen Boston Harbor to accommodate the larger container vessels. The Boston Harbor Deep Draft Navigation Improvement Project (the "*Deep Draft Project*") involved the deepening of the major entrance channel, the Main Ship Channel and the Reserved Channel of Boston Harbor, which now allows deep draft container vessels to efficiently call at Conley Terminal. The Deep Draft Project cost $336.0 million, of which $230.0 million was funded by the federal government through appropriations by the United States Congress to the USACE's budget, and the remaining $106.0 million was funded

[1] A twenty-foot equivalent unit (TEU) is an inexact unit of cargo capacity often used to describe the capacity of container ships and container terminals. It is based on the volume of a 20-foot-long (6.1 m) intermodal container, a standard-sized metal box which can be easily transferred between different modes of transportation, such as ships, trains and trucks.

by the Commonwealth's MassDOT ($75.0 million) and the Authority ($31.0 million). The Deep Draft Project is expected to be completed by the end of calendar year 2022.

In addition to the Deep Draft Project, the Authority is undertaking several Conley Terminal modernization projects on the landside. Completed projects to date include (i) construction of a dedicated freight corridor (the Thomas Butler Bypass Road) to service Conley Terminal, which opened in September 2017; (ii) Berth 12 maintenance dredging; (iii) installation of a new fender system at Berth 12; (iv) procurement of yard tractor replacements; (v) installation of rubber tire gantry (RTG) replacement drives; (vi) expansion of refrigerated container storage; (vii) installation of wi-fi and LED lighting technologies; (viii) Berth 11 rehabilitation; (ix) the build-out of container storage behind Berth 10 and construction of a new, deepwater Berth 10 with larger cranes and deepening the existing Berth 11. The new Berth 10, the acquisition and installation of the new cranes and the deepening of Berth 11 were completed in November 2021. Additional improvements to be undertaken or currently underway at Conley Terminal include Berths 11 and 12 backland repairs, procurement of yard tractor replacements, Berths 14-17 bulkhead rehabilitation, and new gate processing facilities.

The Conley Terminal landside improvements discussed in the preceding paragraph are currently expected to cost a total of approximately $392.9 million, consisting of (i) $75.0 million for the construction of the dedicated freight corridor and enabling projects, (ii) $102.9 million for the Conley Terminal infrastructure repairs and equipment upgrades as well as the dredging of Berth 11, and (iii) $215.0 million relating to the construction of Berth 10 and the purchase and installation of three new cranes large enough to serve the ships calling on Conley Terminal, currently and in the future. The dedicated freight corridor has been completed and was funded by the Authority's internally generated funds. With respect to the Conley Terminal infrastructure repairs, equipment upgrades and Berth 11 dredging, the Authority was awarded a $42.0 million FASTLANE grant by the USDOT in fiscal year 2016 to pay for a portion of the $102.9 million total project costs. The Authority is financing the remaining $60.9 million of these project costs with a combination of Authority funds ($60.3 million) and EPA grant funds ($0.6 million). See "CAPITAL PROGRAM – Authority Funded Capital Projects – Maritime Improvements." The Berth 10 construction and the procurement of the three new cranes were funded with a combination of (i) Commonwealth funds in the amount of $107.5 million, which funding amount was authorized by the Commonwealth in its 2016 Economic Development Bond Bill, and was received by the Authority in installments over a three year period from fiscal year 2020 to fiscal year 2022, (ii) proceeds of the Authority's 2019-C Bonds ($73.3 million), and (iii) Authority funds ($34.2 million). The construction of Berth 10 and the procurement and installation of the three new cranes were completed in calendar year 2021.

In addition to the Conley Terminal landside improvements discussed above, the Authority was also awarded a $20.0 million BUILD Transportation Grant by USDOT in November 2019 to pay for a portion of the $65.8 million total project cost for a Conley Terminal Container Storage and Freight Corridor. This project will construct a new container yard holding approximately 100,000 additional containers, deploy an innovative gate and logistics system, and build an adjacent Cypher and E Streets freight corridor. The Authority was also awarded a $916,000 grant in September 2021 under the FY21 Port Security Grant Program, which is administered by the Department of Homeland Security, to pay for a portion of various Port projects (totaling $2.1 million). A portion of the award ($556,600) is committed to Conley Terminal and will help pay for the installation of card readers, cameras and anti-ram barriers at various substations and switch houses, the installation of 50 new cameras to enhance surveillance and port security asset sustainability, and maintenance costs to sustain portable x-ray systems, radar video surveillance systems (which provide automated detection, tracking and video response to security threats) and Personal Radiation Nuclear Detection Equipment (PRD) to be worn by all officers. These projects are expected to be completed by end of fiscal year 2023. The Authority expects to apply for additional grant funds under the FY22 Port Security Grant Program, which became available May 2022.

The Authority expects to leverage revenues derived from its real estate assets in South Boston to fund its share of the capital improvement projects at Conley Terminal discussed above, which revenues are included in the Revenues pledged under the 1978 Trust Agreement that secure the Bonds. In particular, the Authority is working with the private sector to develop six of the Authority's South Boston parcels, and the Authority expects to apply the additional long-term ground lease and parking revenues from these commercial developments to help finance Conley Terminal improvements, including Berth 10 construction and the supporting backlands repairs and equipment. These commercial projects have either been recently completed or are in various stages of the development process: (1) the South Boston Waterfront Transportation Center, a 1,550 space parking garage owned by the Authority, was completed and opened to the public in May 2018; (2) Gables Seaport (Parcel C-1), a private residential apartment/retail development, was completed and opened in September 2020; (3) the Omni Boston Hotel at the Seaport (Parcel D-2), a 1,054-room luxury hotel, was completed and opened in September 2021; (4) a 580,000 square foot lab/office building at Parcel A-2, being developed by a team led by Boston Global Advisors, commenced construction in April 2022 and has an expected completion in 2024; (5) the Authority has designated a team led by Lincoln Properties to construct a 650,000 square foot life science facility on Parcel H, with construction expected to start in 2023; and (6) an RFP for Parcel D-3, with a capacity for over 800,000 square feet of new development, is expected to be released in late 2022. See "PORT PROPERTIES – Commercial and Maritime Real Estate Properties," "CAPITAL PROGRAM – Authority Funded Projects – Real Estate Improvements" and "CAPITAL PROGRAM – Third Party Funded Capital Projects" for a further description of the Authority's ongoing real estate developments.

Boston Autoport. This 80-acre facility in Charlestown is leased to the Boston Autoport through June 30, 2026, with five, five-year options through 2051. Boston Autoport is the only automobile processing entity using the Port. Boston Autoport imports and stores Subarus and other automobiles and also exports used automobiles. Vehicle imports into the Boston Autoport have trended down in recent years due to the COVID-19 pandemic and supply chain issues. The Boston Autoport also pursues other complementary marine industrial subtenants, which generate additional revenue on the property. Currently Boston Autoport is home to a diverse mix of companies that employ hundreds of workers. One of its larger subtenants is the Massachusetts Clean Energy Technology Center, which operates a 46,000 square foot Wind Technology Testing Center ("*WTTC*") to test wind blades to meet certification and investor requirements and support wind industry research and development activities. The WTTC is one of the largest such facilities in North America and has been in operation since 2011. Other maritime industrial uses at Boston Autoport include import, storage, mixing and distribution of road salt, and marine and vehicle fueling.

Flynn Cruiseport Boston. Formerly known as the Black Falcon Cruise Terminal, this 387,000 square foot terminal at the former Boston Army Base in South Boston originally served as a supplies warehouse before being converted into a cruise terminal in 1986. Cruise activity from the Port of Boston, prior to the No Sail Order described below, included sailings to Bermuda, multiple locations in Canada, and repositioning cruises to the Caribbean, Mexico and Scandinavia. Due to the COVID-19 pandemic, the CDC issued a No Sail Order in March 2020, effectively cancelling the 2020 cruise season for Flynn Cruiseport Boston and for cruise ports throughout the United States. On October 30, 2020, the CDC lifted the No Sail Order and replaced it with a Conditional Sail Order, issuing detailed protocols and requirements that cruise lines must meet before the CDC can approve their ships to sail in the United States. Further, the Canadian government banned all cruises to and from Canada until November 2021. The Conditional Sail Order evolved into a voluntary program monitored by the CDC in February 2022, which the top 18 cruise lines are following. Flynn Cruiseport Boston welcomed 1,668 cruise passengers in 2021 with the return of four sailings between Boston and Bermuda, along with welcoming a new cruise line, Vantage Cruises, in fall 2021 and sailing between Boston and Nassau.

The table below reflects total passenger volume at Flynn Cruiseport Boston for each of fiscal years 2017 through 2021. Historically, passenger growth has been driven by the expansion of the cruise season, the introduction of new cruise itineraries and the introduction of new ships into the Boston market.

FLYNN CRUISEPORT BOSTON VESSEL AND PASSENGER VOLUME
(Fiscal Year Ended June 30)

	# of Calls	Total Passengers
2017	124	351,914
2018	159	406,369
2019	144	395,971
2020	111	298,029
2021(1)	-	-

(1) Due to the CDC's enactment of the No Sail Order in March 2020, along with the Canadian Government's ban on cruises in 2020 due to the COVID-19 pandemic, Flynn Cruiseport Boston serviced zero passengers and ships in FY2021.

The cruise season at Flynn Cruiseport Boston typically runs from April through November of each calendar year. The Authority currently expects the 2022 cruise season (which runs from April 2022 through November 2022) will see 126 sailings and approximately 157,000-274,000 passengers. These passenger estimates reflect that the cruise industry is currently seeing sailings at 40-70% capacity post-pandemic.

Prior to the COVID-19 pandemic, the Authority was expecting to make additional improvements to upgrade and expand Flynn Cruiseport Boston to better position the facility to capture future growth opportunities. Due to the pandemic's impact to cruise activity, however, the Authority is now planning only minimal, maintenance oriented capital investments at Flynn Cruiseport Boston in the FY22-FY26 Capital Program. See "CAPITAL PROGRAM – COVID-19 Impact and Capital Program Prioritization" herein.

Commercial and Maritime Real Estate Properties

In addition to the above-mentioned maritime properties, the Authority also plans, develops, and manages various real estate properties in South Boston for maritime, industrial and commercial uses. A map of the Authority's commercial and maritime real estate properties located in South Boston is set forth on the following page.

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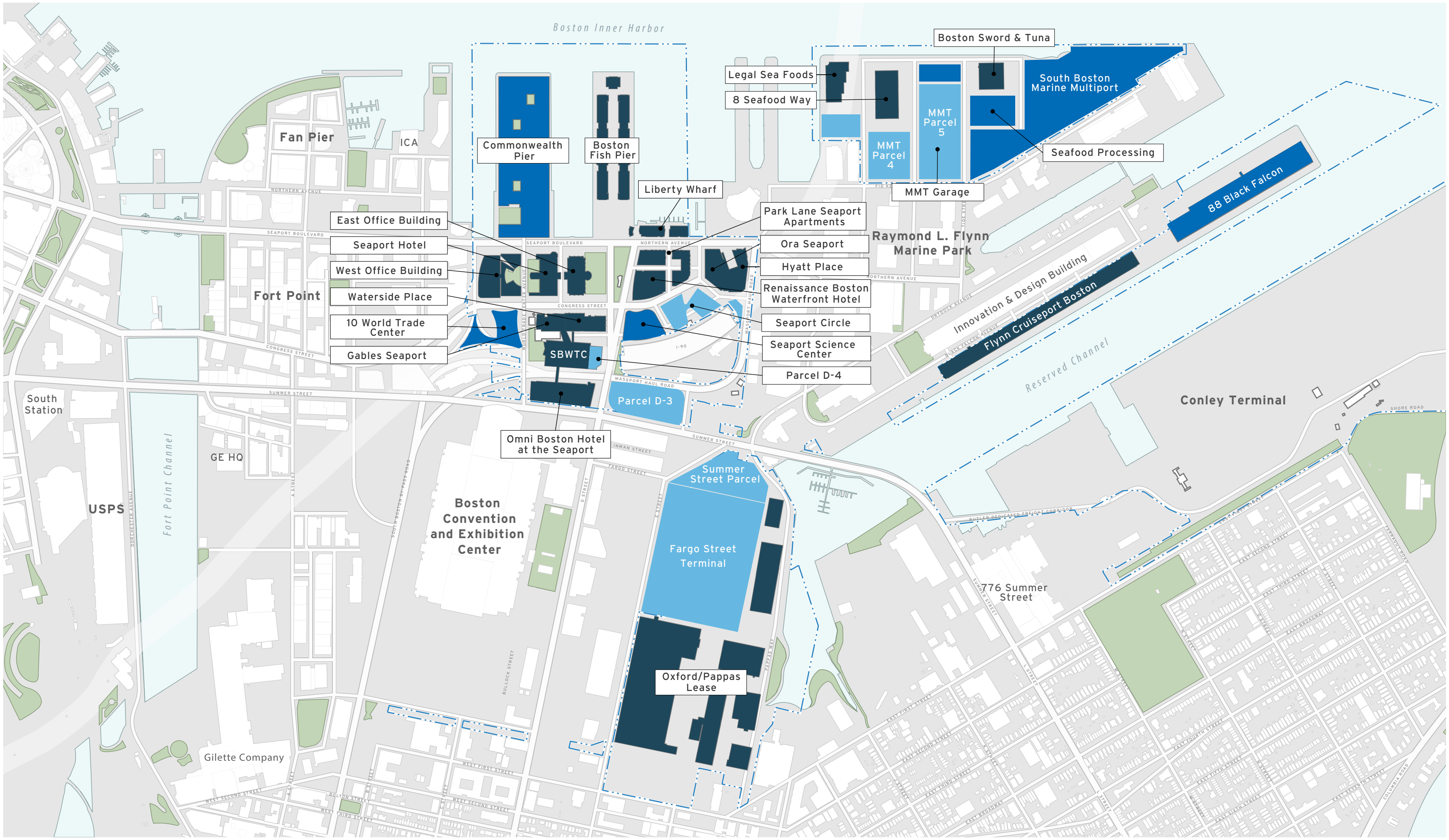

Massachusetts Port Authority
Real Estate & Asset Management
March 2022

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LEGEND

- Massport Property
- Existing Massport Projects
- In Progress Massport Projects
- Future Massport Projects

Massport Projects
Existing & Future
South Boston, MA

South Boston Commercial and Residential Development. The Authority owns approximately 70 acres of land in the South Boston Waterfront (the "*Waterfront*"), also known as Boston's Seaport District, on which, as of March 2022, approximately 5.6 million square feet of new development has been built, including office, hotel, residential, and retail/restaurant uses (Massport leases or owns an additional 260 acres in South Boston, devoted primarily to maritime industrial uses). Development in the Waterfront has been experiencing rapid growth of commercial construction, new development, building openings, major tenant relocations, and land transactions. The Authority has actively redeveloped a significant portion of its land in the Waterfront as part of a larger mixed-used plan ultimately expected to result in approximately nine million square feet of office, hotel, restaurant/retail, and residential development in total being constructed on the Authority's property.

In the 1990s, the Authority coordinated with the Central Artery/Tunnel project and the MBTA Silver Line projects to enhance its land holdings, and invested in the construction of new roadways, utilities, and the South Boston Maritime Park on D Street, to create the parcelization needed for the development enumerated below.

Since the mid-1980s, completed projects on Authority land that is ground leased to developers include the following projects:

- Commonwealth Pier, which is currently under renovation and when complete in 2024 will contain 636,000 square feet of office space, 45,000 of retail and restaurant space, and 56,000 square feet of meeting space; the renovation has been undertaken by Pembroke Real Estate, the real estate arm of Fidelity Investments. This project, like other private development on Massport property, will be financed with private, third-party funding, and is not part of the FY22-FY26 Capital Program. The project will enhance its current uses by replacing the former exhibition hall with new public realm spaces and improvements, including enhanced water transportation infrastructure and expanded retail space, as well as creating new flexible and innovative office space and a first-class event space.
- The balance of the Seaport Center complex, which includes the Seaport Hotel (427 rooms), the Seaport Center East and West Office Buildings (490,000 square feet and 560,000 square feet, respectively).
- 601 Congress Street (471,000 square feet, formerly headquarters of the John Hancock Company), currently under renovation as a life sciences building and expected to open in 2024.
- Park Lane Seaport Apartments (465 apartment units).
- Renaissance Boston Waterfront Hotel (471 rooms).
- Liberty Wharf, a multi-use development containing five restaurants, boutique office space, a public harbor walk, and water slips for transient vessels.
- Waterside Place (236 apartment units).
- Parcel K, a mixed-use development containing the Ora Seaport Apartments (304 apartment units), the Hyatt Place Hotel (294 guest rooms), and an underground parking structure, which was completed in September 2020.
- Gables Seaport (307 apartment units) and ancillary parking and retail uses, which was completed in September 2020.
- 88 Black Falcon, a 354,000 square foot mixed-use building with maritime industrial and office uses. The Authority's ground lease tenant, the Davis Companies, is currently permitting an addition of 327,000 square feet which is expected to host life sciences and office tenants. Construction of the addition is expected to commence in 2023.
- Omni Hotel at the Seaport (1,151 guest rooms, 100,000 square feet of meeting space, including a 25,000 square foot ballroom, and 7 food and beverage outlets, which opened September 2021; the Omni was developed by a joint venture of New Boston Hospitality (The Davis Companies) and Omni Hotels and Resorts. This project was developed using approximately $558 million of private investment.

The South Boston Waterfront is home to the Boston Convention & Exhibition Center ("*BCEC*"), the largest meeting venue in the Commonwealth, as well as major businesses, including but not limited to: AEW, Cabot

Corporation, Fidelity Investments, General Electric, PricewaterhouseCoopers, Reebok, Alexion, PTC, PWC, Goodwin, Mass Mutual, Foundation Medicine, and Vertex Pharmaceuticals. The MBTA's Silver Line provides bus rapid transit service from South Station to the Waterfront (and on to Logan Airport), with two stations located on Authority-owned property in the Commonwealth Flats district.

In May 2018, the Authority completed and opened the South Boston Waterfront Transportation Center (SBWTC), which provides approximately 1,550 parking spaces for the Waterfront.

In November 2018, the Authority designated a developer for a key parcel in the district known as Parcel A-2. Boston Global Investors (*"BGI"*) was selected to develop an approximately 550,000 square foot, 17-story office/laboratory hybrid tower on the 1.1 acre parcel and the adjacent 0.5-acre Triangle Parcel next to Congress Street, the MBTA's World Trade Center Silver Line transit station, and the ramps to and from Interstate 90. In addition, BGI's project will include substantial investment and approximately 100,000 square feet set aside for indoor and outdoor public space design elements, a first for a development in the Seaport. Construction began in March 2022.

In January 2021, the Authority designated a developer for another parcel in the district known as Parcel H. A development team comprised of Lincoln Property Company, Phoenix Property Company, Boston Innovation Land LLC, and Boston Collaborative Advisors was selected to develop an approximately 730,000 square foot, mixed-use project, which will include approximately 360,000 square feet of lab space, 268,000 square feet of office space, a life science career training center, retail space, parking, and a new station for the MBTA's Silver Line. Construction is expected to commence in spring 2023.

In September 2021, the Authority identified Parcel D-4 as a site to develop the first mixed-income residential project in the Seaport District, with a focus on providing predominantly affordable housing units. The site is particularly well suited for a residential building, with access to the South Boston Waterfront Transportation Center, the World Trade Center MBTA Silver Line station, a number of public open spaces, and other essential amenities. The Authority issued a request for qualifications for Parcel D-4 in December 2021 and received nine applications. On June 16, 2022, the Authority announced that five developers have been selected to participate in the next phase of the process: Beacon Communities and RISE Together; Community Builders and the Menkiti Group; Preservation of Affordable Housing and DREAM Development; Trinity Financial and the South Boston Neighborhood Development Corp.; and Winn Companies and Catalyst Ventures Development. The Authority expects to issue a request for proposals to these teams for this project in July 2022 and select a developer in fall 2022.

In connection with the Omni Hotel, Parcel A-2, Parcel H and Parcel D-4 projects described above, the Authority included or will include, as the case may be, diversity and inclusion as one of four equally weighted scoring criteria when evaluating developer proposals. Each of the developers has committed or will be expected to commit to an extensive diversity and inclusion program for the development, including investor/equity participation, real estate expertise and construction contractors and vendors. See "CAPITAL PROGRAM – Third Party Funded Capital Projects" and "AUTHORITY SOCIAL AND GOVERNANCE EFFORTS – Diversity, Equity and Inclusion Initiatives."

Fargo Street Terminal South. In March 2010, the Authority and Boston Harbor Industrial Development LLC ("*BHID*") entered into a 75-year ground lease for approximately 38 acres of land that abuts the Reserved Channel. The property contains approximately 761,000 square feet of building area in seven existing buildings that house a variety of industrial/warehousing tenants and other similar uses. In addition to substantially increased ground rent to the Authority, the lease required BHID to make substantial investments in roadway and seawall infrastructure improvements, which were completed in 2014. In October 2019, BHID assigned the ground lease to OPG MP Parcel Owner (DE) LLC, a joint venture between BHID and Oxford Properties Group, which resulted in a $17.9 million transaction rent payment to the Authority. BHID/OPG has also made additional investments and improvements to its 645 Summer Street building, where it has leased space to several technology and life sciences tenants. BHID/OPG is currently evaluating options to redevelop portions of the site.

Boston Fish Pier and South Boston Seafood Cluster. South Boston is one of the largest seafood industry clusters in the United States, with a mix of both new and established firms. The Authority currently has more than 300,000 square feet of seafood processing space under lease within a 15-minute drive of Conley Terminal and Logan Airport, focused at the Boston Fish Pier and the Massport Marine Terminal ("*MMT*"). The Fish Pier provides seafood processing space on the first and second floors of the East and West Buildings and 60,000 square feet of third floor office space, and is also home to Trio Café and the Exchange Conference Center. The roughly 100,000 square feet of seafood processing space is fully leased. Massport Maritime Department administrative and public safety functions, as well as several maritime industrial and other tenants, occupy roughly 80% of the available 3rd floor office space. The Fish Pier is home to Boston's commercial fishing fleet, and all 22 berths are licensed with a waiting list.

In 1996, the Authority designated a minimum of eight acres at the MMT in South Boston for state-of-the-art seafood-processing facilities. The MMT site is home to three facilities: (i) the Legal Sea Foods Quality Control Center (opened in 2004), which also serves as the corporate headquarters; (ii) the Harbor Seafood Center, a 68,000 square foot multi-tenant seafood processing facility that opened in 2001 as the first phase of the new district; and (iii) Boston Sword & Tuna's new facility, a 49,000 square foot, $25 million state-of-the-art seafood processing, cold storage, and distribution facility developed by Pilot Seafood Properties ("*Pilot Seafood*") with Boston Sword & Tuna as sub-tenant, which was completed in April 2020.

Massport Maritime Terminal (MMT). The Authority has a long-term lease with the City of Boston's Economic Development and Industrial Corporation ("*EDIC*") for the MMT, a 40-acre property at the tip of the South Boston Waterfront and incorporated in the city's Raymond L. Flynn Marine Park. In February 2022, the Authority and the EDIC agreed to extend the term of the lease to February 20, 2120. Consistent with the Authority's mission, this property is dedicated to maritime industrial use with a particular emphasis on preserving and promoting the vibrant seafood processing industry in Boston. The Authority issued an RFP in February 2016 to develop portions of the MMT for seafood, warehouse, bulk and other maritime industrial uses. Pilot Seafood was designated as the developer of Parcel 6; as mentioned above, the Boston Sword & Tuna facility on Parcel 6A was completed in April 2020 and plans to expand the facility are currently underway. The development of Parcel 6B as seafood processing, warehouse and distribution facilities is in the design and permitting phases. Eastern Salt Company, a woman-led, Massachusetts-based company with more than 60 years of experience in the maritime industry, received Authority approval in May 2021 to construct upon Parcels 6C, 7 and 8 a multi-use cargo facility and to reconstruct the North Jetty deep-water berth, to be known as the South Boston Marine Multiport. This facility will be able to handle bulk materials and project cargoes to meet the demands of the Commonwealth's nascent offshore wind energy industry. Design and engineering are underway, with permitting expected to begin later in 2022 and a groundbreaking projected in 2024. An RFP for Parcel 5 was issued in June 2018, and Pilot Seafood received Authority approval as the developer in November 2018. Pilot Seafood is in the planning, design, and permitting phases for a new seafood processing facility with Aquanor Marketing on Parcel 5A. On Parcel 5B, Pilot Seafood is working to identify potential maritime industrial uses, including a parking garage to support maritime workers and/or seafood processing.

Other Maritime Facilities. The Authority controls several facilities that are used for warehousing, or for importing, processing or distributing bulk and other waterborne commodities such as cement and seafood. These facilities include 88 Black Falcon (an intermodal cargo warehouse and office facility), the MMT (40 acres) and the Fargo St. Terminal North (13 acres). As mentioned above, the MMT is the location of several existing and planned seafood processing facilities. In addition, the Authority uses portions of the MMT to meet cruise and other operational needs.

Constitution Wharf. Constitution Wharf is a multi-tenant, low-rise office property located in the Gateway area of Charlestown. The property consists of three buildings containing approximately 179,000 aggregate square feet located on approximately 8.4 acres of land. The property also has approximately 470 surface parking spaces. The property is leased from the Authority under two ground leases, both of which run through 2082, including all option terms. This lease was assigned to Jamestown LP in September 2019. Jamestown is a real estate investment and management company focused on income-producing assets in the US. The property is 100% occupied. Major tenants include: Bright Horizons, MGH, Home Base, and CBT Architects.

Constitution Marina. Constitution Marina is located adjacent to Constitution Center and its leasehold consists primarily of the water sheet (approximately 4.9 acres in area) and 0.4 acres of land (parking and clubhouse). Constitution Marina is leased to Bosport Docking, LLC ("*Bosport*") and has approximately 265 vessel slips, a clubhouse with ancillary parking, and operates 12 months a year. In June 2021, a new lease with Bosport was executed for a term of 35 years, through December 2056. This will enable the tenant to obtain financing to invest $6 million in capital improvements at the marina.

East Boston Waterfront Properties. The Authority has entered into agreements with affiliates of Roseland Residential Trust, a Mack-Cali company ("*Roseland*"), to redevelop East Boston Pier One (the "*Pier*") and two adjacent shore parcels into a multi-phase residential development that includes parking, retail, amenity space and community space. The Phase 1 building opened in December 2014, and two Phase 2 buildings were opened and leased by November 2018. In February 2022, Roseland withdrew its interest to develop Pier 1. The Authority has entered into an interim five-year contract with an outdoor seasonal entertainment venue to activate the waterfront, while it assesses a more permanent future use of Pier 1.

The Authority also designed and constructed a park on the Pier known as "East Boston Piers Park." Phase I of this park opened to the public in 1995. Progress continues towards final design of Phase II of the park ("*Piers Park II*") on an adjacent parcel. The four-acre Piers Park II will feature a large flexible-use central lawn area, walking path, multigenerational exercise area, water-play area, and inclusive playground space, along with accessible site furniture, energy-efficient lighting, extensive landscaping, and will also incorporate resiliency features such as landscaped berms that will act as storm surge barriers to protect the community from seawater rise. A new replacement Piers Park Sailing Center building and teaching pavilion, designed above the future flood elevation, will accommodate this well-established community boating program. The Authority expects construction to begin in late summer or fall of 2022 and be completed by the end of calendar year 2023. In addition, the Authority is working with The Trustees of Reservations, a highly regarded non-profit land conservation organization with almost 130 years of environmental stewardship in the Commonwealth, on a proposal to construct a waterfront park on the site of a dilapidated pier on the East Boston waterfront called "Piers Park III." The full cost of the Piers Park III project is expected to be paid by The Trustees of Reservations, and this project will be separate and distinct from the adjacent Piers Park I and the Piers Park II project.

In January 2012, the Authority entered into a long-term ground lease with Coastal Marine Management to operate, maintain and improve the Boston Harbor Shipyard and Marina located in East Boston. In May 2018, Coastal Marine Management assigned this ground lease to Boston Harbor Shipyard & Marina LLC. More than $9.0 million in qualified capital expenditures have been spent on the property since 2012. This amount does not include the $5.0 million investment in 2017-2018 by the Institute of Contemporary Art to renovate Building 23, which now houses the "Watershed," a seasonal exhibition space that also features a gallery dedicated to the history of the shipyard and the community.

STRATEGIC PLAN

The Authority's most recent unified Strategic Plan (the "*Plan*") for all of its facilities was completed and adopted by Members of the Authority in November 2014. The goal of the Plan was to support and allow Logan Airport to serve the needs of its rapidly growing passenger base and to enable the Conley Terminal to prepare for the larger ships and consolidated shipping lines that are now serving Conley Terminal after the opening of the expanded locks in the Panama Canal. The Plan also examined how best to position the Authority's real estate holdings in East Boston and South Boston that are not required for aviation or maritime uses. The Plan provided a framework for prioritizing the Authority's strategies and investments moving forward, and helped to shape each capital program since fiscal year 2015 and many of the goals set forth in the Plan have been accomplished.

Given (i) the need to accommodate the passenger growth and airline demand that was being experienced at Logan in the years immediately after the Plan was completed but prior to the COVID-19 pandemic, and (ii) the increased business in the Port of Boston and the need to keep Conley Terminal competitive to support the region's economy, the Authority embarked upon a second phase of the Strategic Plan (the "*Phase 2 Plan*") in 2019. The Phase 2 Plan reflected the implementation of certain strategic initiatives on an expedited basis. In particular, the Phase 2 Plan focused the Authority's resources towards accommodating the increased passenger growth and airline demand at the Airport, which the Airport had been experiencing prior to the COVID-19 pandemic, and which the Authority expects will return, with the following goals in mind: (i) providing post security connectivity among all of Logan's terminals, (ii) ensuring roadways and curbsides can accommodate passenger activity, and (iii) expanding Terminal E. The Phase 2 Plan also includes continued strategic investments at Conley Terminal in order to modernize the landside and accommodate the larger vessels calling on the Port. The FY22-FY26 Capital Program, and in particular the completion of Terminal C Optimization project, the Terminal B to C Roadway Improvements project and the Terminal E Modernization project (each as further described below), reflects the completion of the remaining Airport components of the Phase 2 Plan.

The Authority's staff will continue to work to develop specific business plans designed to address and implement the strategic initiatives across all of its properties. As detailed business plans for each strategic initiative are developed, refined and approved in the context of the then-current operating environment and activity levels, those projects are expected to become part of future five-year rolling capital programs to be approved by the Authority's Board.

CAPITAL PROGRAM

Capital Budget Process

The Authority traditionally utilizes a rolling, five-year capital program as its comprehensive and coordinated capital improvement and financial master plan for all Authority facilities. The capital program, which is amended and approved by the Board annually, sets forth the planned capital projects and expected sources of funding therefor for the next succeeding five-year period. While the Board annually approves a five-year capital program as a whole, each individual project within the capital plan is its own "module," the scope of and budget for which must be approved separately by the Board before work on such module is commenced.[2]

Many of the commitments within the Authority's capital plan have already been authorized by the Authority and extend over several years. The Authority approves projects individually along with a separate project budget. This permits the Authority to undertake the construction and financing of each project independently of other capital projects, while retaining overall program coordination and integration. The Authority uses a consistent set of project and financial evaluation criteria to determine whether a project will be included in the capital program and then also whether and when to move forward with individual project components at any given time, generally summarized below:

<u>**Project Evaluation Criteria**</u>

- Safety and Security
- Asset Maintenance
- Operational Efficiencies
- System Enhancement/ Customer Service
- HOV/Ground Access Improvements
- Commitment to Surrounding Communities
- Sustainability

<u>**Financial Evaluation Criteria**</u>

- Grants and Outside Funding
- PFC Eligibility
- Cost Recovery
- Rates and Charges Impact
- Credit Rating Impact

In addition, the entire program must meet the board approved Debt Issuance and Debt Management Policy (see "DEBT ISSUANCE AND DEBT MANAGEMENT POLICY" herein) and complement and support the Strategic Plan (see "STRATEGIC PLAN").

The Authority believes that the modular design of the capital program significantly increases its ability to make needed adjustments in capital spending levels. If significant changes in funding sources were to occur, or if the costs of certain projects were to increase significantly, the Authority would be able to adjust the timing or reduce the scope of individual proposed projects or the overall program, or both, to accommodate such changed circumstances. The modular design of the capital plan also allows the Authority to react quickly to external factors that affect Authority operations. For example, in October 2001, as part of its financial recovery plan in response to the financial and operational implications of the events of September 11, 2001, the Authority successfully postponed projects and reduced the capital program for fiscal years 2001 through 2006 from a six-year plan to a two-year plan. More recently, in response to the COVID-19 pandemic and its resulting impact on Airport operations, the Authority reduced the Authority's portion of the then-current capital program by either suspending or deferring certain projects totaling approximately $1.4 billion.

[2] As the Authority continues to manage through the COVID-19 pandemic, the Board did not formally adopt a five-year capital program in fiscal years 2021 or 2022. See "CAPITAL PROGRAM – COVID-19 Impact and Capital Program Prioritization" herein.

COVID-19 Impact and Capital Program Prioritization

The most recent five-year capital program approved by the Authority's Board was the Fiscal Year 2019-2023 Capital Program (the "*FY19-FY23 Capital Program*"), approved on February 14, 2019. The FY19-FY23 Capital Program included forecasted total expenditures of approximately $2.6 billion by the Authority and approximately $1.8 billion by third-party or non-recourse funding sources for ongoing projects and for projects to be commenced during the five-year program period, for a total of approximately $4.4 billion.

Prior to the Authority adopting its five-year capital program in 2020, which was expected to include forecasted total expenditures of approximately $3.0 billion by the Authority, the outbreak of the COVID-19 pandemic occurred. As a result, a new five-year capital program was not adopted. Rather, in response to the COVID-19 pandemic and its resulting adverse impact on Airport operations, the Authority has instead reduced the Authority's portion of the then-current capital program by either suspending or deferring certain projects totaling approximately $1.4 billion. Key deferred projects include, but are not limited to: (i) the Logan Airport parking program, which would add up to 5,000 new parking spaces; (ii) Phase II of the Terminal E Modernization project, which would add three new gates to Terminal E; (iii) enhancements and renovations to Flynn Cruiseport Boston; (iv) ground transportation initiatives, such as the Framingham Logan Express expansion, new suburban Logan Express locations and new Silver Line buses; (v) Terminal A improvements; and (vi) Logan airside projects, such as the equipment storage maintenance facility project.

As the Authority continues to manage through the COVID-19 pandemic, the Board again did not formally adopt a five-year capital program in fiscal year 2022. Rather, on April 14, 2022, the Authority's Board approved a $1.3 billion three-year capital program covering capital expenditures during the period from fiscal year 2022 through fiscal year 2024. For financial planning purposes, however, Authority management is still utilizing a five-year capital program covering the period fiscal year 2022 through fiscal year 2026 (referred to herein as the "*FY22-FY26 Capital Program*"). The three-year capital program approved by the Authority's Board is a subset of the five-year FY22-FY26 Capital Program. The FY22-FY26 Capital Program that is being used for financial planning purposes includes forecasted expenditures of $2.1 billion by the Authority and approximately $732.4 million by third-party or non-recourse funding sources for ongoing projects and for projects to be commenced during the five-year program period, for a total of approximately $2.8 billion.

FY22-FY26 Capital Program

The FY22-FY26 Capital Program includes capital improvements to Logan Airport's airfield and security enhancements at the Airport, terminal modernization at the Airport, enhancements to the Maritime Properties, Hanscom Field, and the Worcester Airport and the maintenance and renewal of its existing facilities. Approximately 58.6% of the FY22-FY26 Capital Program continues investments in ongoing projects, while the remaining 41.4% (approximately $869.6 million) of proposed new investments address immediate capital needs while advancing key strategic initiatives. Authority expenditures in the five-year capital program are allocated 70.6% to Logan Airport, 2.7% to Hanscom Field, 1.4% to Worcester Airport, 17.0% to Maritime facilities and real estate, and 8.3% for Authority-wide projects.

The FY22-FY26 Capital Program continues to meet the Authority's primary goals of safety, security, sustainability, economic development, customer service, and commitment to surrounding communities, and complements and supports strategic initiatives while achieving the financial parameters contained within the approved Debt Policy (see "DEBT ISSUANCE AND DEBT MANAGEMENT POLICY"). Specifically, the FY22-FY26 Capital Program funds major initiatives that support the Authority's strategic goals such as:

<u>Supporting Logan's Ability to Improve the Passenger Experience:</u>

- Optimizing Terminal C and Terminal B to C Connector to improve passenger flow post security;
- Aiding the expansion of low cost carriers at Logan by expanding terminal facilities and relocating airlines to achieve consolidation;
- Improving traffic conditions for vehicles entering Terminal C and exiting Terminal B by improving the Terminal C Roadways;

- Serving future international market needs following the return of passenger demand by adding four new gates at Terminal E;
- Improving ground transportation options and passenger experience by implementing Logan Express electronic ticketing and rebuilding Logan shuttle buses; and
- Completing programmed airfield improvements and HVAC equipment upgrades.

<u>Safety and Security:</u>

- Implementing airfield safety enhancements throughout all of the Authority's Airport Properties, including runway rehabilitation and lighting projects at Logan, Worcester and Hanscom, airside paving improvements at Logan and replacement of security gates and barriers at Logan.

<u>Fostering the Development of the Working Port:</u>

- Construction of Berth 10 and procurement of three new ship-to-shore cranes at Conley Terminal;
- Construction of Conley Terminal In & Out gate facilities; and
- Conley backland reconstruction.

As previously described, the FY22-FY26 Capital Program includes forecasted total expenditures of $2.1 billion by the Authority and approximately $732.4 million by third-party or non-recourse funding sources for ongoing projects and for projects to be commenced during the five-year program period, for a total of $2.8 billion. The Authority-funded portion of the FY22-FY26 Capital Program is funded from a variety of sources, including bond proceeds, grants, passenger facility charges ("*PFCs*"), Customer Facility Charges ("*CFCs*") and pay-as-you-go capital (from the Maintenance Reserve Fund and the Improvement and Extension Fund). The program was developed to be consistent with the Authority's goals of funding security initiatives and airfield operation enhancements, maximizing FAA and Transportation Security Administration ("*TSA*") grant receipts, utilizing a $4.50 PFC and a $6.00 CFC and avoiding increasing Airport rates and charges to levels that could lead to significant service reductions.

Set forth in the following table is a summary of the Authority-funded portion of the FY22-FY26 Capital Program, including estimated funding sources and a summary of uses for the period from fiscal year 2022 through fiscal year 2026, showing capital projects by funding category. **The funding sources and uses set forth below reflect expectations as of April 14, 2022 and are subject to change over the course of the current five-year planning period and in light of the continued impacts of the COVID-19 pandemic.** In particular, the Authority's Board is currently approving the projects reflected in the following table on a project-by-project basis given the current challenges from the COVID-19 pandemic, and it is possible the Board may elect to further reduce or suspend one or more of such projects, in particular those expected to be funded with internally generated funds of the Authority, in its sole discretion. As noted previously, of the $2.1 billion Authority-funded amount, the Board has approved $1.3 billion of spending through fiscal year 2024.

The Authority's financing plan assumes the issuance of the 2022 Bonds to fund $116.4 million of Terminal E Modernization project costs (all of which is expected to be expended during fiscal years 2022 through 2024). The table below <u>does not reflect</u> projects that have been or may be funded through other third-party or non-recourse funding sources. For information about the portion of the FY22-FY26 Capital Program (consisting of approximately $732.4 million in projects) anticipated to be funded through third-party or non-recourse funding sources, see "Third Party Funded Capital Projects" below.

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FY22-FY26 CAPITAL PROGRAM
SUMMARY OF ESTIMATED FUNDING SOURCES AND CAPITAL PROJECTS
(Authority Funded Portion)[1]
($ in thousands)

Funding Sources	
Maintenance Reserve Fund	$579,350
Improvement and Extension Fund	804,581
PFC - Pay Go	43,599
FAA, TSA, U.S. DOT FASTLANE grant, Other Grants & Commonwealth Funds [2]	292,359
Prior Bond proceeds [3]	243,371
2022 Bonds Payable from Revenues [3]	74,351
2022 Bonds constituting PFC Backed Debt [3]	42,060
Other [4]	21,047
Total Sources (Authority Funded)	**$2,100,720**
Project Costs Funded with Revenue Bonds	
Terminal E Modernization [5,6,8]	$277,871
Terminal B to C Roadway Improvements [6]	46,703
Terminal C Optimization and B to C Connector [5,6]	13,368
Other Projects	21,841
	$359,783
Project Costs Funded with PFCs and Grants	
Terminal B Roadway Rehab - HOV Curb & Stabilization [6]	$75,000
Runway 9-27 Safety Area Improvements	71,675
Logan Jetbridge Improvements [6]	13,387
Energy Optimization - Logan Airside Charging Station [6]	11,250
Infrastructure Grant Projects [6]	18,883
Conley Terminal Grant and Commonwealth Funded Projects [6]	
U.S. DOT FASTLANE Grant Projects	21,023
BUILD Grant	20,222
New Berth 10 and Cranes at Conley Terminal (Commonwealth Portion)	48,724
Rehabilitate Runway 15R-33L	24,800
Other Projects	30,994
	$335,958
Other Project Costs Funded with Massport Internally Generated Funds	
Terminal E Modernization [5, 6, 8]	$81,039
Authority-wide Energy Conservation Efforts & Measures	65,000
Terminal C Optimization & B to C Connector [5, 6]	60,524
Terminal B to C Roadway Improvements [6]	52,933
Large Airfield Vehicle Drive-through Storage and Maintenance Facility	48,741
Facilities Administrative, Support and Fleet Maintenance Building	47,000
Taxiway M Rehabilitation [6]	32,100
Berth 10 Expansion	31,500
Airfield and Terminal Fueling Improvements	30,192
New Suburban Logan Express	30,000
Conley Terminal Grant Projects [6]	
U.S. DOT FASTLANE Grant Projects	22,040
BUILD Grant	36,033
Other Projects [7]	846,829
	$1,383,931
Other Project Costs [4]	21,047
Total Capital Projects (Authority Funded)	**$2,100,720**

1 Reflects only that portion of the FY22-FY26 Capital Program expected to be financed by the Authority. Does not include approximately $0.7 billion of projects expected to be funded through third-party or non-recourse funding sources. See "CAPITAL PROGRAM – Third Party Funded Capital Projects" herein for more information on third party projects included in the FY22-FY26 Capital Program. In addition, this table reflects expected projects and cash flows from FY22-FY26 as of April 2022; the Board may elect to further reduce or suspend one or more of the projects reflected herein in its sole discretion.

2 Includes Commonwealth funds received by the Authority for Berth 10 construction and cranes acquisition ($107.5 million), of which $48.7 million was received in fiscal year 2022, and the Authority's award of a $42.0 million FASTLANE grant, of which $21.0 million of grants were received and $21.0 million of expenditures are expected in FY22-FY26.

3 Proceeds amount shown here does not include debt service reserves, costs of issuance or capitalized interest beyond the FY22-FY26 time period.

4 Includes project costs funded with Terminal A Maintenance Reserve Fund ($8.2 million) and Customer Facility Charges ($12.9 million).

5 A portion of this project expected to be financed with proceeds of PFC Backed Debt ($219.5 million of the 2021 New Money Bonds and $42.1 million of the 2022 Bonds for Terminal E Modernization, and $40.3 million of the 2021 New Money Bonds for Terminal C Optimization and Terminal B to C Connector).

6 Projects with multiple financing sources.

7 This category includes over 300 Authority-wide airport, maritime and real estate projects with a portion of funding from Massport internally generated funds. Approximately 150 projects have expected internal funding ranging from $1.0 million to $25.1 million.

8 To be financed in part with proceeds of the 2022 Bonds.

Authority Funded Capital Projects

Logan Airport Improvements. The FY22-FY26 Capital Program includes funding for all or a portion of the following improvements at Logan Airport:[3]

Improvements to Accommodate Airline Consolidation and Domestic Travel Growth at Logan. To improve passenger wayfinding, reduce passenger wait times and enhance operational effectiveness, the Authority assumed a project, the Terminal C Optimization and Terminal B to C Connector, designed to improve post-security passenger connectivity by efficiently moving passengers between terminals, providing additional post security passenger amenities, and renovating three existing gates and constructing two new gates. The project will accomplish these goals through renovating building structures and building a new approximately 77,575 square foot addition located along the southeast face of Terminal C, which will provide a post-security connection between Terminal B and Terminal C, as well as demolishing existing structures and upgrading the passenger experience. In addition, upon completion of this project, three gates that are currently closed for renovations in Terminal C and two new gates in Terminal B will be put into service. By connecting Terminals B and C post-security, the Authority expects to further enhance airside connectivity across multiple terminals (Terminal B through Terminal C and to Terminal E), adding greater flexibility for the Authority to shift and co-locate airlines and to allow airlines to optimize their schedules for increased passenger connectivity opportunities. The total budget of the Terminal C Optimization and Terminal B to C Connector project is expected to be $218.0 million, and the project is expected to be funded with a combination of (i) Bond proceeds of $104.7 million (previously financed with proceeds of the 2019-C Bonds), (ii) PFC Backed Debt of $40.3 million (previously financed with proceeds of the 2021-E Bonds), and (iii) Authority funds of $73.0 million. As of March 31, 2022, $188.0 million has been spent on this project and the current expected substantial completion date is August 2022.

To enhance the operational efficiency and flexibility of Terminal B, the Authority rebuilt the space inside Terminal B Pier B at a total cost of $156.0 million. The project was funded with a combination of (i) Bond proceeds of $102.5 million (previously financed with $77.5 million of proceeds of the 2017-A Bonds and $25.0 million of proceeds of the 2016-B Bonds), (ii) PFCs or PFC Backed Debt of $42.0 million (previously financed with proceeds of the 2019-C Bonds), and (iii) Authority funds of $11.5 million. This project was an important component of the Airport's long term planning goal to have all terminal gates connected post security. The primary focus of the project was to expand Terminal B's existing footprint by approximately 9,000 square feet to achieve consolidated security checkpoints that include six automated screening lanes to increase throughput and enhance security, consolidate ticketing into one central location to ensure that sufficient ticketing counters are available, make apron improvements to accommodate a wider range of aircraft at most gates, add a connecting corridor from Gates 1 – 3 to the main Terminal B so all Terminal B Pier B gates will be connected post security, and right-size the holdrooms, adding approximately 12,000 square feet to holdroom space, to accommodate the increased number of actual and projected Airport passengers. This project enabled the consolidation of American's operations in Terminal B, thereby freeing up five gates in Terminal B, Pier A that were relinquished by American for expanded operations by other carriers or to accommodate new carriers at the Airport. As a result of this optimization project, Southwest moved into the vacated Terminal B, Pier A gates and Delta took on Southwest's five gates in Terminal A to expand its operations. As of March 31, 2022, $155.8 million was spent on this project and the project had reached substantial completion.

Improvements to Facilitate the Growth of International Traffic at Logan. The Authority has undertaken a number of projects to support the increase in international traffic. The first of these projects, Jet Bridge Improvements, consists of updating safety systems on select bridges and replacing seven jet bridges at Terminal E that have reached the end of their useful life ($17.8 million project cost), and as of March 31, 2022, $1.6 million was spent on this project. The program also include projects to replace Terminal E ticket counters, interline carousel and belt system and a ramp tower to facilitate the control of ground traffic at Terminal E ($7.5 million project cost).

The second, and larger, project is a major Terminal E Modernization project. The Terminal E Modernization project is designed to include the addition of four new gates and holdrooms. The project also includes renovations to

[3] Total project costs reflected in this section may differ slightly from the summary table on the prior page to the extent such projects have multiple funding sources and/or involve spending that has occurred either prior to fiscal year 2022 or that will occur after fiscal year 2025 (and thus falls outside the current capital planning period).

existing facilities, rehabilitation of existing elevators, a new security checkpoint, reconfiguration of the customs and border protection hall, additional baggage carousels and other passenger amenities. The total cost of the Terminal E Modernization project is currently expected to be $637.0 million and is expected to be funded with a combination of (i) Bond proceeds (including proceeds of the 2016-B Bonds, the 2019-C Bonds, the 2021-E Bonds and the 2022 Bonds)(see "Funding Sources – 2022 Bond Proceeds" below) ($287.9 million), (ii) PFC Backed Debt (including proceeds of the 2021-E Bonds and the 2022 Bonds)(see "Funding Sources – 2022 Bond Proceeds" below) ($261.6 million) and (iii) Authority funds ($87.5 million). As of March 31, 2022, $424.3 million has been spent on this project and the current expected substantial completion date is July 2023.

Improvements to Roadways and Ground Transportation at Logan. The FY22-FY26 Capital Program includes three major projects designed to address roadway congestion that resulted from increased passenger traffic prior to the COVID-19 pandemic (which passenger traffic is expected to return): (i) the Terminal B to C Roadway Improvements project, (ii) the Terminal C Canopy and Upper Deck project and (iii) Terminal B Roadway Optimization and HOV Improvements project. The Authority will continue its investment in ground transportation at Logan by improving the Terminal B to C Roadways at a total expected cost of $205.0 million, expected to be funded with a combination of (i) Bond proceeds of $153.0 million (previously financed with $90.4 million of proceeds of the 2019-B Bonds and $62.6 million of proceeds of the 2021-D Bonds) and (ii) Authority funds of $52.0 million. The goal of the Terminal B to C Roadway Improvements project is to replace the aging section of viaduct, improve traffic flow and alleviate congestion at Terminal C. Prior to the pandemic, during peak operation hours, there were frequent challenges with respect to the traffic flow between Terminals B and C, which negatively impacted the ability of passengers to reach the Terminal C curbside. The construction of the project is progressing, including building a new section of departures roadway viaduct, along with new surface roadways at the arrivals level. The new roadway system with improved alignment is intended to meet the Authority's objectives of significantly reducing traffic congestion once the project is complete as well as reducing costly and disruptive roadway repair contracts. As of March 31, 2022, $143.6 million has been spent on this project and the current expected substantial completion date is the end of December 2023.

The Terminal C Canopy and Upper Deck project, with a total expected cost of $100.0 million that is expected to be funded with a combination of (i) Bond proceeds (previously financed with $64.8 million of proceeds of the 2019-B Bonds) and (ii) Authority funds ($35.2 million), will replace the existing departures level canopy and provide more curbside space for passengers. As of March 31, 2022, $95.8 million has been spent on this project and the project was substantially completed in December 2021.

In addition, the Terminal B Roadway Optimization and HOV Improvements project with an expected total cost of $100.0 million, consists of reconstruction and reconfiguration of Terminal B garage departures level roadway, garage improvements and bridges for HOV passenger drop-off at Terminal B. This project is expected to be funded with a combination of (i) grant funds ($75.0 million) and (ii) Authority funds ($25.0 million). This project is expected to commence in July 2022 and be completed in fiscal year 2026.

Further, the Authority is planning for the mid-life rebuild of on-airport shuttle buses. These buses, which include 18 42-foot buses and 32 60-foot buses, are part of the Authority's on-airport shuttle bus system. The rebuild will extend the useful life of these buses and is expected to cost $30.0 million, which is expected to be funded with a combination of (i) CFCs ($15.0 million) and (ii) Authority funds ($15.0 million). As of March 31, 2022, $8.7 million has been spent on this project and the Authority expects to complete this project by January 2023.

Other Airport Projects. The remainder of the FY22-FY26 Capital Program includes a variety of projects, including the following and their estimated costs for fiscal years 2022 through 2026: (i) Energy Conservation Efforts & Measures program ($65.0 million) to improve energy conservation and efficiency through upgrading, renovating, enhancing existing buildings and facilities and using less energy for heating/cooling lighting and ultimately transitioning to clean fuel sources; (ii) HVAC Controls Upgrade ($5.0 million) to upgrade the controls and constant volume air control boxes in the terminals; (iii) Central Heating Plant Upgrade ($12.4 million within the FY22-FY26 Capital Program), which is an upgrade to the Central Heating Plant, which provides chilled water, steam and high temperature hot water in the terminal facilities where ($28.0 million has been spent as of March 31, 2022); and (iv) Electrical Systems Improvements ($25.0 million), which includes electrical infrastructure upgrades to duct banks, electrical circuits, runway, edge, taxiway, threshold, and their related components.

In addition to the projects the Authority is funding with internally generated revenues, approximately $151.2 million of Logan airfield projects are expected to be funded with grants and PFCs, including but not limited to Runway 9-27 Safety Area Improvements ($71.7 million), which is a multi-year project that started in fiscal year 2020. The first phase is preliminary design and environmental permitting, which is the current project phase into fiscal year 2023. Final permitting, final design and construction phases will be in future fiscal years, with construction expected for calendar years 2025 and 2026. There are various other runway rehabilitation projects that are estimated at a cost of $79.5 million.

Worcester Airport and Hanscom Field Improvements. As part of the Authority's commitment to developing air service for the citizens of central Massachusetts, from fiscal year 2022 through fiscal year 2026, the Authority expects to spend $31.4 million on improvements at Worcester Regional Airport, primarily funding airfield work and equipment needs. In addition, the FY22-FY26 Capital Program includes Authority expenditures of $55.8 million at Hanscom Field, primarily funding airfield work and equipment needs.

Maritime Improvements. The FY22-FY26 Capital Program includes funding for all or a portion of the following improvements at the Port Properties:

Conley Terminal Projects. As part of its strategic planning efforts, the Authority continues to improve Conley Terminal to accommodate the newly consolidated shipping lines and the arrival at the Port of larger post-panamax vessels. The FY22-FY26 Capital Program includes the following projects and their estimated costs from fiscal year 2022 through fiscal year 2026: (i) $31.5 million for Berth 10 Expansion, which will increase the linear footage of big ship berth space by approximately 400 feet and will include dredging of the channel; (ii) $38.7 million relating to the replacement of cranes that are at the end of their useful life, maintenance and purchase of low emission ship-to-shore cranes; (iii) $49.6 million for the Conley Terminal infrastructure improvements and equipment upgrades; and (iv) $42.0 million for shore power improvements for the Flynn Cruise Terminal and Conley Terminal.

In addition to the projects the Authority is funding with internally generated revenues, the FY22-FY26 Capital Program also includes a number of improvement projects to the Port Properties which are expected to be funded by federal grants. These projects include: (i) the Terminal Container Storage Project ($16.7 million), a component of the Build Grant program that will clean up and pave the remaining land area, expand the container storage capacity and address exiting port infrastructure constraints; (ii) the In-Out Gate Facilities project ($14.5 million in the FY22-FY26 Capital Program), which includes construction of a new out-gate complex, which will allow for increased stacking on existing terminal and one way traffic flow, thereby increasing terminal safety; and (iii) Berth 11 and 12 Backland Area Pavement Repairs ($4.7 million in the FY22-FY26 Capital Program), which will facilitate and allow for more efficient and safe terminal operation. As of March 31, 2022, $23.7 million had been spent on the In-Out Gate Facilities project, and $3.1 million had been spent on the Berth 11 and 12 Backland Area Pavement Repairs. See "PORT PROPERTIES – Maritime Properties – Conley Terminal" for a further discussion of the total cost and expected funding sources for the various improvements at Conley Terminal.

Real Estate Improvements. The FY22-FY26 Capital Program includes the potential acquisition of several parcels owned by the US Army ($40.0 million) and construction of a Department of the Army ("*DOA*") equipment maintenance facility and performing certain site work at the DOA Fort Devens site ($10.9 million total project costs). In exchange for this work, the DOA has agreed to transfer to the Authority a 4.3 acre parcel on E Street, which parcel is strategically located adjacent to the Authority's Fargo Street terminal. This land is expected support the future development of a new United States Postal Service general mail facility, to be relocated from South Station.

Third Party Funded Capital Projects

As described above, the Authority expects that approximately $732.4 million of the total FY22-FY26 Capital Program will be financed by third party funds (i.e. funds that are not on the Authority's balance sheet). Projects include (i) mixed-use developments at Logan, Worcester and Maritime ($123.7 million), (ii) the Marketplace Logan concessions development program ($113.0 million) (iii) the Signature FBO ($40.0 million), and (iv) an office/lab hybrid building development on Parcel A-2 ($427.0 million).

Sustainability Components of the FY22-FY26 Capital Program

Massport's commitment to sustainability is reflected in the FY22-FY26 Capital Program and its capital planning efforts. In planning for each capital project, the project team identifies sustainability components utilizing the Authority's Sustainability and Resiliency Design Standards and Guidelines, which help inform teams to incorporate design elements into projects that support the Authority's environmental objectives and goals. Teams also utilize the Authority's Floodproofing Design Guide to identify any climate adaptation requirements for a particular project.

Substantially all of the projects in the FY22-FY26 Capital Program include various design and/or construction elements that incorporate sustainability and resiliency guidelines, including sustainability features such as a photovoltaic solar array, high efficiency heating and ventilation equipment, low flow water and fixtures and climate resilient design. Below are a few recent examples of sustainability components in the FY22-FY26 Capital Program:

- **Terminal E Modernization**. The Terminal E Modernization project is one of the major projects identified by the Authority as part of the FY22-FY26 Capital Program to improve passenger mobility and relieve terminal and roadway congestion, while promoting sustainability and enhancing the customer experience. The Authority expects this project to produce the following sustainability benefits:

    - Expected to achieve U.S. Green Building Council Leadership in Energy and Environmental Design ("*LEED*") Silver certification or higher;
    - Incorporates sustainability in design, construction and operations, such as: (i) installation of solar photovoltaic roof panels and solar glaze windows (>300 KW energy generation); (ii) use of efficient HVAC systems and lighting fixtures (expected to result in 20% energy efficiency savings); and (iii) use of water conservation devices (expected to reduce water usage by 20%);
    - Terminal E roadway and curb improvements are expected to improve vehicle flow and high occupancy vehicle access, and reduce air pollution (e.g., nitrogen oxide and particulates) and GHG emissions (estimated reduction in carbon dioxide emissions of at least 30%);
    - Seven new gates at Terminal E will be equipped with auxiliary power and pre-conditioned air units to reduce aircraft air emissions, greenhouse gas emissions and energy consumption; and
    - New gates are expected to increase airside efficiency by minimizing the need to bus passengers between the terminal and remote aircraft parking, further reducing greenhouse gas emissions.

- **Terminal C Optimization/ Terminal B to C Connector**. The Terminal C Optimization and Terminal B to C Connector project, which is currently underway and expected to be completed in summer 2022, has achieved LEED Silver certification. This project will include new energy efficient building envelope and heating and cooling systems, the demolition of an old tower structure, which allows for more efficient roadways and improved air quality due to less congestion, improved storm water management system and resiliency measures, the installation of electric ground support equipment (eGSE) charging stations to support eGSE fleet expansion and the optimization of terminal areas to support efficient recycling and waste management systems.

- **Terminal B to Terminal C Roadways**. The Terminal B to Terminal C Roadways project, which is currently underway and expected to be completed in late 2023, includes infrastructure and vehicular improvements that will enhance traffic flow and improve overall Airport traffic by reducing vehicle queuing on roadways. Reduced vehicle queuing and idling due to traffic congestion will result in reduced emissions. Further, new LED roadway lighting will be installed that will include a lighting control system to reduce energy consumption.

Funding Sources

The Authority utilizes a variety of funding sources to fund the projects in its capital program including (i) Bonds, including Bonds payable from PFC revenues that have been designated as Available Funds under the 1978 Trust Agreement ("*PFC Backed Debt*")[4], and commercial paper, (ii) PFCs, federal grants, CFCs and private capital, (iii) Commonwealth funds, and (iv) cash flow from the Authority's operations. The Authority's commercial paper program provides interim funding for certain projects. See "MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS – Debt Service and Coverage." As of March 31, 2022, the Authority had the following approximate amounts available for projects included in the FY22-FY26 Capital Program: $1,274.0 million of cash from operations, $90.2 million of Bond and commercial paper proceeds, $80.1 million of pay-as-you-go PFCs, $33.2 million of CFCs and $20.5 million of Commonwealth funds for harbor dredging.

The funding sources expected to be available to finance projects in the FY22-FY26 Capital Program include the following:

2022 Bond Proceeds. The proceeds of the 2022 Bonds are expected to be used by the Authority to finance $116.4 million of project expenditures as shown in the table below ($ in thousands):

	Total Expected Project Expenditures from Bond Proceeds	% of 2022 Bonds Expected to Constitute PFC Backed Debt
2022 Bonds (AMT)		
Terminal E Modernization	$116.4	36.1%
Total 2022 Bonds Proceeds	**$116.4**	

The Authority expects that 36.1% of the 2022 Bonds will constitute PFC Backed Debt and accordingly will be payable from PFCs. The use of PFCs to pay debt service on such portion of the 2022 Bonds has been approved by the FAA.

Passenger Facility Charges. Beginning in 1993, the Authority has received multiple FAA approvals to impose and use PFCs, which have been collected at the $4.50 level since October 1, 2005. As of March 31, 2022, the Authority's PFC impose and use authority was a total of $2.46 billion. All PFCs collected by the Authority are presently deposited with The Bank of New York Mellon, as custodian (the "*PFC Custodian*"), pursuant to a PFC Depositary Agreement dated July 3, 2017 (the "*PFC Depositary Agreement*"), between the Authority and the PFC Custodian. In accordance with the 1978 Trust Agreement, the proceeds of PFCs have been excluded from the Revenues securing the Bonds. A portion of the principal of, premium, if any, and interest on each of the 2019-A Bonds, the 2019-C Bonds, the 2021-C Bonds, the 2021-E Bonds and the 2022 Bonds is expected to be paid with PFCs. "See SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service. In the event that PFC revenues and other funding sources are inadequate to meet anticipated project costs, the Authority would look for other funding sources or defer or cancel projects.

Customer Facility Charges. In December 2008, the Authority imposed a $4.00 CFC for each transaction day that a car is rented at Logan. Effective December 2009, the CFC was increased to $6.00 per transaction day. The CFC provides security for a special facility financing under the CFC Trust Agreement (as defined herein). Effective upon the adoption of the CFC Trust Agreement, the CFCs were excluded from Revenues securing the Bonds and pledged as security under the CFC Trust Agreement. See "OTHER OBLIGATIONS – CFC Revenue Bonds."

Federal Grants. The Authority receives grants annually from the FAA pursuant to the Airport Improvement Program ("*AIP*"). These grants generally fall into two categories: (i) entitlement grants, which are awarded based

[4] Pursuant to the 1978 Trust Agreement, commencing in fiscal year 2020, the Authority is authorized to approve a resolution or resolutions that designate specified PFC revenues as Available Funds, and, to the extent approved by the FAA, such amounts would then be used to pay debt service on specific Series of Bonds. See "SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service" in the Official Statement.

upon the number of passengers enplaned, and (ii) discretionary grants, which are awarded at the discretion of the FAA based upon specified criteria, including a cost-benefit analysis. Similar to many federal grant-in-aid programs, AIP grants are reimbursement grants. Accordingly, the Authority must expend its own cash to fund an authorized project and then submit invoices to the FAA for reimbursement of such costs pursuant to the terms of the grant. Thus, while grants may be awarded in one fiscal year, grant funds may be received over a period of several subsequent fiscal years. For a description of the AIP program, see "CERTAIN INVESTMENT CONSIDERATIONS – Considerations Regarding Other Sources of Revenue – Federal Grants-in-Aid." In addition to the FAA AIP grants, the Authority also receives grants from the U.S. Department of Homeland Security and the U.S. EPA from time to time.

The Authority will continue its practice of fully utilizing the AIP entitlement grants that are awarded to it to maintain and improve Logan Airport, Hanscom Field and Worcester Regional Airport, and of aggressively seeking FAA discretionary grants for AIP eligible projects. Based on communications with the FAA, the Authority currently expects $5.9 million in annual AIP entitlement grants for Logan, as well as $1.0 million in annual AIP entitlement grants for Hanscom Field and $1.0 million for Worcester Regional Airport.

During March 2020 through March 2021, nearly $20 billion of CARES Act, CRRSAA and ARPA grant funds were made available to eligible U.S. airports to prevent, prepare for, and respond to COVID-19 pandemic impacts, including support for continuing airport operations. While these funds are not AIP grants, a portion of the funds (Group 1) were earmarked towards increasing the federal share to 100% for fiscal year 2020 and 2021 AIP and Supplemental Discretionary grants. This portion of funding is further discussed below. Another portion of the funds (Group 2) were earmarked for commercial service airports to help offset the financial impact of the COVID-19 pandemic (and are generally not available for use to fund capital projects) and is further discussed under the heading "MANAGING THROUGH THE COVID-19 PANDEMIC – Government Relief Efforts."

In federal fiscal year 2021, Logan Airport was awarded $7.4 million in AIP grant funding by a combination of entitlements and the COVID-19 relief local match fund (Group 1) for the rehabilitation of Runway 14-32. Hanscom Field was awarded a $1.3 million AIP grant funded by the supplemental discretionary and COVID-19 relief local match fund (Group 1) for the rehabilitation of Taxiway N. Worcester Regional Airport was awarded a $1.9 million AIP grant funded by a combination of entitlements, discretionary and COVID-19 relief local match fund (Group 1) for the rehabilitation of a portion of Taxiway B. In addition, during the Authority's fiscal year 2021, the Authority collected AIP grants in the amount of $26.1 million for Logan Airport, $1.5 million for Hanscom Field and $6.4 million for Worcester Regional Airport.

The Authority was awarded a $42.0 million FASTLANE grant in May 2017 by the federal government to pay for a portion of the $102.9 million project costs associated with improving Conley's ability to accommodate increased activity. In addition, the Authority was awarded a $20.0 million BUILD Transportation Grant by USDOT in June 2021 for Conley Terminal Container Storage and Freight Corridor project to construct a new container yard holding approximately 100,000 additional containers, deploy an innovative gate and logistics system, and build an adjacent Cypher and E streets freight corridor. See "PORT PROPERTIES – Maritime Properties – Conley Terminal."

The Bipartisan Infrastructure Law ("*BIL*"), which was signed into law on November 15, 2021, allocates $14.55 billion for airport-related projects as defined under existing Airport Improvement Grant and PFC criteria. The money can be invested in runways, taxiways, safety and sustainability projects, as well as terminal, airport-transit connections and roadway projects. The BIL established two programs pursuant to which this airport funding would be allocated over five years: (i) the Airport Infrastructure Grant ("*AIG*") Allocated Program, pursuant to which funds are provided via specific, annual allocations to each eligible airport, and (ii) AIG Competitive Program, pursuant to which funds are awarded annually through a competitive Notice of Funding Opportunity (NOFO) process. Under the AIG Allocated Program, annual specific amounts are allocated separately for primary and non-primary airports, with the fiscal year 2022 allocation for primary airports, such as Logan Airport, based on the greater of calendar year ("*CY*") 2018, CY 2019, or CY 2020 enplanements, and the fiscal year 2023 allocation for primary airports being based on the greater of CY 2018, CY 2019, or CY 2021 enplanements. Starting in fiscal year 2024, the amount formulated for each airport is based upon the most recent CY enplanements. Under the AIG Allocated Program the Authority expects to receive approximately $200.0 million over five years, based on its passenger projections. The actual award made each year will be based on actual enplanements for the most recent calendar year. The Authority applied for grant funding under the AIG Competitive Program and was awarded $62 million on July 6, 2022. Of this amount, $50 million is allocable to certain Terminal E improvement projects and the remaining $12 million is allocable to certain roadway improvement projects at Logan Airport.

There can be no assurance that additional grants from the FAA or other federal agencies will be available in the future. See "CERTAIN INVESTMENT CONSIDERATIONS – Considerations Regarding Other Sources of Revenue – FAA Reauthorization and Level of Federal Airport Grant Funding."

Commonwealth Funds. The FY22-FY26 Capital Program includes $107.5 million of funds from the Commonwealth, all of which has been received, to fund its portion of the costs of the Berth 10 and crane project over a three-year period from fiscal year 2020 to fiscal year 2022. See "PORT PROPERTIES – Maritime Properties – Conley Terminal." In order to accelerate commencement of the design and construction of Berth 10 and the procurement of three new cranes for Conley Terminal, the Authority issued a series of subordinated obligations in November 2018 to provide bridge financing pending receipt of the Commonwealth's portion of the total costs of such project. These subordinated obligations have been paid in full and are no longer outstanding. See "OTHER OBLIGATIONS – Subordinated Indebtedness" herein.

Other Funding Sources. The FY22-FY26 Capital Program has been developed to be achievable within the resources anticipated to be available to the Authority at relevant times, including the capacity of users of the facilities of the Authority to bear additional charges. Moreover, the Authority is expending considerable efforts to assure that program costs are predictable and controlled. Should there occur any significant increases in the costs of projects included in the FY22-FY26 Capital Program, whether due to cost overruns or other financial obligations not now contemplated, or should anticipated resources (e.g., federal grant receipts and/or PFC collections) fail to materialize on schedule, resources available to the Authority may be inadequate to accomplish all objectives of the FY22-FY26 Capital Program. If so, the Authority would be required to utilize alternative funding sources such as the issuance of additional Bonds, or it may reduce or delay components of the FY22-FY26 Capital Program. In that event, the selection of projects to be reduced or delayed will depend on circumstances in existence at the time, including relative stages of development, relative economic importance to the activities of the Authority and degrees of transferability of project funding sources.

AUTHORITY REVENUES

The Authority operates on a consolidated basis; all Revenues generated by each of the Authority's Projects are pooled to pay the Authority's Operating Expenses and are pledged to support all of the Bonds on a parity basis. Under federal law, the Authority is one of the few "grandfathered" consolidated port authorities permitted to apply revenues generated at an airport owned by the Authority to support other operations of the Authority. See "CERTAIN INVESTMENT CONSIDERATIONS – Federal Grants-in-Aid." The Authority generates Revenues from each of its Projects, as described below, and each of the Airport and the Port Properties has several lines of business that generate revenue streams.

Airport Properties Revenues

Revenues to the Authority from Airport operations consist of landing fees, terminal building rents and fees, cargo building rents, payments made by automobile rental companies, parking fees, concessions and other payments, including Revenues generated by operations at Hanscom Field and Worcester Regional Airport.

Consistent with federal law, aeronautical fees for use of Logan Airport, including landing fees and terminal building charges, are established on a "compensatory basis," that is, set at levels calculated to compensate the Authority for the actual direct and indirect costs of providing those services and facilities to aeronautical users, principally the airlines. (However, terminal concession leases generally provide that rentals are established based upon a percentage of revenues generated, with a minimum annual guarantee, rather than pursuant to a compensatory method.) Such costs include the direct cost of such facilities, including terminals, runways and aprons, and the allocable portion of indirect costs of capital improvements serving the entire Airport, such as Airport roadways. The Authority has no agreements that require it to obtain "majority-in-interest" approvals from airlines for its operating or capital expenditures. Pursuant to federal law, landing fees and other aeronautical charges must be reasonable. The Authority believes that its rate-setting methodology is reasonable and consistent with federal law. However, there can be no assurance that such methodology will not be challenged and, if a judgment is rendered against the Authority, there can be no assurance that rates and charges paid by aeronautical users of the Airport will not be reduced. For a discussion of the federal laws and regulations affecting the Authority's Airport rates and charges, see "CERTAIN INVESTMENT CONSIDERATIONS – Federal Law Affecting Airport Rates and Charges."

The Authority establishes landing fee rates for use of Logan's airfield at levels calculated to recover the direct and indirect costs of providing common use landing field facilities and related services, based on projected aircraft landed weights for each year. Any variance from these projections is calculated after the fiscal year ends, and the adjustment is either paid to or invoiced to the air carriers and other users, although the Authority may adjust the landing fee during the fiscal year in order to reduce any variance that would be due.

Each fiscal year, the Authority also establishes terminal building rental rates and fees for aeronautical tenants of all of the Terminals, also on a compensatory basis. See "AIRPORT PROPERTIES – Airport Facilities – Lease Arrangements for Terminal Facilities." Similar to the manner in which the landing fee is handled (as described above), any variance from projected costs is calculated after the fiscal year ends, and the adjustment is either paid to or invoiced to the air carriers, although the Authority may adjust the terminal rental rates during the fiscal year in order to reduce any variance that would be due.

Other Authority Revenues generated at the Airport include parking fees, which are generated according to parking rates set by the Authority, rents and other amounts paid by concessionaires, rental car companies and cargo facility operations, and other tenants, which are set by negotiation or bid.

The FAA has approved Authority applications to impose and use a $4.50 PFC as authorized by federal legislation through October 1, 2034. The revenues from PFCs are dedicated to certain FAA-authorized capital projects and are excluded from the Revenues pledged under the 1978 Trust Agreement that secure the Bonds. See "CAPITAL PROGRAM – Funding Sources – Passenger Facility Charges." The Authority also requires CFCs to be paid by rental car customers at Logan. The current CFC of $6.00 per day is collected by the rental car companies and remitted to the trustee for the CFC Revenue Bonds as security therefor. CFC revenues are excluded from Revenues pledged under the 1978 Trust Agreement securing the Bonds. See "OTHER OBLIGATIONS – CFC Revenue Bonds."

Commencing February 13, 2019, all rental revenues the Authority receives from Delta and other Terminal A airline tenants ("*Terminal A Rental Revenues*") are included in Revenues and Net Revenues of the Authority, reflecting the impact of the refunding and defeasance of the Authority's Special Facilities Revenue Bonds (Delta Air Lines, Inc. Project), Series 2001A, 2001B and 2001C (the "*Terminal A Bonds*") with proceeds of the 2019-A Bonds, which is set forth in the historical and projected Operating Results tables set forth under "SELECTED FINANCIAL DATA" herein.

Port Properties Revenues

Revenues from the Port Properties are derived from several different sources, reflecting the diverse business activities at the Authority's maritime terminals. At Moran Terminal, Medford Street Terminal and Mystic Pier No. 1, which are leased to Boston Autoport, the tenant pays a fixed rent, plus a percentage of sublease revenues. At Conley Terminal, which is operated by the Authority, the Authority collects fees from shipping lines for loading and unloading containers and for related services. The Authority also collects dockage and wharfage fees from the vessels. At Flynn Cruiseport Boston, the Authority charges per passenger use fees, as well as dockage, water and other charges such as equipment rental.

The Authority also collects dockage and tonnage fees for bulk cargo (most particularly, cement products), ground lease rentals, and building rentals at the various associated office and warehouse buildings included in the Port Properties. Finally, the Authority realizes revenues from the building or facility rental or ground rental of the various properties it owns in East Boston, South Boston and Charlestown.

Investment Income

The Authority also derives income from the investment of the balances in the Operating Fund, the Maintenance Reserve Fund, the Improvement and Extension Fund, the Capital Budget Fund or Account, and the

Reserve and Bond Service Accounts in the Interest and Sinking Fund. See "GENERAL OPERATIONAL FACTORS – Investment Policy."

SELECTED FINANCIAL DATA

The table on page A-64 reflects historical Operating Results and Debt Service Coverage for the five most recent fiscal years and the nine-month periods ended March 31, 2021 and March 31, 2022, and has been prepared in accordance with accounting principles required by the 1978 Trust Agreement, which differ in some respects from generally accepted accounting principles ("*GAAP*"). Information for each of the five fiscal years is derived from the Authority's financial statements for the respective fiscal years. Financial statements of the Authority for fiscal year 2021 and comparative data for fiscal year 2020, together with the report thereon of Ernst & Young LLP, independent accountants, are included in APPENDIX B to the Official Statement. Information for the nine-month periods ended March 31, 2021 and March 31, 2022 in the table on page A-64 is derived from the unaudited records of the Authority.

The table on page A-65 reflects projected Operating Results and Debt Service Coverage for fiscal year 2023 through fiscal year 2027, and was prepared in accordance with accounting principles required by the 1978 Trust Agreement. Given the unprecedented nature of, and continuing uncertainty regarding, the COVID-19 pandemic and its impact on the aviation industry and worldwide economies, the table on page A-65 does not reflect a forecast of operating results and debt service coverage, but rather reflects a projection based on the Authority's financial planning scenario that aviation and port activity recovers to fiscal year 2019 levels by fiscal year 2025. The Authority's assumptions for projected airline passenger growth were developed in coordination with LeighFisher and were based upon partial year actual results, discussions with individual airlines and advance airline schedules, and assumptions regarding future air travel demand. The Authority and LeighFisher believe the passenger projection provide a reasonable basis for financial planning; however, any projection is subject to risk, volatility and uncertainty, as further described herein and in APPENDIX D.

The prospective financial information included in this APPENDIX A has been prepared by and is the responsibility of the Authority's management. The Authority and its management believe that the prospective financial information included in this APPENDIX A and appearing on page A-65 has been prepared on a reasonable basis, reflecting its best estimates and judgments, and represents, to the best of management's knowledge and opinion, the Authority's expected course of action during the projection period; however, there can be no assurance that such projected results will be realized. In particular, given the continued uncertainty related to future activity levels at the Airport Properties and the Port Properties due to the pandemic, future financial results may materially differ from the projections. The prospective financial information was prepared by the Authority in accordance with accounting principles required by the 1978 Trust Agreement in order to show projected debt service coverage; such information was not prepared with a view toward compliance with the guidelines established by the American Institute of Certified Public Accountants for preparation and presentation of prospective financial information.

Neither Ernst & Young LLP nor any other independent accountant has examined, compiled, reviewed, audited or performed any procedures with respect to the "Projected Operating Results and Debt Service Coverage" appearing on page A-65 or the Review of Airport Properties Net Revenues Projection included in APPENDIX C to the Official Statement, and, accordingly, Ernst & Young LLP does not express an opinion or any other form of assurance on such information or its achievability. Neither Ernst & Young LLP, nor any other independent accountant, assumes any responsibility for or has any association with the prospective financial information and any other information derived therefrom included elsewhere in this offering document.

The Ernst & Young LLP report included in APPENDIX B to the Official Statement relates to the Authority's historical financial information. The Ernst & Young LLP report does not cover any other information in this offering document and should not be read to do so.

The following tables show the calculation of Annual Debt Service Coverage of the Authority, as provided under the 1978 Trust Agreement, which equals the ratio of the Net Revenues of the Authority to the Annual Debt Service for such year. "*Net Revenues*" is defined in the 1978 Trust Agreement as the excess of Revenues over Operating Expenses. For the purpose of the calculations, proceeds of PFCs and CFCs have been excluded from Revenues because such proceeds have been excluded from Revenues under the 1978 Trust Agreement. In addition, for purposes of the historical Operating Results and Debt Service Coverage table on page A-64, all Terminal A Rental

Revenues received on or after February 13, 2019 are included as Revenues, reflecting the impact of the refunding and defeasance of the Terminal A Bonds with proceeds of the 2019-A Bonds. As used in the tables on page A-64 and A-65, "*Net Debt Service*" is equal to the "Principal and Interest Requirements" on Bonds outstanding for the applicable fiscal year, less the capitalized interest paid from the applicable Project Fund, less expected debt service on PFC Backed Debt. See "SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service" in the Official Statement and APPENDIX D to the Official Statement – Summary of Certain Provisions of the 1978 Trust Agreement – "Certain Definitions."

The calculation of Revenues, Operating Expenses, Annual Debt Service, Net Debt Service and Annual Debt Service Coverage under the table captioned "Projected Operating Results and Debt Service Coverage" is based upon certain assumptions described below under the heading "MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS." While the Authority believes that the assumptions made are reasonable, it makes no representation that the conditions assumed will in fact occur. To the extent that actual future conditions differ from those assumed or from the information on which the assumptions are based, the actual operating results will vary from those projected, and such variations may be material.

Note 2 to the Financial Statements in APPENDIX B to the Official Statement includes a reconciliation between the increase in Net Assets as calculated under GAAP and Net Revenues as calculated under accounting practices prescribed by the 1978 Trust Agreement. The significant differences between the two methods of accounting are as follows: investment income is included as operating revenue under the 1978 Trust Agreement, but not under GAAP; and depreciation expense, interest expense, payments in lieu of taxes, PFCs, CFCs and capital grants are all recorded under GAAP, but not under the 1978 Trust Agreement. See APPENDIX B to the Official Statement.

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HISTORICAL OPERATING RESULTS AND DEBT SERVICE COVERAGE UNDER THE 1978 TRUST AGREEMENT

(Fiscal Year Ended June 30, except as noted)

($ in thousands)

1978 Trust Agreement	2017	2018	2019	2020	2021	Nine Months Ended 03/31/2021	Nine Months Ended 03/31/2022	Twelve Months Ended 03/31/2022
Revenues:								
Airport Properties - Logan								
Landing Fees	$ 113,162	$ 119,190	$ 119,847	$ 110,490	$ 122,564	$ 82,661	$ 89,252	$ 129,155
Parking Fees	168,919	180,349	181,478	136,436	58,089	32,514	106,718	132,293
Utility Fees	15,284	15,349	13,541	11,126	9,263	6,722	9,906	12,447
Terminal Rentals (1)	161,816	180,331	203,861	211,136	209,318	141,567	155,045	222,796
Non-Terminal Building and Ground Rents	49,641	52,856	54,788	55,725	52,277	39,921	43,202	55,558
Concessions	98,093	113,588	129,356	110,669	57,742	42,446	68,653	83,949
Other (2)	31,303	33,321	34,596	29,001	13,555	9,366	18,814	23,003
	638,218	694,984	737,467	664,583	522,808	355,197	491,590	659,201
Airport Properties - Hanscom	12,839	14,262	14,924	14,587	14,091	9,927	14,017	18,181
Airport Properties - Worcester	1,634	1,800	3,007	1,959	1,918	1,195	1,744	2,467
Total Airport Properties	652,691	711,046	755,398	681,129	538,817	366,319	507,351	679,849
Port Properties								
Maritime Operations (3)	81,738	93,831	102,883	92,619	81,055	61,821	40,857	60,091
Maritime Business Development/Real Estate	30,021	30,446	46,218	49,112	37,962	30,930	25,501	32,533
	111,759	124,277	149,101	141,731	119,017	92,751	66,358	92,624
Total Operating Revenue	764,450	835,323	904,499	822,860	657,834	459,070	573,709	772,473
Investment Income (4)	7,902	12,265	21,659	23,394	10,396	8,290	6,795	8,901
Total Revenues	772,352	847,588	926,158	846,254	668,230	467,360	580,504	781,374
Operating Expenses (5):								
Airport Properties								
Logan	328,869	342,973	361,177	352,390	302,078	221,006	242,177	323,249
Hanscom	12,530	14,498	14,866	15,132	13,346	9,678	10,432	14,100
Worcester	9,672	10,680	13,949	16,723	10,841	8,420	9,970	12,391
	351,071	368,151	389,992	384,245	326,265	239,104	262,579	349,740
Port Properties								
Maritime Operations (3)	70,088	75,695	78,432	76,704	68,600	50,372	45,475	63,703
Maritime Business Development/Real Estate	19,082	21,384	24,004	23,026	21,685	16,218	16,696	22,163
	89,170	97,079	102,436	99,730	90,285	66,590	62,171	85,866
Total Operating Expenses	440,241	465,230	492,428	483,975	416,550	305,694	324,750	435,606
Net Revenue before Other Available Funds	$ 332,111	$ 382,358	433,730	362,279	251,680	161,666	255,754	345,768
Other Available Funds (6)	-	-	-	57,080	121,127	86,603	82,109	116,633
Net Revenues	$ 332,111	$ 382,358	$ 433,730	$ 419,359	$ 372,807	$ 248,269	$ 337,863	$ 462,401
Total Annual Debt Service including PFC Backed Debt (7)	$ 101,456	$ 111,323	$ 118,550	$ 130,875	$ 74,715	NA	NA	NA
PFC Revenues to be applied to Debt (8)	$ -	$ -	$ -	$ (11,571)	$ (7,066)	NA	NA	NA
Net Annual Debt Service	$ 101,456	$ 111,323	$ 118,550	$ 119,304	$ 67,649	NA	NA	NA
Annual Debt Service Coverage	3.27	3.43	3.66	3.52	5.51	NA	NA	NA

(1) Prior to February 13, 2019, excludes the portion of Terminal A rental revenue that was pledged to pay debt service on the Terminal A Bonds. On February 13, 2019, the Terminal A Bonds were retired, and accordingly, after such date, all Terminal A rental revenue is included in Logan rental revenues.

(2) Logan Airport uncollectible accounts have been included in Logan Other Revenue.

(3) Maritime Operations include Auto, Container, Cruise and Seafood Business lines.

(4) Excludes investment income earned by and deposited into Construction, PFC and CFC Funds and other funds not held under the 1978 Trust Agreement.

(5) Includes allocation of all operating expenses related to Authority General Administration.

(6) Reflects CARES Act, CRRSAA and ARPA grant funding received by the Authority and used for operating expenses; such amounts were designated as Available Funds under the 1978 Trust Agreement and are thus reflected as an adjustment to Net Revenues.

(7) Equal to the "Principal and Interest Requirements" on Bonds outstanding for applicable fiscal year, less the capitalized interest paid from the applicable Project fund.

(8) Represents PFC Revenues designated as Available Funds under the 1978 Trust Agreement.

Source: Authority's accounting reports.

PROJECTED OPERATING RESULTS AND DEBT SERVICE COVERAGE UNDER THE 1978 TRUST AGREEMENT

(Fiscal Year Ended June 30, except as noted)

($ in thousands)

	2022 (1)	2023	2024	2025	2026
1978 Trust Agreement Revenues:					
Airport Properties - Logan					
Landing Fees	$ 122,835	$ 128,639	$ 139,289	$ 148,740	$ 157,021
Parking Fees	127,941	139,229	162,794	177,902	181,260
Utility Fees	12,356	11,515	12,111	12,741	15,673
Terminal Rentals	213,411	240,150	270,693	278,461	294,887
Non-Terminal Building and Ground Rents	56,489	53,754	54,821	55,909	57,010
Concessions	90,843	105,065	120,451	130,772	139,809
Other (2)	21,703	23,573	25,891	27,643	28,103
	$ 645,579	$ 701,925	$ 786,049	$ 832,168	$ 873,762
Airport Properties - Hanscom	17,358	18,024	18,385	18,753	19,128
Airport Properties - Worcester	1,989	2,098	2,397	2,618	2,671
	$ 664,927	$ 722,047	$ 806,831	$ 853,539	$ 895,561
Port Properties					
Maritime Operations (3)	$ 62,108	$ 72,376	$ 83,762	$ 94,309	$ 105,128
Maritime Business Development/Real Estate	32,600	28,576	29,280	30,777	33,018
	$ 94,708	$ 100,952	$ 113,042	$ 125,086	$ 138,146
Total Operating Revenue	$ 759,634	$ 823,000	$ 919,873	$ 978,625	$ 1,033,707
Investment Income (4)	9,631	10,000	19,127	20,353	19,404
Total Revenues	$ 769,265	$ 833,000	$ 939,000	$ 998,977	$ 1,053,111
Operating Expenses (5):					
Airport Properties					
Logan	$ 322,884	$ 370,630	$ 390,095	$ 406,425	$ 435,896
Hanscom	13,652	15,366	15,941	16,481	17,400
Worcester	12,806	14,922	15,470	15,984	16,906
	$ 349,342	$ 400,918	$ 421,506	$ 438,890	$ 470,202
Port Properties					
Maritime Operations (3)	$ 63,621	$ 69,884	$ 77,430	$ 85,150	$ 95,711
Maritime Business Development/Real Estate	21,861	24,001	24,892	25,714	27,232
	$ 85,482	$ 93,885	$ 102,322	$ 110,864	$ 122,943
Total Operating Expenses	$ 434,825	$ 494,803	$ 523,828	$ 549,754	$ 593,145
Net Revenue before Other Available Funds	$ 334,441	$ 338,197	$ 415,172	$ 449,223	$ 459,966
Other Available Funds (6)	$ 82,109	$ 40,000	$ 25,000	$ -	$ -
Net Revenues	$ 416,550	$ 378,197	$ 440,172	$ 449,223	$ 459,966
Total Debt Service including Debt Backed by PFCs (7)	$ 92,333	$ 162,556	$ 194,952	$ 203,628	$ 216,739
PFC Revenue to be applied to Debt (8)	(9,109)	(14,684)	(25,402)	(25,423)	(25,423)
Net Debt Service	$ 83,224	$ 147,872	$ 169,549	$ 178,205	$ 191,316
Annual Debt Service Coverage	5.01	2.56	2.60	2.52	2.40

NOTE: The financial projections presented in this table were prepared by the Authority on the basis of assumptions believed by it to be reasonable. See "MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS" in this APPENDIX A. The projections reflect the Authority's expected course of action during the projection period as it continues to manage through the impact of the COVID-19 pandemic; however, there can be no assurance that such projected results will be realized. In particular, given the uncertainty related to future activity levels at the Airport Properties and the Port Properties due to the pandemic, future financial results may materially differ from the projections.

(1) Reflects actual data for the nine months ended March 31, 2022, and budgeted data for the remaining three months.
(2) Logan Airport uncollectible accounts have been included in Logan Other Revenue.
(3) Maritime Operations include Auto, Container, Cruise and Seafood Business lines.
(4) Excludes investment income earned by and deposited into Construction, PFC and CFC Funds and other funds not held under the 1978 Trust Agreement.
(5) Includes allocation of all operating expenses related to Authority General Administration.
(6) The Authority expects to designate the following amount of CARES Act, CRRSAA and ARPA grant funds as Available Funds: $82.1 million in fiscal year 2022, $40.0 million in fiscal year 2023 and $25.0 million in fiscal year 2024.
(7) Includes (i) the 2022 Bonds, (ii) the portion of the 2019-A Bonds, 2019-C Bonds, 2021-C Bonds, 2021-E Bonds and 2022 Bonds debt service expected to be paid from PFCs (see "CAPITAL PROGRAM – Funding Sources – 2022 Bond Proceeds"), and (iii) an allowance for debt service associated with approximately $300 million of future revenue bond issuances that the Authority may undertake over the remainder of the projection period (see ""MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS").
(8) Represents PFC revenues expected to be used to offset a portion of the debt service on the 2019-A Bonds, 2019-C Bonds, 2021-C Bonds, 2021-E Bonds and 2022 Bonds (see "CAPITAL PROGRAM – Funding Sources – 2022 Bond Proceeds" and "MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS").

MANAGEMENT'S DISCUSSION OF HISTORICAL OPERATING RESULTS

The information provided by the Authority in this section of APPENDIX A includes fiscal year 2021 results, which reflects approximately one year and four months of impact from the COVID-19 pandemic. Accordingly, the information in this section of APPENDIX A may not be indicative of future results or performance due to the continued and evolving nature of the COVID-19 pandemic. See "MANAGING THROUGH THE COVID-19 PANDEMIC."

The Authority derives revenues from a wide variety of sources, including landing fees and terminal building rental rates and fees, commercial parking fees, concession and rental car revenues, cargo tariffs and land rentals. Certain of these revenues are regulated by state or federal law, such as aeronautical revenues derived from landing fees and terminal rentals, PFCs and port tariffs. See "AUTHORITY REVENUES – Airport Properties Revenues" and "CERTAIN INVESTMENT CONSIDERATIONS – Federal Law Affecting Rates and Charges" and "– Considerations Regarding Other Sources of Revenue." The Authority is not restricted by law with respect to establishing rates for certain other activities, such as commercial parking rates and rental rates for development properties, but the Authority is subject to general market conditions. Similarly, the Authority's operating expenses are governed, in part, by applicable law, which mandates certain standards applicable to large commercial service airports, such as Logan Airport, including safety and security staffing and capital requirements. For example, following September 11, 2001, the FAA and TSA instituted numerous security measures for all U.S. airports and seaports, including Logan Airport, Hanscom Field, Worcester Regional Airport and the Port of Boston, which increased the Authority's Operating Expenses. These measures include, but are not limited to, increasing the number of security and law enforcement personnel, restricting the parking of vehicles near terminals, prohibiting all unticketed persons beyond security checkpoints and enhancing the search and screening of all passengers and baggage.

For purposes of the fiscal year 2021 audited financial statements, in accordance with GAAP, the Authority recognized $121.1 million of CARES Act and CRRSAA grant funds as being used for operating expenses. Such amount was designated as Available Funds under the 1978 Trust Agreement and was reflected as an adjustment to Net Revenues. Any discussion in this section related to year-over-year performance of operating expenses or Net Revenues <u>excludes</u> CARES Act and CRRSAA grant funds designated as Available Funds to ensure a meaningful comparison.

Total Operating Revenues in fiscal year 2021 were $657.8 million compared to $822.9 million in fiscal year 2020, while Operating Expenses were $416.6 million in fiscal year 2021 compared to $484.0 million in fiscal year 2020, resulting in Net Revenues, prior to the application of other Available Funds, of $251.7 million and $362.3 million in fiscal year 2021 and fiscal year 2020, respectively. Taking into account the $121.1 million of CARES Act and CRRSAA grant funds that were designated as Available Funds under the 1978 Trust Agreement, fiscal year 2021 Net Revenues were $372.8 million. Logan Airport is the primary source of the Authority's Revenues, Net Revenue and Operating Expenses. For a discussion of the differences between the accounting principles required by the 1978 Trust Agreement and GAAP, see Note 2 to the Financial Statements in APPENDIX B to the Official Statement. Revenues and Net Revenues do not include PFC revenues, which are required under federal law to be applied to certain FAA-authorized capital projects at the Airport and are not pledged for the benefit of holders of the Bonds, or CFC revenues, which are pledged as security for the CFC Revenue Bonds. See "OTHER OBLIGATIONS – CFC Revenue Bonds." Operating revenue and expense figures for the Airport Properties and Port Properties do not include certain items, particularly expense items such as payments in lieu of taxes, interest and depreciation and amortization, properly allocable to such properties under GAAP.

The Authority actively manages both its revenues and expenses in order to balance several important goals, including the following: maintaining overall expenses at levels designed to maintain the Authority's standards for safety and security and customer service while maintaining reasonable rates for the users of its facilities, recovering a greater share of the actual costs of each of the Authority's Properties from the users of such Properties, maintaining the Authority's financial flexibility and ability to react to unforeseen events and balancing the mix of revenue sources to reduce reliance on any single source of revenues. Consistent with the profit and loss focus of the Authority's senior management, both of the operating departments, Aviation and Maritime, seek to recover an increasingly greater percentage of the actual operating costs and amortization allocable to each facility. Thus, for example, the Aviation Department has raised rents at and instituted a rates and charges policy for the use of Hanscom Field. The Maritime Department has increased tariffs for services provided to commercial shippers at the Port of Boston, while pursuing new revenue development through increasing uses of Port Properties and marketing programs to increase the volume of containers handled and the number of cruise passengers embarking and disembarking in Boston.

The Authority benchmarks certain key indices against its peers and establishes financial targets based upon such indices in order to evaluate its rates and maintain a competitive position in the various markets served by the Authority. The Authority strives to balance the need to maintain competitive rates with the need to provide a high level of service to its customers. Because the aeronautical rates and charges at Logan Airport are driven by actual costs, the Authority continually reviews and analyzes, and ultimately controls, its operating expenses. Thus, the Authority develops its five-year rolling capital program taking into account the annual capital and operating costs that will result from each project within the program. In an iterative process, the Authority develops a five-year rolling projected operating budget based upon the projected five-year capital program and benchmarks the projected operating expenses resulting from the proposed projects in order to constrain the capital program in a manner that allows the Authority to meet its financial targets.

Airport Properties

Airport Properties Net Revenues (Airport Properties Revenues less Airport Properties Operating Expenses), prior to the application of other Available Funds, decreased from fiscal year 2020 to fiscal year 2021 by $84.3 million or 28.4%. The number of passengers using Logan Airport (excluding general aviation) in fiscal year 2021 was 59.7% lower than in the prior fiscal year. Landed weights were 47.1% lower than the prior fiscal year. Logan Airport parking revenues were 57.4% lower than such revenues in fiscal year 2020. Logan Airport generated approximately $522.8 million of Operating Revenues and incurred $302.1 million of Operating Expenses in fiscal year 2021, compared to $664.6 million of Operating Revenues and $352.4 million of Operating Expenses in fiscal year 2020. Operating revenue and expense figures for Logan Airport stated in this paragraph do not include certain items, particularly CARES Act and CRRSAA grant funds and expense items, such as interest, depreciation and amortization, properly allocable to Logan Airport under GAAP. **See "MANAGING THROUGH THE COVID-19 PANDEMIC – Impact of COVID-19 on Airport Properties" above for more information on the impact of COVID-19 on Airport Properties Revenues.**

Unlike many airport operators, the Authority is not constrained by contractual arrangements with the air carriers serving the Airport governing the incurrence of aeronautical costs and the recovery of such costs in the landing fee and terminal rentals. Instead, landing fees and terminal building rental rates and fees are set annually by the Authority on a compensatory basis to cover direct and allocated capital, administrative, maintenance and operating costs. The Authority can also make adjustments during the year to the landing fee and to terminal building rental rates and fees, if necessary. Accordingly, each July, the Authority establishes the landing fee for the Airport per thousand pounds of landed weight and the rental rates and fees for the terminal buildings, based upon historic capital costs, projected landed weights and the budgeted direct and allocable indirect operating costs of providing these facilities for that fiscal year. The Authority consults with Logan Airport's airline users prior to rate-setting, but the Authority historically has not entered into use agreements or terminal leases which constrain the exercise of the Authority's rate-setting prerogatives. The Authority has no agreements that require it to obtain "majority-in-interest" approvals from airlines for its operating or capital expenditures.

Landing Fees. Logan Airport generated $122.6 million in landing fee revenue in fiscal year 2021. This was a $12.1 million or 10.9% increase from the $110.5 million generated in fiscal year 2020. Logan Airport's fiscal year 2021 landing fee adjusted rate of $10.53 per thousand pounds was higher than the $5.46 per thousand pounds approved in fiscal year 2020. Total landed weight in fiscal year 2021 was 11,355,731 pounds, a decrease of 10,106,785 pounds compared to fiscal year 2020. Under current policy, any variance between the landing fees collected and the actual costs of operating the airfield during a fiscal year is calculated after the fiscal year ends, and the adjustment is either invoiced to (in the case of a shortfall) or paid to (in the case of a surplus) the air carriers and other aeronautical users.

Pursuant to the Authority's Peak Period Surcharge Regulation, the Authority monitors projected aviation activity at Logan Airport. If as a result of such monitoring, the Authority projects that the total number of aircraft operations scheduled for the Airport will exceed the total number of operations that can be accommodated without incurring unacceptable levels of delay under visual flight rule conditions, then the Authority will provide advance notice of such over-scheduling to the aircraft operators at the Airport. In the event that the aircraft operators at the Airport do not adjust their flight schedules, then the Authority may declare a "*Peak Period*" during the period of over-scheduling and impose a surcharge, currently set at $150 for each operation during such Peak Period, subject to certain exemptions. Any surcharge amounts collected are credited to the airfield cost center. However, in accordance with applicable federal law, the Peak Period Surcharge Regulation is intended to be revenue neutral. Accordingly, the Peak Period Surcharge Regulation is not expected to have any material financial effect on the Authority's Revenues or Net Revenues. The Peak Period Surcharge Regulation was adopted in accordance with requirements of the Massachusetts Environmental Protection Act certificate and the FAA's Record of Decision regarding Runway 14/32, and the final decision in *Massport v. City of Boston, et al*. Based upon the current level of operations at the Airport, there is no Peak Period currently in effect. The Authority expects to continue to seek opportunities to maximize the utilization of existing capacity.

Terminal Rentals. Each fiscal year, the Authority establishes terminal building rental rates and fees for all of the Terminals on a compensatory basis. Terminal building rentals also include baggage fees calculated to recover the Authority's cost of operating baggage screening in unleased space and per passenger fees that recover Terminal E costs related to international passengers and unleased, common-use space. All leases with air carriers for terminal space at the Airport currently provide that the Authority may revise rental rates periodically, at the discretion of the Authority, to recover the actual direct and indirect capital and operating costs for such leased space. The Authority resets these rates each fiscal year to recover its actual capital and budgeted operating costs. Similar to its policy regarding landing fees (described above), the Authority calculates the variance from the projections after the fiscal year ends, and the adjustment is invoiced to (in the case of a shortfall) or paid to (in the case of a surplus) the air carriers. The Authority's practice, however, is that the Authority does not recover through its terminal rental rates the costs allocable to unrented but rentable space. The Authority can also make adjustments during the year to the rates charged to air carriers for terminal usage.

As described under "AIRPORT PROPERTIES – Airport Facilities – Lease Arrangements for Terminal Facilities," as of March 31, 2022, the Authority leases 86 of its 100 contact gates to various carriers serving the Airport. See the inside back cover of this Official Statement for a map of the Airport's terminal facilities. Rental revenue from Terminals totaled $211.1 million in fiscal year 2020 and $209.3 million in fiscal year 2021, and rental income from non-terminal buildings and ground rents other than Terminals totaled $55.7 million in fiscal year 2020 and $52.3 million in fiscal year 2021.

Parking Fees. Airport parking revenues (including Logan Express) decreased from $136.4 million in fiscal year 2020 to $58.1 million in fiscal year 2021, primarily due to decreased business activity as a result of the COVID-19 pandemic. A parking rate increase of $3.00 per day that would have gone into effect on July 1, 2021 was deferred by the Board for all on-Airport parking lots, including the Economy Parking Garage. Parking fees are generated according to parking rates set by the Authority. The Authority does not share parking fees with the carriers as an offset to either landing fees or terminal rents; rather, the Authority retains the business risk and the return of this cost center. The number of commercial parking spaces at the Airport is subject to the SIP Parking Limitation. See "AIRPORT PROPERTIES – Airport Facilities – Parking Facilities."

Concessions. Revenues from concessions decreased from $110.7 million in fiscal year 2020 to $57.7 million in fiscal year 2021, primarily due to decreased passenger volume as a result of the COVID-19 pandemic. MarketPlace Logan provides restaurant and retail offerings for Logan Airport customers while also allowing the Authority to participate in a larger share of the revenue versus prior management agreements. Concession revenues include payments made by rental car companies that operate at the Airport and commissions from the following concessions: food and beverage, news and gifts, duty free shops, other specialty shops, ground transportation and other concessions. Revenues from ground transportation services decreased from $12.5 million in fiscal year 2020 to $3.8 million in fiscal year 2021 (includes Ride App pick-up fees of $3.25 per pickup, but excludes the Ride App $3.25 drop-off fee, which was implemented during fiscal year 2020). In fiscal year 2021, the Authority's $3.25 per drop off Ride App drop-off fee generated $3.0 million of additional ground transportation services revenue compared to $3.8 million in fiscal year 2020.

Hanscom Field. During fiscal year 2021, Revenues from operations at Hanscom Field represented approximately 2.1% of the total Revenues of the Authority, and Hanscom Field's Operating Expenses constituted approximately 3.2% of the Authority's Operating Expenses. In fiscal year 2021, Hanscom Field contributed $14.1 million of Revenue, with Operating Expenses of $13.3 million, yielding an operating surplus before debt service or other capital expenses of approximately $745,000. See "AIRPORT PROPERTIES – Hanscom Field."

Worcester Regional Airport. In fiscal year 2021, Revenues from operations at Worcester Regional Airport represented less than 1% of the total Revenues of the Authority, and Worcester's Operating Expenses constituted approximately 2.6% of the Authority's Operating Expenses and represented an operating loss of approximately $8.9 million before debt service and other capital expenses. In fiscal year 2020, Worcester Regional Airport generated an operating loss of approximately $14.8 million before debt service and other capital expenses. Worcester Airport had $1.9 million in operating revenues in fiscal year 2021, a decrease of $0.1 million compared to the prior year.

Federal Stimulus Funds. The United States government and the Federal Reserve Board have taken, and may take additional, legislative and regulatory actions and implemented various measures to mitigate the broad disruptive effects of the COVID-19 pandemic on the U.S. economy. There have been three federal relief bills passed by Congress and signed into law by the President since the COVID-19 pandemic began that provide Federal Relief Proceeds. The CARES Act provides $10 billion of assistance to United States commercial airports, which is apportioned among such airports based on various formulas; CRRSAA includes $2 billion of financial relief for airports; and ARPA provides an additional $8 billion of direct aid for airports. As previously, discussed, the Authority was allocated approximately $143.6 million of CARES Act grant funds, $36.92 million of CRRSAA grant funds and $146.7 million of ARPA grant funds for all of its three airports for expense reimbursement, which grant funds have been or are expected to be designated by the Authority as Available Funds. The Authority may draw on such funds, on a reimbursement basis, to pay for any purpose for which airport revenues can lawfully be used, including, but not limited to, the payment of maintenance and operation expenses and the payment of debt service. **See "MANAGING THROUGH THE COVID-19 PANDEMIC – Government Relief Efforts" above**.

As of June 30, 2021 the Authority has recognized the entire $143.7 million CARES Act funding and $34.5 million of the $36.9 million CRRSAA grant funds. For purposes of the fiscal year 2021 audited financial statements, in accordance with GAAP, the Authority recognized $121.1 million of CARES Act and CRRSAA grant funds as being used for operating expenses, and designated such funds as Available Funds under the 1978 Trust Agreement. The Authority expects to use the balance of the CRRSAA funds ($2.4 million) in fiscal year 2022 to help offset commercial parking, transportation service and concession losses at Logan Airport.

Passenger Facility Charges. Pursuant to the 1978 Trust Agreement, commencing in fiscal year 2020, the Authority is authorized to approve a resolution or resolutions that designate specified PFC revenues as Available Funds, and, to the extent approved by the FAA, such amounts would then be used to pay debt service on specific Series of Bonds (PFC Backed Debt). The Authority expects, to the extent approved by the FAA, to designate in each annual budget certain PFCs as Available Funds to pay a portion of the debt service on the Authority's 2019-A Bonds, 2019-C Bonds, 2021-C Bonds, 2021-E Bonds and the 2022 Bonds. Debt service on PFC Backed Debt will not be included in the calculation of the rate covenant set forth in the 1978 Trust Agreement. In fiscal year 2021, $7.1 million of PFC revenues were designated as Available Funds and used for the payment of eligible debt service on the 2019-A Bonds, 2019-C Bonds and the 2021-C Bonds, and in the fiscal year 2022 budget, $9.1 million of PFC revenues have been designated as Available Funds and are expected to be used to pay eligible debt service on the 2019-A Bonds, 2019-C Bonds, 2021-C Bonds and the 2021-E Bonds. See "SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service" in the Official Statement.

Port Properties

Maritime Operations includes container activity, cruise passenger activity and automobile import/export activity. Maritime Real Estate includes commercial real estate development, maritime real estate development and asset management. Project types and assets include office, hotel, residential, retail, seafood processing, warehouse and parking. With the exception of the Boston Fish Pier, these projects are developed and operated by private third-party entities that have entered into ground leases with the Authority. The department also negotiates numerous license agreements for shorter term and temporary uses of Authority property. Since fiscal year 2006, the Authority has experienced annual Port Properties operating surpluses.

In fiscal year 2021, the Revenue attributable to the Port Properties totaled approximately $119.0 million, or approximately 17.8% of the total Revenues of the Authority, prior to the application of other Available Funds, and the Port Properties accounted for approximately $90.3 million of Operating Expenses according to the 1978 Trust Agreement, or approximately 21.7% of the Authority's Operating Expenses. The Port Properties realized a surplus of approximately $28.7 million and $42.0 million in Net Revenues in fiscal years 2021 and 2020, respectively.

The Net Revenue from Maritime Operations, which includes the auto, container, cruise and seafood business lines, was a surplus of $12.5 million for fiscal year 2021, while the Net Revenue from Maritime Operations was a surplus of $15.9 million in fiscal year 2020. The Net Revenue from Maritime Real Estate was a surplus of $16.3 million for fiscal year 2021 and a surplus of $26.1 million for fiscal year 2020; in each year the surplus was primarily due to one-time transaction rent fees. Over the period shown, the Authority has pursued a policy of seeking compensatory pricing, aggressively negotiating new lease terms when possible, revenue development through more intense use of the Port Properties and a marketing program designed to increase the volume of containers handled and the number of cruise passengers who embark or disembark in Boston. In fiscal year 2021, Conley Terminal processed 140,750 containers, a 12.7% decrease from the total containers processed in fiscal year 2020 of 161,171.

See "MANAGING THROUGH THE COVID-19 PANDEMIC – Impact of COVID-19 on Port Properties" above for more information on the impact of COVID-19 on the Port Properties.

Investment Income

Investment income (excluding the Construction Fund, CFCs, PFCs and other funds not held under the 1978 Trust Agreement) during fiscal year 2021 was $10.4 million, a decrease of $13.0 million from fiscal year 2020, as the Federal Reserve kept short-term interest rates near zero throughout the year to combat the effects of the COVID-19 pandemic on the economy.

MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS

The following discussion elaborates on the information contained in the above table entitled "Projected Operating Results and Debt Service Coverage Under the 1978 Trust Agreement" and reflects the Authority's current planning and expectations. The table and ensuing discussion contain pro-forma projections for the period covering fiscal year 2022 through fiscal year 2026 and were prepared by the Authority in accordance with accounting principles required by the 1978 Trust Agreement in order to show projected debt service coverage; such information was not prepared with a view toward compliance with the guidelines established by the American Institute of Certified Public Accountants for preparation and presentation of prospective financial information. The projections were prepared by the Authority's staff.

Given the unprecedented nature of, and continuing uncertainty regarding, the COVID-19 pandemic and its impact on the aviation industry and worldwide economies, the tables on pages A-64 and A-65 and the ensuing discussion do not reflect a forecast of operating results and debt service coverage, but rather a projection based on a hypothetical scenario that aviation and port activity recover to fiscal year 2019 levels over a six year horizon ending in fiscal year 2025. The Authority and its management believe that these projections have been prepared on a reasonable basis, reflecting its best estimates and judgments, and represents, to the best of management's knowledge and opinion, the Authority's expected course of action during the projection period; however, there can be no assurance that such projected results will be realized.

The Authority's assumptions for projected airline passenger growth were developed in coordination with LeighFisher and were based upon partial year actual results, discussions with individual airlines and advance airline schedules, and assumptions regarding future air travel demand. The Authority and LeighFisher believe the passenger projection provide a reasonable basis for financial planning; however, any projection is subject to risk, volatility and uncertainty, as further described herein and in APPENDIX D.

For fiscal year 2022, projections are based on the Authority's unaudited actual results through March 31, 2022 and the projected budget for the remaining three months of fiscal year 2022. Total Revenues, inclusive of other Available Funds, are projected to be $851.4 million for fiscal year 2022, and the projected Operating Expenses total $434.8 million. Through March 31, 2022, operating revenues of $573.7 million were 17.4% above budget and $114.6 million above the same time period in fiscal year 2021. Total Revenues through March 31, 2022 of $580.5 million were $84.3 million, or 17.0% above budget for the same period in fiscal year 2021. For the same period, Operating Expenses of $324.8 million were $22.4 million or 6.5% below budget for the first nine months of fiscal year 2022. Net Revenues, prior to the application of other Available Funds, of $255.8 million for the first nine months of the fiscal year were $106.7 million or 71.6% greater than budgeted.

The projections reflected in the table assume: (a) an increase in operating costs in fiscal year 2022, compared to fiscal year 2021 actual results, of (i) 6.9% at Logan Airport, (ii) 18.1% at Worcester Regional Airport, (iii) 2.3% at Hanscom Field; (b) a decrease in operating costs in fiscal year 2022, compared to fiscal year 2021 actual results, of 5.3% at the Port Properties; (c) growth of baseline operating costs at 8.1% on average annually in fiscal years 2023 and thereafter; (d) inflation of capital costs (to the mid-point of construction) at 4.5% annually; (e) investment income (other than for investment agreements currently in effect) at an average rate of 1.5% in fiscal year 2023 and thereafter; (f) completion dates for capital projects as currently contained in the Capital Program; and (g) the application of PFCs to pay a portion of the principal of and interest on the 2019-A Bonds, the 2019-C Bonds, the 2021-C Bonds, the 2021-E Bonds and the 2022 Bonds. In addition, these projections reflect (i) the additional revenues and operating expense savings identified to date as part of the FY 2021-2023 Financial Sustainability Plan, and (ii) the Federal Relief Proceeds received and expected to be received by the Authority under the CARES Act, CRRSAA and ARPA (see "MANAGING THROUGH THE COVID-19 PANDEMIC – Government Relief Efforts").

Further, as a conservative measure, the projections of "Total Debt Service" in the table assumes an allowance for debt service associated with approximately $300 million of future revenue bond issuance that the Authority may undertake over the remainder of the projection period. Such additional issuance relates to potential future projects that are over and above those included in the FY22-FY26 Capital Program, and the specifics of the nature and timing of such additional projects has not yet been determined. Incremental Revenues and operating expenses associated with any such additional projects are not included in the Net Revenue projections shown in this table, although the incremental debt service associated with these potential future Bond issues is included. Accordingly, the Debt Service Coverage projection reflected in the table is likely understated.

The 1978 Trust Agreement provides that if Available Funds are pledged or irrevocably committed or are held by a fiduciary and are to be set aside exclusively for the payment of principal of, interest or premium, if any, on specified Bonds pursuant to a resolution of the Authority (and are not otherwise required for payment of another Series of Bonds), then the principal, interest and/or premium to be paid from such Available Funds or from earnings thereon shall be disregarded and not included in calculating debt service coverage requirements under the 1978 Trust Agreement. See the section entitled "SECURITY FOR THE 2022 BONDS – Covenants as to Fees and Charges" in the Official Statement. Although it is the expectation of the Authority's management that the Authority will annually designate PFCs as Available Funds to pay a portion of the principal of and interest on the 2019-A Bonds, the 2019-C Bonds, the 2021-C Bonds, the 2021-E Bonds and the 2022 Bonds for each next succeeding fiscal year, there can be no assurance that the Authority will in fact irrevocably commit or receive PFCs in the assumed amounts in each fiscal year to the payment of such debt service. If PFCs are not irrevocably committed to pay such debt service, any debt service that would have been paid with PFCs will instead be paid from Net Revenues. The projection table, therefore, presents the debt service coverage calculation both including and excluding the Available Funds expected to be used to pay debt service on Bonds outstanding during the projection period.

The Authority believes that the projections in the table are conservative in nature. For the ten months ended April 2022, the total passenger count had already reached 71.6% of the total passenger count for the ten months ended April 2019. By contrast, the more conservative financial projections assume that enplaned passengers in fiscal year 2022 will reach 66.8% of fiscal year 2019 levels. Passenger levels are then projected to increase to 80.7% of fiscal year 2019 levels in fiscal year 2023, 92.2% of fiscal year 2019 levels in fiscal year 2024, 100.7% of fiscal year 2019 levels in fiscal year 2025, and 102.7% of fiscal year 2019 levels in fiscal year 2026. This projection assumes that by fiscal year 2025, Logan passengers will have returned to fiscal year 2019 levels. These projections do not assume any significant future disruptions to air travel or cessation of service by any air carrier now serving the Airport. This projection is intended to be conservative to aid in financial planning and can be contrasted with the Authority's planning forecast and the FAA's terminal area forecast for Logan Airport. See APPENDIX C – Boston Logan International Airport Market Analysis under the heading "Review of Massport Activity Forecasts." If the projected Revenues are not realized in a material way, then the Authority expects that, in addition to other mitigation efforts, it will not execute all of the projects currently included in the FY22-FY26 Capital Program. The Authority's willingness and ability to reduce capital spending when events so require was demonstrated in its response to the events of September 11, 2001 and in the subsequent adherence to the financial recovery plan put in place thereafter, as well as in its response to the business activity impact from COVID-19, as discussed in "CAPITAL PROGRAM – COVID-19 Impact and Capital Program Prioritization." In addition, projected Revenues do not include PFCs or CFCs collected by the Authority. See "CAPITAL PROGRAM – Funding Sources – Passenger Facility Charges" and "– Customer Facility Charges."

Airport Properties

Projected Revenues from landing fees and terminal rentals at the Airport reflect the periodic revision of such charges at rates designed to recover the net annual cost of providing these Airport facilities. Net annual costs include all operating expenses and amortization of capital costs, less any PFC revenues applied to these projects and any federal grant funds received for these projects. Landing fee revenues at the Airport are projected to increase 0.2% in fiscal year 2022, and then at an average annual rate of 6.3% through fiscal year 2026. The increases over the projection period are attributable to the inclusion in the rate base of airfield capital costs, including allocable capital costs from other Airport capital projects and increased operating costs.

Terminal building rental revenues at the Airport are projected to increase by 2.0% in fiscal year 2022 and then increase at an average annual rate of 8.4% through fiscal year 2026, reflecting the additional build out of terminal facilities coming into service. See ”AIRPORT PROPERTIES – Airport Facilities; Lease Arrangements for Terminal Facilities.” Terminal building rentals also include baggage fees calculated to recover the Authority's cost of operating baggage screening in unleased space and per passenger fees that recover Terminal E costs related to international passengers and unleased, common-use space

Revenues from non-terminal and ground rents at the Airport are projected to increase by 8.1% in fiscal year 2022 and then increase at an average annual rate of 0.2% through fiscal year 2026. Revenues from parking operations at the Airport are projected to increase by 120.2% in fiscal year 2022 and then increase at an average annual rate of 9.1% through fiscal year 2026. Concession revenues at the Airport, which include payments made by rental car companies that operate at the Airport and commissions from the following concessions—food and beverage, news and gifts, duty free shops, other specialty shops, ground transportation and other concessions—are projected to increase by 57.3% in fiscal year 2022 and then increase at an average annual rate of 11.4% through fiscal year 2026, reflecting the anticipated return of passenger growth. See APPENDIX C – Review of Airport Properties Net Revenues Projection under the heading "Key Factors Affecting the Net Revenues Projection – Airport Property Revenues – Recovery Planning Scenario – Concessions."

From fiscal year 2022 through fiscal year 2026, Revenues at Hanscom Field are projected to increase at an average annual rate of 2.5%. Expenses are projected to increase at an average annual rate of 6.3% from fiscal year 2022 through fiscal year 2026. Revenues at Worcester Regional Airport are projected to increase by 3.7% in fiscal year 2022 and then increase at an average annual rate of 7.7% through fiscal year 2026. See "AIRPORT PROPERTIES – Worcester Regional Airport." Worcester Regional Airport operating expenses are projected to increase by 18.1% in fiscal year 2022 and then increase at an average annual rate of 7.2% through fiscal year 2026. Assuming a combination of the recovery of business activity and limited programmatic growth thereafter, Operating Expenses of the Airport Properties are projected to increase by 7.1% in fiscal year 2022 and then increase at an average annual rate of 7.7% through fiscal year 2026.

Projected Revenues and Operating Expenses of the Airport are based in part on assumptions regarding future levels of total passengers. The financial projection conservatively assumes that enplaned passengers in fiscal year 2022 will be 33.2% lower than fiscal year 2019 passenger levels, and then increase to 80.7%, 92.2%, 100.7% and 102.7% of fiscal year 2019 passenger levels in fiscal years 2023 through 2026, respectively. By contrast, in April 2022, the total passenger count had already reached 84.7% of the April 2019 level. The Authority's assumptions for projected airline passenger growth were developed in coordination with LeighFisher and were based upon partial year actual results, discussions with individual airlines and advance airline schedules, and assumptions regarding future air travel demand. The Authority and LeighFisher believe the passenger projection provides a reasonable basis for financial planning; however, any projection is subject to risk, volatility and uncertainty, as further described herein and in APPENDIX D.

The following table shows projected total enplaned passengers and total passengers at the Airport from fiscal year 2022 through fiscal year 2026, as well as projected revenue per enplaned passenger (both including and excluding PFCs expected to be available to pay debt service), debt per enplaned passenger (both including and excluding PFC Backed Debt) and airline cost per enplaned passenger, for the same period.

Logan Airport – Growth Projection
(000s)

	FY 2022	FY 2023	FY2024	FY2025	FY2026
Enplaned Passengers	13,923	16,805	19,200	20,977	21,396
Total Passengers[1]	27,846	33,610	38,400	41,953	42,792
Percentage Change	--	*20.7%*	*14.3%*	*9.3%*	*2.0%*
Logan Revenue Per Enplaned Passenger[2]					
Without PFCs available to pay Debt Service[3]	$46.37	$41.77	$40.94	$39.67	$40.84
With PFCs available to pay Debt Service[4]	$47.02	$42.64	$42.26	$40.88	$42.03
Debt Per Enplaned Passenger[5]					
Without PFC Principal Amount[6]	$153.12	$130.32	$110.38	$97.57	$92.12
With PFC Principal Amount[7]	$178.09	$153.61	$130.45	$115.63	$109.52
Airline Cost Per Enplaned Passenger (CPE)[2]	$23.71	$21.56	$20.99	$20.01	$20.75

[1] Excludes general aviation.

[2] Reflects actual data for the nine months ended March 31, 2022 and budgeted data for the remaining three months of fiscal year 2022.

[3] Excludes PFC revenues expected to be used to offset debt service on the 2019-A Bonds, 2019-C Bonds, 2021-E Bonds and 2022 Bonds (see “CAPITAL PROGRAM – Funding Sources – 2022 Bond Proceeds”).

[4] Includes PFC revenues expected to be used to offset debt service on the 2019-A Bonds, 2019-C Bonds, 2021-E Bonds and 2022 Bonds (see “CAPITAL PROGRAM – Funding Sources – 2022 Bond Proceeds”).

[5] Calculation based upon outstanding principal amount of Bonds and includes the 2022 Bonds. Includes an allowance for debt service associated with approximately $300 million of future revenue bond issuances that the Authority may undertake over the remainder of the projection period (see ““MANAGEMENT’S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS”).

[6] Excludes the principal amount of the 2019-A Bonds, 2019-C Bonds, 2021-E Bonds and 2022 Bonds expected to be paid from PFCs (see “CAPITAL PROGRAM – Funding Sources – 2022 Bond Proceeds”).

[7] Includes the principal amount of the 2019-A Bonds, 2019-C Bonds, 2021-E Bonds and 2022 Bonds expected to be paid from PFCs (see “CAPITAL PROGRAM – Funding Sources – 2022 Bond Proceeds”).

The Airport Market Analysis states that the Authority’s financial planning projection of enplanement growth at the Airport of 128.4% in fiscal year 2022, 20.7% in fiscal year 2023, 14.3% in fiscal year 2024, 9.3% in fiscal year 2025 and 2.0% per year thereafter is conservative. Further, the Airport Market Analysis states that the Authority’s planning projection of enplanement growth at the Airport of 113.2% in fiscal year 2022, 29.3% in fiscal year 2023, 14.5% in fiscal year 2024, and 2.0% per year thereafter also represents a conservative projection of future passenger activity at the Airport.

The Authority has assumed that it will designate $147.1 million of the CARES Act, CRRSAA and ARPA grant funds from fiscal year 2022 to fiscal year 2024 as Available Funds. In addition, the Authority has assumed that it will receive $292.4 million of federal TSA grants, BIL grants, AIP entitlement, noise and other discretionary grant reimbursement, FASTLANE grants, Commonwealth Funds, and other grants for the FY22-FY26 Capital Program, including $196.0 million for the projects at Logan Airport. If these funds are not received, projected landing fees and/or baggage fees could increase over the coming years. There can be no assurance that such AIP or TSA grant funds will be available in the amounts or at the times projected. See “CERTAIN INVESTMENT CONSIDERATIONS – Considerations Regarding Other Sources of Revenue; Federal Grants-in-Aid” and “– Considerations Regarding Other Sources of Revenue; FAA Reauthorization and Level of Federal Airport Grant Funding.”

Review of the Boston Regional Market Analysis

The Market Analysis Report set forth in APPENDIX C to the Official Statement was prepared by ICF in connection with the issuance of the 2022 Bonds. Such report is set forth herein in reliance upon the knowledge and experience of such firm as airport consultants.

Review of Airport Properties Net Revenues Projection by Consultants

LeighFisher prepared a review of the Authority's Airport Properties Net Revenues Projection in connection with the issuance of the 2022 Bonds, which is included as APPENDIX D to the Official Statement. The review should be read in its entirety for a fuller understanding of the projections for the Airport Properties and the key underlying assumptions therein. In the opinion of LeighFisher, the assumptions upon which the Authority's projections for the Airport Properties are based provide a reasonable basis for financial planning purposes. As stated in the review, any projection is subject to risk, volatility and uncertainty. Inevitably, some assumptions will not be realized and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the projections and actual results and those differences may be material.

Port Properties

Maritime Operations Revenues are projected to decrease by 23.4% in fiscal year 2022, and then increase at an average annual rate of 14.1% thereafter through fiscal year 2026, while expenses are projected to decrease 7.3% in fiscal year 2022, and then increase at an average annual rate of 10.7% thereafter through fiscal year 2026. Maritime Operations is expected to have a deficit of $1.5 million in fiscal year 2022 compared to a surplus of $12.5 million in fiscal year 2021, driven by projected lower container volumes due to supply chain challenges. The estimated fiscal year 2022 container volume was originally budgeted to be approximately 140,000 containers and was revised downward in January 2022 to 85,000 as a result of lower-than-expected container volumes during the second half of fiscal year 2022. Container revenues are projected to decrease by 31.2% in fiscal year 2022, followed by increases of 12.8% in fiscal year 2023, 15.9% in fiscal year 2024, 14.2% in fiscal year 2025 and 13.0% in fiscal year 2026.

Revenues from Maritime Business Development and Real Estate are projected to decrease by 14.1% in fiscal year 2022, and then grow at an average annual rate of 0.3% thereafter through fiscal year 2026. Revenue projections are not included for projects currently without signed leases. See "PORT PROPERTIES – Maritime Properties." Maritime Business Development and Real Estate Operating Expenses are projected to decrease by 0.8% in fiscal year 2022, and then increase at an average annual rate of 5.6% thereafter through fiscal year 2026.

Investment Income

The Authority's projections of investment income assume that existing investments are held until maturity at their respective stated rates of interest and that available cash will be reinvested at an average interest rate of 1.5% in fiscal years 2023 and thereafter.

Debt Service and Coverage

The table on page A-65 sets forth projected annual debt service coverage, inclusive of Available Funds actually or expected to be committed to pay debt service on Bonds, and includes the 2022 Bonds. In addition, as a conservative measure, the projections of "Total Debt Service" in the table assumes an allowance for debt service associated with approximately $300 million of future revenue bond issuance that the Authority may undertake over the remainder of the projection period. Such additional issuance relates to potential future projects that are over and above those included in the FY22-FY26 Capital Program, and the specifics of the nature and timing of such additional projects has not yet been determined. Incremental Revenues and operating expenses associated with any such additional projects are not included in the Net Revenue projections shown in this table, although the incremental debt service associated with these potential future Bond issues is included. Accordingly, the annual debt service coverage projection reflected in the table is likely understated.

Projected coverage for the Authority's forecasted annual debt service, inclusive of Available Funds actually or expected to be committed to pay debt service on Bonds, is set forth in the table on page A-65. There can be no assurance, however, that these coverage levels will be achieved. For a discussion of the requirements relating to issuance of additional Bonds, see the sections entitled "SECURITY FOR THE 2022 BONDS – Additional Bonds" in the Official Statement.

The Authority expects that the non-Bond funded projects of the FY22-FY26 Capital Program will be financed from the expenditure of proceeds from commercial paper, the application of PFCs on a pay-as-you-go basis, the application of CFCs, private sources of capital, federal and other grants and cash flow from operations. The Authority's capital program is designed to be modular, and the Authority expects to undertake projects only after sufficient funding has been secured. See "CAPITAL PROGRAM" herein.

Authority's Liquidity Position

The Authority continues to maintain a favorable liquidity position. According to the internally prepared management statements, as of March 31, 2022, the Authority had $435.0 million of restricted funds for capital projects, $235.7 million for debt service, $48.1 million of customer facility charge revenues, and $86.0 million of passenger facility charge revenues, all of which may be used towards the FY22-FY26 Capital Program and debt payments. The Authority's unaudited unrestricted net position for the same period was $769.1 million.

The following table presents the Authority's days cash on hand information as of June 30 for each of the five most recent fiscal years.

Days Cash on Hand
As of June 30,

	2017	**2018**	**2019**	**2020**	**2021**
Ending Fund Balance					
Maintenance Reserve Fund	$172,539	$207,405	$225,021	$198,828	$267,434
Improvement & Extension Fund	277,012	304,378	336,218	395,950	501,757
Capital Budget Account	68,323	135,774	123,242	220,056	185,576
Operating/Revenue Fund	89,764	71,063	76,605	83,783	115,075
Total Ending Balance	$607,638	$718,620	$761,086	$898,617	$1,069,842
Annual Expenses	$440,241	$465,230	$492,428	$483,975	$416,550
Days Cash on Hand	**504**	**564**	**564**	**678**	**937**

In addition, the Authority maintains a commercial paper facility program of up to $250 million, which may be used for capital projects; no commercial paper is outstanding as of the date of this Official Statement. See "OTHER OBLIGATIONS – Commercial Paper" herein.

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DEBT SERVICE REQUIREMENTS UNDER THE 1978 TRUST AGREEMENT

The following table sets forth debt service on the Authority's outstanding Bonds(1) and the 2022 Bonds for each fiscal year in which such Bonds will be outstanding (rounded to the nearest dollar). Column totals may not add due to rounding.

Year Ending July 1	Other Outstanding Bonds Debt Service(2)(4)	Series 2022 Bonds(4) Principal	Series 2022 Bonds(4) Interest	Total Debt Service(3)
2023	$162,555,543	-	-	$162,555,543
2024	181,489,209	-	$5,542,396	187,031,605
2025	181,741,492	-	6,046,250	187,787,742
2026	181,932,299	-	6,046,250	187,978,549
2027	182,113,593	-	6,046,250	188,159,843
2028	180,613,170	$4,315,000	6,046,250	190,974,420
2029	181,049,474	6,380,000	5,830,500	193,259,974
2030	173,511,992	8,450,000	5,511,500	187,473,492
2031	178,433,491	6,770,000	5,089,000	190,292,491
2032	178,482,994	7,110,000	4,750,500	190,343,494
2033	167,573,263	7,465,000	4,395,000	179,433,263
2034	154,788,461	7,840,000	4,021,750	166,650,211
2035	154,790,295	8,230,000	3,629,750	166,650,045
2036	143,429,651	8,640,000	3,218,250	155,287,901
2037	143,069,594	9,075,000	2,786,250	154,930,844
2038	140,398,082	9,530,000	2,332,500	152,260,582
2039	138,747,624	10,005,000	1,856,000	150,608,624
2040	135,794,219	10,505,000	1,355,750	147,654,969
2041	129,237,596	11,030,000	830,500	141,098,096
2042	132,455,712	5,580,000	279,000	138,314,712
2043	125,111,179	-	-	125,111,179
2044	125,124,351	-	-	125,124,351
2045	127,635,428	-	-	127,635,428
2046	116,066,310	-	-	116,066,310
2047	81,535,559	-	-	81,535,559
2048	75,528,420	-	-	75,528,420
2049	75,711,793	-	-	75,711,793
2050	39,574,383	-	-	39,574,383
2051	39,589,698	-	-	39,589,698
	$4,028,084,875	$120,925,000	$75,613,646	$4,224,623,521

(1) Does not include commercial paper or debt service on obligations of the Authority not secured on a parity with the Bonds under the 1978 Trust Agreement, such as subordinated indebtedness, CFC Revenue Bonds (defined herein) and special facilities revenue bonds. For a description of such other obligations, see "OTHER OBLIGATIONS."

(2) Includes portions of 2019-A Bonds, 2019-C Bonds, 2021-C and 2021-E Bonds expected to be paid from PFCs.

(3) Totals may not add due to rounding.

(4) Amounts shown are net of capitalized interest and include the portion of the 2022 Bonds expected to be paid from PFCs.

OTHER OBLIGATIONS

The following describes the indebtedness and obligations of the Authority that are not secured under the 1978 Trust Agreement or that are secured on a subordinated basis. See APPENDIX B to the Official Statement – Financial Statements of the Authority for further information.

CFC Revenue Bonds

In June 2011, the Authority issued its Special Facilities Revenue Bonds (ConRAC Project), Series 2011A (Non-AMT) (the "*2011A CFC Revenue Bonds*") and its Special Facilities Revenue Bonds (ConRAC Project), Series 2011B (Taxable) (the "*2011B CFC Revenue Bonds*" and collectively with the 2011A CFC Revenue Bonds, the "*2011 CFC Revenue Bonds*") pursuant to a CFC Trust Agreement dated as of May 18, 2011 (the "*CFC Trust Agreement*"), by and between the Authority and U.S. Bank Trust Company, National Association, as trustee (the "*CFC Trustee*"). The proceeds of the 2011 CFC Revenue Bonds were used to finance the construction of the RCC.

The 2011 CFC Revenue Bonds and any additional bonds that may be issued under the CFC Trust Agreement on a parity with the 2011 CFC Revenue Bonds (collectively, the "*CFC Revenue Bonds*") are secured by the CFC Pledged Receipts (as defined in the CFC Trust Agreement). The CFC Revenue Bonds are not secured by the Revenues that secure the Bonds or PFCs, and CFCs are not included in such Revenues or PFC revenues.

On June 24, 2020, the Authority defeased $62.4 million aggregate principal amount of its 2011 CFC Revenue Bonds, consisting of all of its outstanding 2011A CFC Revenue Bonds and the $4.4 million July 1, 2021 maturity of the 2011B CFC Revenue Bonds. As of March 31, 2022, the 2011B CFC Revenue Bonds in an aggregate principal amount of $120.3 million are the only CFC Revenue Bonds outstanding under the CFC Trust Agreement.

Special Facilities Revenue Bonds

The Authority has issued, and may in the future issue additional, special facilities revenue bonds to finance various capital projects on a non-recourse basis. The principal of and interest on the special facilities revenue bonds issued by the Authority are special obligations of the Authority, payable solely from the sources provided; none of such special facilities bonds are secured by the Revenues of the Authority. Each special facility revenue bond issue is secured differently and under a separate trust agreement.

On September 26, 2019, the Authority issued $143.7 million aggregate principal amount of its Special Facilities Revenue Bonds (BOSFUEL Project), consisting of Series 2019A (AMT) (the "*2019A BOSFUEL Bonds*") and Series 2019B (Taxable) (the "*2019B BOSFUEL Bonds*"). A portion of the proceeds of the 2019A BOSFUEL Bonds was used to refund the entire $81.1 million principal amount outstanding of the Special Facilities Revenue Bonds (BOSFUEL Project), Series 2007, and the remaining proceeds, along with the proceeds of the 2019B BOSFUEL Bonds, will be used to enhance the fuel facilities at the Airport to ensure the ability to meet current and future demands. As of March 31, 2022, the Authority has $141.7 million aggregate principal amount of special facilities revenue bonds outstanding, consisting of the 2019A BOSFUEL Bonds and the 2019B BOSFUEL Bonds.

The Authority is under no obligation to assume the liability for the special facilities revenue bonds listed above or to direct revenue to pay debt service on any special facilities revenue bonds outstanding.

Subordinated Indebtedness

The Authority has issued, and may in the future issue additional, subordinated indebtedness to finance various capital projects, the principal of and interest on which is payable solely from funds on deposit in the Improvement and Extension Fund in a separate account not subject to the pledge of the 1978 Trust Agreement or the CFC Trust Agreement.

As of March 31, 2022, the Authority has $74.0 million aggregate principal amount of subordinated indebtedness outstanding, consisting of its Subordinated Revenue Bonds, Series 2000-A, 2000-B and 2000-C (the "*Series 2000 Subordinated Obligations*"), and its Subordinated Revenue Bonds, Series 2001-A, 2001-B and 2001-C (the "*Series 2001 Subordinated Obligations*," and together with the Series 2000 Subordinated Obligations, the "*Subordinated Indebtedness*"), both of which were issued to finance the acquisition of the ParkEx facility. Funds on deposit in the separate accounts of the Improvement and Extension Fund held for the benefit of the Series 2000 Subordinated Obligations and the Series 2001 Subordinated Obligations are currently invested in two guaranteed investment contracts, which at their respective maturity dates are expected to provide for the $74.0 million aggregate principal payments of the Series 2000 Subordinated Obligations and the Series 2001 Subordinated Obligations at their respective maturities on December 31, 2030 and January 1, 2031.

On November 20, 2018, the Authority issued its Subordinated Obligations, Series 2018-A (AMT) (the "*Series 2018 Subordinated Obligations*"), in the aggregate principal amount of up to $107.5 million, to provide bridge financing for the Commonwealth's portion of the costs of the design and construction of Berth 10 at Conley Terminal. See "PORT PROPERTIES – Maritime Properties – Conley Terminal" and "CAPITAL PROGRAM – Funding Sources – Commonwealth Funds." The Authority has received the full $107.5 million from the Commonwealth, and on May 3, 2021, the Series 2018 Subordinated Obligations were paid in full and are no longer outstanding.

The Subordinated Indebtedness is subordinate to the 2022 Bonds and all other outstanding Bonds issued under the 1978 Trust Agreement.

Commercial Paper

On December 8, 2021, the Authority completed a restructuring of its existing commercial paper program, increasing the authorized maximum aggregate principal amount from $200 million to $250 million and authorizing the issuance of taxable and tax-exempt AMT and non-AMT commercial paper. In connection with this restructuring, the Authority entered into an Amended and Restated Letter of Credit and Reimbursement Agreement, as amended by a First Amendment to Amended and Restated Letter of Credit and Reimbursement Agreement, with TD Bank, N.A., which expires June 1, 2025, to provide security for the commercial paper program. The obligations of the Authority with respect to its commercial paper notes are secured by the Improvement and Extension Fund and the proceeds of Bonds subsequently issued for that purpose. While PFCs are not pledged to secure the Authority's commercial paper, the Authority currently expects to repay a significant portion of the notes from the PFC Capital Fund.

DEBT ISSUANCE AND DEBT MANAGEMENT POLICY

In February 2010, the Authority initially adopted a Debt Issuance and Debt Management Policy ("*Debt Policy*"). The Debt Policy covers the types of debt that the Authority may issue; the legal, policy and financial limits that govern the issuance of debt; the use of derivatives; debt structuring practices; debt issuance practices; and debt management practices including compliance with tax law requirements, arbitrage regulations, investment of bond proceeds, disclosure and records retention. The policy requires the Members of the Authority to review and consider revisions to the policy every five years. Pursuant to the Debt Policy, projects that are funded with Bond proceeds should be central to the Authority's core mission; debt issuance practices should support the maintenance of the Authority's long term credit ratings; and Bond-funded projects must be included in the Authority's five-year capital program. Specific financial metrics, including those listed below, were established for the five-year capital program in support of these objectives.

	Debt Policy Goal
Annual Debt Service Coverage[1]	2.00x
Contribution Margin[2]	> or = 30%
Contribution Margin (Logan Airport)	> or = 30%
Operating Ratio[3]	< or = 70%
Days Cash on Hand[4]	> or = 250 days

[1] *Debt Service Coverage for the least robust year in the five-year period projections should not be below 1.75x.*
[2] *Contribution Margin: (operating revenues minus operating expenses and PILOT payments[5])/total operating revenues.*
[3] *Operating Ratio: (operating expense plus PILOT payments)/operating revenues.*
[4] *Days Cash on Hand: (cash plus unutilized commercial paper). Days Cash on Hand as of June 30, 2021 was 937 days.*
[5] *Annual PILOT payments for fiscal years 2022 through 2026 are projected to be $22.6 million, $24.1 million, $24.9 million, $25.6 million and $26.4 million, respectively.*

The Members of the Authority most recently reviewed and re-adopted the Debt Policy in June 2018. Currently, the Authority has no outstanding Financial Hedges (as defined under "GENERAL OPERATIONAL FACTORS – Financial Hedge Policy").

AUTHORITY OPERATIONAL FACTORS

Personnel Considerations

Labor. As of March 31, 2022, the Authority had a labor force of 1,118 full-time employees. In addition, the Authority had seven regular part-time and job share employees. There are nine bargaining units, each with separate collective bargaining agreements between the Authority and the eight unions representing these units, which represent a total of 655 of these full-time employees and two of these part-time employees. Of these nine collective bargaining agreements, two expire June 30, 2024, one expires January 31, 2025, and one expires June 30, 2025. Of the remaining five contracts, two have expired and three will expire on June 30, 2022. The Authority is currently engaged in bargaining with these five unions. In general, upon the expiration of a collective bargaining agreement, the Authority's practice is to continue honoring the terms of such agreement until a new agreement takes effect. The Authority seeks to control its labor costs to the most prudent extent possible and, accordingly, none of its labor agreements provides for an automatic cost-of-living escalator. The Authority considers its relations with its employees and their union representatives to be good.

Massachusetts law prohibits strikes by employees of the Authority. In addition, the Massachusetts Supreme Judicial Court has declared that labor unions negotiating collective bargaining agreements with certain entities, including the Authority, do not have a statutory right to demand "interest arbitration" in the event of an impasse. Therefore, successor collective bargaining agreements cannot be imposed upon the Authority by any outside entity.

As of March 31, 2022, 271 members of the International Longshoremen's Association Locals 799, 800, 805, 1604 and 1066 (the "*ILA*"), which members are not Authority employees, work at Conley Terminal and Flynn Cruiseport Boston on either a full time or casual basis. The Authority, along with various stevedoring companies, shipping lines and terminal operators, constitute the Boston Shipping Association ("*BSA*"), which is a multi-employer association responsible for the negotiation and administration of collective bargaining agreements with the ILA. Decisions by the BSA on matters concerning negotiations and administration of collective bargaining agreements are binding on member employers. The current collective bargaining agreements between the BSA and the ILA will expire on September 30, 2024.

Certain users of the Authority's facilities that generate a substantial portion of the Authority's Revenues, such as the air carriers, are dependent upon successful management of their own labor relations for continuation of their operations. These matters are beyond the control of the Authority, and significant labor disputes in these areas could have an adverse effect upon the Revenues of the Authority.

Civil Rights Laws and Non-Discrimination. The Authority does not discriminate against any person, employee or applicant for employment because of the person's membership in any legally protected class, including, but not limited to, that person's race, color, religion, creed, national origin, ancestry, citizenship, sex, gender identity, sexual orientation, pregnancy, genetic information, age (40 years and over), handicap, disability or veteran status. The Authority does not discriminate against any person, employee, or applicant for employment who is a member of, or applies to perform service in, or has an obligation to perform service in, a uniformed military service of the United States, including the National Guard, on the basis of that membership, application, or obligation.

The Authority also encourages and supports economic opportunities for the businesses and residents of those neighboring communities (East Boston, South Boston, Charlestown, Chelsea, Winthrop, Revere, Leicester, Worcester, Lexington, Lincoln, Concord and Bedford) most directly impacted by the operation of the Authority's facilities.

Financial Considerations

Authority Pension Funding. The Massachusetts Port Authority Employees' Retirement System (the "*Plan*") is a single employer plan established on July 18, 1978, effective January 1, 1979, by enactment of Chapter

487 (an amendment to Chapter 32) of the General Laws of the Commonwealth to provide retirement benefits for substantially all employees of the Authority, and incidental benefits for their surviving spouses, beneficiaries and contingent annuitants. The Plan is a contributory defined benefit plan to which the Authority and its employees contribute such amounts as are necessary to provide assets sufficient to meet benefits to be paid to plan participants. Each year the Authority funds the Plan with an amount equal to the actuarially determined annual contribution using the Frozen Entry Age Actuarial Cost Method. The Plan is administered by the Massachusetts Port Authority Employees' Retirement System Board (the "*Retirement Board*").

In accordance with GASB 68, as of December 31, 2021, the Plan's total pension liability was approximately $836.0 million and the Plan's fiduciary net position was approximately $920.5 million, resulting in a net pension asset of $84.5 million, as compared to a net pension asset of $29.2 million as of December 31, 2020. The Plan's pension benefit in fiscal year 2021 was approximately $20.2 million, as compared to a pension benefit of approximately $11.2 million for fiscal year 2020. The increase was primarily due to favorable investment returns. See Note 6 and the Required Supplementary Information to the Financial Statements in APPENDIX B to the Official Statement for additional information regarding the Plan.

Other Post-Retirement Employee Benefits. The Authority extends other post-employment benefits ("*OPEB*") to its employees as provided under the Enabling Act and Chapter 32A of the Massachusetts General Laws. In June 2008, the Authority established an irrevocable trust (the "*Trust*") to partially fund the projected accrued liability for other post-employment benefits. Prior to the establishment of the Trust, the Authority funded OPEB exclusively on a pay-as-you-go basis. In accordance with Statement No. 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions ("*GASB 75*"), as of December 31, 2020, the Authority's total OPEB liability was approximately $340.7 million, and the Trust's fiduciary net position was approximately $276.1 million, resulting in a net OPEB liability of $64.6 million, as compared to $108.3 million as of December 31, 2019. The Authority's OPEB expense in fiscal year 2021 was approximately $1.5 million, as compared to approximately $22.6 million for fiscal year 2020. The decrease was primarily due to the Trust changing its fiscal year end to December 31 during fiscal year 2020, which resulted in six months of additional expenses being recognized in fiscal year 2020. See Note 7 and the Required Supplementary Information to the Financial Statements in Appendix B to the Official Statement for additional information regarding the Plan.

The Authority's OPEB Funding Policy, which establishes a methodology for funding benefits obligations accruing under the Trust, was approved by the Board in June 2018. It is anticipated that current assets plus future assets from employer contributions and investment application and earnings should be sufficient to fund the Authority's Trust obligations. The OPEB Funding Policy is intended to reflect a reasonable, conservative approach for Authority financing, to the greatest extent possible, the cost of post-employment benefits earned and being accrued. This OPEB Funding Policy recognizes that there will be investment marketplace volatility and that actual economic and demographic experience will differ from assumed experience. Accordingly, the OPEB Funding Policy is intended to provide flexibility to address such volatility and experience in a reasonable, systematic, and actuarially and financially sound manner.

Payments in Lieu of Taxes. The Enabling Act and the 1978 Trust Agreement authorize and direct the Authority, subject to certain standards and limitations, to enter into agreements to make annual payments in lieu of taxes to the City of Boston and the Town of Winthrop. The Enabling Act, the 1978 Trust Agreement and the payment in lieu of tax agreements provide that the payments under these agreements for any fiscal year may not exceed the balance of revenues remaining for such fiscal year after payment of debt service and required reserve account deposits on outstanding Bonds, payment of operating expenses and payment of required deposits to the Maintenance Reserve Fund. See Note 10 to the Financial Statements in APPENDIX B to the Official Statement.

Pursuant to the terms of the amended payment in-lieu-of-taxes agreement between the Authority and the City of Boston (the "*Boston PILOT Agreement*"), the Boston PILOT Agreement terminates on June 30, 2022; provided, however, that absent an annual election by either party to terminate the Boston PILOT Agreement, the term is subject to automatic one-year extensions of the term on each July 1. In November 2016, the City of Boston notified the Authority of its election to terminate the Boston PILOT Agreement on June 30, 2022, and the parties expect to commence negotiations on a successor agreement or an amendment to the existing agreement. The Boston PILOT Agreement provides for the Authority to pay an annual base amount that increases annually by the annual percentage change in the consumer price index, provided that such increase shall be no less than 2.0%, nor greater than 8.0%, per year. Pursuant to the Boston PILOT Agreement, the Authority made annual payments of $19.0 million and $19.4 million in fiscal years 2020 and 2021, respectively, and expects to make an annual payment of $19.8 million in fiscal year 2022.

In fiscal year 2006, the Authority and the Town of Winthrop entered into an Amended and Restated Payment-In-Lieu-Of-Taxes Agreement (the "*Winthrop PILOT Agreement*"), which extended the base in-lieu-of-tax payments through fiscal year 2025. The Winthrop PILOT Agreement was amended in November 2018, and pursuant thereto the Authority expects to make adjusted annual payments for the remainder of the term, commencing with a payment of $1.4 million in fiscal year 2019 and increasing to $2.0 million by fiscal year 2025. Pursuant to the Winthrop PILOT Agreement, the Authority made annual payments of $1.4 million in fiscal years 2020 and $1.5 million in 2021, and expects to make an annual payment of $1.65 million in fiscal year 2022.

Risk Management

Under the 1978 Trust Agreement the Authority is required to maintain insurance substantially in compliance with the recommendations of the Risk Management Consultant. See APPENDIX D to the Official Statement – Summary of Certain Provisions of the 1978 Trust Agreement – Insurance. The Authority maintains a program of risk management designed to afford insurance protection meeting the requirements of the 1978 Trust Agreement and of sound business practice at the best available cost. The Authority's insurance program includes coverages from domestic and international insurance markets. The program also includes a reserve held in the Self-Insurance Account designed to fund deductibles and self-insurance of certain risks. The Authority is a legislatively authorized self-insurer for its workers' compensation risk. The self-insurance program is administered with assistance from a third party administrator and losses are funded through a dedicated Self-Insurance Account within the Operating Fund under the 1978 Trust Agreement (the "*Self-Insurance Account*").

The Authority's risk management program is designed to provide an appropriate level of protection against catastrophic loss, including direct damage to its projects, loss of revenue and third party legal liability obligations. The program utilizes a combination of purchased insurance and the Self-Insurance Account to provide this level of protection. The principal areas of risk exposure covered by self-insurance are insurance policy deductibles, environmental pollution, directors' and officers' liability, cyber liability and unknown risks.

Prior to September 11, 2001, the Authority's liability insurance and property insurance policies provided coverage for acts of war and terrorism. On November 26, 2002, President Bush signed into law the Terrorism Risk Insurance Act of 2002 ("*TRIA*"). TRIA effectively nullified all existing exclusions for acts of terrorism carried out by foreign terrorists. All insured entities covered by TRIA were given the opportunity to continue this coverage upon payment of an additional premium quoted by underwriters. Following the recommendations of the Authority's Risk Management Consultant, the Authority has obtained terrorism insurance under either TRIA, where available and not cost prohibitive, or by purchasing coverage under a War Risk buy back option.

The Authority maintains a Self-Insurance Account to cover all areas of self- insurance. See APPENDIX D to the Official Statement – Summary of Certain Provisions of the 1978 Trust Agreement – Insurance. As of March 31, 2022 the balance in the Self-Insurance Account was $30.4 million. Annual contributions, consistent with the recommendations of the Authority's Risk Management Consultant, are made to this account as part of the Authority's annual budget process. Losses within the self-insurance area are administered by Authority personnel, use of outside adjusters on a case specific basis and a third-party administrator for workers' compensation losses. The Authority's most recent annual Risk Management Assessment Report states that the extent of the Authority's funding of future liabilities within the Self Insurance Account represents what the Authority's Insurance Consultant considers to be a "best practice" among complex public agencies. Workers' compensation losses and losses within the retained layer are predictable and level over time which makes this an appropriate area for risk retention. The report also notes that the combination of internal administration and third-party administration of self-insured claims is sound and cites a demonstrated reduction in loss adjustment expenses, particularly, in the general liability and workers' compensation areas.

Insurance markets are cyclical. The Authority believes that its proactive risk management program is critical in its effort to contain cost and will continue to yield better results than alternative approaches.

Investment Policy

All investments of Authority funds are made in accordance with the provisions of the 1978 Trust Agreement, the PFC Depositary Agreement or the CFC Trust Agreement and the investment policy adopted in 2000 (and most recently updated in June 2018) by the Authority (the "*Investment Policy*"). The goals of the Investment Policy, in order of importance, are: (1) to preserve capital, (2) to provide liquidity to meet payment obligations, and (3) to generate investment income. As authorized by the Investment Policy, the Investment Oversight Committee, chaired by the Director of Administration and Finance of the Authority, oversees the Authority's investments. The Investment Oversight Committee has established diversification requirements for its investments. The Investment Oversight Committee meets quarterly and determines the general strategies for investment activities and monitors investment results against external benchmarks.

Financial Hedge Policy

In October 2004, the Members of the Authority approved a formal Financial Hedging Policy, which provides general guidelines regarding the use, procurement and execution of all interest rate swaps, options, caps, collars and related financial transactions ("*Financial Hedges*") by the Authority. The Financial Hedging Policy was most recently revised and reauthorized by the Members of the Authority in June 2018. No Financial Hedge may be executed without the approval of the Members of the Authority and review by the State Finance and Governance Board. Prior to seeking the approval of the Authority of any proposed Financial Hedge, the Investment Oversight Committee must undertake an identification and evaluation of the financial benefits and risks involved in the Financial Hedge transaction, including certain enumerated risks, and summarize them for the Members of the Authority. Financial Hedges may not be entered into for speculative purposes, where the Authority does not have sufficient liquidity to terminate an existing Financial Hedge at current market values, or where there is insufficient price transparency to permit reasonable valuation of the Financial Hedge. Counterparty exposure may not exceed prudent limits, and only entities rated "A" or better (or guarantors of such entities) may be counterparties. Financial Hedges are to be used only to lower the cost of the Authority's borrowing; to reduce exposure to changes in interest rates; or to manage the Authority's credit exposure to existing Financial Hedge counterparties. Currently, the Authority has no outstanding Financial Hedges.

AUTHORITY ENVIRONMENTAL MATTERS

Environmental Stewardship

The location of the Airport, bounded by residential neighborhoods and mixed residential and commercial areas, as well as wetland and open water habitats, necessitates that Airport development and operations be undertaken with sensitivity to environmental factors. The Authority undertakes a substantial effort around environmental stewardship, sustainability and resiliency that encompasses both voluntary and compliance-driven aspects. Compliance efforts around impacts including air, soil and water quality are continuous and include moderate costs for compliance testing, auditing and reporting which are on-going. Voluntary efforts include certifying all Authority building and infrastructure projects to meet LEED standards, and voluntary reporting of sustainability goals and related key performance indicators. An annual sustainability and resiliency report highlights voluntary efforts around environmental impacts, and environmental, social and governance (ESG) factors are managed through a collaborative effort across Authority departments. In the fall of 2021, the Authority initiated an effort with consulting support to develop a Net Zero Greenhouse Gas Emissions Roadmap, as part of the development of an overall Climate Action Plan. See "AUTHORITY ENVIRONMENTAL MATTERS – Sustainability Initiatives" below for more information.

Net Zero Greenhouse Gas Emissions Roadmap (2031)

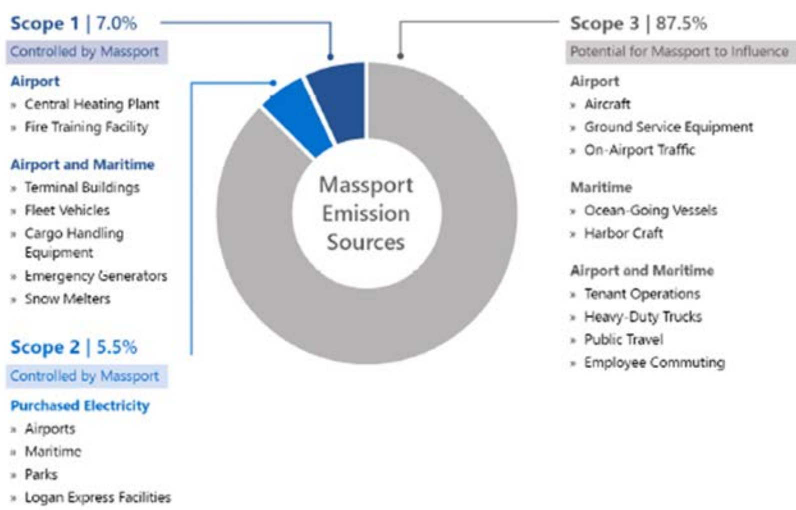
For many years, the Authority has shown industry leadership in sustainability and resiliency and has taken decisive action to reduce the Greenhouse Gas ("*GHG*") emissions associated with its facilities and operations. The Authority is committed to taking aggressive measures to further reduce its emissions and supporting its partners in addressing their emissions. As the Commonwealth and most of the world are setting targets to address climate change by 2050, the Authority has undertaken a project to develop a guiding roadmap and implementation plan to achieve net zero greenhouse gas emissions by 2031, the Authority's 75th anniversary. The goals, objectives and supporting initiatives identified in the roadmap will then be integrated into an Authority-wide Climate Action Plan. The focus of the roadmap is on Massport-controlled emissions, and will also identify strategies for influencing reduction in tenant-related emissions. Strategies have been assessed for alignment with the Commonwealth's 2050 Climate Roadmap and 2030 interim goals and will include benefits to surrounding environmental justice populations.

The Net Zero GHG Emissions Roadmap (the "*Net Zero Roadmap*") identifies five pathways to achieve net zero emissions:

1. Energy conservation and efficiency
2. Clean and renewable energy sources
3. Sustainable ground transportation
4. Partnerships and community
5. Culture of sustainability and innovation

These pathways complement and overlap one another, reflecting the wide range of opportunities that the Authority has to slow climate change, protect human health, and create positive change for the community. These pathways aim to address the biggest emission contributors to the Authority's GHG footprint, areas over which the Authority has control and influence, and the Authority's desire to advance change in the aviation and maritime industries. The Authority expects to take action to reduce emissions simultaneously across multiple pathways, which may vary by location and facility, and would be implemented in phases depending on ease of implementation, availability of technology, and other Authority considerations.

The Authority has limited control over GHG sources at the Airport. In fact, the Authority estimates that Authority controlled GHG emissions account for approximately 12.5% of total emissions as reflected in the chart below.



Facilities and equipment account for more than half of Authority controlled GHG emissions. The Authority has identified a set of initiatives to primarily address so-called "Scope 1" and "Scope 2" emissions (i.e., those that are under Authority control), and is currently working to prioritize those initiatives. Over the next decade, the Authority expects to align its capital budget with various net zero investments, including the following:

- Ensuring that already planned and upcoming Authority projects embrace energy efficiency and transition from fossil fuel to electricity, including:
    - Building efficiency upgrades that add/expand onsite renewable energy generation – new projects to meet net zero goals;
    - HVAC systems conversion to electric power;

- Electric vehicle procurement;
  - Replacement of light and heavy-duty equipment with renewable diesel or electric models; and
  - Utility infrastructure upgrades to meet increased electricity demand.

- Transitioning to clean/renewable energy procurement
- Implementing energy efficiency programs and converting to clean/renewable energy sources, which are expected to yield life-cycle costs savings.

In addition, the Authority plans to pursue significant State and federal funding programs and private partnerships for green initiatives. Further, with respect to so-called "Scope 3" emissions, which are outside of the Authority's direct control—such as emissions from aircraft, tenant fleet vehicles and ground service equipment, passenger and employee transportation, cargo vessels, harbor craft, cruise ships and aircraft hangars—the Authority expects to work with its partners to influence and enable their ability to reduce emissions. For example, the Authority is exploring strategies to advance the use of Sustainable Aviation Fuel ("*SAF*") to influence the reduction of aircraft emissions, which is the largest source of Scope 3 emissions. The Biden Administration has announced an annual production goal of 3 billion gallons of SAF by 2030, and the Authority has been a strong advocate for inclusion of SAF in the Biden Infrastructure Plan.

The Net Zero Roadmap is a component of the Authority's broader Climate Action Plan. The Net Zero Roadmap has been launched, but there remains much work to do to achieve its ambitious goals. Next steps include (i) evaluating initiatives and identifying top actions and gaps that may need to be filled in the short and long-term, (ii) incorporating initiatives into capital planning and budget strategy, including federal/State/private funding opportunities, (iii) conducting further analysis and (iv) initiating additional outreach on possible opportunities for Scope 3 emissions reductions, including real estate. The Authority is also still evaluating the overall cost of the proposed Net Zero initiatives, as well as funding sources, but has stated publicly that the total investment to achieve this ambitious goal could be up to $1 billion over the next decade.

Sustainability Initiatives

Commitment to Environmental Sustainability. The Authority strives to be an industry leader in its protection of the environment through sustainability initiatives. Consistent with ACI North America's definition of sustainability, Massport is focused on a holistic approach to managing facilities to ensure economic viability, operational efficiency, natural resource conservation, and social responsibility ("*EONS*"). Embracing its important role as environmental steward, the Authority continuously seeks opportunities for improvement, proactively reevaluating best approaches for mitigating impacts to the community and the environment. The Authority's sustainability efforts are guided by the following goals, which are defined in the Logan International Airport Sustainability Management Plan:

- Energy and GHG Emissions – reduce energy intensity and GHG emissions while increasing the portion of energy generated from renewable sources;
- Water Conservation – conserve regional water resources through reduced potable water consumption;
- Community, Employee and Passenger Well-Being – promote economically prosperous, equitable and healthy communities and passenger and employee well-being;
- Materials, Waste Management, and Recycling – reduce waste generation, increase recycling rate, and utilize environmentally sound materials
- Noise Abatement – minimize noise impacts from Massport operations;
- Air Quality – decrease emissions of air quality criteria pollutants from Massport resources;
- Ground Access and Connectivity – provide superior ground access to facilities through alternative and high occupancy vehicle (HOV) travel modes;
- Water Quality/Storm Water – protect water quality and minimize pollutant discharges;

- Natural Resources – protect and restore natural resources near Massport facilities; and
- Climate Resiliency – become an innovative and national model for resiliency planning and implementation among port authorities.

The Authority's Annual Sustainability and Resiliency Report ("*ASRR*"), which was first published in 2016, outlines progress towards improving sustainability and enhancing resiliency across the Authority's facilities. In early 2019, more than 150 Authority staff, tenants, and contractors (representing 71 entities) participated in a series of four charrettes to identify and plan for Sustainable Massport (termed "Sustainable Massport 2.0"). Using feedback received, the Authority identified and prioritized valuable and impactful strategies to further advance the Authority's leadership and commitment to sustainability, resiliency, and environmental stewardship. These are outlined in the Authority's 2019 ASRR, which can be accessed via the following website address: https://www.massport.com/sustainability[5].

As outlined in the 2019 ASRR and reflected in the table below, the Authority has achieved a number of key performance indicators, evidencing its commitment and progress towards achieving the above-described sustainability goals.

Key Performance Indicator (KPI)	Target	Target Achieved?	Trend
kBTU* per passenger	• 25% reduction by 2020 of FY2004 baseline	Yes	• Down 26% since FY2004
kBTU* per square foot	• 25% reduction by 2020 of FY2004 baseline	Yes	• Down 25% since FY2004
GHG emissions per passenger	• 40% reduction by 2020, 80% reduction by 2050 of FY2002 baseline	Yes	• Down 46% since FY2002
% of construction and demolition waste recycled/reused	• Recycle/reuse close to 100% of construction and demolition waste	Yes	• Nearly 100% construction and demolition waste recycled/reused
# of FTE jobs through design and construction expenditure	• Sustain 800 FTE job opportunities through design and construction expenditure	Yes	• 3,127 FTE jobs sustained in FY2018
Amount of economic impact to the community	• Continue to contribute to the regional economy each year	Yes	• $16 billion contributed to the regional economy annually
% of capital projects that address resiliency of Massport facilities at Logan	• 25% of critical assets and/or key resources enhanced by 2020; 100% by 2025	Yes	• 100% of critical assets enhanced with resiliency measures

* kBTU – one thousand British Thermal Units

In March 2022, the Authority was awarded a $615,000 grant from the Massachusetts Clean Energy Center through its Accelerating Clean Transportation for All Program. The grant will be used to explore and investigate ways to incentivize and accelerate electric vehicle ("*EV*") adoption by Ride Apps, taxis and airport passengers, and increase EV charging equipment on the Airport in order to improve the efficiency of commercial modes of transportation and support emission reductions in surrounding communities.

Environmental Management Policy. The Authority is committed to operating all of its facilities in a sound and environmentally responsible manner, in accordance with federal, state and local regulations, and consistently with its Environmental Management Policy ("*EMP*"). Pursuant to the EMP, the Authority strives to minimize the impact of its operations on the environment through the continuous improvement of its environmental performance and the implementation of pollution prevention measures, both to the extent feasible and practicable in a manner that is

5 Reference to the Authority's Sustainability website is for informational purposes only and is in the form of a hyperlink solely for the reader's convenience. This website and the information or links contained therein are not incorporated into, and are not part of, this Appendix A or the offering document for any purpose, including for purposes of Rule 15c2-12 promulgated by the SEC, and the Authority may elect to discontinue posting such information and updates on its website at any time in its sole discretion.

consistent with the Authority's overall mission and goals. To successfully implement the EMP, the Authority works to develop and maintain management systems that will:

- Ensure that the environmental management policy is available to staff, tenants, customers and the general public.
- Ensure compliance with all applicable environmental laws and regulations.
- Ensure that environmental considerations are included in business, financial, operational, and programmatic decisions, including feasible and practicable options for potentially exceeding compliance with applicable regulatory requirements.
- Define and apply sustainable design principles in the planning, design, operation and decommissioning of its facilities.
- Define and establish environmental objectives, targets and best management practices and monitor performance.
- Provide training to and communication with staff and affected tenants regarding environmental goals, objectives and targets and their respective roles and responsibilities in fulfilling them.
- Incorporate monitoring of the environmental activities of both Massport and its tenants.
- Include the preparation of an annual environmental performance report which will be made available to staff, tenants, customers and the general public.

Green Building. The Authority incorporates sustainable principles and efficient systems into construction design, planning, and management projects to continuously improve environmental performance. Developed by the U.S. Green Building Council, LEED is an internationally recognized green building certification system, providing independent third-party verification that a building was designed and built using strategies aimed at improving performance in energy efficiency, emissions reduction, water and natural resource conservation, and more.

Logan Airport was the first airport in the country to receive LEED certification for a terminal. Since then, more than 60% of the buildings and facilities at Logan have been constructed, renovated, or retrofitted for energy conservation. Seven buildings at Logan Airport have achieved LEED certifications, as well as the 11,000 square foot Airport Rescue and Firefighting (ARFF) and U.S. Customs and Border Protection (CBP) facility located at Hanscom Field. On average, the Authority's LEED-certified buildings are 28% more energy-efficient than conventional buildings of the same type and perform 9% better than designed. Across the Authority's facilities, as much as 7% of electricity consumed at LEED-certified buildings is generated by on-site solar. The Authority has obtained or is seeking LEED certification on the following buildings:

LEED-Certified

- Logan Airport Terminal A Redevelopment
- Logan Airport Green Bus Depot
- Logan Airport – Terminal B Optimization
- Logan Rental Car Center
- Terminal E – John A. Volpe NLA Wing
- Terminal B – Gate 37-38 Connector
- Hanscom Field ARFF/CBP Facility

Pursuing LEED Certification

- Logan Airport – Terminal E Modernization
- Logan Airport – Terminal B to C Connector

The Authority is committed to meeting LEED standards for new building projects. Projects must also comply with standards specified in the Authority's Sustainability and Resiliency Design Guidelines ("*SRDGs*") and its Floodproofing Design Guide.

Conley Terminal Sustainability Initiatives. To maintain its competitiveness, in 2014, the Authority commenced the Conley Terminal Modernization Program, an $800 million investment into the infrastructure of the Port of Boston. See "PORT PROPERTIES – Maritime Properties – Conley Terminal." This program included partnering with the USACE on the dredging and deepening of the Boston Harbor, rehabilitation of two existing berths at Conley Terminal (Berths 11 and 12), construction of a new deep-water berth (Berth 10) and expansion of the Conley Terminal yard onto an adjacent property, the location of a former oil storage facility. Rather than manage these projects piecemeal, Massport recognized the opportunity to develop and execute a comprehensive and cost-effective Soil Reclamation and Reuse Program to test, manage, treat, process, and reuse soils onsite for all construction projects at Conley. This successful Soil Reclamation and Reuse Program allowed Conley Terminal to:

- Maximize soil reuse onsite.
- Minimize the amount of imported fill as part of construction.
- Eliminate 7,300 truck trips for off-site disposal and 4,900 truck trips for import of subbase material through adjacent residential neighborhoods. The elimination of these truck trips resulted in the elimination of the use of an estimated 48,650 gallons of truck fuel, which translates to an estimated elimination of 3.70 short tons of NOx emissions and 547.32 short tons of CO^2 emissions for the project.
- Eliminate off-site disposal for soil, which otherwise would have taken up valuable space in a landfill.
- Realize substantial economic benefits in excess of $5 million.

Recycling and Waste Management. To encourage waste reduction and recycling, the Authority has implemented a wide variety of initiatives, including single-stream recycling, programs to recycle and beneficially reuse other materials such as food/organic waste, construction and demolition materials, scrap metal, used cooking oil, wooden pallets, batteries, and electronic waste. In addition, the Authority has installed more than 40 water filling stations (also known as hydration stations) located in all terminals at Logan Airport. The Authority has made it a standard practice to continue installing these stations as it renovates and upgrades buildings at the Airport. The Authority has also installed liquid collection units at the security checkpoints throughout Logan Airport. Before entering a security checkpoint, travelers can empty beverages into these bins. After going through security, travelers can reuse their bottles and refill at hydration stations. This helps to reduce waste and promote sustainable choices. In addition, diverting liquids from the waste stream helps to improve recycling by reducing liquid contamination.

Massport Resiliency Program. The Airport's location directly adjacent to Boston Harbor requires that the Authority carefully review and prepare for future changes in climate and its potential impact on Airport and Port operations. To that end, in 2013, the Authority began the Massport Resiliency Program (the "*MRP*")—one of the first in the nation for airports—to protect the Authority's transportation facilities from flooding hazards caused by extreme storms and rising sea levels as a result of climate change. This comprehensive resiliency program is not only designed to protect the Authority's most important facilities, but also enables the Authority to serve the greater community by helping to ensure such facilities remain operational to serve as a resource for relief, transit and communication efforts, as necessary, in the case of a major storm or weather incident. Resiliency is the ability of a system to withstand a major disruption within acceptable degradation parameters, to recover within an acceptable time, and to prioritize projects by considering the likelihood of damage versus hardening costs. The Authority reviews and updates the MRP regularly.

Examples of the Authority's resiliency efforts include: creating the Massport Floodproofing Design Guideline to assist designers, architects and planners engaged in building new or retrofitting existing infrastructure at Authority facilities to ensure such infrastructure is flood proof; developing Flood Operations Plans for the Airport and maritime facilities that detail the steps to help prepare and recover from any flood-related event; sealing and installing flood doors and fencing for electrical infrastructure like substations and transformers to prevent flooding; establishing temporary flood barriers that can be deployed in the event of a flood-related emergency for the State Police building and five other locations at Logan Airport; and annual training deployments of flood barriers. Finally, the Authority has developed a geospatial resiliency dashboard and incident reporting application to facilitate emergency planning and response immediately prior to and during severe weather incidents, enhancing the transparency of planning efforts while facilitating communications.

Costs to address climate change risk through reduction of emissions may increase over time as more complex and/or technologically extensive solutions are introduced and implemented. At this time evaluation of overall strategy is on-going, and seeks to provide a comprehensive business case that account for "triple bottom line" benefits that include economic, societal and environmental aspects. The Authority will continue to evaluate emissions reduction strategies and initiatives, and their corresponding costs and benefits. Costs to address adaptation requirements for coastal storm resilience due to sea level rise and increased weather severity have already been incurred, and the MRP is continuously managed to reflect evolving requirements and climate science.

Other Environmental Sustainability Efforts. The Authority has historically reported environmental information via "Generic Environmental Impact Reports," the earliest of which is dated 1983 and discusses information starting in 1979. This original reporting has now evolved into Environmental Status and Planning Reports ("*ESPRs*") and Environmental Data Reports ("*EDRs*"), which have been published on the Authority's website since 2010. The ESPRs for Logan Airport discuss current and projected future airport operations and environmental conditions, project updates, and Authority mitigation programs. The Authority's EDRs represent a continuation of the Authority's longstanding commitment to publish detailed analyses of environmental considerations.

Limits of Authority's Goals. While the Authority has made and is making significant strides towards achieving its sustainability goals and reducing its negative impact on the environment, these goals and most of its efforts are focused on activities within the Authority's direct operational control. Activities outside the Authority's direct operational control, such as aircraft activity and transportation to and from the Airport, can be damaging to the environment. While the Authority is working with airlines and others to reduce the environmental impact of their various activities at the Airport, its ability to do so is and will continue to be limited.

Airport Noise

The FAA has jurisdiction over certain environmental matters, including soundproofing. Airport noise is a significant federal and local issue, which may require substantial capital investments by the industry and/or airport operators, including the Authority, from time to time to meet applicable standards. The FAA's implementation of next generation flight procedures and technology has concentrated aircraft noise over a narrower band of properties. This has resulted in increased complaints from communities under these concentrated paths near Logan Airport and at other communities nationwide. To address this issue, the Authority has entered into a Memorandum of Understanding (the "*MOU*") with the FAA. The MOU provides for the establishment of a technical team led by the Massachusetts Institute of Technology ("*MIT*") to study and offer potential solutions to the aircraft noise concentration issue. MIT's technical work is completed and the FAA has implemented some new procedures and is evaluating others. These procedures have received community support.

Logan's location as an urban airport and the impact of aircraft operations on nearby communities has led to the development of noise abatement programs by the Authority consistent with maintaining high quality air service for the New England area. The programs include sound insulation of eligible homes based on federal criteria, a computer-based program to monitor overall noise impact, noise abatement ground procedures, noise restrictions on certain runway ends, noise abatement turns on certain departure procedures, late night runway preference, and advocating for single engine taxiing when appropriate.

A number of noise abatement programs have also been instituted at Hanscom Field in order to reduce the impact of aircraft operations on surrounding communities. These programs include a computer-based program to monitor overall noise impact, noise abatement rules and regulations, nighttime fees, and a fly quiet program to encourage noise reduction through operational measures by operators and pilots.

The Authority does not believe these programs have had, or are likely to have, a material adverse effect on Airport Revenues.

In 2021, the FAA issued and published findings of a Neighborhood Environmental Survey (or "*NES*") relating to understanding and mitigating noise impacts. Although the industry has accomplished significant reduction in noise, community engagement has continued. As air carriers phased out old engine technology, the number of people within the Logan Airport 65 DNL (Day-Night Average Sound Level noise metric) has fallen over 90% against levels of the 1980s, while passenger levels more than doubled. In its notice, the FAA states that it will not make any determinations for the FAA's noise policies until it has carefully considered public and other stakeholder input along with any additional research needed to improve the understanding of the effects of aircraft noise exposure on communities. The Authority cannot predict what impact, if any, future FAA regulations regarding noise policies may have on the Authority's operations.

Air Quality and Carbon Management Planning

Air emissions associated with operations at Logan Airport come from three primary sources: aircraft, ground service equipment and motor vehicles. Additional sources include fuel storage, heating and cooling; however, aircraft are the largest single source of emissions at Logan. The U.S. Clean Air Act, which was last amended in 1990, requires the EPA to establish air quality standards for outdoor (ambient) air to protect public health and the environment. Air quality at Logan Airport is governed by these standards as well as other federal and state regulations including the Massachusetts SIP. The Authority is committed to the environment, particularly to reducing emissions generated by airport activity at Logan. See "AIRPORT PROPERTIES – Boston-Logan International Airport" for additional information on emissions reduction efforts with respect to parking facilities, service and support facilities and ground access to the Airport.

Water Quality and Storm Water Management

Water Quality. Logan Airport is surrounded by Boston Harbor on three sides. This close proximity to the harbor necessitates careful planning and management of Airport operations to ensure that airfield activities do not adversely affect harbor water quality and associated sensitive natural resources. The Authority has a comprehensive water quality management program in place to protect water quality at Logan Airport. This includes protection of surface water and groundwater and coastal resources from Airport operations and during construction.

The Authority's primary water quality goal is to prevent pollutant discharges, thus limiting potential adverse impacts associated with airport activities. The Authority has employed several environmental protection programs to promote awareness of Authority and tenant activities that may impact surface and groundwater quality. Two such efforts, for example, are an Authority-instituted audit program to evaluate environmental compliance, and implementation of best management practices ("*BMPs*") for pollution prevention by the Authority and its tenants.

In addition to implementing responsible environmental practices and BMPs, the Authority provides guidance to its tenants. The Authority also voluntarily participates in the Massachusetts Clean State and State Sustainability Initiatives, continuing its commitment to operate Logan Airport in an environmentally sound manner.

Storm Water Management. Protection of surface and groundwater resources is a high priority at Logan, and the Authority meets or exceeds all state and federal water quality regulations. A major component of the Authority's water pollution prevention program is the development and implementation of a comprehensive storm water pollution prevention plan ("*SWPPP*"). The SWPPP integrates both water quality treatment and monitoring programs.

The Federal Clean Water Act requires permits for pollutant discharges into United States waters from a point source and for storm water discharges associated with industrial activities. Permits are issued under the Federal EPA's National Pollutant Discharge Elimination System ("*NPDES*") Program. Presently, the Authority holds two NPDES permits for Logan Airport: one permit for storm water discharges from the four major outfalls at the Airport; another permit for treated water discharges from fire-fighting operations at the Fire Training Facility on Governors Island located in Boston Harbor. To ensure permit compliance, the Airport monitors discharges from Logan Airport and submits regular data reports to the EPA and the DEP.

Per- and Polyfluoroalkyl Substances

Per- and Polyfluoroalkyl Substances ("*PFAS*") are a group of more than 3,000 synthetic chemicals that have been in use since the 1940s. PFAS are found in many products, including fire-fighting foams. The FAA requires airport operators to use Aqueous Film Forming Foam ("*AFFF*") containing PFAS in their aircraft rescue and firefighting vehicles and fire suppression operating systems.

The EPA has determined that, due to the widespread use and persistence in the environment of PFAS, most people in the United States have been exposed to PFAS, and that continued exposure above specific levels to certain PFAS may lead to adverse health effects. Currently, the key PFAS classes of concern are perfluoroalkyl sulfonic acids, such as perfluorooctanesulfonate ("*PFOS*") and perfluorooctanoic acid ("*PFOA*"). In February 2019, the EPA issued a PFAS Action Plan. The PFAS Action Plan outlines EPA's strategy to better understand the health risks associated with PFAS and to develop tools for characterizing PFAS in the environment, cleanup approaches, and enforcement mechanisms.

In October 2021, the EPA announced a comprehensive strategic roadmap as part of a broader White House initiative on the topic. The EPA is developing a Notice of Proposed Rulemaking to designate PFOA and PFOS as hazardous substances under the Resources Conservation and Recovery Act ("*RCRA*"). Such designations would require facilities across the country to report on PFOA and PFOS releases that meet or exceed the reportable quantity assigned to these substances. The EPA or other agencies could also seek cost recovery or contributions for costs incurred for the cleanup. To the extent the EPA implements additional regulations or adds other contaminants to its list of regulated materials, such measures could require additional capital expenditures by the Authority or changes in operations at the Authority's facilities.

On May 31, 2022, the Department of Defense ("*DOD*") and the U.S. Navy released draft performance standards for fluorine-free foam ("*F3*") fire-extinguishing agents and requested industry comment by June 30, 2022. Over the past several years, DOD, in coordination with the FAA, has been actively developing this updated military specification to facilitate the transition to F3 agents and away from PFAS-containing foam. Once finalized, the FAA is widely expected to adopt and use the updated standard to determine which F3 agents may be used at Part 139 commercial service airports, such as the Airport and Worcester Regional Airport.

AUTHORITY SOCIAL AND GOVERNANCE EFFORTS

Diversity, Equity and Inclusion Initiatives

Office of Diversity, Equity & Inclusion/Compliance. One of the important missions of the Authority is to serve as an economic engine for the whole of New England. The Authority generates billions of dollars for the regional economy each year. A principal goal of the Authority is to ensure that local, small, and disadvantaged firms share in that growth. The Office of Diversity, Equity & Inclusion/Compliance focuses on achieving the Authority's missions through supporting and growing its multiple diversity programs, which include workforce diversity, construction, architectural services, consulting/professional services, supplier diversity, real estate and concessions, as well as all compliance initiatives associated with the Authority's minority, women, and disadvantaged business enterprise programs. The office implements initiatives that develop and grow employee morale, the Authority's economic engine, and enhance awareness of the Authority's compliance with business diversity programs and initiatives throughout the organization. The goal is to develop and implement initiatives and strategies that align with the Authority's short term and long term business goals and objectives.

Diversity, Equity and Inclusion Policy. The Authority is committed to ensuring full participation of diverse businesses in all of the Authority's economic activities, including its purchases of goods and services. The Authority supports and encourages the hiring of a diverse and inclusive workforce throughout its economic activities, and believes that Disadvantaged Business Enterprises ("*DBEs*"), Minority Business Enterprises ("*MBEs*") and Woman Business Enterprises ("*WBEs*") should have equal opportunity to participate in contracts.[6] It is the Authority's policy to ensure that DBEs, MBEs, WBEs, and airport concession disadvantaged business enterprises ("*ACDBEs*") have an equal opportunity to receive and participate in all Authority contracts. It is also the Authority's policy:

- To ensure nondiscrimination in the award and administration of all contracts;
- To create a level playing field on which DBEs, M/WBEs, and ACDBEs can compete fairly for all Authority contracts;
- To ensure that the DBE, M/WBE, ACDBE Program is narrowly tailored in accordance with all applicable laws and regulations;

[6] The terms MBE and WBE refer to businesses that meet the certification criteria of, and are certified by, the Massachusetts Supplier Diversity Office ("SDO") (formerly known as the Massachusetts State Office of Minority and Women Business Assistance ("SOMWBA")), set forth in 425 CMR Section 2.00 et seq., or that meet the certification criteria of, and are certified by, the Greater New England Minority Supplier Development Council ("GNEMSDC").

- To ensure that only firms that fully meet The Commonwealth of Massachusetts and Federal eligibility standards are permitted to participate as DBEs, M/WBEs, and ACDBEs;
- To help remove barriers to the participation of DBEs, M/WBEs, and ACDBEs in all Authority contracts;
- To promote the use of DBEs, M/WBEs, and ACDBEs in all types of non-federal and federal-assisted contracts and procurement activities;
- To assist the development of firms that can compete successfully in the market place outside the DBE, M/WBE, and ACDBE Program; and
- To provide appropriate flexibility to the Authority in establishing and providing opportunities for DBEs, M/WBEs, and ACDBEs.

Massport Model. Beginning with the development of the Omni Hotel at the Seaport on Parcel D-2 in the South Boston Waterfront, which opened in the fall of 2021, Massport's commercial real estate RFPs and other competitive offerings have included diversity, equity and inclusion ("*DEI*") as one of four equally-weighted selection criteria. The goal of this approach, which has come to be known as the "Massport Model," is to increase opportunities for women and people of color in all stages and roles of the real estate development process. Since the Omni Hotel offering, Massport's Real Estate & Asset Management Department (RE&AM) has offered three subsequent parcels (Parcel A-2, Parcel H, Parcel D-4), and in each case, Massport has required bidders to compete on the strength of their DEI plan on par with the team's ability to execute the project, the financial proposal, and excellence in proposal's design/program and public realm. Massport expects exemplary DEI plans to include diverse participants throughout all aspects of the project team and lifecycle, including the core development team, equity ownership and lenders, design and engineering consultants, general and sub-contractors, building management and operations, and sub-tenants. The Massport Model has been adopted and adapted by other public agencies seeking to advance DEI through their work. The Associated Industries of Massachusetts ("*AIM*") recently awarded Massport and the Omni Hotel project team the Lewis Latimer Award for the creation and implementation of the Massport Model, an award AIM presents annually to a Massachusetts innovator, organization or business leader who has broken barriers to innovate and create economic opportunity.

Diversity, Equity and Inclusion Initiatives. The Authority has launched Diversity, Equity & Inclusion initiatives to address one of the Authority's goals to generate broader and deeper economic impact for the Commonwealth with a focus on enhancing access, opportunity, and equity for people of color, women and other diverse businesses. Some of the DEI initiatives are as follows:

- *Expansion of Massport Model to Real Estate Projects and Procurement*. The Authority has extended its "Massport Model" to other real estate projects and procurements. This includes revising Massport's procurement policy and procedures to focus on DEI, including the incorporation of the four-part equally weighted criteria and utilizing Bid Express, an electronic bidding platform, which makes it convenient for all diverse vendors to proactively engage with Massport. The Authority continues to implement the Massport Model for other development projects, incorporating high levels of M/WBE participation in the design, construction, equity investment, and future operations.

- *Expanded DEI Outreach*. Since 2013, the Authority has held an Annual Business Diversity Summit, which is a targeted outreach to diverse businesses. In 2021, this summit brought together approximately 120 businesses owned by people of color, women and other diverse groups to learn about upcoming business opportunities with Massport, including understanding Massport's bid procedures, upcoming contract opportunities and how to conduct business with Massport as a small/diverse business. As a result of the summit, 11 new diverse vendors have provided Massport with their contact information so that they can be included in future opportunities. In addition to the annual summit, the Authority continually engages with diverse businesses to make them aware of bid opportunities. It also partners with various groups, business associations and organizations that have diverse businesses as members to share Massport opportunities with their membership.

- *Expanded Investor Broker Pool*. In fiscal year 2021, the Authority expanded its investor broker pool and added five (5) new diverse brokers designated as MBE and/or WBE.

- *Real Estate & Asset Management DEI Initiatives*. The Authority continues to implement the Massport Diversity Model for other development projects, incorporating high levels of M/WBE participation in the design, construction, equity investment, and future operations. Most recently, the Authority approved designation of a development team for Parcel H that excelled across all four of Massport's equally weighted selection criteria: Diversity, Equity, & Inclusion; Financial Proposal: Design and Public Realm; and Ability to Execute. The Parcel H project advances the Massport Diversity Model and includes people of color and women in significant ownership and leadership roles in every aspect of the project, including development, equity, design, construction, and property management. Further, a significant feature of the project is the proposed Life Sciences & Technology Career Training Center, which is expected to expand life sciences job opportunities for a diverse Boston population.

- *Charitable Contributions*. The Authority has in place a program that awards grants monthly to local organizations. In fiscal year 2021, Massport set goals to award 40% of the program budget to organizations serving people of color and to award grants to non-profits and community organizations that are run by people of color. In fiscal year 2022, this goal was raised to 50%. In fiscal year 2021, the program awarded grants to 37 organizations, 20 of which are led by people of color, and a total of 24 organizations or programs that serve predominantly people of color received 73% of the funds.

- *Community Summer Jobs Program*. The Authority's Community Summer Jobs Program is designed to help civic and social service agencies by providing funds to support youth employment throughout the summer months. In fiscal year 2021, Massport set a goal that one third (1/3) of summer jobs funded would be opportunities for students of color. In fiscal year 2021, 35% of the employees hired were students of color, and 12 of the organizations that received funding served predominantly people of color.

- *Scholarships/Internships*. As part of the Authority's plan to build a diverse pipeline of Airport operations staff, in fiscal year 2021, Massport launched the Pathways Program with Bridgewater State University, providing two (2) Aviation Management students in their junior year with scholarships and paid internship during the summer. Pursuant to this program, interns who meet the performance criteria will be offered an employment opportunity with Massport following graduation. In addition, the Authority participates in a number of scholarship programs, including (i) Diversity STEM scholarships, which are awarded to students of color from neighboring communities and (ii) Memorial Scholarships, which are awarded to neighboring community high school graduates, in each case based on essays written by applicants demonstrating their commitment to community service. Since 2017, the Diversity STEM scholarship program has awarded scholarships to 42 students of color with plans to pursue degrees in a STEM field; and since 2011, the Memorial Scholarship program has awarded scholarships to 34 local students. Massport also provides annual scholarship grants to local high schools for students in Charlestown, Chelsea, East Boston, South Boston, Revere and Winthrop.

Authority Governance

See "THE AUTHORITY" herein for a discussion of governance at the Authority.

CERTAIN INVESTMENT CONSIDERATIONS

The 2022 Bonds may not be suitable for all investors. Prospective purchasers of the 2022 Bonds should give careful consideration to the information set forth in this APPENDIX A, including, in particular, the matters referred to in the following summary and under the headings "AUTHORITY OPERATIONAL FACTORS," "AUTHORITY ENVIRONMENTAL MATTERS," and "MANAGING THROUGH THE COVID-19 PANDEMIC." However, the following summary does not purport to be a comprehensive or exhaustive discussion of risks or other considerations that may be relevant to investing in the 2022 Bonds. In addition, the order in which the following information is presented is not intended to reflect the relative importance of any such considerations. There can be no assurance that other considerations not discussed herein will not become material in the future. The risks to the Authority related *to the COVID-19 pandemic, although not purported to be a comprehensive or exhaustive discussion, can be found above under the heading "MANAGING THROUGH THE COVID-19 PANDEMIC." The risks below present a summary of additional risks to the Authority's Revenues and Net Revenues, not related to COVID-19, that prospective purchasers of the 2022 Bonds should give careful consideration to prior to purchasing the 2022 Bonds.*

COVID-19

See "MANAGING THROUGH THE COVID-19 PANDEMIC" above for risks associated with the 2022 Bonds and the Authority resulting from the COVID-19 pandemic.

General Economic Conditions

Historically, the financial performance of the air transportation industry has correlated with the state of the national and global economy and levels of real disposable income. The globalization of business and the increased importance of international trade and tourism, international economics, trade balances, currency exchange rates, government policies and geopolitical relationships all influence passenger traffic at major U.S. airports. Over time, these influences are expected to return; however, the impact of the current COVID-19 pandemic is the key driver of current and near-term passenger traffic. It is not possible to predict the overall long-term impact of the COVID-19 pandemic on the national or international economy or the related impact on the air transportation industry at this time.

Financial Condition of the Airline Industry

The number of passengers using the Airport will depend partly on the profitability of the U.S. airline industry and the associated ability of the industry and individual airlines to make the necessary investments to continue providing service. The airline industry is highly cyclical and is characterized by intense competition, high operating and capital costs, and varying demand. Passenger and cargo volumes are highly sensitive to general and localized economic trends, and passenger traffic varies substantially with seasonal travel patterns. Further, because of the discretionary nature of business and personal travel spending, airline passenger traffic and revenues are heavily influenced by a variety of factors, including: (i) the strength of the U.S. economy and other regional and world economies, (ii) the cost and availability of labor, fuel, aircraft and insurance, (iii) international trade, (iv) currency values, (v) competitive or partnership considerations, including the effects of airline ticket pricing, (vi) traffic and airport capacity constraints, (vii) governmental regulation, including security regulations and taxes imposed on airlines and passengers, evolving federal restrictions on travel to the United States from certain countries, and maintenance and environmental requirements, (viii) passenger demand for air travel, including the availability of business travel substitutes such as teleconferencing, videoconferencing and web-casting, (ix) strikes and other union activities, (x) disruptions caused by airline accidents, criminal incidents, acts of war or terrorism, outbreaks of disease, such as the COVID-19 pandemic, and weather and natural disasters and (xi) disruptions caused by government policies or actions, such as a federal government shutdown. The profitability of the airline industry can fluctuate dramatically from quarter to quarter and from year to year, even in the absence of catastrophic events such as the COVID-19 pandemic, the terrorist attacks of September 11, 2001 and the economic recession of 2008 and 2009.

The Airport Market Analysis included in APPENDIX C and the Review of Airport Properties Net Revenues Projection included in APPENDIX D each reflect that, historically, airline travel demand has recovered from temporary decreases stemming from recessions, carrier liquidations, terrorist attacks and international hostilities. See APPENDIX C – Boston Logan International Airport Market Analysis under the heading "Industry Overview" and APPENDIX D – Review of Airport Properties Net Revenues Projection under the heading "Key Factors Affecting the Net Revenues Projection – Aviation Activity Projection Risk Factors – Aviation Safety and Security Concerns" and "– The Financial Health of the Airline Industry." Given the strong origin-destination character of the Airport's market, the travel intensity of the Boston area's key industries and the high per capita income of the region, the Authority's airport consultants expect that future long-term demand for airline travel at the Airport (subsequent to recovery from the COVID-19 pandemic) will depend primarily on economic factors, rather than the financial health of any given air carrier. See APPENDIX C – Boston Logan International Airport Market Analysis under the heading "Industry Overview" and APPENDIX D – Review of Airport Properties Net Revenues Projection under the heading "Key Factors Affecting the Net Revenues Projection" for a further discussion of certain factors affecting future airline traffic.

While the Authority believes that it is less vulnerable to the economic condition of individual airlines because of Logan Airport's high percentage of origin-destination passengers and because no single airline accounts for a majority of enplaned passengers, no assurance can be given as to the financial stability or profitability of the airline industry or of any airline in particular. The Authority makes no representation with respect to the continued viability of any of the carriers serving the Airport, airline service patterns, or the impact of any Airport revenues. No assurance can be given that airlines serving the Airport will not eliminate or reduce service.

Airline Industry Considerations

In 2005, ten major airlines were flying inside the United States (AirTran, Alaska, American, America West, Continental, Delta, Northwest, Southwest, United and US Airways) and accounted for 87.0% of all available seats. Faced with declining profitability due to the increased cost of aviation fuel, lower fares brought on by the proliferation of low cost carriers (as described below), reduced growth potential in the domestic markets and declining passenger activity based on security concerns, the airlines pursued consolidation. As a result of these consolidations, today there are five major airlines flying inside the United States (American, Delta, Southwest, United and Alaska) that account for approximately 80% of domestic capacity (available seats). Such consolidation, combined with a focus on driving profitability via capacity discipline and unbundling of services and resulting increased fee income, had increased airline profitability prior to the onset of the COVID-19 pandemic.

Further airline consolidation remains possible, including current merger talks between Spirit and Frontier, as well as JetBlue's unsolicited offers to buy Spirit. Depending on which airlines serving the Airport, if any, merge or join alliances, the result may be fewer flights or decreases in gate utilization by one or more airlines. Such decreases could result in reduced Airport revenues, reduced PFC collections and increased costs for the airlines serving the Airport. For the reasons stated in APPENDIX C to the Official Statement, the Authority believes that the Airport is at a relatively low risk of losing passenger traffic due to further mergers, consolidations or liquidations, beyond some short-term disruption, because of the underlying strengths of the Boston market. See APPENDIX C – Boston Logan International Airport Market Analysis.

As a result of the COVID-19 pandemic, in the last two years airlines have been weakened both financially and operationally. The uncertain timing of the recovery has challenged the industry as it attempts to bring back resources, particularly labor resources, to meet the rebound in air travel. Currently, the U.S. airline industry is facing a labor shortage for pilots, other flight crew and maintenance workers. In particular, the pilot and crew shortages have caused major airline scheduling, as well as operational, disruptions in calendar years 2021 and 2022. The lack of customer-facing staff has also led to less customer service and longer wait times to reach airline representatives. In addition to operational issues caused by labor shortages, airlines are also facing operational constraints due to delays in aircraft deliveries due to a variety of factors including production issues, engine issues and certification issues. Boeing's new flagship aircraft, the 777X, is facing further certification delays, temporarily pausing deliveries through calendar year 2023. Deliveries are not expected to start again until early calendar year 2025. These operational constraints have disrupted air service, even resulting in airlines announcing major schedule cuts for the upcoming summer 2022 season. For additional information, see Sections 2.3.2 and 2.5.2 in APPENDIX C – Boston Logan International Airport Market Analysis.

Structural Changes in the Travel Market

Many factors have combined to alter consumer travel patterns. The threat of terrorism against the United States remains high. As a result, the federal government has mandated various security measures that have resulted in security taxes and fees and longer passenger processing and wait times at airports. Both add to the costs of air travel and make air travel less attractive to consumers relative to ground transportation, especially to short-haul destinations. Additionally, consumers have become more price sensitive. Efforts of airlines to stimulate traffic by heavily discounting fares have changed consumer expectations regarding airfares. Consumers have come to expect extraordinarily low fares. In addition, the availability of fully transparent price information on the internet now allows quick and easy comparison shopping, which has changed consumer purchasing habits. Consumers have shifted from purchasing paper tickets from travel agencies or airline ticketing offices to purchasing electronic tickets over the internet. This has made pricing and marketing even more competitive in the U.S. airline industry. Finally, smaller corporate travel budgets, combined with the higher time costs of travel and the impacts of the COVID-19 pandemic, have made business customers more amenable to communications substitutes such as teleconferencing and videoconferencing.

Effect of Bankruptcy of Air Carriers

Since 2001, several domestic airlines with operations at the Airport have filed for and have subsequently emerged from bankruptcy protection, including United, Continental, Delta, Northwest, US Airways and, most recently, American Airlines in 2011. As a result of the COVID-19 pandemic, since 2020, numerous foreign-flag airlines have either ceased operations, filed for bankruptcy protection or undergone financial restructuring strategies as a result of airline economics and suppressed air travel demand forced to restructure or cease operations, including Aeromexico, Air Mauritius, Alitalia, Avianca, Comair (South Africa), Flybe, German Airways, Germanwings, LATAM, Norwegian Air, South African, Thai Airways, TAME and Virgin Australia. Other airlines, generally smaller carriers, have liquidated and ceased service. Additional bankruptcies, liquidations or major restructurings of other airlines could occur. The Authority's stream of payments from a debtor airline could be interrupted to the extent of unpaid fees for pre-petition goods and services, including accrued rent and landing fees. Under the U.S. Bankruptcy Code, a debtor airline that is a lessee under an unexpired lease with the Authority of non-residential real property, such as a lease of Terminal space or a hangar, is required within certain statutory time periods to assume or reject such lease. Rejection of a lease or other executory contract would give rise to an unsecured claim of the Authority for damages, the amount of which is limited by the U.S. Bankruptcy Code. The amount ultimately received in the event of a rejection of a lease or other agreement could be considerably less than the maximum amounts allowed under the U.S. Bankruptcy Code. Additionally, during the pendency of a bankruptcy proceeding, a debtor airline may not, absent a court order, make any payments to the Authority on account of goods and services provided prior to the bankruptcy. The Authority actively monitors past due balances to minimize any potential losses due to such proceedings, aggressively pursues overdue amounts and bankruptcy claims, and includes an allowance for uncollectible debts in its landing fee and terminal rental rates. Whether or not an airline agreement is assumed or rejected by a debtor airline in a bankruptcy proceeding, it is not possible to predict the subsequent level of utilization of the gates leased under such agreement.

It is not possible to predict the impact on the Airport of any future bankruptcies, liquidations or major restructurings of other airlines. Because of the Airport's high percentage of origin-destination passengers and because no single airline accounts for a majority of enplaned passengers, however, the Authority believes it is less vulnerable to the economic condition of individual airlines. In addition, the fact that no airline has given up a lease at Logan through decades of bankruptcies, although Delta renegotiated its lease, demonstrates the value airlines place on having a presence at Logan.

Potential investors are urged to review the airlines' financial information on file with the Securities and Exchange Commission (the "*SEC*") and USDOT. See "CERTAIN INVESTMENT CONSIDERATIONS – Information Concerning the Airlines."

Cost of Aviation Fuel

Airline earnings are significantly affected by changes in the price of aviation fuel. Any increase in fuel prices causes an increase in airline operating costs. Fuel prices continue to be susceptible to, among other factors, political unrest in various parts of the world (particularly in the oil-producing nations in the Middle East and North Africa), Organization of Petroleum Exporting Countries policy, the rapid growth of economies such as China and India and resulting demand for oil-based fuels, the levels of inventory carried by industries, the amounts of reserves maintained by governments, the amount and availability of other sources of energy (e.g., U.S. "fracking" operations), disruptions to production and refining facilities, and weather. More recently, as the COVID-19 pandemic reduced the demand for aviation fuel in early 2020, the price of aviation fuel fell sharply, before rebounding in 2021 as pandemic restrictions were eased, economies recovered and demand exceeded supply. The economic disruption and sanctions resulting from Russia's invasion of Ukraine in the spring of 2022, however, has led to a spike in oil and aviation fuel prices in 2022.

Historically, significant fluctuations and prolonged increases in the cost of aviation fuel have adversely affected air transportation industry profitability, causing airlines to reduce capacity, fleet and personnel, to invest in new, more fuel efficient aircraft and equipment and to increase airfares and institute fuel, checked baggage, and other extra surcharges, all of which may reduce demand for air travel. Many airlines engage in or have engaged in fuel hedging – purchasing fuel in advance at a fixed price through derivative contracts – to help manage the risk of future increases in fuel costs. However, there can be no assurance that any fuel hedging contract can provide any particular level of protection from volatile fuel prices. One carrier has even gone as far as to purchase its own refinery in order to better manage its fuel costs.

Aviation Security, Health and Safety Concerns

Concerns about the safety of airline travel and the effectiveness of security precautions, particularly in the context of potential international hostilities and terrorist attacks, may influence passenger travel behavior and air travel demand. Travel behavior may be affected by anxieties about the safety of flying and by the inconveniences and delays associated with more stringent security screening procedures, both of which may give rise to the avoidance of air travel generally and the switching from air to surface travel modes.

Public health and safety concerns also affect air travel demand from time to time, as clearly evidenced with the current COVID-19 pandemic. The COVID-19 pandemic has had and likely will continue to have material adverse effects on passenger traffic and Authority operations and financial performance. See "MANAGING THROUGH THE COVID-19 PANDEMIC" herein. Future outbreaks or pandemics may lead to a decrease in passenger traffic, which in turn could cause a decrease in passenger activity at the Airport and a corresponding decline in Authority Revenues.

Security concerns in the aftermath of the terrorist attacks on September 11, 2001 were largely responsible for the steep decline in airline travel nationwide in 2002. Since 2001, government agencies, airlines, and airport operators have upgraded security measures to guard against future terrorist incidents and maintain confidence in the safety of airline travel. These measures include strengthened aircraft cockpit doors, changed flight crew procedures, increased presence of armed sky marshals, federalization of airport security functions under the TSA, more effective dissemination of information about threats, more intensive screening of passengers, baggage and cargo, and deployment of new screening technologies. The airlines and the federal government were primarily responsible for, and bore most of the capital costs associated with, implementing the new security measures. No assurance can be given that these precautions will be successful. Also, the possibility of intensified international hostilities and further terrorist attacks involving or affecting commercial aviation are a continuing concern that may affect future travel behavior and airline passenger demand.

Information Concerning the Airlines

Many of the principal domestic airlines serving the Airport, or their respective parent corporations, are subject to the information reporting requirements of the Securities Exchange Act of 1934, as amended, and in accordance therewith file reports and other information with the SEC. Likewise, foreign airlines serving the Airport that have American Depository Receipts ("*ADRs*") registered on a U.S. national exchange are subject to the same reporting requirements. Certain information, including financial information, concerning such domestic airlines, or their respective parent corporations, and such foreign airlines is disclosed in certain reports and statements filed with the SEC. Such reports and statements can be inspected and copied at the public reference facilities maintained by the SEC and on its website.

Foreign airlines serving the Airport, or foreign corporations operating airlines serving the Airport (unless such foreign airlines have ADRs registered on a national exchange), are not required to file information with the SEC. Such foreign airlines, or foreign corporations operating airlines, serving the Airport file limited information only with the USDOT.

The Authority does not undertake any responsibility for or make any representation as to the accuracy or completeness of: (i) any reports and statements filed with the SEC or USDOT or (ii) any material contained on the SEC's website as described in the preceding paragraph, including, but not limited to, updated information on the SEC website or links to other Internet sites accessed through the SEC's website.

Federal Law Affecting Airport Rates and Charges

Federal aviation law requires, in general, that airport fees be reasonable and that, subject to the "grandfather provisions" discussed below (see "Considerations Regarding Other Sources of Revenue – Federal Grants-in-Aid"), in order to receive federal grant funding, all airport generated revenues must be expended for the capital or operating costs of the airport, the local airport system, or other local facilities owned or operated by the airport owner that are directly and substantially related to air transportation of passengers or property. Pursuant to the requirements of the Federal Aviation Administration Authorization Act of 1994 (the "*1994 Aviation Act*"), the USDOT and FAA have promulgated regulations setting forth an expedited hearing process to be followed in determining the reasonableness of airport rates and charges, and have also promulgated a policy statement (the "*Rates and Charges Policy*"), which sets forth the standards that the USDOT uses in determining the reasonableness of the fees charged to airlines and other aeronautical users.

In 1997, the United States Court of Appeals for the District of Columbia Circuit vacated the Rates and Charges Policy in part, determined that a portion of the Rates and Charges Policy was arbitrary and capricious and remanded it to the USDOT. In 2008, USDOT amended the Rates and Charges Policy to permit "congested airports," as defined therein, to charge a two part landing fee that includes a per operation charge intended to help reduce congestion and operating delays. Congested airports are also permitted to include certain other costs in their rate base, including the cost of certain construction in progress and costs associated with reliever airports, if owned by the same airport operator. The Airport does not currently qualify as a "congested airport." The USDOT has not yet proposed any other revisions to the Rates and Charges Policy. If new guidelines are published, the costs that will be permitted to be included in determining an airport's rate base and the extent to which such future guidelines may limit the Authority's flexibility in negotiating new airline agreements or in setting rates and charges for use of the Airport's airfield and non-airfield facilities cannot be determined at this time. Any new FAA guidelines or any standards promulgated by a court in connection with a dispute could limit the amounts and allocation of costs payable by airlines serving the Airport. Until the USDOT promulgates a new policy regarding rates and charges, the guiding principle for determining whether rates and charges established for use of airport assets is the requirement of federal law that such charges be "reasonable."

The Authority is not aware of any formal dispute involving the Airport over any existing rates and charges, including the rates and charges for fiscal year 2022. The Authority believes that the rates and charges methodology utilized by the Authority and the rates and charges imposed by it upon air carriers, foreign air carriers and other aeronautical users operating at the Airport Properties are reasonable and consistent with applicable law. However, there can be no assurance that a complaint will not be brought against the Authority in the near-term with respect to the fiscal year 2022 rates and charges, or in the future, challenging such methodology and the rates and charges established by the Authority and, if a judgment is rendered against the Authority, there can be no assurance that rates and charges paid by aeronautical users of the Airport will not be reduced. See "AUTHORITY REVENUES – Airport Properties Revenues."

Considerations Regarding Other Sources of Revenue

Passenger Facility Charges. Under the PFC Act, the FAA may authorize a public agency to impose a PFC of up to $4.50 on each eligible passenger of an air carrier enplaned at any commercial service airport controlled by the public agency, subject to certain limitations. PFCs are available to airports to finance certain projects that (i) preserve or enhance capacity, safety or security of the national air transportation system, (ii) reduce noise resulting from an airport, or (iii) furnish opportunities for enhanced competition among air carriers. Under certain circumstances, the FAA grants approval to commence collection of PFCs ("impose only" approval) before approval to spend the PFCs on approved projects ("use" approval) is granted. Approval to both collect and spend PFCs is referred to as an "impose and use" approval.

No assurance can be given that PFCs will actually be received in the amount or at the time contemplated by the Authority. The amount of actual PFC revenues will vary depending on actual levels of qualified passenger enplanements at the Airport. In addition, the FAA may terminate the Authority's ability to impose PFCs, subject to informal and formal procedural safeguards, if the Authority's PFC revenues are not being used for approved projects in accordance with the FAA's approval, the PFC Act or the regulations promulgated thereunder or the Authority otherwise violates the PFC Act or regulations. The Authority's ability to impose a PFC may also be terminated if the

Authority violates certain provisions of the Airport Noise and Capacity Act of 1990 and its implementing regulations. Furthermore, no assurance can be given that the Authority's authority to impose a PFC may not be terminated by Congress or the FAA, or that the PFC program may not be modified or restricted by Congress or the FAA so as to reduce PFC revenues available to the Authority.

Federal Grants-in-Aid. The Airport and Airway Improvement Act of 1982 created the AIP, which is administered by the FAA and funded by the Airport and Airway Trust Fund. This fund is financed by federal aviation use taxes (and is becoming depleted as a result of decreased air travel) and by general fund appropriations. Grants are available to airport operators in the form of "entitlement" funds and "discretionary" funds. Entitlement funds are apportioned annually based upon enplaned passengers (as well as additional factors discussed below) and discretionary funds are available at the discretion of the FAA based upon a national priority system. In addition, pursuant to the PFC Act, an airport's annual federal entitlement grants are reduced by 50% following the imposition of PFCs of up to $3.00, and 75% for PFCs in excess of $3.00.

Before federal approval of any AIP grant applications can be given, eligible airports must provide written assurances that they will comply with a variety of specified requirements. One such assurance is the so-called "airport generated revenues" assurance, which provides that all airport generated revenues will be expended for the capital or operating costs of the airport, the local airport system, or other local facilities owned or operated by the applicant that are directly and substantially related to air transportation of passengers or property. The airport generated revenues assurance, however, does not apply where provisions in laws or a covenant in debt obligations predating September 2, 1982 provide that the revenues from any of the airport owner's or operator's facilities, including the airport, be used to support the general debt obligations or other facilities of the airport owner or operator (the "grandfather provisions"). The Authority falls within the group of airports for which, under the grandfather provisions, the airport generated revenues assurance does not apply to its combined operations, as in effect in 1982. Therefore, the Authority is legally permitted to operate all of its Properties on a consolidated financial basis.

In March 2020, nearly $10 billion of CARES Act funds were made available to eligible U.S. airports to prevent, prepare for, and respond to COVID-19 impacts, including support for continuing airport operations, in December 2020, an additional nearly $2 billion of CRRSAA funds were awarded as economic relief to eligible U.S. airports and eligible concessions at those airports to prevent, prepare for, and respond to the COVID-19 public health emergency, and in March 2021 an additional $8 billion of ARPA funds were authorized as economic relief to eligible U.S. airports and eligible concessions at those airports to prevent, prepare for, and respond to the COVID-19 public health emergency. While these funds are not AIP grants, a portion of these federal stimulus funds (Group 1) were earmarked towards increasing the federal share to 100% for fiscal year 2020 and 2021 AIP and Supplemental Discretionary grants. For additional information regarding CARES Act, CRRSAA and ARPA grant funds received (or expected to be received) by the Authority see "MANAGING THROUGH THE COVID-19 PANDEMIC – Government Relief Efforts" and "CAPITAL PROGRAM – Funding Sources – Federal Grants."

The Authority is not aware of any dispute involving the Authority concerning the use of Airport Revenues. The Authority believes that the grandfather provisions apply to its use of Airport Revenues and that the Authority's use of such Revenues is consistent with the applicable laws and regulations. The Authority believes that it is in compliance with its federal grant assurance obligations.

FAA Reauthorization and Level of Federal Airport Grant Funding. On October 5, 2018, the President signed into law a five-year reauthorization bill for the FAA—the FAA Reauthorization Act of 2018. The 2018 FAA reauthorization retains the federal cap on PFCs at $4.50 and authorizes $3.35 billion per year for AIP through federal fiscal year 2023, which is the same funding level as was in place for the preceding five years. The AIP provides federal capital grants to support airport infrastructure through entitlement grants (determined by formulas based on passenger, cargo and general aviation activity levels) and discretionary grants (allocated on the basis of specific set-asides and the national priority ranking system). The Authority is unable to predict the level of AIP funding at this time, since authorization is subject to Congressional appropriation. If there is a reduction in the amount of AIP grants awarded to the Authority for the Airport, it could: (1) increase by a corresponding amount the capital expenditures that the Authority would need to fund from other sources (including operating revenues, and Bond proceeds), (2) extend the timing to complete certain projects, or (3) reduce the scope of individual proposed projects or the overall program, or both. See "CAPITAL PROGRAM – Funding Sources – Federal Grants" for more information regarding federal grant funding received by the Authority.

Environmental and Regulatory Considerations

Certain of the activities of the Authority are subject to review, or are otherwise affected, by a variety of environmental protection and other regulatory agencies including those set forth under this section.

Federal Aviation Administration. The FAA is responsible for the inspection and certification of various airfield facilities and procedures. In particular, federal law requires operators of air carrier airports (including the Authority) to hold a current airport certificate granted by the FAA evidencing satisfactory compliance with numerous operational and safety standards. The Authority holds valid Part 139 certificates from the FAA permitting all current operations at the Airport, Hanscom Field and Worcester Regional Airport. The FAA regulates the imposition, collection and use of PFCs and the FAA also administers federal AIP grants, and monitors compliance with numerous grant assurances. In addition, the FAA provides and maintains navigational aids at the Airport, Hanscom Field and Worcester Regional Airport and has exclusive control over airspace management and air traffic. The FAA is also the lead agency under the National Environmental Policy Act ("*NEPA*") in reviewing certain proposals and projects as defined under NEPA related to airspace and airports.

Transportation Security Administration. Created in 2001 by the Aviation and Transportation Security Act and part of the Department of Homeland Security, the TSA is responsible for transportation security nationally. In particular, TSA is required to screen all commercial airline passengers and all baggage loaded onto commercial airplanes, and has promulgated regulations regarding both aviation and maritime security applicable to the Authority's facilities.

Federal Maritime Commission. Pursuant to certain provisions of the Shipping Act of 1984, certain of the Authority's rates, charges and terms for marine terminal services must be filed with the Federal Maritime Commission.

Environmental Protection Agency. The EPA is ultimately responsible for administering air and water pollution control regulations, which directly affect operations of the Authority. Pursuant to requirements promulgated by the EPA under the Clean Air Act of 1970 and subsequent amendments thereto, the Authority is subject to the Massachusetts State Implementation Plan ("*SIP*") and associated components of the Logan Airport Parking Freeze and certain limitations regarding other activities at the Airport, including heating plant performance standards. See "AIRPORT PROPERTIES – Airport Facilities – Parking Facilities." The EPA also regulates storm water discharge. See "AUTHORITY ENVIRONMENTAL MATTERS – Water Quality and Storm Water Management."

The potential exists for additional state and/or federal regulation of certain materials listed by the EPA as "emerging contaminants" contained in fire-fighting foam that has been used at the Airport, or remediation that may require capital expenditures or changes in operations at the Airport Properties. In addition to the foregoing, the EPA could release additional federal regulation or add other contaminants that could also require capital expenditures or changes in operations at the Authority's facilities. See also "AUTHORITY ENVIRONMENTAL MATTERS – Per- and Polyfluoroalkyl Substances."

Massachusetts Executive Office of Energy and Environmental Affairs. The Massachusetts Environmental Policy Act requires certain public instrumentalities such as the Authority to determine the effect of their activities on the environment and to use all practicable means to minimize environmental damage. Furthermore, environmental assessment procedures administered by the Executive Office of Energy and Environmental Affairs apply to certain of the Authority's projects as well to certain projects, leases or permits authorized by the Authority.

Other Regulatory Matters. Numerous activities of the Authority require approvals of, or are subject to oversight by, state and federal agencies with jurisdiction over historic structures, wetlands, shorelines, harbors and other areas and over contamination and hazardous waste. These agencies include the U.S. Coast Guard, the Commonwealth's Coastal Zone Management Office, the Massachusetts Water Resources Authority, the Massachusetts Department of Environmental Protection, the U.S. Army Corps of Engineers and conservation and historic preservation commissions in the cities and towns in which the Authority's facilities are located. The Authority also is subject to certain statutes and regulations governing public bidding, health and safety, access for the disabled and matters relating to equal opportunity employment.

Climate Change

Numerous scientific studies on global climate change show that, among other effects on the global ecosystem, sea levels will rise, extreme temperatures will become more common and extreme weather events will become more frequent as a result of increasing global temperatures attributable to atmospheric pollution.

The Fourth National Climate Assessment, published by the U.S. Global Change Research Program in November 2018 ("*NCA4*"), finds that more frequent and intense extreme weather and climate-related events, as well as changes in average climate conditions, are expected to continue to damage infrastructure, ecosystems and social systems over the next 25 to 100 years. NCA4 states that rising temperatures, sea level rise, and changes in extreme events are expected to increasingly disrupt and damage critical infrastructure and property and regional economies and industries that depend on natural resources and favorable climate conditions. Disruptions could include more frequent and longer-lasting power outages, fuel shortages and service disruptions. NCA4 states that the continued increase in the frequency and extent of high-tide flooding due to sea level rise threatens coastal public infrastructure. NCA4 also states that expected increases in the severity and frequency of heavy precipitation events will affect inland infrastructure, including access to roads, the viability of bridges and the safety of pipelines. NCA4 finds that coastal airports are vulnerable to effects of sea level rise, with flooding potentially exacerbated by storm surges and high tides.

Adapting to sea level rise and planning for potential flooding due to the Airport's coastal location is a key component of the Authority's policies. See "AUTHORITY ENVIRONMENTAL MATTERS – Sustainability Initiatives – *Massport Resiliency Program*" herein for a discussion of the Authority's resiliency program, which was one of the first in the nation for airports.

Projections of the effects of global climate change on the City of Boston, Logan Airport, airline users of the Airport, the Port of Boston, and on operations at the Airport and the Port are complex and depend on many factors that are outside the Authority's control. Climate change may affect Logan operations directly, as discussed above, or indirectly, such as by disrupting operations at other airports that have ripple effects in the air transportation system. The various scientific studies that forecast climate change and its adverse effects, including sea level rise and flooding risk, are based on assumptions contained in such studies, but actual events may vary materially. Also, the scientific understanding of climate change and its effects continues to evolve. Accordingly, the Authority is unable to forecast when sea level rise or other adverse effects of climate change will occur. In particular, the Authority cannot predict the timing or precise magnitude of adverse economic effects, including, without limitation, material adverse effects on the business operations or financial condition of the Airport, the Port and the local economy during the term of the 2022 Bonds. While the effects of climate change may be mitigated by the Authority's past and future investment in adaptation strategies, the Authority cannot give any assurance about the net effects of those strategies and whether the Authority will be required to take additional adaptive mitigation measures. If necessary, such additional measures could require significant capital resources.

Costs to address climate change risk through reduction of emissions may over time become more substantive as more complex and/or technologically extensive solutions are introduced and implemented.

Technological Innovations in Ground Transportation

One significant source of non-airline revenues is generated from ground transportation activity, including use of on-Airport parking facilities; trip fees paid by taxis, limousines and Ride Apps; and rental car transactions by Airport passengers. The relative mode share of these sources of revenue has been shifting in recent years. Prior to the COVID-19 pandemic, the popularity of Ride Apps had been increasing because of the increasing number of cities where Ride Apps operate, the convenience of requesting a ride through a mobile application, the ability to pay for this service without providing cash or other payment to the hired driver, and competitive pricing. In accordance with state law, the Authority entered into memoranda of understanding ("*MOUs*") with Ride App companies Uber USA and Raiser LLC, both part of Uber Technologies, Inc. ("*Uber*"), and Lyft, Inc. ("*Lyft*"), in February 2017 allowing them to pick up customers at Logan Airport. These MOUs were replaced with formal ground access agreements that went into effect in December 2019. Pursuant to their respective operating agreements, Ride Apps are permitted to pick up and drop off passengers at the Airport, with a per-pickup and per-drop-off fee paid to the Authority.

Ride Apps recorded 7.6 million pickups and drop offs in fiscal year 2019, representing the largest air passenger ground access mode at Logan Airport. Prior to the COVID-19 pandemic, Ride App pickups and drop-offs had been increasing by 13% year over year (fiscal year 2020 through February 2020), gaining mode share.

The Authority actively monitors all modes of ground transportation to assess trends, which include potential impacts from Ride Apps. The Authority believes that, prior to the COVID-19 pandemic, Ride Apps were impacting nearly all other ground access modes of transportation to varying degrees. Prior to the COVID-19 pandemic, some of the more significant impacts included:

- **Taxi/Limousine/Livery.** Ride Apps have had the most significant impact on similar, commercial for-hire modes such as Taxi/Limousine/Livery. Historically, the mode share of Taxi/Limousine/Livery represented approximately 35% of total air passenger ground access to the Airport. Prior to the COVID-19 pandemic, the total mode share of commercial for-hire modes had reached 42%, with Ride Apps accounting for as much as 35% of total air passenger ground access mode share and Taxi/Limousine/Livery falling to as little as 7%. It is important to note, however, that Limousine activity has also migrated to the Ride App platforms, somewhat overstating the decline for this mode.

- **Commercial Parking operation.** Ride App demand also impacts the Airport's parking activity. Prior to the COVID-19 pandemic, the Authority had observed a reduction of parking exits per enplanement, which the Authority attributed in part to the introduction of Ride Apps at Logan.

- **Non-commercial pick-up/drop-offs.** This mode is defined as the pick-up and/or drop-off of passengers by a family member or friend at Logan Airport. The Authority tracks this mode of transportation indirectly through its roadway traffic counting system. Prior to the COVID-19 pandemic, the Authority had observed a slight reduction in this mode of transportation, which could be attributed in part to the introduction of Ride Apps.

At the beginning of the COVID-19 pandemic, private vehicle ground access mode shares at Logan Airport increased significantly, while all commercial ride hail services decreased, albeit to varying degrees. The combination of lower air travel demand and changes in air passenger ground access behavior in favor of private vehicles significantly impacted Ride App pickups and drop-offs, which fell to 1.6 million in fiscal year 2021, compared to 7.6 million in fiscal year 2019.

Beginning in the late spring of 2021, both air passenger travel and Ride App ground access mode shares began to steadily recover. This timeline corresponded with the roll-out of COVID-19 vaccines. Ride App pickups and drop-offs have increased to nearly 3.4 million through the first three quarters of fiscal year 2022. The Authority anticipates continued recovery of Ride App activity in fiscal year 2022 and beyond, although the exact shape of that recovery will be influenced by various factors, including air passenger traffic volumes, passenger travel purpose mix, Ride App company policies, attributes of other transportation modes and evolving customer preferences.

The Authority levies a \$3.25 pick-up fee and a \$3.25 drop off fee for Ride Apps at Logan Airport. Growth in Ride App activity and the institution of a drop-off fee in December 2019 contributed to the growing importance of Ride App fees to overall group access revenues. In the third quarter of fiscal year 2020, the first full quarter since the implementation of the new Ride App centralization and fee structure, the Authority generated \$5 million in Ride App revenues compared to \$3 million in the first quarter (prior to the new policies) of the fiscal year. The third quarter results would likely have been higher if not for the impact of the COVID-19 pandemic on overall passenger traffic. Overall, the Authority generated \$11.9 million in Ride App revenue in fiscal year 2020 despite the significant COVID-19-related declined in the latter months. After declining significantly in fiscal year 2021, Ride App revenues have recovered in fiscal year 2022. Through the first three quarters of fiscal year 2022, the Authority has generated \$11 million in Ride App revenues.

In addition to Ride Apps, new technologies (such as autonomous vehicles and connected vehicles) and innovative business strategies in established markets such as commercial ground transportation and car rental may continue to occur and may result in further changes in Airport passengers' choice of ground transportation mode. While the Authority makes every effort to anticipate demand shifts, there may be times when the Authority's expectations differ from actual outcomes. In such event, revenue from one or more ground transportation modes may be lower than expected. The Authority cannot predict with certainty what impact these innovations in ground transportation will have over time on revenues from parking, other ground transportation services or rental cars. The Authority also cannot predict with certainty whether or to what extent it will collect non-airline revenues in connection with such new technologies or innovative business strategies.

Cybersecurity

The Authority, like many other large public and private entities, relies on a large and complex technology environment to conduct its operations, and faces multiple cybersecurity threats including, but not limited to, hacking, phishing, viruses, malware, ransomware and other attacks to its computing and other digital networks and systems (collectively, "*Systems Technology*"). As a recipient and provider of personal, private or sensitive information, the Authority may be the target of cybersecurity incidents that could result in adverse consequences to the Authority's Systems Technology, requiring a response action to mitigate the consequences.

Cybersecurity incidents could result from unintentional events, or from deliberate attacks by unauthorized entities or individuals attempting to gain access to the Authority's Systems Technology for the purposes of misappropriating assets or information or causing operational disruption or damage. To mitigate the risk of business operations impact and/or damage by cybersecurity incidents or cyber-attacks, the Authority invests in multiple forms of cybersecurity and operational safeguards.

While the Authority's cybersecurity and operational safeguards are periodically tested, no assurance can be given by the Authority that such measures will ensure against all possible cybersecurity threats and attacks. Cybersecurity breaches could damage the Authority's Systems Technology and cause material disruptions to the Authority's finances or operations. The costs of remedying any such damage or protecting against future attacks could be substantial.

The airlines serving the Airport and other Airport tenants, as well as the FAA and TSA, also face cybersecurity threats that could affect their operations or finances.

Assumptions in the Review of Airport Net Revenues Projection; Actual Results May Differ from Projections and Assumptions

As discussed in the Airport Market Analysis attached as APPENDIX C and the Review of Airport Net Revenues Projection attached as APPENDIX D, in the long term, the factors affecting aviation activity at the Airport include: the growth of population and of the economy in the Boston Primary and Secondary Market Service Area, airline service and route networks, the financial health and viability of the airline industry, national and international economic and political conditions, the availability and price of aviation fuel, levels of air fares, the capacity of the national air traffic control system and capacity at the Airport and elsewhere. In the near term, such factors are overshadowed by the question of how long it will be before airline traffic fully recovers from the depressed levels of calendar year 2020. See APPENDIX C – Boston Logan International Airport Market Analysis and APPENDIX D – Review of Airport Properties Net Revenues Projection. Each of these reports should be read in its entirety for an understanding of all of the assumptions used to prepare the respective projections made therein. No assurances can be given that these or any of the other assumptions contained in the Airport Market Analysis or the Review of Airport Net Revenues Projection will materialize. Inevitably, some assumptions used to develop the projections will not be realized and unanticipated events and circumstances may occur. Therefore, the actual results achieved during the projection period will vary, and the variations may be material. See "MARKET ANALYSIS AND REVIEW OF AIRPORT NET REVENUES" and "MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS" herein and APPENDIX C – Boston Logan International Airport Market Analysis and APPENDIX D – Review of Airport Properties Net Revenues Projection to this Official Statement.

LEGISLATIVE DEVELOPMENTS

From time to time legislation has been introduced in the Massachusetts Legislature for the purpose of altering the responsibilities of the Authority, reducing its independence, limiting its planning and operations, taxing its commercial tenants directly, or requiring it to make payments to other governmental entities in the Commonwealth.

In addition, the Authority is subject to state and federal laws of general application, changes to which could have a material effect on the operations or financial position of the Authority. See "CERTAIN INVESTMENT CONSIDERATIONS" and "GENERAL OPERATIONAL FACTORS."

LITIGATION

No litigation is pending or, to the knowledge of the Authority, threatened against or affecting the Authority seeking to restrain or enjoin the issuance, sale or delivery of the 2022 Bonds or in any way contesting or affecting the validity of the 2022 Bonds.

The Authority is regularly engaged in litigation matters. These routine matters include personal injury and property damage claims for which the Authority's liability is covered in whole or in part by insurance or contractual indemnity clauses in the Authority's agreements. Others include employment matters, contract disputes, and enforcement of the Authority's regulations. The Authority does not expect that these matters will require any amounts to be paid that will have a material adverse effect on the operations or financial position of the Authority, singly or in the aggregate.

FORWARD-LOOKING STATEMENTS

Any statements made in this Appendix A involving estimates, projections, forecasts or matters of opinion, whether or not so expressly stated, are set forth as such and not as representations of fact, and no representation is made that any of the estimates, projections, forecasts or matters of opinion will be realized.

Use of the words "shall" or "will" in this Appendix A to describe future events or continuing obligations is not intended as a representation that such event or obligation will occur but only that the document contemplates or requires such event to occur or obligation to be fulfilled.

The statements contained in this Appendix A that are not purely historical, are "forward-looking statements." Such statements generally are identifiable by the terminology used, such as "may," "will," "should," "expect," "project," "forecast," "intend," "plan," "anticipate," "believe," "estimate," "predict," "potential," "budget" or other similar words. Such forward looking statements include but are not limited to certain statements contained in the information set forth under "MANAGING THROUGH THE COVID-19 PANDEMIC," "STRATEGIC PLAN," "CAPITAL PROGRAM," "SELECTED FINANCIAL DATA," "MANAGEMENT'S DISCUSSION OF FINANCIAL PROJECTION ASSUMPTIONS," and "LITIGATION" attached hereto. Readers should not place undue reliance on forward-looking statements. All forward-looking statements included or incorporated by reference in this Appendix A are based on information available on the date hereof and the Authority assumes no obligation to update any such forward-looking statements. It is important to note that the actual results could differ materially from those in such forward-looking statements.

The forward-looking statements herein are necessarily based on various assumptions and estimates and are inherently subject to various risks and uncertainties, including, but not limited to, risks and uncertainties relating to the possible invalidity of the underlying assumptions and estimates and possible changes or developments in regional, domestic and international social, economic, political, business, industry, market, legal, legislative, judicial, and regulatory circumstances and conditions and actions taken or omitted to be taken by third parties, including customers, suppliers, business partners and competitors, and legislative, judicial and other governmental authorities and officials, the COVID-19 pandemic, the outbreak of any other disease or public health threat, other future global health concerns, and other events or circumstances beyond the control of the Authority. Assumptions related to the foregoing involve judgments with respect to, among other things, future economic, competitive, and market conditions and future business decisions, all of which are difficult or impossible to predict accurately and many of which are beyond the control of the Authority. Any of such assumptions could be inaccurate and, therefore, there can be no assurance that the forward-looking statements included in this Appendix A will prove to be accurate.

[End of Information Statement of the Authority.]

MASSACHUSETTS PORT AUTHORITY

Financial Statements, Required Supplementary Information, and Supplementary Schedules

Years Ended June 30, 2021 and 2020

(With Report of Independent Auditors)

MASSACHUSETTS PORT AUTHORITY

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Report of Independent Auditors

To the Members of the Massachusetts Port Authority

Report on the Financial Statements

We have audited the accompanying financial statements of the business-type activities and the aggregate remaining fund information of the Massachusetts Port Authority (the Authority), as of and for the years ended June 30, 2021 and 2020, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in conformity 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 financial statements that are free of material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on these financial statements based on our audits. We did not audit the financial statements of the Massachusetts Port Authority Employee's Retirement System (the "System"), which represents 75% and 74% of total assets and 75% and 75% of fiduciary net position as of June 30, 2021 and 2020, respectively, and 76% and 86% of total additions of the aggregate remaining fund information for the years then ended, respectively. Those statements were audited by another auditor whose report has been furnished to us, and our opinion, insofar as it relates to the amounts included for the System, is based solely on the report of the other auditor. We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the 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 financial statements.

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

Opinions

In our opinion, based on our audits and the reports of the other auditor, the financial statements referred to above present fairly, in all material respects, the respective position of the business-type activities and the aggregate remaining fund information of the Massachusetts Port Authority as of June 30, 2021 and 2020, and the respective changes in financial position, and where applicable, cash flows thereof for the years then ended in conformity with U.S. generally accepted accounting principles.

Adoption of New Accounting Pronouncement
As discussed in Note 2 to the financial statements, as of July 1, 2019, the Authority adopted Government Accounting Standards Board Statement No, 84, *Fiduciary Activities*. Our opinion is not modified with respect to this matter.

Other Matters

Required Supplementary Information
U.S. generally accepted accounting principles require that management's discussion and analysis, the schedule of pension contributions, the schedule of changes in the net pension liability and related ratios, schedule of pension investment returns, schedule of OPEB contributions, schedule of changes in the net OPEB liability and related ratios and schedule of pension investment returns, as listed in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board which considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information
Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Authority's basic financial statements. The combining fund financial statements are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The combining fund financial statements are the responsibility of management and were derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States. In our opinion, the combining fund financial statements are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Ernst + Young LLP

September 30, 2021

MANAGEMENT'S DISCUSSION AND ANALYSIS

The following Management's Discussion and Analysis (MD&A) of the activities and financial performance of the Massachusetts Port Authority (Massport or the Authority) provides an introduction to the financial statements of the Authority for the fiscal years ended June 30, 2021 and 2020. This discussion was prepared by management, and it should be read in conjunction with the audited financial statements and notes that follow this section.

Overview of the Financial Statements

The Authority's business-type activities financial statements consist of: (1) the Statements of Net Position; (2) the Statements of Revenues, Expenses and Changes in Net Position; and (3) the Statements of Cash Flows. These financial statements have been prepared in accordance with U.S. generally accepted accounting principles as promulgated by the Governmental Accounting Standards Board (GASB).

The comparative Statements of Net Position depict the Authority's financial position as of a point in time, specifically June 30, 2021, 2020 and 2019, and include all assets, deferred outflows of resources, liabilities and deferred inflows of resources of the Authority. Net position represents the residual interest in the Authority's assets and deferred outflows of resources after liabilities and deferred inflows of resources are deducted. The Authority's net position is divided into three components: 1) net investment in capital assets, 2) restricted, and 3) unrestricted. Please see Note 1 in the financial statements attached for a discussion on the Authority's net position.

The Statements of Revenues, Expenses and Changes in Net Position report operating revenues, operating expenses, non-operating revenue and expenses, and other changes in net position. Revenues and expenses are categorized as either operating or non-operating based upon management's policies as established in accordance with definitions set forth by the GASB. Certain sources of the Authority's revenues, including Passenger Facility Charges (PFCs), Customer Facility Charges (CFCs), investment income and capital grants are reported as other than operating revenue and their uses are restricted and generally are not available for operating purposes.

The Statements of Cash Flows present information showing how the Authority's cash and cash equivalents changed during the fiscal year. The Statements of Cash Flows classify cash receipts and cash payments resulting from operating activities, capital and related financing activities, and investing activities.

As of July 1, 2019, the Authority adopted Governmental Accounting Standards Board (GASB) Statement No. 84, *Fiduciary Activities* ("GASB 84"). The Authority's defined benefit retirement plan and other post-employment benefits plan are administered through and hold resources in trust for members and beneficiaries of the plans. Those activities are now required to be reported as separate fiduciary funds. The Statements of Fiduciary Net Position and Statements of Changes in Fiduciary Net Position present financial information about pension and other employee benefit trust activities for which the Authority acts solely as a fiduciary for the benefit of its employees and retirees.

The Notes to the basic financial statements are an integral part of the financial statements. Such disclosures are essential to a full understanding of the information provided in the basic financial statements.

COVID-19 Impact Statement

The outbreak of COVID-19 in March, 2020 and related restrictions had an adverse impact on business activity at Massport that continued into FY21. The pandemic has affected international and domestic travel at the Authority's airport properties (Boston-Logan International Airport, Worcester Regional Airport and Hanscom Field). While airlines reported an increase in traffic during the spring of 2021 as the number of vaccinated individuals grew, Logan Airport traffic remained at approximately 46% of pre-pandemic levels in the fourth quarter of FY21. For the full year, Logan passenger volume in FY21 was 12.2 million, 59.7% lower than FY20. This significant decrease resulted in lower passenger-related revenue in FY21 such as parking, concessions, and ground transportation. Worcester Regional Airport served 2,185 passengers for the months of July-September 2020, then zero as airlines initially reduced and then suspended operations in light of decreased travel demand. Hanscom Field was not impacted as severely because its operations are mainly comprised of private jets and non-commercial airlines.

The pandemic also impacted the Authority's port properties. COVID-19 resulted in a 12.7% decline in FY21 container volumes and a reduction in associated revenues. The Centers for Disease Control and Prevention (CDC) issued a No Sail Order effective March 14, 2020 that resulted in the cancellation of all cruises out of Flynn Cruiseport Boston during FY21.

As a result of the above, Massport's revenues for FY21 were lower than the previous year.

FINANCIAL HIGHLIGHTS FOR FISCAL YEAR 2021

- **Total Operating Revenue was $657 million for FY21.**

- Operating revenues of $657 million in FY21 were 20% lower than the prior year due to a decline in business activity caused by COVID-19 and various travel bans. Improved passenger travel at Logan Airport in April through June of 2021 helped drive fourth quarter operating revenues 29% higher than the average of the first three quarters.

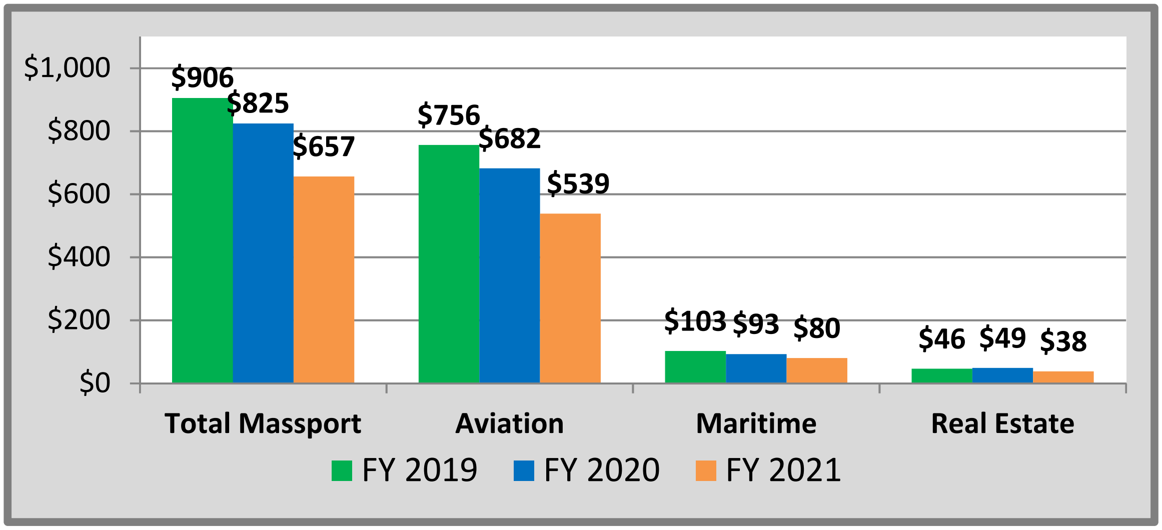
- The Authority pursued strategies to identify new revenue opportunities to mitigate the impact of the pandemic. These included identifying and realizing new revenue streams such as maximizing the Authority's real estate assets, increasing existing fees and/or implementing new ones, potentially selling non-core assets and temporarily repurposing certain facilities to generate additional revenue.

- Aviation revenue in FY21 was $539 million, 21.1% lower than the prior year. The Logan Airport passenger volume of 12.2 million in FY21 represented a 59.7% decrease from FY20 and resulted in a decline in passenger volume-related revenues such as parking and terminal concessions. While revenue for these items was below prior year for the first nine months of FY21, this trend reversed in the fourth quarter of FY21 as passenger volume increased to levels above the prior year as the number of vaccinated individuals grew.

- Maritime revenue of $80 million in FY21 was down 13.9% versus FY20. Conley Terminal had a solid year in light of the pandemic and the associated supply chain disruptions and processed 247,845 TEUs. This was 12.4% lower than FY20, which resulted in $4.3 million less container revenue versus the prior year. As a result of the pandemic, there was no activity at Flynn Cruiseport Boston in FY21, resulting in a $7.6 million reduction in revenues versus the prior year.

- Real Estate revenue of $38 million in FY21 was down by 22.8% versus FY20 mainly due to a one-time transaction rent fee that the Authority was paid in FY20. Parking revenue also declined due to a full fiscal year of the pandemic and the adverse impact this had on business employees, convention attendees, restaurant customers and other consumers of parking in South Boston.

Operating Revenues
($ Millions)



- **Operating Expenses excluding depreciation for FY21 were $404 million, $103 million or 20% lower than FY20.**

- As a result of the pandemic, Massport proactively executed a cost containment plan in March 2020 to reduce operating expenses to mitigate the decline in business activity and associated revenues. This plan continued into FY21, and in November 2020, the Authority's Board approved a FY21 Financial Sustainability Workforce Plan (the "Workforce Plan") intended to reduce the Authority's current labor force and lower operating expenses by approximately $25 million per year. In addition to wage and fringe benefit savings, costs were reduced for shuttle bus services, stevedoring, overtime, materials and supplies, repairs, professional fees, students, temporary workers and interns, travel and other items by as much as 100%.

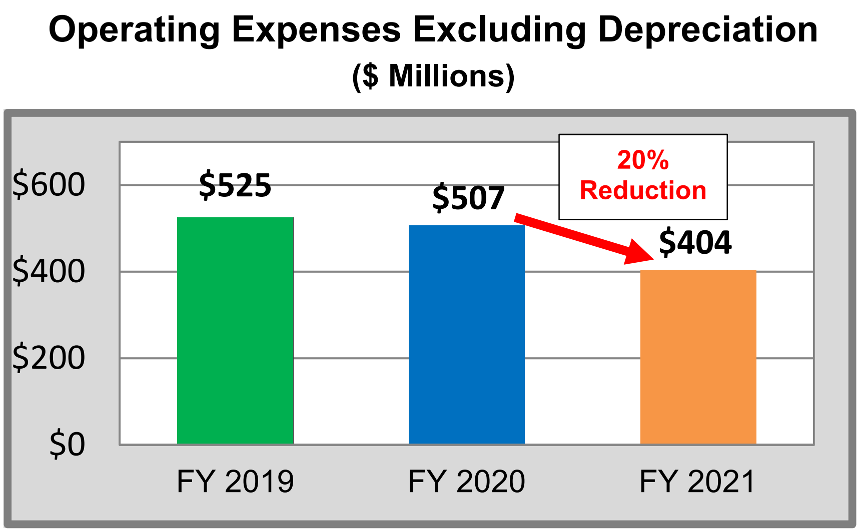
- Wage and benefit expenses were lower by $11.3 million due primarily to the Workforce Plan that was executed in January 2021. These savings would have been higher if $5.6 million of one-time expenses such as severance and unemployment pay were excluded.

- Overtime expense was down by $12.1 million driven by a combination of decreased business activity and tighter controls over use of overtime.

- Pension and Other Post-Employment Benefits (OPEB) expense decreased by $45.8 million due primarily to favorable net investment returns for both funds for the calendar year ending December 31, 2020.

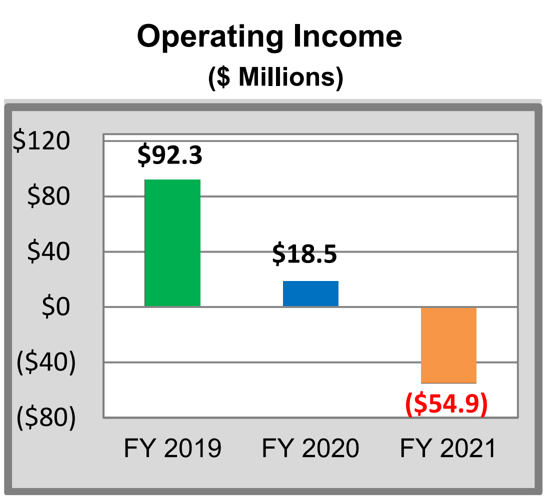
- Shuttle Bus expense was lower by $9.2 million as the frequency of bus services within Logan Airport was reduced in line with decreased passenger activity.

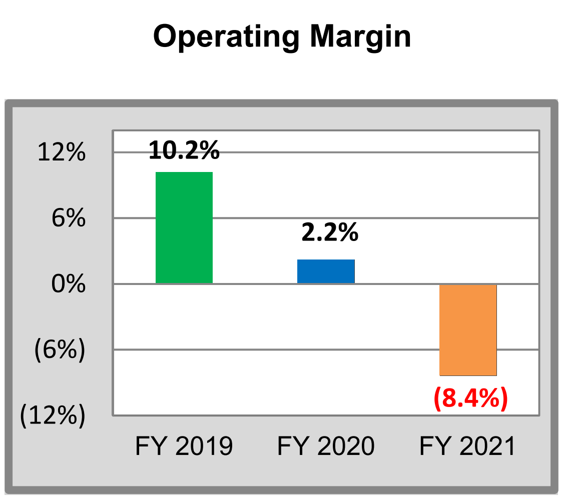
- Materials and supplies, repairs, and services were lower by $17.8 million as these budgets were all decreased as part of cost containment efforts due to the pandemic.



- **Operating Loss for FY21 was $55 million.**

- While the Authority ended the year with an operating deficit of $54.9 million, Logan Airport's improved fourth quarter passenger activity helped mitigate three consecutive quarters of losses. The Authority's fourth quarter operating income of $22.4 million partially offset the previous three quarters cumulative loss of $77.3 million.





- **The Authority's Net Position increased by $83 million.**

- Expansion of the Authority's net position, which is primarily comprised of capital assets owned by the Authority, is critical to fund the capital program. The program includes strategic initiatives such as the modernization of Terminal E to accommodate more international flights, redesigning the roadways at Logan Airport to make travel easier for customers, and improvements to Conley Terminal to support the industry trend toward larger 10,000+ TEU container ships.

- The FY21 increase in net position of $83.0 million was due to $76.0 million of non-operating income and $61.9 million of capital grant revenues less $54.9 million of operating losses for the year.

- The $76.0 million of non-operating income includes $121.1 million of federal relief funds, specifically $86.6 million from the CARES (Coronavirus Aid, Relief, and Economic Security) Act and $34.5 million from the CRRSA (Coronavirus Response and Relief Supplemental Appropriations) Act. As of June 30, 2021, the Authority has recognized the entire $143.7 million CARES Act funding and $34.5 million of the $36.9 million CRRSA Act funds. The total federal funding increase of $64.0 million in FY21 versus FY20 was offset by lower investment income due to lower rates and balances and a reduction in PFC and CFC revenues due to the decline in passengers.

Condensed Statement of Revenues, Expenses and Changes in Net Position
($ millions)

	FY 2021	FY 2020	$ Change	% Change
Operating revenues	$ 656.7	$ 824.5	($ 167.8)	(20.4%)
Operating expenses including depreciation and amortization	711.6	806.0	(94.4)	(11.7%)
Operating (loss) income	**(54.9)**	**18.5**	**(73.4)**	**(396.8%)**
Total non-operating revenues (expenses), net	76.0	85.8	(9.8)	(11.4%)
Capital grant revenues	61.9	59.9	2.0	3.3%
Increase (decrease) in net position	**83.0**	**164.2**	**(81.2)**	**(49.5%)**
Net position, beginning of year	2,540.3	2,376.2	164.1	6.9%
Net position, end of year	**$ 2,623.4**	**$ 2,540.3**	**$ 83.1**	**3.3%**

	FY 2020	FY 2019	$ Change	% Change
Operating revenues	$ 824.5	$ 905.5	($ 81.0)	(8.9%)
Operating expenses including depreciation and amortization	806.0	813.2	(7.2)	(0.9%)
Operating income	**18.5**	**92.3**	**(73.8)**	**(80.0%)**
Total non-operating revenues (expenses), net	85.8	91.4	(5.6)	(6.1%)
Capital grant revenues	59.9	28.2	31.7	112.4%
Increase (decrease) in net position	**164.2**	**211.9**	**(47.7)**	**(22.5%)**
Net position, beginning of year	2,376.2	2,164.3	211.9	9.8%
Net position, end of year	**$ 2,540.3**	**$ 2,376.2**	**$ 164.1**	**6.9%**

Column totals may not add due to rounding.

Detailed descriptions of operating revenues and expenses, and non-operating revenues and expenses are described in the following sections.

OPERATING REVENUE

The Authority's operating revenues for FY21 were $656.7 million, down $167.8 million or 20.4% from the prior year. The decline was mainly attributable to decreased business activity at Logan Airport. Business activity across Massport's businesses was weaker than prior year for the first nine months until April 2021 when the impact of the pandemic began to ease.

Operating Revenues
($ millions)

	FY 2021	FY 2020	$ Change	% Change
Aviation Rentals	$ 270.6	$ 275.3	($ 4.7)	(1.7%)
Aviation Parking	58.2	137.0	(78.8)	(57.5%)
Aviation Fees	141.5	139.2	2.3	1.7%
Aviation Concessions	58.4	111.1	(52.7)	(47.4%)
Shuttle Bus	8.1	17.0	(8.9)	(52.4%)
Aviation Operating Grants and Other	1.8	2.8	(1.0)	(35.7%)
Total Aviation Revenues	**$ 538.6**	**$ 682.4**	**($ 143.8)**	**(21.1%)**
Maritime Fees, Rentals and Other	80.1	93.0	(12.9)	(13.9%)
Real Estate Fees, Rentals and Other	38.0	49.2	(11.2)	(22.8%)
Total	**$ 656.7**	**$ 824.5**	**($ 167.8)**	**(20.4%)**

	FY 2020	FY 2019	$ Change	% Change
Aviation Rentals	$ 275.3	$ 267.1	$ 8.2	3.1%
Aviation Parking	137.0	182.1	(45.1)	(24.8%)
Aviation Fees	139.2	153.2	(14.0)	(9.1%)
Aviation Concessions	111.1	130.8	(19.7)	(15.1%)
Shuttle Bus	17.0	21.2	(4.2)	(19.8%)
Aviation Operating Grants and Other	2.8	2.0	0.8	40.0%
Total Aviation Revenues	**$ 682.4**	**$ 756.4**	**($ 74.0)**	**(9.8%)**
Maritime Fees, Rentals and Other	93.0	102.8	(9.8)	(9.5%)
Real Estate Fees, Rentals and Other	49.2	46.3	2.9	6.3%
Total	**$ 824.5**	**$ 905.5**	**($ 81.0)**	**(8.9%)**

AVIATION REVENUES

The Authority's Aviation revenues are derived from its three airport facilities: Logan Airport, Hanscom Field and Worcester Regional Airport.

Aviation Revenues
($ millions)

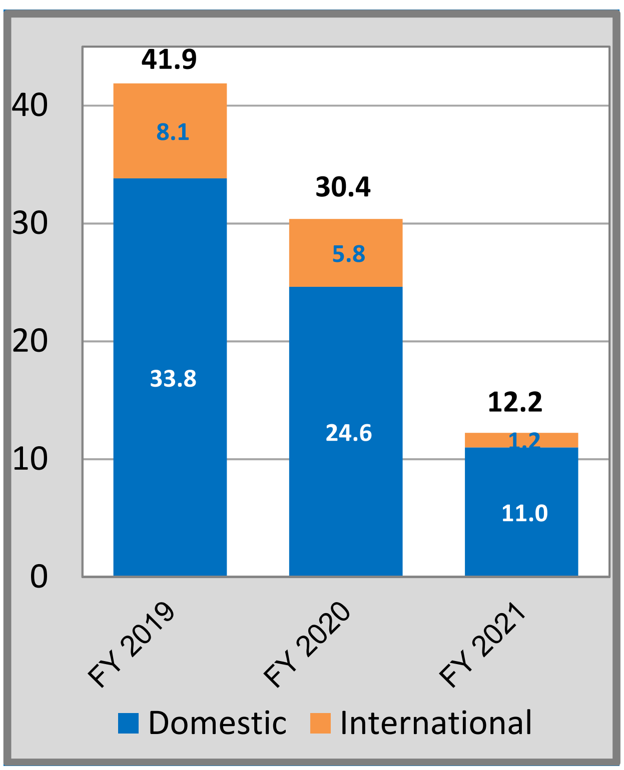
	FY2021	FY2020	FY2019
Logan	$ 522.7	$ 665.4	$ 738.3
Hanscom	14.1	14.6	14.9
Worcester	1.8	2.3	3.2
Total	**$ 538.6**	**$ 682.4**	**$ 756.4**

Logan International Airport

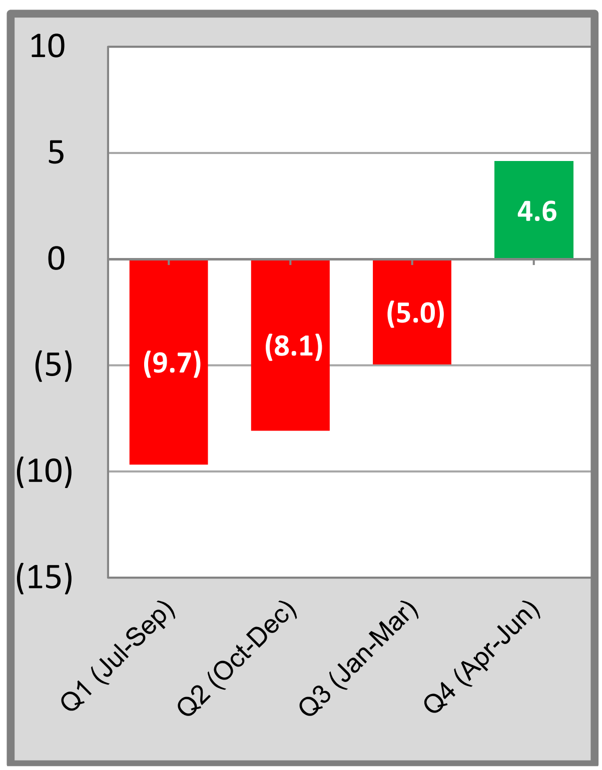
- **12.2 million passengers were served at Logan Airport during FY21.**
- Logan Airport passenger volume in FY21 was 12.2 million, a decline of 59.7% from the 30.4 million passengers in FY20. The airport served 11.0 million domestic passengers (down 55.4% versus FY20) and 1.2 million international passengers (down 78.1% versus prior year).

LOGAN INTERNATIONAL AIRPORT

Passengers Served (Millions)



FY21 versus FY20
Quarterly Passenger Growth (Millions)



- Flight operations in FY21 were down by 45% versus the prior year. Similar to passenger activity, airline flight operations were higher in April through June of 2021 versus the same period in 2020 as airlines increased capacity to meet the rebounding travel demand.

- Even though there were positive trends towards the end of FY21, Logan's ground transportation programs produced lower revenue for the year as a result of fewer passengers using Logan Airport. Parking exit volume for FY21 was 0.6 million, a reduction of 1.1 million exits or 65.7% versus FY20. Logan Express High Occupancy Vehicle (HOV) bus ridership declined by 76% and Ride App pickups and drop-offs were lower by 72% compared to the prior year.

Fiscal Year 2021 Compared to 2020

Logan Airport Revenues

Logan Airport generated $522.7 million of revenues in FY21, a $142.7 million or 21.4% decrease versus the prior year.

Logan Airport Revenues
($ millions)

	FY2021	FY2020	FY2019
Logan Rentals	$ 261.6	$ 266.9	$ 258.6
Logan Parking	58.1	136.4	181.5
Logan Fees	135.5	132.2	145.3
Logan Concessions	57.7	110.2	129.8
Shuttle Bus	8.1	17.0	21.2
Logan Operating Grants and Other	1.7	2.7	1.8
Total	**$ 522.7**	**$ 665.4**	**$ 738.3**

Logan rental revenues are earned through terminal building, non-terminal building and ground lease agreements. Revenue from Logan Airport rentals was $261.6 million, a $5.3 million or 2.0% decrease versus the prior year. Terminal rent, which accounts for 80.0% or $209.3 million of this revenue, declined slightly by $1.8 million. The remaining 20.0% is comprised of non-terminal rent (11.6%) and ground rent (8.4%).

Ground/land rent was lower by $4.0 million primarily due to decreased revenue from the hotels on airport property. The rent payments to Massport by these hotels is related to the revenues they earn, so fewer customers staying at these hotels due to the pandemic resulted in decreased revenue paid to Massport.

Logan parking revenues are generated from the Authority's on-airport and off-airport parking facilities. In FY21, Logan parking revenue was $58.1 million, down 57.4% from the $136.4 million earned in FY20, in line with the decrease in passenger activity at Logan. Revenue from on-airport facilities was $56.1 million, down $74.9 million or 57.2% as parking exits declined by 65.7% versus prior year from decreased passenger activity. Parking revenue from the off-airport Logan Express locations was $2.0 million, down $3.5 million as the number of Logan Express riders was 75.9% lower.

Logan fee revenues consist of revenues earned from aircraft landing fees, utility reimbursements, and aircraft parking and fueling. During FY21, Logan Airport aviation fees were $135.5 million, a $3.3 million or 2.5% increase versus prior year. Logan Airport aircraft landing fees, which account for 90.5% of Logan aviation fees, were higher by $12.1 million versus FY20 due to a higher rate. Landing fees are collected from scheduled and non-scheduled airlines based on the landed weight of aircraft serving Logan Airport. The landing fee rate is determined annually based on full cost recovery of landing field costs necessary to operate and maintain the airfield for the Authority's airline customers. Utility and other fees were lower in FY21 by $8.8 million primarily as a result of a $1.7 million decline in utility reimbursement fees, a $0.8 million decline in aircraft parking fees, a $0.6 million decline in fees for fuel flowage, a $0.6 million decline for security badging and fingerprinting fees, a $0.5 million decrease in reimbursement fees for security details and a decline of $4.6 million in miscellaneous other items.

Logan Airport Aviation Fees
($ millions)

	FY2021	FY2020	FY2019
Landing Fees	$ 122.6	$ 110.5	$ 119.8
Utilities	9.3	11.0	13.6
Other	3.6	10.8	11.8
Total	**$ 135.5**	**$ 132.2**	**$ 145.3**

Logan concessions revenues are earned from airport terminal retail operations, on-airport car rental transactions, and the activities of ground transportation and other service providers including taxis, bus, limousine, Ride Apps (Transportation Network Companies), aircraft ground handling, and in-flight catering. In FY21, Logan Airport earned $57.7 million from concessions versus $110.2 million in FY20, a decrease of $52.5 million or 47.6% as a result of fewer passengers.

Revenues from in-terminal concessions totaled $12.2 million, a decrease of $34.4 million or 73.8% compared to the prior year. Food and beverage, news and gifts, and duty free revenue were all down due to lower passenger volume in the terminals. Rental car revenue of $25.6 million was down by $4.4 million, or 14.7% due to negotiated minimum annual rent guarantees. Revenues from ground transportation and other of $19.9 million was down by $13.7 million versus prior year primarily due to fewer passengers taking ride apps, taxis, and buses to/from the Airport.

Logan Airport Concession Fees
($ millions)

	FY2021	FY2020	FY2019
In-Terminal	$ 12.2	$ 46.6	$ 56.0
Rental Car	25.6	30.0	35.3
Ground Transportation & Other	19.9	33.6	38.5
Total	**$ 57.7**	**$ 110.2**	**$ 129.8**

Shuttle bus and other revenues are primarily the result of an on-airport shuttle that links the terminal buildings, rental car center, parking garages and the MBTA Blue Line station, as well as the bus operations from four off-airport Logan Express sites in the Boston metropolitan region and Boston's Back Bay area. The Authority earned $8.1 million of revenue from the Logan Airport shuttle bus operations, a decline of $8.9 million from the prior year. Revenue from the on-airport shuttle bus of $4.0 million was down by $2.3 million. Logan Express ticket revenue of $2.3 million was down by $5.8 million due to a 75.9% drop in riders as service was reduced or suspended to adjust to decreased passenger demand. The remaining $1.8 million of revenue earned in FY21 was due to an agreement with the MBTA for Silver Line bus service to/from Logan Airport and from an employee shuttle bus operation.

During FY21, Logan Airport received $1.7 million in other revenues from federal other transaction agreements.

Logan Airport Shuttle Bus and Other Revenues
($ millions)

	FY2021	FY2020	FY2019
Shuttle Bus	$ 8.1	$ 17.0	$ 21.2
Other	1.7	2.7	1.8
Total	**$ 9.8**	**$ 19.7**	**$ 23.0**

Worcester Regional Airport and Hanscom Field

- During FY20, Worcester was served by three major airlines: American Airlines, Delta and JetBlue. The revitalization plan for this strategic transportation asset was progressing as planned with cumulative passengers at the Airport exceeding 850,000 passengers since 2013.

- In the fourth quarter of FY20, many airlines petitioned the U.S. Department of Transportation (US DOT) to reduce service at certain airports including Worcester. The US DOT granted Worcester service exemptions to JetBlue and American Airlines. By the end of June 2020, JetBlue suspended flights to Orlando, Ft. Lauderdale, and its New York (JFK) hub and American Airlines suspended flights to its Philadelphia hub. Delta continued to provide service to its Detroit hub until October 2020.

- Although Worcester did not serve any commercial airline passengers during much of FY21, there is still a strong interest in this market. JetBlue resumed service between Worcester and its New York (JFK) hub on August 19, 2021, once again enabling access to many cities across the United States for air passengers in Central Massachusetts, and also opening access to international destinations such as London, which JetBlue began serving from JFK on August 11, 2021. JetBlue also announced plans to resume service to Fort Lauderdale in October 2021. Delta and American have announced plans to resume service from Worcester in November 2021.

- Hanscom Field was not impacted as much by the pandemic with corporate jet activity declining only slightly.

Worcester Regional Airport and Hanscom Field Revenues

Worcester Regional Airport generated $1.8 million in operating revenues in FY21, down $0.5 million due to lower commercial parking, fuel flowage and commission revenue. Hanscom Field revenues were $14.1 million in FY21, down by $0.5 million or 3.4% from the prior year. The decrease was primarily due to lower aircraft parking, customs-related and commission revenues, partially offset by higher non-terminal rent revenue.

Worcester and Hanscom Revenues
($ millions)

	FY2021	FY2020	FY2019
Hanscom	$ 14.1	$ 14.6	$ 14.9
Worcester	1.8	2.3	3.2
Total	**$ 15.9**	**$ 16.9**	**$ 18.1**

Fiscal Year 2020 Compared to 2019

The Authority's airports generated $682.4 million of Aviation revenues during FY20, which was $74.0 million or 9.8% lower than the prior year.

Logan Airport generated $665.4 million in revenues in FY20, a $72.9 million or 9.9% decrease versus FY19. Revenue from Logan Airport rentals was $266.9 million, an $8.3 million or 3.2% increase versus the prior year driven primarily by the recovery of terminal operating and capital costs from the airlines in the form of higher terminal rental rates. Logan parking revenue was $136.4 million, down $45.1 million, or 24.8% versus the prior year due to fewer passengers traveling during the pandemic. Logan Airport aviation fees were $132.2 million, a $13.1 million or 9.0% decrease versus prior year. Utility reimbursements were lower in FY20 by $2.6 million, primarily as a result of lower electricity costs due to chiller upgrades at Logan's central heating plant. Logan Airport aircraft landing fees, which account for 83.6% of Logan aviation fees, were lower by $9.3 million or 7.8% versus FY19 driven by the decline in activity in the spring of FY20 due to the pandemic.

In FY20, Logan Airport earned $110.2 million from concessions versus $129.8 million in FY19, a decrease of $19.6 million or 15.1% as a result of fewer passengers. Revenues from in-terminal concessions totaled $46.6 million, a decrease of $9.4 million or 16.8% compared to the prior year mainly due to a $5.6 million decline in food and beverage sales. Revenues from ground and commercial services declined by $2.6 million while commissions from foreign currency exchanges were also lower by $1.1 million. Logan Airport earned $30.0 million from rental car companies during FY20, a decrease of $5.3 million or 15.0% compared to FY19. Rental car transactions decreased by 25.7% and sales per transaction increased slightly by 1.3%. Ground transportation and other fees of $33.6 million declined by $4.9 million or 12.7%. Ground transportation fees collected from Taxis, Limos, and Ride Apps totaled $16.3 million, a decrease of $1.0 million or 6.0%, driven by fewer pick-ups due to fewer passengers.

The Authority earned $17.0 million of revenue from the Logan Airport shuttle bus operations, a decline of $4.2 million from the prior year. Revenue from the on-airport shuttle bus was down by $1.0 million and Logan Express ticket revenue was down by $3.2 million as service was reduced or suspended to adjust to passenger demand.

During FY20, Logan Airport received $2.7 million in other revenues from federal operating grants.

Hanscom Field revenues were $14.6 million in FY20, down slightly by $0.3 million or 2.0% from the prior year. The decrease was primarily due to lower aircraft fuel flowage fees. Worcester Regional Airport generated $2.3 million in operating revenues in FY20, down $0.9 million due to reduced ground lease revenue.

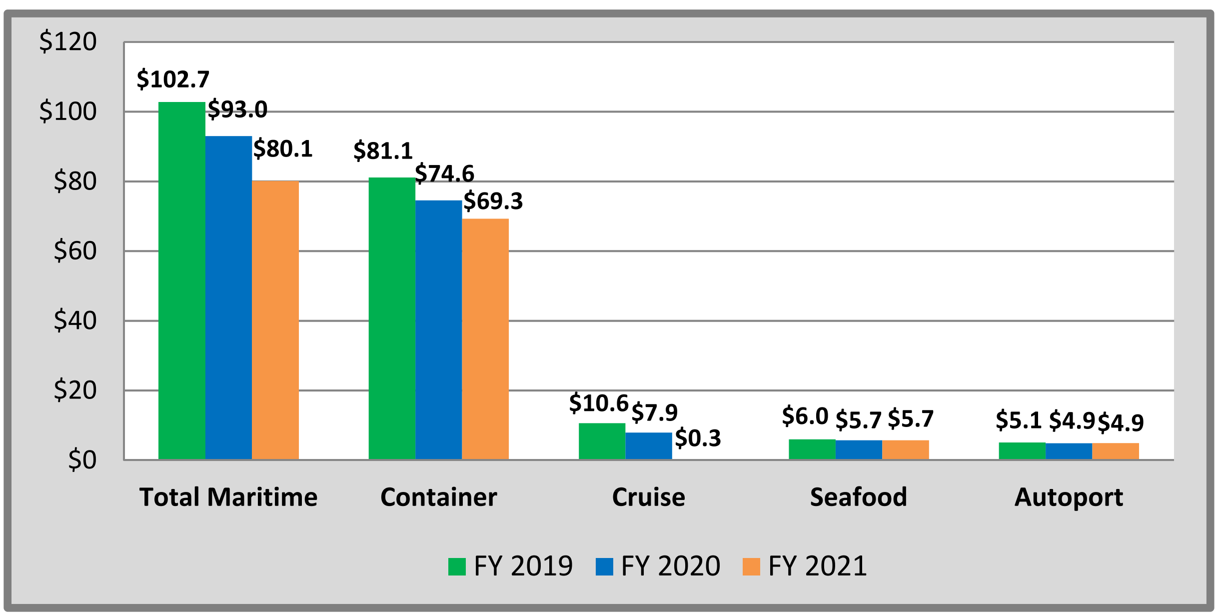
MARITIME REVENUES

The Authority's maritime business includes container operations at Conley Terminal, cruise activity at Flynn Cruiseport Boston, rental facilities for seafood processors and commercial parking at the Boston Fish Pier, and the Autoport, which houses an automobile import/export facility and other maritime industrial businesses in Charlestown.

Maritime fees, rentals and other revenues are collected primarily from container shipping lines, cruise lines and other customers that use the Authority's Port facilities. The Authority collected $80.1 million in fees, rentals and other income from its maritime operations in FY21, which was $12.9 million or 13.9% below the prior year but a solid performance given the pandemic's impact on the global economy.

Maritime Revenues by Category

($ Millions)



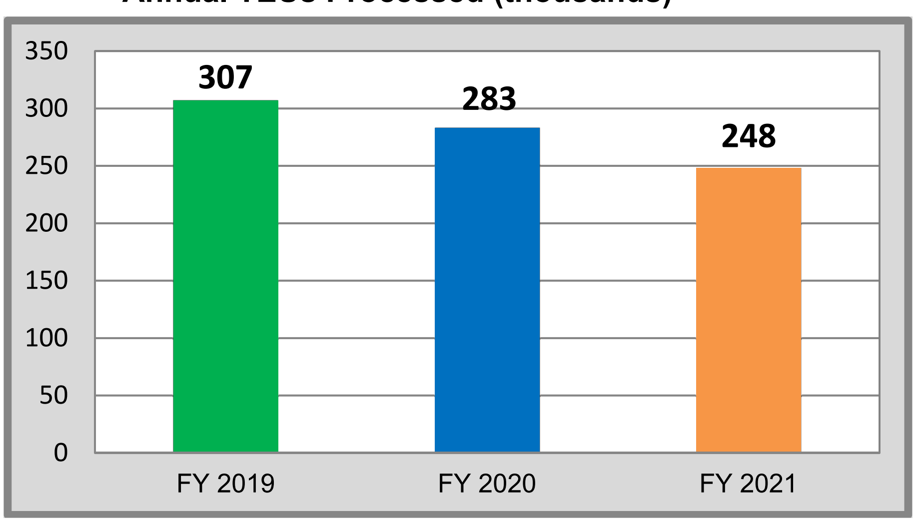
Conley Container Terminal

- **Conley Terminal processed 247,845 TEUs (twenty-foot equivalent units) during FY21.**

- Conley Container Terminal is anchored by the strength of the New England economy, easy and quick truck access in and out of the terminal with efficient access to the interstate highway system, a highly productive workforce, and an ongoing focus on customer service. While the 247,845 TEUs handled by Conley was 12.4% fewer than the 283,061 TEUs that went through the Port in FY20, it was a strong performance given the severe disruption to the global supply chain that resulted from the pandemic.

- Average turn time per truck was 29 minutes in FY21, a 5% decrease from 31 minutes in FY20 and 34 minutes in FY19, as the Terminal continued to achieve productivity improvements. The average number of container lifts per hour, per crane was 33, which was above the goal of 30 lifts per hour and demonstrated Conley's position as a highly efficient port.

Conley Container Terminal
Annual TEUs Processed (thousands)

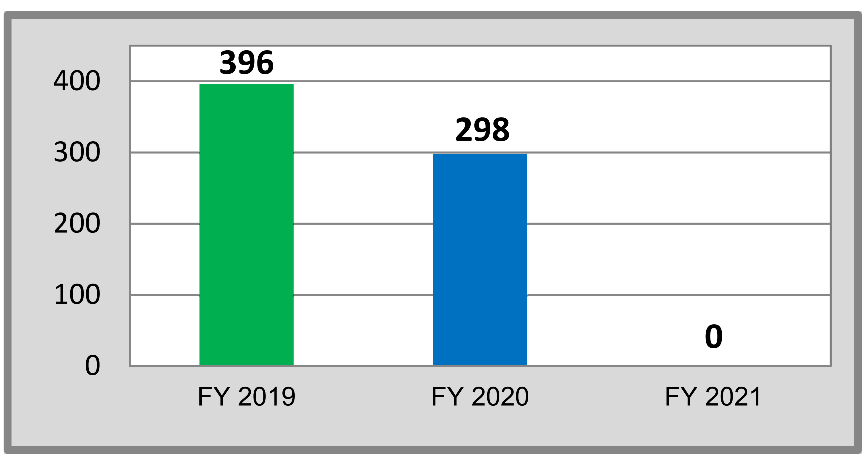


Flynn Cruiseport Boston

- **Flynn Cruiseport Boston did not serve any cruise passengers in FY21.**
- As a result of COVID-19, there was no cruise activity at Flynn Cruiseport Boston during FY21. The CDC issued a No Sail Order in March 2020 and then issued subsequent Conditional Sail Orders in October 2020, April 2021 and May 2021 that enabled cruises to resume as long as stringent health and safety protocols are followed.
- There are signs of a recovery in the cruise industry as the Crystal Symphony, owned and operated by Crystal Cruises, sailed from Flynn Cruiseport Boston on August 23, 2021. This was the first cruise ship to call on the Cruiseport since November 2019, and was the first of four planned sailings by the Crystal Symphony between Boston and Bermuda in August and September 2021. Additional cruises to/from Flynn Cruiseport Boston have been scheduled for the fall of 2021 and spring of 2022.

Flynn Cruiseport Boston

Annual Passengers (thousands)



Fiscal Year 2021 Compared to 2020

Container revenue during FY21 was $69.2 million, $5.4 million or 7.2% below the prior year. Revenue is generated through the collection of fees from ocean shipping lines for the loading and unloading of containers at Conley Terminal and for related services through tariffs and contracts with the shipping lines and shippers using the Port. Conley Terminal processed 247,845 TEUs during FY21.

Cruise revenue from operations at Flynn Cruiseport Boston was $0.3 million in FY21 as no ships called on Boston due to the pandemic. The revenue that was generated was predominantly from space rentals at the Cruiseport.

Seafood revenues were $5.7 million in FY21, which was comparable to the prior year. Revenues are earned through space and ground rents from seafood processing and office tenants, commissions, utility charges, fees and parking lots at the Fish Pier. A slight increase in ground rent revenues due to development at the Massport Maritime Terminal in South Boston was offset by decreased space rent revenue at the Fish Pier.

Autoport revenue was $4.9 million in FY21, which was comparable to the prior year as the ground lease revenue from the tenant remained relatively stable.

Fiscal Year 2020 Compared to 2019

The Authority's maritime operations at the Port of Boston generated $93.0 million of revenue during FY20, which was $9.7 million or 9.4% below the prior year.

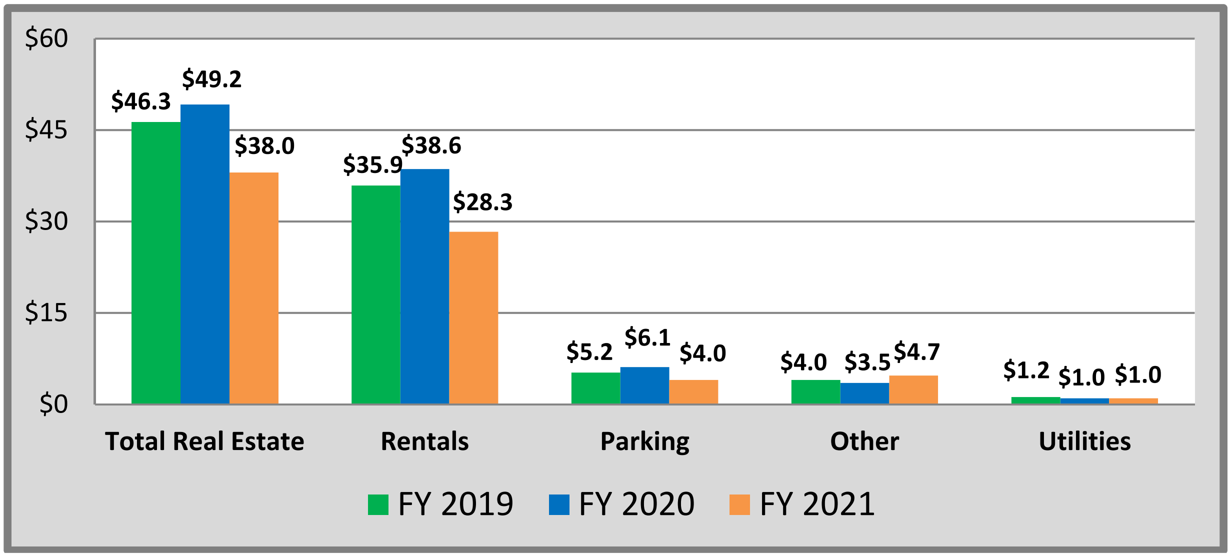
Container revenue during FY20 was $74.6 million, $6.5 million or 8.0% below the prior year. Container volume declined in the spring of FY20 as the supply chain was adversely impacted by the pandemic. Still, Conley Terminal processed 283,061 TEUs, making FY20 one of Conley's strongest years. Cruise revenue was $7.9 million in FY20, down $2.7 million or 25.5% versus prior year. After a very strong fall season that saw new lines call on the Cruiseport and an extension of the season into November, the CDC issued a No Sail Order in March 2020 due to the pandemic, which effectively cancelled the spring and summer cruise seasons.

Seafood revenues were $5.7 million in FY20, down $0.3 million or 5.0% from the prior year due to less parking revenue and a decrease in utility reimbursement fees. Autoport revenue was $4.9 million in FY20, down marginally from FY19 due to a decrease in utility reimbursement fees.

REAL ESTATE REVENUES

The Authority's commercial real estate business earns revenues from ground leases, district service fees and parking on properties owned by the Authority in South Boston, East Boston and Charlestown. Revenues from the Authority's real estate activities totaled $38.0 million in FY21, a reduction of $11.2 million as a result of the collection of a one-time transaction rent fee in FY20.

Real Estate Revenues by Category
($ Millions)



- **Massport's real estate portfolio generated $38 million of revenue in FY21, lower than the prior year mainly due to one-time fees.**

Fiscal Year 2021 Compared to 2020

Total FY21 real estate revenue of $38.0 million was $11.2 million lower than prior year. Rental revenues of $28.3 million were lower by $10.3 million primarily due to a smaller one-time transaction rent fee generated by the Authority's properties in FY21 compared to the prior year. Parking revenue of $4.0 million decreased by $2.1 million due to lower demand for parking in Boston as conventions, restaurant dining and parking for business needs was down as a result of COVID-19. Other revenue of $4.7 million was higher by $1.2 million mainly due to reimbursement for security details provided by the Authority.

Fiscal Year 2020 Compared to 2019

Total real estate revenue of $49.2 million in FY20 was $2.9 million higher than prior year. Rental revenue of $38.6 million was $2.7 million higher than FY20 primarily due to one-time transaction rent fees, which were higher in FY20 than in FY19. Parking revenue of $6.1 million increased by $0.9 million due in part to dynamic pricing at the 1,550 space South Boston Waterfront

Transportation Center. Other revenue of $3.5 million was down by $0.5 million mainly due to lower security detail reimbursements.

OPERATING EXPENSES

Total operating expenses were lower in FY21 as the result of actions taken by Massport management to offset the decline in revenues from reduced business activity. FY21 reflects the full year impact of the immediate cost containment actions taken by the operating and administrative departments from March through June of 2020, as well as additional expense reduction initiatives implemented during FY21 including the Workforce Plan intended to reduce the Authority's labor force and lower operating expenses by approximately $25 million per year.

The Authority's total operating expenses in FY21 were $711.6 million, a decrease of $94.4 million or 11.7% versus the prior year. Excluding Depreciation and Amortization, operating expenses were down $102.6 million or 20.3%.

Operating Expenses
($ Millions)

	FY 2021	FY 2020	$ Change	% Change
Aviation Operations and Maintenance	$ 252.5	$ 295.7	($ 43.2)	(14.6%)
Maritime Operations and Maintenance	54.8	61.1	(6.3)	(10.3%)
Real Estate Operations and Maintenance	14.3	15.0	(0.7)	(4.7%)
General and Administrative	56.2	68.1	(11.9)	(17.5%)
Payments in Lieu of Taxes	22.2	21.0	1.2	5.7%
Pension and Other Post-employment Benefits	(9.8)	36.1	(45.9)	(127.1%)
Other	13.8	9.7	4.1	42.3%
Depreciation and Amortization	307.6	299.3	8.3	2.8%
Total Operating Expenses	**$ 711.6**	**$ 806.0**	**($ 94.4)**	**(11.7%)**

	FY 2020	FY 2019	$ Change	% Change
Aviation Operations and Maintenance	$ 295.7	$ 305.6	($ 9.9)	(3.2%)
Maritime Operations and Maintenance	61.1	64.4	(3.3)	(5.1%)
Real Estate Operations and Maintenance	15.0	16.9	(1.9)	(11.2%)
General and Administrative	68.1	67.3	0.8	1.2%
Payments in Lieu of Taxes	21.0	21.3	(0.3)	(1.4%)
Pension and Other Post-employment Benefits	36.1	40.7	(4.6)	(11.3%)
Other	9.7	8.6	1.1	12.8%
Depreciation and Amortization	299.3	288.3	11.0	3.8%
Total Operating Expenses	**$ 806.0**	**$ 813.2**	**($ 7.2)**	**(0.9%)**

Aviation Operations and Maintenance Expenses – FY 2021

The cost containment program implemented by the Authority resulted in a decline in aviation operations and maintenance expenses by $43.2 million to $252.5 million in FY21 from $295.7 million in FY20. The breakdown of aviation operations and maintenance expenses by each of Massport's aviation facilities is provided below:

Aviation Operating and Maintenance Expenses
($ millions)

	FY 2021	FY 2020	FY 2019
Logan	$ 235.3	$ 272.6	$ 285.5
Hanscom	9.7	11.0	10.6
Worcester	7.5	12.1	9.5
Total	**$ 252.5**	**$ 295.7**	**$ 305.6**

Logan Airport Operations and Maintenance Expenses – FY 2021

Operations and maintenance expenses for Logan Airport in FY21 were $235.3 million and accounted for approximately 93.2% of all aviation operations and maintenance expenses and 73.2% of the Authority's total operations and maintenance expenses.

FY21 expenses benefited from the actions taken in late FY20 to reduce expenses such as the reduction and/or suspension of services including the Logan Airport Shuttle bus and Logan Express, the consolidation or closure of airport parking and some terminal spaces, and a scaling back of non-essential facility maintenance activities, supplies, services and repairs. These savings combined with lower wages, benefits and overtime resulted in a $37.3 million or 13.7% expense reduction versus FY20.

Logan Airport Operations and Maintenance Expenses – FY 2020

Operations and maintenance expenses for Logan Airport in FY20 were $272.6 million and accounted for approximately 92.2% of all aviation operations and maintenance expenses and 73.3% of the Authority's total operations and maintenance expenses. In FY20, operations and maintenance expenses for Logan Airport were lower by $12.9 million or 4.5% versus prior year.

Significant actions were taken beginning in March of 2020 to reduce expenses. As a result, expenses versus prior year were lower by $13.2 million.

Worcester Airport and Hanscom Field Operations and Maintenance Expenses – FY 2021

Cost containment measures were also implemented at Worcester Regional Airport and Hanscom Field. In FY21, operations and maintenance expenses for Worcester Regional Airport were $7.5 million, a $4.6 million or 38.0% decrease versus the prior year as commercial flight activity at this airport was discontinued during the pandemic. The decrease was due to a $2.1 million reduction in wage and benefit expenses due to less staff, a $0.7 million decline in overtime and a $1.8 million decrease in materials, services, supplies and state police detail expenses.

Operations and maintenance expenses for Hanscom Field were $9.7 million, a $1.3 million or 11.8% decrease versus the prior year. The decrease was due to a $0.6 million reduction in overtime expense, a $0.3 million reduction in services such as landscaping and computer support, and a $0.4 million decrease in other expenses due to the need for fewer materials, supplies, repairs and state police details.

Worcester Airport and Hanscom Field Operations and Maintenance Expenses – FY 2020

In FY20, operations and maintenance expenses for Worcester Regional Airport were $12.1 million, a $2.6 million or 27.4% increase. This increase reflects a $2.0 million increase in wage and benefit expenses from the full year impact of additional ARFF (Aircraft Rescue and Firefighting) personnel hired in FY19 and higher State Police costs of $1.6 million partially offset by a $0.6 million reduction in overtime and a $0.5 million decrease in materials, services and supplies expenses.

Operations and maintenance expenses for Hanscom Field were $11.0 million, a $0.4 million or 3.8% increase versus the prior year. The increase was due to a $1.3 million increase in wage and benefit expenses from the full year impact of additional ARFF personnel hired in April 2019 partially offset by a decrease of $0.9 million for lower materials, supplies and services expenses.

Maritime Operations and Maintenance Expenses – FY 2021

Maritime operations and maintenance expenses were $54.8 million, a $6.3 million or 10.3% decrease from the prior year. Stevedoring costs were $1.3 million lower due to lower container volume and new flex-time rules that were implemented in late FY20. Overtime was down $1.1 million as the result of lower container volumes and realigned staffing. Materials, supplies and services expenses were $1.1 million lower than prior year. Professional fees were down by $0.8 million as planning and engineering consulting was significantly reduced. Wage and benefit expense decreased by $0.4 million due to staff reductions, and utilities expenses were down by $0.3 million. Other expenses were down by $1.3 million compared to the prior year.

Maritime Operations and Maintenance Expenses – FY 2020

Maritime operations and maintenance expenses were $61.1 million, a $3.3 million or 5.1% decrease from the prior year. Stevedoring costs were $1.0 million lower due to lower container volume and the new flex-time rules that lowered wage expenses. Materials, supplies, services and repairs expenses collectively were $1.0 million lower than prior year. Overtime was down $0.9 million based on a successful initiative to realign staffing needs.

Wage and benefit expenses increased by $0.7 million, and other expenses were lower by $1.1 million due in part to lower maritime property remediation expenses versus FY19.

Real Estate Operations and Maintenance Expenses – FY 2021

Real Estate operations and maintenance costs in FY21 were $14.3 million, down $0.7 million or 4.7% versus the prior year. Professional fees for parcel development planning and legal services were lower by $0.7 million. Expenses for landscaping, rubbish removal and other such services was lower by $0.3 million. Other expenses increased by $0.4 million versus prior year due to higher utilities expenses.

Real Estate Operations and Maintenance Expenses – FY 2020

Real Estate operations and maintenance costs in FY20 were $15.0 million, down $1.9 million or 11.2% versus the prior year. Professional fees were reduced by $0.9 million. Repairs and services expenses were lower by $0.5 million, and utility expenses were down by $0.3 million. Other expenses were down by $0.2 million versus prior year.

General and Administrative Expenses – FY 2021

The Authority's general and administrative costs were $56.2 million in FY21, a reduction of $11.9 million or 17.5% compared to the prior year. The Authority's cost reduction strategies and Workforce Plan caused employee wage and benefit costs for administrative employees to decline by $4.0 million. Professional fees decreased by $3.3 million as the use of engineering, planning, legal and marketing consultants was significantly curtailed. Services expenses were lower by $2.5 million due to cost reductions for computer maintenance, HVAC maintenance, software fees, temporary personnel and other items. Media and advertising costs were reduced by $1.0 million to meet expense reduction targets. Materials, supplies and repair expenses were down by $0.5 million, and other expenses were lower by $0.6 million.

The following table shows the allocation of the Authority's general and administrative expenses by business line for FY21, FY20 and FY19.

General and Administrative Expenses
($ millions)

	FY 2021	FY 2020	FY 2019
Logan	$ 37.6	$ 45.5	$ 46.1
Hanscom	2.3	2.7	3.1
Worcester	2.5	3.6	3.4
Maritime	8.4	10.1	9.2
Real Estate	5.4	6.2	5.4
Total	**$ 56.2**	**$ 68.1**	**$ 67.3**

General and Administrative Expenses – FY 2020

The Authority's general and administrative costs were $68.1 million in FY20, $0.8 million or 1.2% higher than FY19. Employee wage and benefit costs for administrative employees increased by $2.4 million for annual merit pay adjustments, and services expenses were up $1.1 million due primarily to increased cleaning costs necessitated by COVID-19.

The increases were partially offset by a $1.5 million decline in professional fees for engineering and planning resources. Media and advertising expenses were lower by $1.5 million as part of the cost cutting initiatives. Other expenses were higher by $0.3 million.

PILOT, Pension & OPEB and Other Expenses – FY 2021

In FY21, the Authority's PILOT (payment in lieu of taxes) payments to the City of Boston and the Town of Winthrop totaled $22.2 million and were $1.2 million or 5.7% higher than FY20. The City of Boston's PILOT payments are contractually linked to the annual rise in the Consumer Price Index (CPI), which added $0.4 million of new costs. The other $0.8 million increase was related to community mitigation payments made to organizations such as the East Boston and Winthrop Foundations as specific milestone achievements in FY21 triggered community payments.

The Authority's pension and OPEB expenses were positively impacted by the strong investment returns generated by both of the asset plans. The Authority's pension expense experienced a 16.1% return (net of fees) on pension plan assets versus the 7.0% rate used to project the pension liability. The Authority's OPEB expense also had a favorable return of 14.1% (net of fees) versus the 7.0% rate used to project the OPEB liability. As a result, the Authority recorded a $9.8 million contra expense in FY21, which represented a decrease of $45.9 million compared to the $36.1 million of expense incurred in FY20. The measurement period for both the pension and OPEB assets was calendar year ended December 31, 2020.

The following tables show the allocation of PILOT, Pension, OPEB, and other expenses by business line for FY21 and FY20:

FY21 - PILOT, Pension, OPEB, and Other Expenses
($ millions)

	PILOT	PENSION	OPEB	OTHER	TOTAL
Logan	$ 19.4	($ 8.7)	$ 1.4	$ 10.0	$ 22.1
Hanscom	0.0	(0.5)	(0.0)	0.3	(0.2)
Worcester	0.0	(0.5)	(0.1)	0.2	(0.4)
Maritime	1.5	(0.6)	0.5	2.6	4.0
Real Estate	1.3	(0.9)	(0.3)	0.7	0.8
Total	**$ 22.2**	**($ 11.2)**	**$ 1.5**	**$ 13.8**	**$ 26.3**

FY20 - PILOT, Pension, OPEB, and Other Expenses
($ millions)

	PILOT	PENSION	OPEB	OTHER	TOTAL
Logan	$ 18.2	$ 10.4	$ 17.4	$ 7.9	$ 53.9
Hanscom	0.0	0.5	0.8	0.2	1.5
Worcester	0.0	0.6	0.5	0.4	1.5
Maritime	1.5	1.3	2.8	0.9	6.5
Real Estate	1.3	0.7	1.1	0.3	3.4
Total	**$ 21.0**	**$ 13.5**	**$ 22.6**	**$ 9.7**	**$ 66.8**

PILOT, Pension & OPEB and Other Expenses – FY 2020

In FY20, the Authority's PILOT payments to the City of Boston and the Town of Winthrop totaled $21.0 million and reflect a $0.3 million or 1.4% decrease versus FY19. The City of Boston's PILOT payments are contractually linked to the annual rise in the Consumer Price Index (CPI), which added $0.4 million of new costs. This was more than offset by lower expenses in FY20 related to community mitigation payments made to organizations such as the East Boston Foundation as fewer milestones were achieved.

The Authority's expenses for pension and OPEB were $36.1 million, a decrease of $4.6 million or 11.3% compared to FY19. The Authority's pension expense decreased by $8.7 million, primarily due to a 19.7% favorable net return on pension plan assets versus the 7.25% rate used to project the pension liability. The Authority's OPEB expense increased by $4.1 million as the result of the Trust fiscal year end being changed from June 30th to December 31st, which resulted in recording 18 months of expense during FY20. The measurement period for both the pension and OPEB assets was calendar year ended December 31, 2019.

Depreciation and Amortization Expenses – FY 2021

The Authority recognized $307.6 million in depreciation and amortization expenses in FY21, an increase of $8.3 million or 2.8% compared to FY20. The increase is the result of $161.5 million of new assets being placed into service. During FY21, major projects completed and placed into service included Logan Runway 9-27 Rehabilitation ($37.5 million), Terminal B, C and E HVAC Replacement Phase 2 ($15.5 million), Logan North Air Cargo Facility ($15.0 million), Logan Roof Replacement Phase 2 ($12.4 million), and Logan Elevators/Escalators Upgrade Phase 2 ($11.0 million).

Depreciation and Amortization Expenses – FY 2020

The Authority recognized $299.3 million in depreciation and amortization expenses in FY20, an increase of $11.0 million or 3.8% compared to FY19. The increase is the result of $291.2 million of new assets being placed into service. During FY20, major projects completed and placed into service included Central Garage Modifications to Support Ride Apps ($26.5 million), Terminal B Gate Reconfiguration ($15.0 million), Terminal B Sanitary Pipe Replacement ($14.2 million), Logan Airport Old Tower Relocation ($13.6 million) and the New Hanscom ARFF and CBP Facility ($11.9 million).

NON-OPERATING REVENUES (EXPENSES) AND CAPITAL CONTRIBUTIONS

The Authority recognized $76.0 million in non-operating revenues in FY21, a decrease of $9.8 million versus FY20. The Authority's non-operating income was favorably impacted by the recognition of federal assistance provided by the CARES Act and the CRRSA Act. In FY21, the Authority recognized $121.1 million for these items versus $57.1 million in FY20. This $64.0 million increase was offset by lower investment income and a reduction in PFC and CFC revenues.

Non-operating Revenues and Expenses and Capital Contributions
($ millions)

	FY 2021	FY 2020	$ Change	% Change
Passenger facility charges	$ 27.9	$ 59.9	($ 32.0)	(53.4%)
Customer facility charges	11.7	25.9	(14.2)	(54.8%)
Investment income	15.5	35.9	(20.4)	(56.8%)
Other income (expense), net	119.0	73.5	45.5	61.9%
Interest expense	(98.1)	(109.4)	11.3	(10.3%)
Total Non-operating Revenues (Expenses)	**$ 76.0**	**$ 85.8**	**($ 9.8)**	**(11.4%)**
Capital Contributions	**$ 61.9**	**$ 59.9**	**$ 2.0**	**3.3%**

	FY 2020	FY 2019	$ Change	% Change
Passenger facility charges	$ 59.9	$ 84.8	($ 24.9)	(29.4%)
Customer facility charges	25.9	33.5	(7.6)	(22.7%)
Investment income	35.9	29.8	6.1	20.5%
Other income (expense), net	73.5	26.8	46.7	174.3%
Terminal A debt service contributions	0.0	(7.5)	7.5	(100.0%)
Interest expense	(109.4)	(76.0)	(33.4)	43.9%
Total Non-operating Revenues (Expenses)	**$ 85.8**	**$ 91.4**	**($ 5.6)**	**(6.1%)**
Capital Contributions	**$ 59.9**	**$ 28.2**	**$ 31.7**	**112.4%**

For FY21, PFCs were $27.9 million, a $32.0 million or 53.4% decrease as a result of fewer enplaned passengers. Revenues from CFCs totaled $11.7 million, a $14.2 million or 54.8% decrease as rental car transaction days were down by 55.1%. The Authority generated

$15.5 million of investment income, a decrease of $20.4 million primarily due to lower interest rates in highly liquid investment vehicles used to fund near term capital expenditures in the capital program. Other income was $119.0 million, which was $45.5 million higher than prior year and includes the accrual of $121.1 million from the federal CARES Act and CRRSA Act grants, $5.0 million from the BOSFUEL bond refinancing transaction, $0.4 million from airlines that reimbursed the Authority for prior expenditures and $1.6 million of other items partially offset by a $7.0 million decrease in the fair value of investments. Interest expense on Authority bonds was $98.1 million, lower by $11.3 million or 10.3% versus FY20 due to the favorable impact of refinanced debt during FY21.

For FY20, PFCs were $59.9 million, a $24.9 million or 29.4% decrease as a result of fewer enplaned passengers. Revenues from CFCs totaled $25.9 million, a $7.6 million or 22.7% decrease as rental car transaction days at Logan Airport's Rental Car Center were down by 22.6%. The Authority generated $35.9 million of investment income, an increase of $6.1 million due to higher interest rates on fixed income investments and an increase in the Authority's cash balance. Other income was $73.5 million, which was $46.7 million higher than prior year. Other income includes $57.1 million from the federal CARES Act, $7.6 million from the BOSFUEL bond refinancing transaction, $0.6 million from airlines that reimbursed the Authority for prior expenditures and an $8.2 million increase in the fair value of investments. Interest expense was $109.4 million, up $33.4 million or 43.9% due to an increase in debt outstanding.

Capital Contributions

Capital contributions in FY21 were $61.9 million, an increase of $2.0 million versus the prior year. The Authority received capital contributions for projects from The Commonwealth of Massachusetts for the expansion of Conley Terminal, the FAA AIP grant program and from the U.S. Department of Transportation Maritime Administration (MARAD) FASTLANE grant. The Commonwealth of Massachusetts funds are being used to help pay for a portion of the new Berth 10 and three new cranes at Conley Terminal. The majority of the FAA AIP grants include reimbursements for the rehabilitation of Runway 9-27 at Logan Airport, the rehabilitation of Runway 11-29 at Worcester Regional Airport and the electrification of ground service equipment (GSE) at Logan Airport. The MARAD grant funds were used primarily for the new gate processing facilities at Conley Terminal.

Capital contributions in FY20 were $59.9 million, an increase of $31.7 million versus the prior year. The Authority received capital contributions for projects from The Commonwealth of Massachusetts, the FAA AIP grant program and from MARAD. The Commonwealth of Massachusetts funds paid for a portion of the new Berth 10 and three new cranes at Conley Terminal. The major components of the FAA AIP grants were reimbursements for the rehabilitation of runway 9-27 at Logan Airport, resurfacing of the north cargo apron at Logan Airport and the electrification of GSE at Logan Airport. The MARAD grant funds were primarily used for the rehabilitation of Conley Terminal Berths 11 and 12, paving of the reefer area at Conley Terminal, and the replacement of RTG (Rubber Tired Gantry) crane drives.

THE AUTHORITY'S STATEMENTS OF NET POSITION

The Statements of Net Position present the financial position of the Authority at the end of each fiscal year. The Statements include all assets, deferred outflows of resources, liabilities and deferred inflows of resources of the Authority. Net Position is the difference between total assets plus deferred outflows of resources less total liabilities and deferred inflows of resources and is an indicator of the current fiscal health of the Authority. A summarized comparison of the Authority's assets, deferred outflows of resources, liabilities, deferred inflows of resources and net position at June 30, 2021, 2020 and 2019 is as follows:

Condensed Statements of Net Position for FY 2021 and FY 2020

($ millions)

	FY 2021	FY 2020	$ Change	% Change
Assets				
Current assets	$ 1,321.8	$ 1,242.8	$ 79.0	6.4%
Capital assets, net	4,105.9	3,963.1	142.8	3.6%
Other non-current assets	740.7	589.8	150.9	25.6%
Total Assets	**6,168.4**	**5,795.7**	**372.7**	**6.4%**
Deferred Outflows of Resources				
Deferred loss on refunding of bonds	11.7	13.3	(1.6)	(12.0%)
Deferred outflows of resources related to Pension plan	31.0	9.7	21.3	219.6%
Deferred outflows of resources related to OPEB	24.5	17.3	7.2	41.6%
Total Deferred Outflows of Resources	**67.2**	**40.3**	**26.9**	**66.7%**
Liabilities				
Current liabilities	$ 283.3	$ 325.7	($ 42.4)	(13.0%)
Bonds payable, including current portion	3,029.4	2,688.2	341.2	12.7%
Other non-current liabilities	129.3	193.8	(64.5)	(33.3%)
Total Liabilities	**3,442.0**	**3,207.7**	**234.3**	**7.3%**
Deferred Inflows of Resources				
Deferred gain on refunding of bonds	25.9	9.8	16.1	164.3%
Deferred inflows of resources related to Pension plan	83.9	47.9	36.0	75.2%
Deferred inflows of resources related to OPEB	60.5	30.2	30.3	100.3%
Total Deferred Inflows of Resources	**170.3**	**87.9**	**82.4**	**93.7%**
Total Net Position	**$ 2,623.4**	**$ 2,540.3**	**$ 83.1**	**3.3%**
Net position				
Net investment in capital assets	$ 1,351.1	$ 1,548.6	(197.5)	(12.8%)
Restricted	785.8	714.7	71.1	9.9%
Unrestricted	486.5	277.1	209.4	75.6%
Total Net Position	**$ 2,623.4**	**$ 2,540.3**	**83.1**	**3.3%**

Column totals may not add due to rounding.

The Authority ended FY21 with total assets of $6,168.4 million, an increase of $372.7 million or 6.4% over the prior year. The increase is primarily due to a $209.5 million increase in restricted and unrestricted investments, a $142.8 million increase in new capital assets placed into service and construction in progress net of accumulated depreciation and a $38.4 million increase in accounts receivable due to deferred payment trade receivables owed by airlines and federal relief program grant receivables partially offset by lower restricted and unrestricted cash balances. The Authority's total assets consist primarily of capital assets, net, which represent $4,105.9 million or 65.8% of the Authority's total assets and deferred outflows of resources as of June 30, 2021. Total deferred outflows of resources increased by $26.9 million in FY21 versus the prior year primarily due to the timing of the Pension and OPEB funding subsequent to the measurement period.

The Authority's total liabilities as of June 30, 2021 were $3,442.0 million, an increase of $234.3 million or 7.3% over the prior year, as the bonds payable balance increased by $341.2 million due to new debt issued in FY21. Bonds payable (including current portion) of $3,029.4 million is the largest component of total liabilities, and accounted for 83.9% of the Authority's total liabilities and deferred inflows at June 30, 2021. Total deferred inflows of resources increased by $82.4 million in FY21 versus the prior year primarily due to Pension and OPEB investment gains.

The Authority's total net position for FY21 was $2,623.4 million, an $83.1 million or 3.3% increase over the prior year. This increase reflects the Authority's net operating loss of $54.9 million, net non-operating income of $76.0 million and capital contributions of $61.9 million. The growth in net position is being used to fund the Authority's strategic initiatives.

Condensed Statements of Net Position for FY 2020 and FY 2019

($ millions)

	FY 2020	FY 2019	$ Change	% Change
Assets				
Current assets	$ 1,242.8	$ 902.1	$ 340.7	37.8%
Capital assets, net	3,963.1	3,725.3	237.8	6.4%
Other non-current assets	589.8	506.4	83.4	16.5%
Total Assets	**5,795.7**	**5,133.8**	**661.9**	**12.9%**
Deferred Outflows of Resources				
Deferred loss on refunding of bonds	13.3	14.7	(1.4)	(9.5%)
Deferred outflows of resources related to Pension plan	9.7	51.9	(42.2)	(81.3%)
Deferred outflows of resources related to OPEB	17.3	36.2	(18.9)	(52.2%)
Total Deferred Outflows of Resources	**40.3**	**102.8**	**(62.5)**	**(60.8%)**
Liabilities				
Current liabilities	$ 325.7	$ 366.9	($ 41.2)	(11.2%)
Bonds payable, including current portion	2,688.2	2,176.2	512.0	23.5%
Other non-current liabilities	193.8	293.6	(99.8)	(34.0%)
Total Liabilities	**3,207.7**	**2,836.7**	**371.0**	**13.1%**
Deferred Inflows of Resources				
Deferred gain on refunding of bonds	9.8	5.2	4.6	88.5%
Deferred inflows of resources related to Pension plan	47.9	2.6	45.3	1742.3%
Deferred inflows of resources related to OPEB	30.2	16.0	14.2	88.8%
Total Deferred Inflows of Resources	**87.9**	**23.8**	**64.1**	**269.3%**
Total Net Position	**$ 2,540.3**	**$ 2,376.2**	**$ 164.1**	**6.9%**
Net position				
Net investment in capital assets	$ 1,548.6	$ 1,489.8	58.8	3.9%
Restricted	714.7	690.0	24.7	3.6%
Unrestricted	277.1	196.4	80.7	41.1%
Total Net Position	**$ 2,540.3**	**$ 2,376.2**	**164.1**	**6.9%**

The Authority ended FY20 with total assets of $5,795.7 million, an increase of $661.9 million or 12.9% over the prior year. The increase is primarily due to additional cash from the issuance of new bonds, $237.8 million of new capital assets placed into service and construction in progress net of accumulated depreciation. Deferred outflows of resources totaled $40.3 million, a $62.5 million decrease caused by favorable investment gains and increased amortization of prior years' losses. The Authority's total assets consist primarily of capital assets, net, which represent $3,963.1 million or 67.9% of the Authority's total assets and deferred outflows of resources as of June 30, 2020.

The Authority's total liabilities as of June 30, 2020 were $3,207.7 million, an increase of $371.0 million or 13.1% as the bonds payable balance increased by $512.0 million due to new debt issued in FY20. Bonds payable (including current portion) is the largest component of total liabilities, and accounted for 81.6% of the Authority's total liabilities and deferred inflows at June 30, 2020.

The Authority's total net position for FY20 was $2,540.3 million, a $164.1 million or 6.9% increase over the prior year. This increase reflects the Authority's net operating income of $18.5 million, net non-operating income of $85.8 million and capital contributions of $59.9 million. The growth in net position is being used to fund the Authority's strategic initiatives.

CAPITAL ASSETS AND DEBT ADMINISTRATION

Capital Assets

As of June 30, 2021 and 2020, the Authority had $4,105.9 million and $3,963.1 million of capital assets (net of depreciation), respectively. These include land, construction in process, buildings, runways, roadways, machinery and equipment, air rights and parking rights. The Authority's net capital assets increased by $142.8 million or 3.6% in FY21 primarily as the result of the addition of $443.7 million in capital expenditures, which was partially offset by $307.6 million of depreciation expense.

In FY21, the Authority placed $161.5 million of new assets into service. Major projects completed and placed into service included Logan Runway 9-27 Rehabilitation ($37.5 million), Terminal B, C and E HVAC Replacement Phase 2 ($15.5 million), New Logan North Air Cargo Facility ($15.0 million), Logan Roof Replacement Phase 2 ($12.4 million), and Logan Elevators/Escalators Upgrade Phase 2 ($11.0 million).

In FY20, the Authority placed $291.2 million of new assets into service. Major projects completed and placed into service included Central Garage Modifications to Support Ride Apps ($26.5 million), Terminal B Gate Reconfiguration ($15.0 million), Terminal B Sanitary Pipe Replacement ($14.2 million), Logan Airport Old Tower Relocation ($13.6 million) and the Hanscom ARFF and CBP Facility ($11.9 million).

Capital assets, net comprised 65.8%, 67.9% and 71.2% of the Authority's total assets and deferred outflows of resources at June 30, 2021, 2020 and 2019, respectively. During FY21, FY20 and FY19, the Authority spent $515.9 million, $492.0 million and $759.9 million (including $358.9 million related to the refunding of debt for Logan Terminal A), respectively, constructing new assets and improving existing assets already in service.

The Authority's capital assets are principally funded by the proceeds of revenue bonds, operating revenues, PFCs, CFCs, and federal and state grants. The following chart provides a breakdown of the Authority's total capital assets at June 30, 2021, 2020 and 2019:

Capital Assets by Type
($ thousands)

	FY 2021	FY 2020	FY 2019	% Change 2021-2020	% Change 2020-2019
Land	$ 230,680	$ 230,600	$ 230,600	0.0%	0.0%
Construction in progress	779,910	499,869	260,888	56.0%	91.6%
Buildings	2,120,490	2,199,903	2,190,942	(3.6%)	0.4%
Runways and other pavings	369,919	363,950	386,629	1.6%	(5.9%)
Roadways	301,619	322,842	316,585	(6.6%)	2.0%
Machinery and equipment	251,557	287,075	275,111	(12.4%)	4.3%
Air rights	36,281	41,908	46,015	(13.4%)	(8.9%)
Parking rights	15,421	16,963	18,504	(9.1%)	(8.3%)
Capital assets, net	**$ 4,105,877**	**$ 3,963,110**	**$ 3,725,274**	**3.6%**	**6.4%**

Please see Note 4, Capital Assets in the attached financial statements.

Debt Administration

Since the start of the COVID-19 pandemic, the Authority has taken several actions relating to its capital program and outstanding debt to enhance the Authority's current and future liquidity positions. Such actions have included taking advantage of the modular nature of the Authority's capital program to suspend or defer certain projects and also to refinance and restructure outstanding debt to take full advantage of the low interest rate environment.

The Authority's bond issuances must be approved by the Members of the Authority (the "Board") and must comply with the rules and regulations of the United States Treasury Department. The Authority, through its 1978 Trust Agreement, has a covenant to maintain a debt service coverage ratio of not less than 1.25. Debt service coverage is calculated based on a formula set forth in the 1978 Trust Agreement. Historically, the Authority has maintained a debt service coverage ratio higher than its 1978 Trust Agreement requirement to maintain high investment grade bond ratings and keep capital costs low. In FY21, the Authority's debt service coverage ratio was 5.51 and was aided by the debt restructuring program enacted by management as part of the Authority's sustainability plan and liquidity strategy, and the accrual of federal support for airports through the CARES Act and CRRSA Act.

The CFC Trust Agreement requires that the Authority maintain a debt service coverage ratio of at least 1.30. In FY21, the Authority's CFC Trust coverage was 2.05, exceeding coverage by 75 basis points.

The Authority had net bonds payable and subordinated obligations outstanding as of June 30, 2021 in the amount of $2,686.2 million (see Note 5), an increase of $254.7 million compared to June 30, 2020. During FY21, the Authority issued $692.8 million of bonds in five series, of which $287.3 million were Revenue Refunding Bonds and $405.5 million were Revenue Bonds.

The Series 2021-A Revenue Refunding Bonds (Non-AMT) were issued in the principal amount of $35.6 million with an original issue premium of $13.0 million. The Series 2021-B Revenue Refunding Bonds (AMT) were issued in the principal amount of $21.9 million with an original issue premium of $7.4 million. The Series 2021-C Revenue Refunding Bonds (Taxable) were issued in the principal amount of $229.7 million with no original issue premium or discount. The proceeds from the Series 2021-A and Series 2021-B Refunding Bonds were used to refund and defease all of the Authority's outstanding Series 2010-A Revenue Bonds and all of the outstanding Series 2010-B Revenue Refunding Bonds. A portion of the Series 2021-C Revenue Refunding Bonds along with available funds held under the 1978 Trust Agreement were used to refund and defease all of the Series 2012-A Revenue Bonds and Series 2012-B Revenue Refunding Bonds and to pay and defease the principal and interest due on the July 1, 2021 and July 1, 2022 maturities of the Series 2014-A Revenue Bonds, Series 2014-B Revenue Bonds, Series 2014-C Revenue Refunding Bonds, Series 2015-A Revenue Bonds, Series 2015-B Revenue Bonds, Series 2016-A Revenue Refunding Bonds, Series 2017-A Revenue Bonds, Series 2019-A Revenue Bonds, Series 2019-B Revenue Bonds and the Series 2019-C Revenue Bonds.

The Series 2021-D Revenue Bonds (Non-AMT) were issued in the principal amount of $56.5 million with an original issue premium of $16.7 million. The Series 2021-E Revenue Bonds (AMT) were issued in the principal amount of $349.1 million with an original issue premium of $93.3 million. The proceeds from the Series 2021-D and Series 2021-E Revenue Bonds will be used to finance a portion of the Authority's current Capital Program. Due to the nature of a portion of the construction projects funded with the bonds, the Series 2021-E bonds were issued as bonds subject to the AMT.

As of June 30, 2020, the Authority had net bonds payable and subordinated obligations outstanding in the amount of $2,431.5 million (see Note 5), a net increase of $448.4 million compared to June 30, 2019. During FY20, the Authority issued $455.0 million of Massachusetts Port Authority Revenue Bonds in two series. The Series 2019-B Revenue Bonds were issued in the principal amount of $157.7 million with a net original issue premium of $27.6 million. The Series 2019-C Revenue Bonds were issued in the principal amount of $297.4 million with an original issue premium of $62.4 million. The proceeds from these bonds were used to finance a portion of the Authority's FY19-23 Capital Program. Due to the nature of a portion of the construction projects funded with the bonds, the Series 2019-C bonds were issued as bonds subject to the AMT.

On April 3, 2020, the Authority entered into a direct purchase agreement with Bank of America, NA for the sale of up to $258.0 million of Massachusetts Port Authority Revenue Bonds in two series. The Series 2020-A Revenue Refunding Bonds were issued in the principal amount of $95.6 million. The Series 2020-B Revenue Bonds were issued in the principal amount of $162.4 million. The Series 2020-A Bonds were issued to refund and defease portions of the Series 2010 Bonds, the Series 2012-A Bonds and the Series 2012-B Bonds, and the Series 2020-B Bonds were issued to finance a portion of the Authority's Capital Program. Due to the nature of a portion of the construction projects funded with the bonds, the Series 2020-A bonds were issued as bonds subject to the AMT.

The Official Statements relating to the Authority's bond issuances are available from the Authority or by accessing the Authority's website.

Please see Note 5, Bonds and Notes Payable in the attached Financial Statements.

THE AUTHORITY'S CONDENSED CASH FLOWS

The following summary shows the major sources and uses of cash during the following years:

Statements of Cash Flows
($ millions)

	FY 2021	FY 2020	$ Change	% Change
Net cash provided by operating activities	$ 207.2	$ 325.7	($ 118.5)	(36.4%)
Net cash provided by non-capital activities (CARES/CRRSA Acts)	98.0	35.0	63.0	180.0%
Net cash provided / (used in) capital and related financing activities	(149.5)	1.6	(151.1)	(9443.8%)
Net cash provided / (used in) investing activities	(201.0)	(151.8)	(49.2)	32.4%
Net increase in cash and cash equivalents	(45.3)	210.5	(255.8)	(121.5%)
Cash and cash equivalents, beginning of year	500.8	290.3	210.5	72.5%
Cash and cash equivalents, end of year	**$ 455.5**	**$ 500.8**	**($ 45.3)**	**(9.0%)**

	FY 2020	FY 2019	$ Change	% Change
Net cash provided by operating activities	$ 325.7	$ 372.9	($ 47.2)	(12.7%)
Net cash provided by non-capital activities (CARES Act fund)	35.0	—	35.0	100.0%
Net cash provided / (used in) capital and related financing activities	1.6	(372.1)	373.7	(100.4%)
Net cash provided / (used in) investing activities	(151.8)	76.9	(228.7)	(297.4%)
Net increase in cash and cash equivalents	210.5	77.8	132.7	170.6%
Cash and cash equivalents, beginning of year	290.3	212.6	77.7	36.5%
Cash and cash equivalents, end of year	**$ 500.8**	**$ 290.3**	**$ 210.5**	**72.5%**

The Authority's cash and cash equivalents at June 30, 2021 were $455.5 million, a decrease of $45.3 million or 9.0% from the prior year. The Authority generated $207.2 million in cash during FY21 primarily from business activity at Logan Airport and the Port of Boston. In addition, the Authority received $98.0 million of federal CARES and CRRSA Act funds as a result of the COVID-19 public health emergency. The Authority used $149.5 million in cash for capital and related financing activities to finance the Authority's capital program and to pay debt service expenses during the year. The Authority also invested $201.0 million in cash for future operating and capital payments.

The Authority's cash and cash equivalents at June 30, 2020 was $500.8 million, an increase of $210.5 million or 72.5% compared to the prior year. The Authority generated $325.7 million in cash during FY20 primarily from business activity at Logan Airport and the Port of Boston. In addition, the Authority received $35.0 million of federal CARES Act funds as a result of the COVID-19 public health emergency. The Authority provided $1.6 million in cash for capital and related financing activities to finance the Authority's capital program and to pay debt service expenses during the year. Finally, the Authority also invested $151.8 million in cash for future operating and capital payments.

Contacting the Authority's Financial Management

For additional information concerning the Authority and the Retirement System, please see the Authority's website, www.massport.com. Financial information can be found by clicking on "Finance". The Authority's executive offices are located at One Harborside Drive, Suite 200S, East Boston, Massachusetts 02128, and the main telephone number is (617) 568-5000. Questions may be directed to John P. Pranckevicius, CPA, Director of Administration and Finance, and Secretary-Treasurer for the Massachusetts Port Authority.

MASSACHUSETTS PORT AUTHORITY

Statements of Net Position

Proprietary Fund Type – Enterprise Fund

June 30, 2021 and 2020

(In thousands)

	2021	2020
Current assets:		
Cash and cash equivalents	$ 181,240	$ 82,623
Investments	164,363	142,427
Restricted cash and cash equivalents	274,238	418,182
Restricted investments	557,699	475,577
Accounts receivable		
Trade, net	82,314	74,404
Grants receivable	53,312	39,229
Total receivables (net)	135,626	113,633
Prepaid expenses and other assets	8,622	10,349
Total current assets	1,321,788	1,242,791
Noncurrent assets:		
Investments	271,229	254,683
Restricted investments	414,405	325,531
Accounts receivable, long-term	16,420	—
Prepaid expenses and other assets	6,667	6,422
Investment in joint venture	2,838	3,147
Net pension asset	29,167	—
Capital assets-not being depreciated	1,010,591	730,469
Capital assets-being depreciated-net	3,095,286	3,232,641
Total noncurrent assets	4,846,603	4,552,893
Total assets	6,168,391	5,795,684
Deferred outflows of resources		
Deferred loss on refunding of bonds	11,801	13,304
Deferred outflows of resources related to pensions	30,957	9,712
Deferred outflows of resources related to OPEB	24,489	17,254
Total deferred outflows of resources	67,247	40,270
Current liabilities:		
Accounts payable and accrued expenses	192,972	231,852
Compensated absences	1,140	1,462
Contract retainage	7,179	11,007
Current portion of long term debt	26,568	78,178
Commercial notes payable	22,000	22,000
Accrued interest on bonds payable	53,260	53,913
Unearned revenues	6,749	5,462
Total current liabilities	309,868	403,874
Noncurrent liabilities:		
Accrued expenses	11,454	10,025
Compensated absences	14,578	18,698
Net pension liability	—	18,785
Net OPEB liability	64,562	108,287
Contract retainage	11,690	10,233
Long-term notes payable	258,000	330,500
Long-term debt, net	2,744,880	2,279,530
Unearned revenues	26,941	27,730
Total noncurrent liabilities	3,132,105	2,803,788
Total liabilities	3,441,973	3,207,662
Deferred inflows of resources		
Deferred gain on refunding of bonds	25,864	9,847
Deferred inflows of resources related to pensions	83,912	47,935
Deferred inflows of resources related to OPEB	60,495	30,162
Total deferred inflows of resources	170,271	87,944
Net position		
Net investment in capital assets	1,351,090	1,548,630
Restricted		
Bond funds	224,209	259,893
Project funds	423,022	328,897
Passenger facility charges	72,351	51,577
Customer facility charges	37,961	39,869
Other purposes	28,251	34,416
Total restricted	785,794	714,652
Unrestricted	486,510	277,066
Total net position	$ 2,623,394	$ 2,540,348

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

MASSACHUSETTS PORT AUTHORITY

Statements of Revenues, Expenses, and Changes in Net Position

Proprietary Fund Type – Enterprise Fund

Years ended June 30, 2021 and 2020

(In thousands)

	2021	2020
Operating revenues:		
Aviation rentals	$ 270,643	$ 275,271
Aviation parking	58,213	136,951
Aviation shuttle bus	8,084	17,013
Aviation fees	141,535	139,239
Aviation concessions	58,368	111,130
Aviation operating grants and other	1,759	2,762
Maritime fees, rentals and other	80,107	92,952
Real estate fees, rents and other	38,013	49,196
Total operating revenues	656,722	824,514
Operating expenses:		
Aviation operations and maintenance	252,482	295,748
Maritime operations and maintenance	54,747	61,089
Real estate operations and maintenance	14,338	14,971
General and administrative	56,196	68,083
Payments in lieu of taxes	22,247	21,030
Pension and other post-employment benefits	(9,764)	36,058
Other	13,777	9,684
Total operating expenses before depreciation and amortization	404,023	506,663
Depreciation and amortization	307,583	299,334
Total operating expenses	711,606	805,997
Operating income /(loss)	(54,884)	18,517
Nonoperating revenues and (expenses):		
Passenger facility charges	27,948	59,875
Customer facility charges	11,657	25,884
Investment income	15,521	35,931
Net increase (decrease) in the fair value of investments	(6,997)	8,207
Other revenues	126,492	65,252
Settlement of claims	2	(22)
Other expenses	(429)	(187)
Gain on sale of equipment / property	(41)	264
Interest expense	(98,146)	(109,441)
Total nonoperating revenues, net	76,007	85,763
Increase in net position before capital contributions	21,123	104,280
Capital contributions	61,923	59,899
Increase in net position	83,046	164,179
Net position, beginning of year	2,540,348	2,376,169
Net position, end of year	$ 2,623,394	$ 2,540,348

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

MASSACHUSETTS PORT AUTHORITY
Statements of Cash Flows
Proprietary Fund Type – Enterprise Fund
Years ended June 30, 2021 and 2020
(In thousands)

	2021	2020
Cash flows from operating activities:		
Cash received from customers and operating grants	$ 644,098	$ 822,280
Payments to vendors	(230,774)	(284,813)
Payments to employees	(163,437)	(176,426)
Payments in lieu of taxes	(22,247)	(22,030)
Other post-employment benefits	(20,447)	(13,341)
Net cash provided by operating activities	207,193	325,670
Cash flows from noncapital financing activities:		
Cash received from CARES Act Airport Relief fund	98,046	34,958
Net cash provided by noncapital financing activities	98,046	34,958
Cash flows from capital and related financing activities:		
Acquisition and construction of capital assets	(515,906)	(491,978)
Proceeds from Bosfuel project contribution	5,002	7,579
Proceeds from the issuance of bonds and notes	821,337	833,347
Principal payments on refunded debt	(298,730)	(239,640)
Interest paid on bonds and notes	(123,892)	(119,503)
Principal payments on long-term debt	(139,345)	(57,525)
Proceeds from commercial paper financing	22,000	—
Principal payments on commercial paper	(22,000)	(82,000)
Proceeds from passenger facility charges	20,718	72,140
Proceeds from customer facility charges	10,302	28,617
Proceeds from capital contributions	70,838	49,653
Settlement of claims	2	648
Proceeds from sale of equipment	63	282
Net cash used in capital and related financing activities	(149,611)	1,620
Cash flows from investing activities:		
Purchases of investments	(1,141,491)	(1,562,646)
Sales of investments	921,139	1,373,589
Realized (loss)/gain on sale of investments	(11)	223
Interest received on investments	19,406	37,049
Net cash used in investing activities	(200,957)	(151,785)
Net increase (decrease) in cash and cash equivalents	(45,329)	210,463
Cash and cash equivalents, beginning of year	500,807	290,344
Cash and cash equivalents, end of year	$ 455,478	$ 500,807
Reconciliation of operating income (loss) to net cash provided by operating activities:		
Cash flows from operating activities:		
Operating income (loss)	$ (54,884)	$ 18,517
Adjustments to reconcile operating income (loss) to net cash provided by operating activities:		
Depreciation and amortization	307,583	299,334
Provision for uncollectible accounts	4,656	1,056
Changes in operating assets and liabilities:		
Trade receivables	(20,284)	(3,022)
Prepaid expenses and other assets	3,338	3,107
Accounts payable and accrued expenses	24,575	(7,422)
Net pension liability and deferred inflows/outflows	(33,221)	1,433
Net OPEB liability and deferred inflows/outflows	(20,625)	6,869
Compensated absences	(4,442)	2,243
Unearned revenue	497	3,555
Net cash provided by operating activities	$ 207,193	$ 325,670
Noncash investing activities:		
Net increase in the fair value of investments	$ 2,313	$ 9,300

MASSACHUSETTS PORT AUTHORITY
Statements of Fiduciary Net Position
Fiduciary Funds
June 30, 2021 and 2020
(in thousands)

	Pension and Retiree Benefit Trust Funds	
	2021	**2020**
Assets:		
Cash and cash equivalents	$ 1,017	$ 6,216
Investments, at fair value:		
Common stocks	15,638	19,900
Commingled funds:		
Domestic equity	331,330	271,301
Fixed income	298,520	289,775
International equity	298,748	252,520
Real estate	78,748	73,331
Private Equity	63,494	47,631
Total investments, at fair value	1,086,478	954,458
Receivables:		
Plan member contributions	292	650
Employer contributions	7,321	—
Accrued interest and dividends	19	19
Other state retirement plans	1,537	1,482
Receivable for securities sold	21	135
Other	32	55
Total receivables	9,222	2,341
Total assets	1,096,717	963,015
Liabilities:		
Payables to other state retirement plans	679	623
Payable for securities purchased	—	43
Other payables	749	2,709
Total liabilities	1,428	3,375
Net position:		
Restricted for:		
Pensions	819,159	716,201
Postemployment benefits other than pensions	276,130	243,439
Total net position	$ 1,095,289	$ 959,640

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

MASSACHUSETTS PORT AUTHORITY

Statements of Change in Fiduciary Net Position
Fiduciary Fund
Years ended June 30, 2021 and 2020
(in thousands)

	Pension and Retiree Benefit Trust Funds 2021	Pension and Retiree Benefit Trust Funds 2020
Additions:		
Contributions:		
Plan members	$ 13,419	$ 12,733
Plan sponsor	23,536	20,923
Total contributions	36,955	33,656
Intergovernmental:		
Transfers from other state retirement plans	173	2,396
Section 3(8)(c) transfers, net	1,200	827
Net intergovernmental	1,373	3,223
Investment earnings:		
Interest and dividends	15,695	16,871
Net appreciation in fair value of investments	136,472	119,798
Less management and related fees	(2,795)	(2,819)
Net investment earnings	149,372	133,850
Total additions	187,700	170,729
Deductions:		
Retirement benefits	48,976	41,618
Withdrawals by inactive members	1,047	533
Transfers to other state retirement plans	653	412
Administrative expenses	1,375	1,351
Total deductions	52,051	43,914
Net increase in fiduciary net position	135,649	126,815
Net position - beginning of year	959,640	832,825
Net position - end of year	$ 1,095,289	$ 959,640

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

1. Summary of Significant Accounting Policies and Practices

Reporting Entity

The Massachusetts Port Authority (the "Authority") is a body politic and corporate and a public instrumentality of The Commonwealth of Massachusetts (the "Commonwealth") created and existing pursuant to Chapter 465 of the Acts of 1956, as amended, (the "Enabling Act"). The Authority controls, operates and manages Boston-Logan International Airport ("Logan Airport"), Laurence G. Hanscom Field, Worcester Regional Airport, the Port of Boston and other facilities in the Port of Boston.

The Authority has no stockholders or equity holders, and the Authority's financial statements are not a component unit of the Commonwealth's financial statements. The provisions of the Enabling Act and the Trust Agreement, dated as of August 1, 1978 as amended and supplemented (the "1978 Trust Agreement"), between the Authority and U.S. Bank National Association (as successor in interest to State Street Bank and Trust Company), as trustee (the "Trustee"), the Passenger Facility Charges ("PFC") Depositary Agreement dated July 3, 2017 (the "PFC Depositary Agreement"), between the Authority and The Bank of New York Mellon, as custodian (the "PFC Custodian")", and the Customer Facility Charges ("CFC") Revenue Bond Trust Agreement dated May 18, 2011, as amended and supplemented (the "CFC Trust Agreement"), between the Authority and U.S. Bank National Association, as trustee (the "CFC Trustee"), govern all funds, with limited exceptions, received by the Authority pursuant to the Enabling Act.

In April 1981, the Authority adopted a retiree benefit plan whereby the Authority assumed the full cost of group health insurance including basic life insurance, dental insurance and catastrophic illness coverage to those retirees and surviving spouses (and qualifying dependents) who have retired under the Authority's retirement system (collectively referred to as the "OPEB Plan"). In June 2009 and May 2016, the Members of the Authority (the "Board") made changes to the plan benefits to be paid by the Authority for certain existing and future retirees. For additional details, see Note 7.

In June 2008, the Authority created the Retiree Benefits Trust (the "RBT" or the "Trust") to fund its OPEB Plan obligations. It was established as an irrevocable governmental trust under Section 115 of the Internal Revenue Code. In no event shall any part of the principal or income of the RBT be paid or revert back to the Authority or be used for any purpose whatsoever other than for the exclusive benefit of retirees and their beneficiaries.

Basis of Accounting

The Authority's business-type activities are accounted in a manner similar to that often utilized in the private sector. The Authority's financial statements are presented in the form of a business-type activity related to owning and operating the airports and other facilities in the Port of Boston and fiduciary activities related to a pension and retiree benefits trust fund. The Authority's financial statements are prepared using the accrual basis of accounting and the economic resources measurement focus in accordance with U.S. generally accepted accounting principles ("GAAP").

Revenues from airlines, rentals, parking fees, tolls and concessions are reported as operating revenues. Capital contributions, PFCs, CFCs and financing or investing related transactions are reported as non-operating revenues and expenses. All expenses related to operating the Authority's facilities are reported as operating expenses.

Accounting per Applicable Trust Agreements

Under the 1978 Trust Agreement, cash of the Authority is deposited daily into the Revenue Fund established pursuant to the 1978 Trust Agreement and is transferred to the cash concentration account. All such revenues are then transferred to the various funds established pursuant to the 1978 Trust Agreement. After providing for operating expenses, including pension expense and transfers to the self-insurance account, cash revenues are then transferred to the Bond Service Account, to be applied to debt service on any outstanding revenue bonds, the Maintenance Reserve Fund, the Payment In Lieu of Taxes Fund, the Capital Budget Fund, if applicable, and finally, the Improvement and Extension Fund.

CFC revenue is deposited in the CFC Revenue Fund established pursuant to the CFC Trust Agreement and is utilized to pay debt service on CFC Special Facilities Bonds as required in the CFC Trust Agreement. Any remaining funds are transferred to the CFC Stabilization Fund.

See Note 2 for a reconciliation between the increase in net position as calculated per GAAP and net revenues as calculated per accounting practices prescribed by the 1978 Trust Agreement.

a) Net Position

The Authority follows the "business type" activity requirements of GASB Statement No. 34, *Basic Financial Statements and Management's Discussion and Analysis for State and Local Governments*, as amended, which requires that resources be classified for accounting and reporting purposes into the following three business-type activity net position components:

- Net investment in capital assets: Capital assets, net of accumulated depreciation and outstanding principal balances of debt and the deferred outflows / inflows of resources attributable to the acquisition, construction or improvement of those assets.

- Restricted: Net position of assets whose use by the Authority is subject to externally imposed stipulations that can be fulfilled by actions of the Authority pursuant to those stipulations or that expire by the passage of time. Such assets include the construction funds held pursuant to the 1978 Trust Agreement, the PFC Depositary Agreement, the CFC Trust Agreement and the self-insurance fund.

- Unrestricted: Net position of assets that are not subject to externally imposed stipulations. Net amounts of assets, deferred outflows of resources, liabilities and deferred inflows of resources not included in the determination of net investment in capital assets or restricted components of net position. Unrestricted net position may be designated for specific purposes by action of management or the Board or may otherwise be limited by contractual agreements with outside parties. When both restricted and unrestricted resources are available for a particular restricted use, it is the Authority's policy to use restricted resources first, and then unrestricted resources as needed.

b) Deferred outflows/inflows of resources

In addition to assets, the Statement of Net Position reports a separate section for deferred outflows of resources, which represents a consumption of net position that applies to a future period and will be recognized as an outflow of resources (expense) in a future period. At June 30, 2021 and 2020, the Authority recognized deferred outflows for debt refundings, the pension plan, and other post-employment benefits (OPEB).

In addition to liabilities, the Statement of Net Position reports a separate section for deferred inflows of resources, which represents an acquisition of net position that applies to a future period and will be recognized as an inflow of resources (revenue) in a future period. At June 30, 2021 and 2020, the Authority recognized deferred inflows for debt refundings, the pension plan, and other post-employment benefits (OPEB).

Deferred outflows and inflows of resources for debt refundings are amortized over the shorter maturity of the refunded or the refunding debt. The pension and OPEB deferred inflows and outflows related to the difference between expected and actual experience and changes in assumptions are recognized in pension and OPEB expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pension and OPEB through the plans. The pension and OPEB deferred inflows and outflows related to the difference between projected and actual earnings are recognized in pension and OPEB expense using a systematic and rational method over a closed five-year period.

c) Cash and Cash Equivalents

For purposes of the statements of cash flows, the Authority considers all highly liquid investments, including restricted assets, with an original maturity date of 30 days or less to be cash equivalents.

d) Investments

Investments with a maturity greater than one year are recorded at fair value with all investment income, including changes in the fair value of investments, reported as investment income in the financial statements. Investments with a maturity date of less than one year are carried at amortized cost, which approximates fair value. Nonparticipating interest earning contracts, including certificates of deposit and guarantees investment contracts, are carried at cost. Fair value is determined based on quoted market prices. The Authority recorded in investment income an unrealized decrease in the fair value of investments of $7.0 million and a realized gain of $0.01 million at June 30, 2021 and an unrealized increase in the fair value of investments of $8.0 million and a realized gain of $0.2 million at June 30, 2020.

e) *Restricted Cash and Investments*

Certain cash, cash equivalents and investments are restricted for use by the 1978 Trust Agreement, the PFC Depositary Agreement, the CFC Trust Agreement, and other external requirements. These amounts have been designated primarily for expenditures related to future construction or asset acquisitions, debt service and debt service reserves.

f) *Capital Assets*

Capital assets are recorded at cost and include land, land improvements, buildings, machinery and equipment, runways, roadways and other paving and non-maintenance dredging. Such costs include, where appropriate, capitalized interest and related legal costs. The costs of normal upkeep, maintenance, maintenance dredging and repairs are not capitalized.

The capitalization threshold is noted below:

Asset Category		Dollar Threshold
Buildings	$	10,000
Machinery & Equipment		5,000
Equipment Repair/Overhaul (Major)		25,000
Runway, Roadways & Other Paving		50,000
Land Improvements		50,000

g) *Depreciation*

The Authority provides for depreciation using the straight-line method. Assets placed in service are depreciated for the full year. Depreciation is intended to distribute the cost of depreciable properties over the following estimated useful lives:

Asset Category	Years
Buildings	25
Air rights	10 to 25
Runways (original construction)	25
Other airfield paving	12
Roadway	25
Roadway-landscaping	10
Dredging	15
Machinery and equipment	5 to 10
Land use rights	30

h) Other Assets and Prepaid Items

Other assets consist of certain payments to vendors reflecting costs applicable to future accounting periods and are recorded as prepaid items in the financial statements.

i) Amortization

Revenue bond premiums and discounts are deferred and amortized on a straight-line basis over the term of the bonds, as this approximates the effective interest method. Unamortized amounts are presented as a (reduction) addition of the face amount of bonds payable.

The difference between the reacquisition price and net carrying amount of defeased bonds is amortized on the straight-line method over the shorter of the maturity of the new debt or the defeased debt and is recorded as deferred inflows/outflows of resources on the statement of net position.

j) Revenue Recognition

Fees and other services consist of parking fees, landing fees, and container handling fees. Revenues from parking fees and container handling fees are recognized at the time the service is provided. Landing fees are recognized as part of operating revenue when airline related facilities are utilized and are principally based on the landed weight of the aircraft. The scheduled airline fee structure is determined and approved annually by the Board and is based on full cost recovery pursuant to an arrangement between the Authority and the respective airlines.

Rental and concession fees are generated from airlines, rental car companies, and other commercial tenants. Rental revenue on leases is recognized over the term of the associated lease. Concession revenue is recognized partially based on self-reported concession revenue by the tenants and partially based on minimum rental rates. Unearned revenue consists primarily of amounts received in advance for future rents or other services. These amounts are recognized as revenue as they are earned over the applicable period.

Rates and charges are set annually based on the budgeted operating costs and actual capital costs. A true-up calculation is performed for landing fees, terminal rents, and baggage fees at year-end based on the actual results. In the event the actual costs are more than the budgeted amounts for the year, the Authority will recover additional rates and charges. In the event the actual costs are less than the budgeted amounts, the Authority will issue credits to the respective airlines.

The Authority presents its accounts receivable at the expected net realizable value. Accordingly, the Authority has recorded an allowance for doubtful accounts against its accounts receivable of $7.2 million and $6.9 million at June 30, 2021 and 2020, respectively.

k) *Passenger Facility Charges*

In 1993, the Authority received initial approval from the Federal Aviation Administration ("FAA") to impose a $3.00 PFC be collected from every eligible passenger at Logan Airport. PFCs collected by the Authority can be used for capital projects determined by the FAA to be eligible in accordance with the Aviation Safety and Capacity Expansion Act of 1990. Effective October 1, 2005, the Authority received approval from the FAA to increase the PFC collection to $4.50. All PFC's collected by the Authority are deposited under the PFC Depositary Agreement with the PFC Custodian.

Through June 30, 2021, the Authority had cumulative PFC cash collections of $1,383.0 million, including interest thereon.

As part of the Final Agency Decision issued by the FAA in 2011, the Authority was authorized, but not required, to use up to $14.4 million per year in PFCs to pay approximately one-third of the debt service on its Terminal A Special Facility Bonds (the "Terminal A Bonds"). The Authority chose to make this use of PFC revenue in order to offset the increase in Terminal A rates and charges that would have resulted from the scheduled increase in Terminal A debt service associated with the beginning of principal payments on January 1, 2012 through January 1, 2019 for the Terminal A Bonds. This use of PFCs maintained a consistent rate across all terminals and facilitated the Authority's ability to assign carriers to Terminal A. On February 13, 2019, the Authority issued its Series 2019 A Bonds to refund all of the outstanding Terminal A Bonds to achieve significant interest rate savings compared to the rates on the Terminal A Bonds.

Pursuant to the 1978 Trust Agreement, commencing in fiscal year 2020, the Authority is authorized to approve a resolution or resolutions that designate specified PFC revenues as Available Funds, and, to the extent approved by the FAA, such amount would then be used to pay debt service on specific Series of Bonds. The Authority expects, to the extent approved by the FAA, to designate in each annual budget certain PFCs as Available Funds to pay a portion of the debt service on certain outstanding Series of Bonds.

At June 30, 2021, the Authority's collection authorization and total use approval is $2.46 billion.

Revenues derived from the collection of PFCs are recognized on the accrual basis, based on the month the charges were levied and collected by the airlines. Due to their restricted use, PFCs are categorized as non-operating revenues. The Authority recognized $27.9

million and $59.9 million in PFC revenue for the fiscal years ended June 30, 2021 and 2020, respectively.

l) Customer Facility Charges

Effective December 1, 2008, the Board established a CFC of $4.00 per transaction day for rental cars which originated out of Logan Airport. Effective December 1, 2009, this charge was increased to $6.00 per transaction day. The proceeds of the CFC are being used to finance and maintain the Rental Car Center (the “RCC”) and associated bus purchases. Revenues derived from the collection of CFCs are recognized on the accrual basis, based on the month the charges were levied and collected by the rental car companies. Due to their restricted use, CFCs are categorized as non-operating revenues. Pursuant to the CFC Trust Agreement, the Authority issued two series of Special Facilities Revenue Bonds in June 2011 (the “Series 2011 Bonds”). The Series 2011 Bonds were issued for the purpose of providing funds sufficient, together with other available funds of the Authority, to finance the development and construction of the RCC and related improvements at Logan Airport, fund certain deposits to the Debt Service Reserve Fund and the Supplemental Reserve Fund, and pay certain costs of issuance of the Series 2011 Bonds. The Series 2011 Bonds and any additional bonds that may be issued under the CFC Trust Agreement on parity with the Series 2011 Bonds are secured by CFC Pledged Revenues and by Contingent Rent, if any, payable by the rental car companies and other funds. The Series 2011 Bonds are not secured by any other revenues of the Authority. For additional information on the Series 2011 Bonds, see Note 5.

The Authority recognized $11.7 million and $25.9 million in CFC revenue for the fiscal years ended June 30, 2021 and 2020, respectively.

As of June 30, 2021 and 2020, $120.3 million and $124.4 million of CFC bonds were outstanding, respectively.

m) Capital Contributions

The Authority receives capital contributions from various federal agencies and the Commonwealth in support of specific operational programs and its Capital Program. Grant revenues are recognized as related expenditures are incurred and all eligibility requirements are met. Grants for capital asset acquisition, facility development, runway/ airfield rehabilitation and long-term planning are reported as capital contributions. Capital contributions are reported in the Statement of Revenues, Expenses and Changes in Net Position after non-operating revenues and expenses and their use is restricted. In fiscal years 2021 and 2020, the Authority recognized $61.9 million and $59.9 million of capital contributions, respectively. The 2021 and the 2020 capital contributions were generated primarily from reimbursements under the FAA AIP grant program, the Nationally Significant Freight and Highway Project Program – Fastlane, and The Commonwealth of Massachusetts Department of Transportation for the Conley Terminal Berth 10 project.

n) Compensated Absences

The Authority accrues for vacation and sick pay liabilities when they are earned by the employee. The liability for vested vacation and sick pay is reflected in the accompanying statements of net position as compensated absences. The current portion of compensated absences at June 30, 2021 and 2020 was $1.1 million and $1.5 million, respectively. The table below presents the Authority's compensated absences activity at June 30, 2021 and 2020 and for the years then ended (in thousands):

		2021		2020
Liability balance, beginning of year	$	20,160	$	17,917
Vacation and sick pay earned during the year		15,980		17,921
Vacation and sick pay used during the year		(20,422)		(15,678)
Liability balance, end of year	$	15,718	$	20,160

o) Pensions

For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the Massachusetts Port Authority Employees Retirement System (the "Plan") and additions to/deductions from Plan's fiduciary net position have been determined on the same basis as they are reported by the Plan. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value. For additional information on the Plan, see Note 6.

p) Postemployment Benefits Other Than Pensions (OPEB)

For purposes of measuring the net OPEB liability, deferred outflows of resources and deferred inflows of resources related to OPEB, and OPEB expense, information about the fiduciary net position of the Massachusetts Port Authority Retiree Benefits Trust (the "Trust") and additions to/deductions from the Trust's fiduciary net position have been determined on the same basis as they are reported by the Trust. For this purpose, the Trust recognizes benefit payments when due and payable in accordance with the benefit terms. Investments are reported at fair value. For additional information on OPEB, see Note 7.

q) *Type of Fiduciary Fund*

Pension and Other Employee Benefits Trust Funds report resources that are required to be held in trust for the members and beneficiaries of the Authority's defined benefit retirement plan and OPEB plan. Information reported for the plans was obtained from the audited financial statements prepared by each of the plans. The financial information obtained from the defined benefit retirement plan was for the years ended December 31, 2020 and 2019. The financial information obtained from the OPEB plans was for the year ended December 31, 2020 and six months ended December 30, 2019. Effective January 1, 2020, the OPEB plan changed its year end from June 30 to December 31. These plans are considered fiduciary component units of the Authority and reported as fiduciary funds.

r) *Use of Estimates*

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

s) *New Accounting Pronouncements Recently Adopted*

GASB Statement No. 84, *Fiduciary Activities,* was issued in January 2017. The primary objective of this statement is to improve guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. This statement establishes criteria for identifying fiduciary activities of all state and local governments. The focus of the criteria generally is on (1) whether a government is controlling the assets of the fiduciary activity and (2) the beneficiaries with whom a fiduciary relationship exists. Separate criteria are included to identify fiduciary component units and postemployment benefit arrangements that are fiduciary activities.

This statement describes four fiduciary funds that should be reported, if applicable: (1) pension (and other employee benefit) trust funds, (2) investment trust funds, (3) private-purpose trust funds, and (4) custodial funds. Custodial funds generally should report fiduciary activities that are not held in a trust or equivalent arrangement that meets specific criteria. The Authority adopted this statement on July 1, 2019. As of July 1, 2019, the Authority identified the Pension and Other Employee Benefits Trust Funds as fiduciary activities. The cumulative effect of adopting this statement was the establishment of beginning fiduciary net position of approximately $0.960 million.

GASB Statement No. 90*, Majority Equity Interests – An Amendment of GASB Statements No. 14 and No. 61,* was issued in August 2018. The primary objectives of this statement are to improve the consistency and comparability of reporting a government's majority equity interest in a legally separate organization and to improve the relevance of financial statement information for certain component units. It defines a majority equity interest and specifies that a majority equity interest in a legally separate organization should be reported as an investment if a government's holding of the equity interest meets the definition of an investment. A majority equity interest that meets the definition of an investment should be measured using the equity method, unless it is held by a special-purpose government engaged only in fiduciary activities, a fiduciary fund, or an endowment (including permanent and term endowments) or permanent fund. Those governments and funds should measure the majority equity interest at fair value.

For all other holdings of a majority equity interest in a legally separate organization, a government should report the legally separate organization as a component unit, and the government or fund that holds the equity interest should report an asset related to the majority equity interest using the equity method. This statement establishes that ownership of a majority equity interest in a legally separate organization results in the government being financially accountable for the legally separate organization and, therefore, the government should report that organization as a component unit.

This statement also requires that a component unit in which a government has a 100 percent equity interest account for its assets, deferred outflows of resources, liabilities, and deferred inflows of resources at acquisition value at the date the government acquired a 100 percent equity interest in the component unit. Transactions presented in flows statements of the component unit in that circumstance should include only transactions that occurred subsequent to the acquisition.

The statement, as amended by GASB 95, is effective for reporting periods beginning after December 15, 2019. The adoption of this statement did not have an impact on the financial statements.

t) Accounting Pronouncements Issued But Not Yet Adopted

GASB Statement No. 87, *Leases*, was issued in June 2017. The primary objective of this statement is to better meet the information needs of financial statement users by improving accounting and financial reporting for leases by governments. This statement increases the usefulness of governments' financial statements by requiring recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this statement, a lease is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources, thereby enhancing the relevance and consistency of information about governments' leasing activities.

The statement, as amended by GASB 95, is effective for fiscal years beginning after June 15, 2021 and all reporting periods thereafter. The Authority is in the process of evaluating the impact of its adoption on the financial statements.

GASB Statement No. 91*, Conduit Debt Obligations,* was issued in May 2019. The primary objectives of this statement are to provide a single method of reporting conduit debt obligations by issuers and eliminate diversity in practice associated with (1) commitments extended by issuers, (2) arrangements associated with conduit debt obligations, and (3) related note disclosures. This statement achieves those objectives by clarifying the existing definition of a conduit debt obligation; establishing that a conduit debt obligation is not a liability of the issuer; establishing standards for accounting and financial reporting of additional commitments and voluntary commitments extended by issuers and arrangements associated with conduit debt obligations; and improving required note disclosures.

This statement, as amended by GASB 95, is effective for reporting periods beginning after December 15, 2021. The Authority is in the process of evaluating the impact of its adoption on the financial statements.

GASB Statement No. 92*, Omnibus 2020,* was issued in January 2020. The objectives of this statement are to enhance comparability in accounting and financial reporting and to improve the consistency of authoritative literature by addressing practice issues that have been identified during implementation and application of certain GASB Statements. This statement addresses a variety of topics and includes specific provisions about the following:

- The effective date of Statement No. 87, *Leases,* and Implementation Guide No. 2019-3, *Leases,* for interim financial reports
- Reporting of intra-entity transfers of assets between a primary government employer and a component unit defined benefit pension plan or defined benefit other postemployment benefit (OPEB) plan
- The applicability of Statements No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68,* as amended, and No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans,* as amended, to reporting assets accumulated for postemployment benefits
- The applicability of certain requirements of Statement No. 84, *Fiduciary Activities,* to postemployment benefit arrangements
- Measurement of liabilities (and assets, if any) related to asset retirement obligations (AROs) in a government acquisition
- Reporting by public entity risk pools for amounts that are recoverable from reinsurers or excess insurers
- Reference to nonrecurring fair value measurements of assets or liabilities in authoritative literature
- Terminology used to refer to derivative instruments.

The requirements related to the effective date of Statement 87 and Implementation Guide 2019-3, reinsurance recoveries, and terminology used to refer to derivative instruments are effective upon issuance. The requirements related to all other items, as amended by GASB 95, are effective for fiscal years or reporting periods beginning after June 15, 2021. The Authority is in the process of evaluating the impact of its adoption on the financial statements.

GASB Statement No. 93*, Replacement of Interbank Offered Rates,* was issued in March 2020. Some governments have entered into agreements in which variable payments made or received depend on an interbank offered rate (IBOR)—most notably, the London Interbank Offered Rate (LIBOR). As a result of global reference rate reform, LIBOR is expected to cease to exist in its current form at the end of 2021, prompting governments to amend or replace financial instruments for the purpose of replacing LIBOR with other reference rates, by either changing the reference rate or adding or changing fallback provisions related to the reference rate. The objective of this statement is to address those and other accounting and financial reporting implications that result from the replacement of an IBOR. The removal of LIBOR as an appropriate benchmark for a derivative instrument that hedges the interest rate risk of taxable debt is effective for reporting periods ending after December 31, 2021. Amendments to modify the provisions of lease contracts are effective for reporting periods beginning after June 15, 2021. All other requirements of this statement, as amended by GASB 95, are effective for reporting periods beginning after June 15, 2020. The Authority is in the process of evaluating the impact of its adoption of the remaining provisions on the financial statements.

GASB Statement No. 94*, Public-Private and Public-Public Partnerships and Availability Payment Arrangements,* was issued in March 2020. The primary objective of this statement is to improve financial reporting by addressing issues related to public-private and public-public partnership arrangements (PPPs). As used in this statement, a PPP is an arrangement in which a government (the transferor) contracts with an operator (a governmental or nongovernmental entity) to provide public services by conveying control of the right to operate or use a nonfinancial asset, such as infrastructure or other capital asset (the underlying PPP asset), for a period of time in an exchange or exchange-like transaction. Some PPPs meet the definition of a service concession arrangement (SCA), which is defined in this statement as a PPP in which (1) the operator collects and is compensated by fees from third parties; (2) the transferor determines or has the ability to modify or approve which services the operator is required to provide, to whom the operator is required to provide the services, and the prices or rates that can be charged for the services; and (3) the transferor is entitled to significant residual interest in the service utility of the underlying PPP asset at the end of the arrangement.

This statement also provides guidance for accounting and financial reporting for availability payment arrangements (APAs). As defined in this statement, an APA is an arrangement in which a government compensates an operator for services that may include designing, constructing, financing, maintaining, or operating an underlying nonfinancial asset for a period of time in an exchange or exchange-like transaction. The requirements of this statement are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter. The Authority is in the process of evaluating the impact of its adoption on the financial statements.

GASB Statement No. 96, *Subscription-Based Information Technology Arrangements*, was issued in May 2020. This statement provides guidance on the accounting and financial reporting for subscription-based information technology arrangements (SBITAs) for government end users (governments). This statement (1) defines a SBITA; (2) establishes that a SBITA results in a right-to-use subscription asset—an intangible asset—and a corresponding subscription liability; (3) provides the capitalization criteria for outlays other than subscription payments, including implementation costs of a SBITA; and (4) requires note disclosures regarding a SBITA. To the extent relevant, the standards for SBITAs are based on the standards established in Statement No. 87, *Leases*, as amended. The requirements of this statement are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter. The Authority is in the process of evaluating the impact of its adoption on the financial statements.

GASB Statement No. 97, *Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans—an amendment of GASB Statements No. 14 and No. 84, and a supersession of GASB Statement No. 32*, was issued in June 2020. This Statement requires that for purposes of determining whether a primary government is financially accountable for a potential component unit, except for a potential component unit that is a defined contribution pension plan, a defined contribution OPEB plan, or another employee benefit plan (for example, certain Section 457 plans), the absence of a governing board should be treated the same as the appointment of a voting majority of a governing board if the primary government performs the duties that a governing board typically would perform.

This statement also requires that the financial burden criterion in paragraph 7 of Statement No. 84, *Fiduciary Activities,* be applicable to only defined benefit pension plans and defined benefit OPEB plans that are administered through trusts that meet the criteria in paragraph 3 of Statement No. 67, *Financial Reporting for Pension Plans,* or paragraph 3 of Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans,* respectively.

This statement (1) requires that a Section 457 plan be classified as either a pension plan or another employee benefit plan depending on whether the plan meets the definition of a pension plan and (2) clarifies that Statement 84, as amended, should be applied to all arrangements organized under IRC Section 457 to determine whether those arrangements should be reported as fiduciary activities.

This statement supersedes the remaining provisions of Statement No. 32, *Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans,* as amended, regarding investment valuation requirements for Section 457 plans. As a result, investments of *all* Section 457 plans should be measured as of the end of the plan's reporting period in all circumstances.

The requirements of this statement that (1) exempt primary governments that perform the duties that a governing board typically performs from treating the absence of a governing board the same as the appointment of a voting majority of a governing board in determining whether they are financially accountable for defined contribution pension plans, defined contribution OPEB plans, or other employee benefit plans and (2) limit the applicability of the financial burden criterion in paragraph 7 of Statement 84 to defined benefit pension plans and defined benefit OPEB plans that are administered through trusts that meet the criteria in paragraph 3 of Statement 67 or paragraph 3 of Statement 74, respectively, are effective immediately.

The requirements of this statement that are related to the accounting and financial reporting for Section 457 plans are effective for fiscal years beginning after June 15, 2021. For purposes of determining whether a primary government is financially accountable for a potential component unit, the requirements of this statement that provide that for all other arrangements, the absence of a governing board be treated the same as the appointment of a voting majority of a governing board if the primary government performs the duties that a governing board typically would perform, are effective for reporting periods beginning after June 15, 2021. Earlier application of those requirements is encouraged and permitted by requirement as specified within this statement. The Authority is in the process of evaluating the impact of its adoption on the financial statements.

2. Reconciliation between increase in business-type activities net position as calculated under GAAP and net revenues as calculated under accounting practices prescribed by the 1978 Trust Agreement

Presented below are the calculations of the net revenues of the Authority under the 1978 Trust Agreement. Net revenue calculated based on the 1978 Trust Agreement is used in determining the Authority's compliance with the debt service coverage ratio (in thousands).

		2021		2020
Increase in Net Position per GAAP	$	83,046	$	164,179
Additions:				
Depreciation and amortization		307,583		299,334
Interest expense		98,146		109,441
Payments in lieu of taxes		22,247		21,030
Other operating expenses		5,925		(3,128)
Adjustment for uncollectible accounts		2,255		(1,122)
OPEB expenses, net		(14,518)		4,799
Pension expense		(25,900)		1,434
Less:				
Passenger facility charges		(27,948)		(59,875)
Customer facility charges		(11,657)		(25,884)
Self insurance expenses		1,423		(237)
Capital grant revenue		(61,923)		(59,899)
Net decrease (increase) in the fair value of investments		6,997		(8,207)
Loss (gain) on sale of equipment		41		(264)
Settlement of claims		(2)		22
Other (revenues) expenses		(2,847)		(1,739)
Other non-operating revenues		(4,936)		(7,988)
Investment income		(5,125)		(12,537)
Net Revenue per the 1978 Trust Agreement	$	372,807	$	419,359

Total net revenues, as defined by the 1978 Trust Agreement, pledged for the repayment of bonds issued under the 1978 Trust Agreement were $372.8 million and $419.4 million for the years ended June 30, 2021 and 2020, respectively.

3. Deposits and Investments

Enterprise Fund:

The Authority's investments are made in accordance with the provisions of the 1978 Trust Agreement, the PFC Depositary Agreement and the CFC Trust Agreement along with the investment policy adopted by the Board (the "Investment Policy"). The goals of the Investment Policy are, in order of importance, to preserve capital, to provide liquidity and to generate interest income.

As of June 30, 2021 and 2020, all investments were held on behalf of the Authority by the Trustee, the PFC Custodian, the CFC Trustee or custodians in the Authority's name. The 1978 Trust Agreement, the PFC Depositary Agreement and the CFC Trust Agreement require that securities collateralizing repurchase agreements must continuously have a fair value at least equal to the cost of the agreement plus accrued interest.

The Authority's structured investments are in the form of a guaranteed investment contract ("GIC") and are fully collateralized. These investments provide for scheduled principal payments equaling the interest rate previously agreed to between the Authority and the provider of the guaranteed investment contract.

The total accumulated unrealized gain due to the changes in fair value of investments related to investments with maturities in excess of one year was a gain of approximately $2.3 million as of June 30, 2021 and a gain of approximately $9.3 million as of June 30, 2020.

The following summarizes the Authority's cash and cash equivalents and investments by type held at June 30, 2021 and 2020 (in thousands):

MASSACHUSETTS PORT AUTHORITY

Notes to Financial Statements

June 30, 2021 and 2020

2021	Credit Rating (1)		Cost		Fair Value	Effective Duration
Massachusetts Municipal Depository Trust (6)	Unrated	$	367,792	$	367,792	0.003
Federal Home Loan Bank	AA+ / Aaa		84,426		84,022	1.764
Federally Deposit Insurance Corporation	Unrated (2)		1,000		1,000	0.003
Federal Home Loan Mortgage Corp.	AA+ / Aaa		73,336		72,488	1.792
Federal National Mortgage Association	AA+ / Aaa		69,082		68,763	1.691
Federal Farm Credit	AA+ / Aaa		20,004		19,922	1.230
Guaranteed Investment Contracts (GIC) (6)	AA+ / A1 (4)		50,529		50,529	7.945
Cash Deposit	Unrated		2,871		2,871	0.003
Certificates of Deposit	AAA / Aaa (3)		44,736		44,736	0.439
Commercial Paper	A-1/ P-1 (5)		584,367		584,367	0.410
Supranational	AAA / Aaa (5)		10,025		9,855	4.515
Government Fund-Morgan Stanley / Wells Fargo	AAA / Aaa (5)		50,185		50,185	0.003
Municipal Bond	AA / Aa2		226,740		228,747	2.574
Money Market Funds	Unrated		2,459		2,459	0.003
Insured Cash Sw eep	Unrated (2)		31,371		31,371	0.003
Corporate Bonds	AA- / Aa3 (7)		241,937		244,067	2.526
		$	1,860,860	$	1,863,174	

2020	Credit Rating (1)		Cost		Fair Value	Effective Duration
Massachusetts Municipal Depository Trust (6)	Unrated	$	415,161	$	415,161	0.003
Federal Home Loan Bank	AA+ / Aaa		16,096		16,125	1.512
Federally Deposit Insurance Corporation	Unrated (2)		1,000		1,000	0.003
Federal Home Loan Mortgage Corp.	AA+ / Aaa		151,266		151,341	1.353
Federal National Mortgage Association	AA+ / Aaa		16,710		16,736	1.224
Federal Farm Credit	AA+ / Aaa		22,554		22,619	1.411
Guaranteed Investment Contracts (GIC) (6)	AA+ / A1 (4)		48,536		48,536	8.260
Cash Deposit	Unrated		2,815		2,815	0.003
Certificates of Deposit	AAA / Aaa (3)		108,215		108,215	0.720
Commercial Paper	A-1/ P-1 (5)		231,472		231,472	0.279
Supranational	AAA / Aaa (5)		107,715		108,166	3.492
Government Fund-Morgan Stanley / Wells Fargo	AAA / Aaa (5)		43,279		43,279	0.003
Municipal Bond	AAA/ Aa1		186,506		189,795	1.950
Money Market Funds	Unrated		7,254		7,254	0.004
Insured Cash Sw eep	Unrated (2)		31,295		31,295	0.003
Corporate Bonds	AA- / Aa2 (7)		299,848		305,214	1.346
		$	1,689,722	$	1,699,023	

1. The ratings are from S&P or Moody's as of the fiscal year presented.
2. FDIC Insured Deposits Accounts.
3. Collateralized by Federal Agency Notes or Letter of Credit backed by each reserve.
4. Underlying rating of security held.
5. Credit quality of fund holdings.
6. MMDT and GIC are carried at cost, w hich approximates fair value in the tables.
7. The Authority ow ns a diverse portfolio of corporate bonds w ith S&P credit ratings ranging from BBB+ to AA+ and Moody's credit ratings ranging from Baa1 to Aaa.

The table below presents the Authority's cash and cash equivalents and investments based on maturity date (in thousands):

	2021		2020	
	Cost	Fair Value	Cost	Fair Value
Securities maturing in 1 year or more	$ 683,745	$ 685,634	$ 573,323	$ 580,214
Securities maturing in less than 1 year	721,637	722,062	615,594	618,004
Cash and cash equivalents	455,478	455,478	500,805	500,805
	$ 1,860,860	$ 1,863,174	$ 1,689,722	$ 1,699,023

a) *Credit Risk*

Credit risk is the risk that the Authority will be negatively impacted due to the default of the security issuer or investment counterparty.

The Authority's 1978 Trust Agreement, PFC Depositary Agreement and CFC Trust Agreement each stipulate that, in addition to U.S. Treasury and government agency obligations, only certain highly rated securities are eligible investments, including bonds or obligations of any state or political subdivision thereof, rated in the two highest rating categories without regard to gradations within rating categories, by both Moody's (AAA, Aa1, Aa2 and Aa3) and S&P (AAA, AA+, AA, and AA-); commercial paper of a U.S. corporation, finance company or money market funds rated in the highest rating category, without regard to gradations within categories, by both Moody's and S&P; and investment contracts with banks whose long-term unsecured debt rating is in one of the two highest rating categories by both Moody's and S&P. In addition, U.S. dollar denominated corporate bonds, notes or other debt obligations issued or guaranteed by a domestic or foreign corporation, financial institution, non-profit or other entity rated in one of the three highest rating categories, without regard to gradations within such categories by Moody's and S&P.

b) *Custodial Credit Risk – Deposits*

The custodial credit risk for deposits is the risk that in the event of a bank failure, the Authority's deposits may not be recovered. Bank deposits in excess of the insured amount are uninsured and uncollateralized.

The Authority maintains depository accounts with Bank of America, N.A., Wells Fargo Bank, N.A., TD Bank, N.A. and the PFC Custodian. The Authority maintains a payroll disbursement, lockbox and collection accounts (for other than PFCs) with Bank of America, N.A. None of these accounts are collateralized.

The Authority's cash on deposit in the banks noted above at June 30, 2021 and 2020 was $2.9 million and $2.8 million, respectively, and of these amounts, $250.0 thousand was insured in each year, and no amount was collateralized at June 30, 2021 or 2020.

c) Custodial Credit Risk – Investments

Custodial credit risk is the risk that, in the event of a failure of the counterparty, the Authority would not be able to recover the value of its investments or collateral securities that were in the possession of an outside party. Investment securities are exposed to custodial credit risk if they are uninsured or not registered in the name of the Authority and are held by either the counterparty or, the counterparty's trust department or agent, but not in the Authority's name.

The Authority is authorized by the 1978 Trust Agreement, the PFC Depositary Agreement, the CFC Trust Agreement and the Investment Policy to invest in obligations of the U.S. Treasury, including obligations of its agencies and instrumentalities, bonds and notes of public agencies or municipalities, bank time deposits, guaranteed investment contracts, money market accounts, commercial paper of a U.S. corporation or finance company and corporate bonds. All investments are held by a third party in the Authority's name. These investments are recorded at fair value.

Additionally, the Authority is authorized to invest in the Massachusetts Municipal Depository Trust ("MMDT"), a pooled money market like investment fund managed by The Commonwealth of Massachusetts, established under the General Laws, Chapter 29, Section 38A. MMDT investments are carried at amortized cost, which approximates fair value which is the same as the value of the pool. The Authority can purchase and sell its investments at any time without penalty.

The following guaranteed investment contracts were in place as of June 30, 2021 and 2020, respectively; they are uncollateralized and recorded at cost (in thousands):

Investment Agreement Provider	Rate	Maturity	2021	2020
Trinity Plus Funding Company	4.36%	January 2, 2031	$ 22,569	$ 21,613
GE Funding Capital Markets	3.81%	December 31, 2030	27,960	26,923
Total			$ 50,529	$ 48,536

d) Concentration of Credit Risk – Investments

Concentration of credit risk is assumed to arise when the amount of investments that the Authority has with any one issuer exceeds 5% of the total value of the Authority's investments. The Authority consults with its Investment Advisor to select Commercial Paper Issuers with strong credit ratings. The book values of portions of the Authority-wide portfolio, excluding investments issued by MMDT, the FDIC, or U.S. Government guaranteed obligations, that exceed 5% of the portfolio are as follows (in thousands):

Issuer:	2021 % of Portfolio	2020 % of Portfolio
Commercial Paper	31.40%	13.70%
Corporate Bonds	13.00%	17.75%
Municipal Bond	12.18%	11.04%
Federal Agency Bonds	13.32%	12.29%
Certificates of Deposit	2.40%	6.40%
Supranational	0.54%	6.37%

Commercial Paper Issuer	2021	2020
Australia & NZ	$ 17,971	$ -
Bank of Tokyo Mitsubishi UFJ	29,983	76,809
Canadian Imperial Holdings Inc.	14,986	29,949
Credit Agricole	24,987	74,850
DNB BANK	29,967	-
ING Funding	67,539	-
JP Morgan Chase	24,976	-
Mizuho Bank	89,906	-
Natixis NY	85,962	19,976
Rabobank USA	24,982	-
Royal Bank of Canada	29,948	-
Societe Generale	92,700	-
TD Bank	22,959	-
Toyota Motor Corporation	27,500	29,888
Total	$ 584,366	$ 231,472

e) Credit Ratings – Investments

The 1978 Trust Agreement, the PFC Depositary Agreement, the CFC Trust Agreement and the Investment Policy generally limit the Authority in the types of investments it can purchase to the two highest rating categories without regard to gradations within the rating categories by both Moody’s (Aaa, Aa1, Aa2, and Aa3) and S&P (AAA, AA+, AA, and AA-) and in corporate bonds rated in one of the three highest rating categories without regard to gradations within such categories by Moody’s and S&P.

Investments in bank certificates of deposits were fully collateralized. Also, the Authority invested in MMDT, managed by the State Treasury, which is not rated.

f) Interest Rate Risk – Investments

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The Authority has set targets for the preferred maturity structure of the investments held in each fund and account, and also sets targets each quarter for the effective duration for each fund that reflect the need for liquidity and the expected tradeoffs between yield and term for each different fund and account. It is the Authority's practice to hold investments until maturity in order to insulate the Authority's investment earnings from interest rate risk. The Authority mitigates interest rate risk by managing the weighted average maturity of each portfolio type to best meet its liquidity needs.

g) *Cash, Cash Equivalents and Investments by Fund*

The following summarizes cash and investments, at cost and fair value, as of June 30, by the various funds and accounts established by the Authority for debt covenant requirements and other purposes. In the following table, the fair value of MMDT and GIC approximate their costs (in thousands):

	2021		2020	
1978 Trust	**Cost**	**Fair Value**	**Cost**	**Fair Value**
Improvement and Extension Fund	$ 502,291	$ 501,757	$ 393,850	$ 395,950
Capital Budget Account	185,576	185,576	220,058	220,056
Debt Service Reserve Funds	168,034	169,303	148,414	150,851
Debt Service Funds	45,790	45,790	101,190	101,190
Maintenance Reserve Fund	266,523	267,434	196,256	198,828
Operating/Revenue Fund	115,075	115,075	83,783	83,783
Subordinated Debt Funds	52,925	52,925	50,933	50,933
Self-Insurance Account	31,230	31,861	34,418	35,281
2018 A Project Fund	11,558	11,558	43,000	43,000
2019 B Project Fund	15,009	15,075	92,780	93,234
2019 C Project Fund	12,872	12,872	73,054	73,667
2020 B Project Fund	22,638	22,638	86,166	86,167
2021 D Project Funds	53,138	53,138	-	-
2021 E Project Funds	216,152	216,163	-	-
Other Funds	39,402	39,415	52,271	52,271
PFC Depositary Agreement				
Other PFC Funds	64,039	64,028	50,545	50,575
2011 CFC Trust				
Debt Service Reserve Funds	21,752	21,733	21,834	21,943
CFC Maintenance Reserve Fund	3,848	3,848	4,577	4,600
Debt Service Funds	5,616	5,606	9,721	9,721
CFC Stabilization and Other CFC Func	27,392	27,379	26,872	26,973
Total	$ 1,860,860	$ 1,863,174	$ 1,689,722	$ 1,699,023

h) *Fair Value Measurement*

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is a market-based measurement, not an entity-specific measurement. For some assets and liabilities, observable market transactions or market information might be available; for others, it might not be available. However, the objective of a fair value measurement in both cases is the same—that is, to determine the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions. Fair value is an exit price at the measurement date from the perspective of a market participant that controls the asset or is obligated for the liability.

The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels. Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets that a government can access at the measurement date. Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for an asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for an asset or liability. The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs.

The following tables show the fair value and the fair value measurements for the Authority's business-type activity's investments:

Investments Measured at Fair Value (in thousands)

As of June 30, 2021	**Fair Value**	**Level 1**	**Level 2**	**Level 3**
Federal Home Loan Bank	$ 84,022	$ -	$ 84,022	$ -
Federal Home Loan Mortgage Corp.	72,488	-	72,488	-
Federal National Mortgage Association	68,763	-	68,763	-
Federal Farm Credit	19,922	-	19,922	-
Supranational	9,855	-	9,855	-
Commercial Paper	584,367	-	584,367	-
Government Fund-Morgan Stanley / Wells Fargo	50,185	50,185	-	-
Municipal Bond	228,747	-	228,747	-
Money Market Funds	2,459	2,459	-	-
Corporate Bonds	244,067	-	244,067	-
Total Investments Measured at Fair Value	$ 1,364,875	$ 52,644	$ 1,312,231	$ -

Investments Measured at Fair Value (in thousands)

As of June 30, 2020	Fair Value	Level 1	Level 2	Level 3
Federal Home Loan Bank	$ 16,125	$ -	$ 16,125	$ -
Federal Home Loan Mortgage Corp.	151,341	-	151,341	-
Federal National Mortgage Association	16,736	-	16,736	-
Federal Farm Credit	22,619	-	22,619	-
Supranational	108,166	-	108,166	-
Commercial Paper	231,472	-	231,472	-
Government Fund-Morgan Stanley / Wells Fargo	43,279	43,279	-	-
Municipal Bond	189,795	-	189,795	-
Money Market Funds	7,254	7,254	-	-
Corporate Bonds	305,214	-	305,214	-
Total Investments Measured at Fair Value	$ 1,092,001	$ 50,533	$ 1,041,468	$ -

Money Market Funds

As of June 30, 2021 and 2020, the Authority held positions in various money market funds and the fair values of those funds were $52.6 million and $50.5 million, respectively. The fair values of the money market funds are valued at the daily closing price as reported by the fund (Level 1).

Federal Agency Notes

As of June 30, 2021 and 2020, the Authority held positions in federal agency notes and the fair values were $245.2 million and $206.8 million, respectively. The fair values of the federal agency notes are based on a market approach using quoted prices by a third party, documented trade history in the security, and pricing models maximizing the use of observable inputs determined by investment managers (Level 2).

Commercial Paper Notes

As of June 30, 2021 and 2020, the Authority held positions in commercial paper notes and the fair values were $584.4 million and $231.5 million, respectively. The fair values of the commercial paper notes are based on a market approach using matrix pricing determined by investment managers (Level 2).

Municipal Bonds

As of June 30, 2021 and 2020, the Authority held positions in municipal bonds and the fair values were $228.7 million and $189.8 million, respectively. The fair values of the Municipal Bonds are based on a market approach using quoted prices by a third party, documented trade history in the security, and pricing models maximizing the use of observable inputs determined by investment managers (Level 2).

Corporate Bonds

As of June 30, 2021 and 2020, the Authority held positions in corporate bonds and the fair values were $244.1 million and $305.2 million. The fair values of the corporate bonds are based on a market approach valued either by using pricing models maximizing the use of observable inputs for similar securities or valued by the investment manager (Level 2).

Supranational

As of June 30, 2021 and 2020, the Authority held positions in supranational bonds and the fair values were $9.9 million and $108.2 million. The fair values of the bonds are based on a market approach valued either by using pricing models maximizing the use of observable inputs for similar securities or valued by the investment manager (Level 2).

Fiduciary Funds:

Massachusetts Port Authority Retiree Benefits Trust

The Trust's investments are made in accordance with the provisions of the Trust Investment Policy (the "Trust Investment Policy"), which was adopted on May 8, 2009 and amended on December 8, 2014 by the Retiree Benefits Trust Committee (the "Committee"). The goals of the Trust Investment Policy are to invest for the sole purpose of funding the OPEB Plan obligation of the Authority in a prudent manner, and to conserve and enhance the value of the Trust assets through appreciation and income generation, while maintaining a moderate investment risk. In addition, the Trust Investment Policy was developed to achieve a long-term return commensurate with contemporary economic conditions and equal to or exceed the investment objectives set forth in the investment policy, currently set at 7.00%, reduced from 7.25% effective December 31, 2019.

The Trust has retained an investment advisor to work in a fiduciary capacity to ensure that strategic investment diversification is attained, to employ investment managers with expertise in their respective asset classes, and to closely monitor the implementation and performance of the respective investment strategies.

The Trust is currently invested in commingled funds which hold stocks (domestic and international) and fixed income securities and three private equity real estate funds.

The exposure limits per the Trust Investment Policy are as follows:

Asset Class	December 31, 2020 Exposure	December 31, 2019 Exposure	Minimum Exposure	Maximum Exposure	Target Allocation
			Asset Weightings (as of December 8, 2014)		
Domestic equity	40.7%	40.5%	28.0%	48.0%	38.0%
Fixed income	28.0%	29.3%	17.0%	47.0%	32.0%
International equity	21.8%	19.7%	10.0%	30.0%	20.0%
Cash and cash equivalents	0.1%	2.0%	0.0%	20.0%	0.0%
Alternatives:					
Real estate private equity	9.4%	8.5%	0.0%	15.0%	10.0%

The current investment philosophy represents a long-term perspective. When asset weightings fall outside the Investment Policy range, the investment advisor shall advise the Committee on potential investment courses of action and the Committee may elect to rebalance the Trust asset mix.

The following summarizes the Trust's cash, cash equivalents and investments by type held at December 31, 2020 and 2019 (in thousands):

	Credit Rating	December 31, 2020 Fair Value	Credit Rating	December 31, 2019 Fair Value
Cash and Cash Equivalents				
MMDT	Unrated	$ 158	Unrated	$ 4,906
First American Government Fund	Unrated	59	Unrated	112
Total Cash and Cash Equivalents		$ 217		$ 5,018
Investments				
Vanguard Index Funds	Unrated	$ 132,692	Unrated	$ 117,735
Acadian All Country World ex US Fund	Unrated	16,762	Unrated	13,289
WCM Focused International Growth Fund	Unrated	15,346	Unrated	10,850
Vanguard Intermediate Term Investment Grade Fund	A	10,147	A	9,191
Aberdeen Emerging Markets Fund	Unrated	8,151	Unrated	5,937
Alliance Bernstein High Income	B	7,392	BB	7,171
TCW Emerging Markets Income	BB	6,122	BB	5,824
PL Floating Rate Income Fund	B	8,347	B	8,214
Baird Core Plus Fund	A	22,703	A	20,867
Voya Intermediate Bond Fund	A	22,594	A	20,878
Real Estate Private Equity Funds	Unrated	25,867	Unrated	20,775
Total Investments		$ 276,123		$ 240,731

The following discusses the Trust's exposure to common deposit and investment risks related to custodial credit, credit, concentration of credit, interest rate and foreign currency risks as of December 31, 2020 and 2019.

a) Credit Risk

For the twelve months ended December 31, 2020 and the six months ended December 31, 2019, the Trust's fixed income investments totaled $77.3 million and $72.1 million, respectively. At December 31, 2020 and 2019, these investments were split between six commingled mutual funds. The investment policy limits fixed income securities of any one issuer to below 5% of the total bond portfolio at the time of purchase and this limitation does not apply to issues of the U.S. Treasury or other Federal Agencies. The diversification restrictions for individual stocks and fixed income securities purchased and held in the total portfolio shall not apply to similar investment instruments held in a commingled fund or an SEC registered mutual fund specifically approved by the Committee. The Trust invests primarily commingled funds and SEC registered mutual funds. The overall rating of the fixed income assets, as calculated by the investment advisor, shall be investment grade, based on the rating of one Nationally Recognized Statistical Rating Organization. In cases where the yield spread adequately compensates for additional risk, investments classified at below investment grade can be purchased or held to maturity up to a maximum of 30% of the total market value of the fixed income securities of the Fund. The total percentage of the fixed income investments subject to this provision at December 31, 2020 and 2019 was 29.50% and 28.45%, respectively.

b) Custodial Credit Risk

The Trust manages custodial credit risk by limiting its investments to highly rated institutions and or requiring high quality collateral be held by the Trustee in the name of the Trust. All investments are held by a third party in the Trust's name. These investments are recorded at fair value.

Additionally, the Trust is authorized to invest in the Massachusetts Municipal Depository Trust (MMDT), a pooled money market like investment fund managed by The Commonwealth of Massachusetts, established under the General Laws, Chapter 29, Section 38A. MMDT investments are carried at amortized cost, which approximates fair value which is the same as the value of the pool. The Trust can purchase and sell its investments in this fund at any time without penalty.

c) *Concentration of Credit Risk*

Investments of Trust assets are diversified in accordance with the Investment Policy that defines rules for the funds, including having no stock holding or fixed income holding with a 5% or greater portfolio weighting (except U.S. Treasury or securities backed by the federal government), holding no more than 2% of the outstanding shares of an individual stock, and holding no more than 25% of the portfolio in any one industry. Trust assets were in compliance with the Investment Policy at December 31, 2020 and 2019, respectively.

d) *Interest Rate Risk*

This risk is confined to the fixed income and cash portions of the portfolio and is managed within the portfolio using the effective duration methodology. This methodology is widely used in the management of fixed income portfolios in that it quantifies to a much greater degree the risk of interest rate changes. The weighted duration of the fixed income portfolio at December 31, 2020 and 2019 was 5.45 and 5.06 years, respectively.

The individual fund durations are as follows at December 31, 2020 and 2019, respectively. (in thousands):

	December 31, 2020 Fair Value	Effective Duration	December 31, 2019 Fair Value	Effective Duration
Fixed Income Investments				
Vanguard Intermediate Term Investment Grade Fund	$ 10,147	6.00	$ 9,191	5.40
Alliance Bernstein High Income	7,392	4.05	7,171	3.68
TCW Emerging Markets Income	6,122	8.22	5,824	7.60
PL Floating Rate Income Fund	8,347	0.29	8,214	0.28
Baird Core Plus	22,703	6.05	20,867	5.68
Voya Intermediate Bond	22,594	6.22	20,878	5.94
Total Fixed Income Investments	$ 77,305		$ 72,145	

e) *Foreign Currency Risk*

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. The Trust invests in funds that hold stocks in either emerging or developed markets outside of the United States that may have an impact on the fair value of the investments and thus contribute currency risk due to their international equity holdings.

f) *Rate of Return*

As required per GASB Statement 74, the annual money weighted rate of return on trust investments, net of trust expenses was 14.07% for the twelve months December 31, 2020 and 14.12% for the six months December 31, 2019, respectively. The money weighted rate of return expresses investment performance net of investment expenses adjusted for the changing amounts actually invested. The Trust's annual rate of return, measured for financial performance purposes, gross of fees, was 15.2% for the twelve months ended December 31, 2020 and 6.9% for the six months ended December 31, 2019, respectively.

g) *Fair Value Measurement*

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is a market-based measurement, not an entity-specific measurement. For some assets and liabilities, observable market transactions or market information might be available; for others, it might not be available. However, the objective of a fair value measurement in both cases is the same—that is, to determine the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions. Fair value is an exit price at the measurement date from the perspective of a market participant that controls the asset or is obligated for the liability.

The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels. Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets that a government can access at the measurement date. Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for an asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for an asset or liability. The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs.

The Trust has the following fair value measurements for investments at December 31, 2020 and 2019:

Investments Measured by Fair Value Level ($ 000)

As of December 31, 2020	Fair Value	Level 1	Level 2	Level 3
Investments				
Vanguard Index Funds	$ 132,692	$ 132,692	$ -	$ -
Baird Core Plus	22,703	22,703	-	-
Vanguard Intermediate Term Investment Grade Fund	10,147	10,147	-	-
Voya Internediate Bond	22,594	22,594	-	-
Aberdeen Emerging Markets Fund	8,151	8,151	-	-
AllianceBernstein High Income	7,392	7,392	-	-
TCW Emerging Markets Income	6,122	6,122	-	-
PL Floating Rate Income Fund	8,347	8,347	-	-
WCM Total International Stock Index	15,346	15,346	-	-
Acadian All Country World ex-USFund	16,762	16,762	-	-
Total investments measured by fair value level	250,256	250,256	-	-
Investments measured at the net asset value (NAV)				
Real Estate Private Equity Funds:				
Boyd Watterson GSA Fund	7,795			
Equus Fund X	7,812			
ATEL Private Debt Partners II	1,984			
Golub Capital Partners 12 L.P.	2,433			
PRISA LP	5,843			
Total investments measured at the NAV	25,867			
Total Investments	$ 276,123	$ 250,256	$ -	$ -

Investments Measured by Fair Value Level ($ 000)

As of December 31, 2019	Fair Value	Level 1	Level 2	Level 3
Investments				
Vanguard Index Funds	$ 117,735	$ 117,735	$ -	$ -
Baird Core Plus	20,867	20,867	-	-
Vanguard Intermediate Term Investment Grade Fund	9,191	9,191	-	-
Voya Internediate Bond	20,878	20,878	-	-
Aberdeen Emerging Markets Fund	5,937	5,937	-	-
AllianceBernstein High Income	7,171	7,171	-	-
TCW Emerging Markets Income	5,824	5,824	-	-
PL Floating Rate Income Fund	8,214	8,214	-	-
WCM Total International Stock Index	10,850	10,850	-	-
Acadian All Country World ex-USFund	13,289	13,289	-	-
Total investments measured by fair value level	219,956	219,956	-	-
Investments measured at the net asset value (NAV)				
Real Estate Private Equity Funds:				
Boyd Watterson GSA Fund	7,356			
Equus Fund X	7,661			
PRISA LP	5,758			
Total investments measured at the NAV	20,775			
Total Investments	$ 240,731	$ 219,956	$ -	$ -

Commingled Mutual Funds

As of December 31, 2020 and 2019, the Authority held positions in several commingled mutual funds as noted above and the fair values were $250.3 million and $220.0 million, respectively. The fair values of the commingled mutual funds were valued using quoted market prices (Level 1).

The valuation method for investments measured at the net asset value (NAV) per share or its equivalent is presented in the following table (in thousands):

	Investments Measured at NAV ($000)		Investments Measured at NAV ($000)			
	December 31, 2020	Unfunded Commitments	December 31, 2019	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Real Estate Private Equity Funds						
Boyd Watterson GSA Fund (1)	$ 7,795	—	$ 7,356	—	Quarterly	60 days
Equus Fund X (2)	7,812	461	7,661	—	—	—
PRISA LP (3)	5,843	—	5,758	—	Quarterly	90 days
ATEL Private Debt Partners II (4)	1,984	2,622	—		—	—
Golub Capital Partners 12 LP (4)	2,433	2,300	—		—	—
Total investments measured at the NAV	$ 25,867		$ 20,775			

1. This fund invests primarily in real estate leased to the U.S. federal government. The fair value of the investment has been determined using the NAV per share (or its equivalent) of the Fund's ownership interest in partners' capital. The Trust can withdraw from the fund with 60 days' notice prior to a calendar quarter end and the minimum withdrawal of $250,000.
2. This fund invests in U.S. commercial real estate. The fair value of the investment has been determined using the NAV per share (or its equivalent) of the Fund's ownership interest in partners' capital. The Partnership agreement stipulates a partnership dissolution on a date five years after the end of the Investment Period; provided, however, that the General Partner may, in its sole discretion, extend the term for up to two additional one year periods.
3. This fund invests primarily in commercial real estate. The fair value of the investment has been determined using the NAV per share determined using the NAV per share (or its equivalent) of the Fund's ownership in partners' capital. The Trust can withdraw from the fund quarterly with one full quarter notice.
4. These are private debt funds. The fair value of the investment has been determined using the NAV per share (or its equivalent) of the Fund's ownership interest in partners' capital.

Massport Employee's Retirement System:

The provisions of Massachusetts General Laws (M.G.L.) Chapter 32, Section 23(2) and the Massachusetts Port Authority Employees' Retirement System Board (the "Retirement Board") approved investment policy govern the Plan's investment practice. Diversification is attained through varied investment management styles that comply with Massachusetts state law. This is accomplished through the retention of investment managers that adhere to M.G.L. Chapter 32, Section 23(3), the "Prudent Person" rule. The Plan has retained an investment consultant to work with the Retirement Board in a fiduciary capacity to assure that strategic investment diversification is attained, to employ investment managers with expertise in their respective asset classes, and to closely monitor the implementation and performance of the respective investment strategies.

The Plan is currently invested in stocks (domestic and international), fixed income securities (domestic and international), real estate and private equity.

The exposure limits per the Plan Investment Policy are as follows:

Asset Class	Target Allocation
Domestic equity	27.5%
International equity	27.5%
Fixed income	30.0%
Real estate	7.5%
Private equity	7.5%

The Plan's current rebalancing policy states that "The Retirement Board shall rebalance to the established targets during the quarter following the quarter ended whenever the asset class allocation falls outside the allowable ranges."

The following summarizes the Plan's cash, cash equivalents and investments by type held at December 31, 2020 and 2019 (in thousands):

	December 31, 2020 Fair Value	December 31, 2019 Fair Value
Cash and Cash Equivalents	$ 800	$ 1,198
Investments		
Common stocks		
Equities	$ 15,638	$ 19,900
Commingled Equity funds		
Large Cap	202,871	151,889
Small Cap	15,888	19,924
International	238,368	204,197
Commingled Fixed Income funds		
Aggregate	57,407	64,848
Core Bond	163,808	152,782
Other Investments		
PRIT Real Estate fund	52,881	52,556
PRIT Private Equity	63,494	47,631
Total Investments	$ 810,355	$ 713,727

The following discusses the Plan's exposure to common deposit and investment risks related to custodial credit, credit, concentration of credit, interest rate and foreign currency risks as of December 31, 2020 and 2019.

a) Credit Risk

For the years ended December 31, 2020 and 2019, the Plan's fixed income investments totaled $221.2 million and $217.6 million, respectively. These investments are split between two commingled funds. Both funds are not rated.

There are no Plan-wide policy limitations for credit risk exposures within the portfolio. The Plan's two fixed income investments are managed in accordance with an investment contract that is specific as to permissible credit quality ranges and the average credit quality of the overall portfolio.

b) Custodial Credit Risk

Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the Plan and are held by either the depository financial institution or the depository financial institution's trust department or agent but not in the Plan's name.

Although there is no Plan-wide policy for custodial credit risk associated with deposits, the Plan's investments are held by the Plan's custodian and registered in the Plan's name. All of the Plan's securities are held by the Plan's custodial bank in the Plan's name, except for investments in mutual and commingled funds, real estate properties, and limited partnerships, which by their nature, are not required to be categorized. Investments in the Short-term Investment Funds (STIF) are held in an SEC-registered pooled fund that is managed by the master custodian bank. The fair value of the position in the pool equals the value of the pool shares.

c) Concentration of Credit Risk

The Plan has no investments, at fair value, that exceed 5% of the Plan's total investments as of December 31, 2020 and 2019 other than pooled investments.

d) Interest Rate Risk

This risk is managed within the portfolio using the effective duration methodology. It is widely used in the management of fixed income portfolios in that it quantifies to a much greater degree the risk of interest rate changes. While there are no Plan-wide policy limitations as to the degree of interest rate risk taken, the Plan's one actively managed fixed income portfolio has guidelines which specify that the average duration of the portfolio ranges between plus or minus 1.5 years of the average duration of the Bloomberg Barclays US Aggregate Bond Index. The other fixed income portfolio is in a passive index fund and the investment objective of this fund is to match the return of the Bloomberg Barclays US Aggregate Bond Index. It is believed that the reporting of effective duration found in the tables below quantifies to the fullest extent possible the interest rate risk of the Plan's fixed income assets.

The individual fund durations are as follows at December 31, 2020 and 2019, respectively (in thousands):

		December 31, 2020 Fair Value	Effective Duration		December 31, 2019 Fair Value	Effective Duration
Fixed Income Investments						
Commingled fund – actively managed	$	163,808	6.35	$	152,782	6.00
Commingled fund – passively managed		57,407	6.23		64,848	5.88
Total Fixed Income Investments	$	221,215		$	217,630	

e) *Foreign Currency Risk*

From time to time, the Plan's external managers may or may not hedge the portfolio's foreign currency exposures with currency forward contracts depending on their views on a specific foreign currency relative to the U.S. dollar. While there are no Plan-wide policy limitations related to foreign currency risk, the Plan will not manage currency as a separate asset class or enter into speculative currency positions in its portfolios, except as it relates to specific cross-hedging activity, which may be permitted in certain investment manager guidelines. While the System has no investments denominated in foreign currencies, the following represents the investments denominated in U.S. dollars that can be subject to fluctuations in foreign currencies.

		December 31, 2020		December 31, 2019
Currency (in thousands)				
International equity pooled funds (various currencies)	$	238,368	$	204,197

f) *Rate of Return*

For the years ended December 31, 2020 and 2019, the annual money-weighted rate of return on plan investments, net of plan investment expenses was 16.14% and 19.64%, respectively. The money-weighted rate of return expresses investment performance net of investment expenses adjusted for the changing amounts actually invested.

g) *Fair Value Measurement*

GAAP establishes a fair value hierarchy for investments that prioritizes inputs used to measure fair value into three levels:

Level 1 – quoted prices (unadjusted) in active markets that are accessible at the measurement date for assets or liabilities;

Level 2 – observable prices that are based on inputs not quoted in active markets, but corroborated by market data;

Level 3 – unobservable inputs that are used when little or no market data is available.

The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs. In determining fair value, the Plan utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible.

Investments held through commingled funds for which fair value is estimated using net asset values (NAVs) as a practical expedient are not categorized in the fair value hierarchy.

The Plan uses an independent pricing source to determine the fair value of investments at quoted market prices

The Plan has the following fair value measurements for investments at December 31, 2020 and 2019:

Investments Measured by Fair Value Level ($ 000)

As of December 31, 2020	Fair Value	Level 1	Level 2	Level 3
Investments				
Common stocks				
Equities	$ 15,638	$ 15,638	$	$
Investments measured at NAV				
Commingled Equity funds				
Large Cap	202,871	-	-	-
Small Cap	15,888	-	-	-
International	238,368	-	-	-
Commingled Fixed Income funds				
Aggregate	57,407	-	-	-
Core Bond	163,808	-	-	-
Other Investments				
PRIT Real Estate fund	52,881	-	-	-
PRIT Private Equity	63,494	-	-	-
Total Investments	$ 810,355	$ 15,638	$ —	$ —

Investments Measured by Fair Value Level ($ 000)

As of December 31, 2019	Fair Value	Level 1	Level 2	Level 3
Investments				
Common stocks				
Equities	$ 19,900	$ 19,900	$	$
Investments measured at NAV				
Commingled Equity funds				
Large Cap	151,889	-	-	-
Small Cap	19,924	-	-	-
International	204,197	-	-	-
Commingled Fixed Income funds				
Aggregate	64,848	-	-	-
Core Bond	152,782	-	-	-
Other Investments				
PRIT Real Estate fund	52,556	-	-	-
PRIT Private Equity	47,631	-	-	-
Total Investments	$ 713,727	$ 19,900	$ —	$ —

Commingled Mutual Funds

The Plan categorizes its fair value measurements within the Fair Value Hierarchy established by generally accepted accounting principles. Equity securities classified in Level 1 of the Fair

Value Hierarchy are valued using prices quoted in active markets for those securities. The Plan has no securities classified in Level 2 or Level 3.

The PRIT real estate and private equity funds are external investment pools that are not registered with the Securities and Exchange Commission, but are subject to oversight by the Pension Reserves Investment Management Board (the "PRIM Board"). The PRIM Board was created by legislation to provide general supervision of the investments and management of PRIT. The PRIT real estate and private equity funds are not rated funds. The fair value of the PRIT real estate and private equity funds are based on unit value as reported by management of the PRIT funds. The PRIT funds issue separately available audited financial statements with a year-end of June 30. The Plan is required to provide a 24-hour redemption notice for the PRIT Real Estate fund. The PRIT Private Equity fund is not redeemable until notified by the PRIM Board.

The following represents the significant investment strategies and terms on which the Plan may redeem investments for those investments measured at the NAV (or its equivalent) as a practical expedient (in thousands):

Investments Measured at NAV ($000)

	December 31, 2020	December 31, 2019	Redemption Frequency	Redemption Notice Period
Commingled Equity Funds (1)	$ 457,127	$ 376,010	Daily to Thrice Monthly	1-30 days
Commingled Fixed Income Funds (2)	221,215	217,630	Daily	1-30 days
	$ 678,342	$ 593,640		

1. Commingled Equity Funds: This type includes five funds that invest primarily in U.S. large and small cap equity funds and international equity funds
2. Commingled Fixed Income Funds: This type includes two fixed income funds that invest in U.S. corporate bonds, U.S. government bonds, U.S. asset-backed securities and foreign bonds.

4. Capital Assets

Capital assets consisted of the following at June 30, 2021 and 2020 (in thousands):

	June 30, 2020	Additions and Transfers In	Deletions and Transfers Out	June 30, 2021
Capital assets not being depreciated				
Land	$ 230,600	$ 80	$ —	$ 230,680
Construction in progress	499,869	443,644	163,603	779,910
Total capital assets not being depreciated	730,469	443,724	163,603	1,010,590
Capital assets being depreciated				
Buildings	4,338,498	75,819	5,238	4,409,079
Runway and other paving	1,010,209	51,377	—	1,061,586
Roadway	805,781	10,610	—	816,391
Machinery and equipment	823,796	25,684	1,212	848,268
Air rights	187,148	32	—	187,180
Parking rights	46,261	—	—	46,261
Total capital assets being depreciated	7,211,693	163,522	6,450	7,368,765
Less accumulated depreciation:				
Buildings	2,138,595	153,574	3,580	2,288,589
Runway and other paving	646,259	45,408	—	691,667
Roadway	482,939	31,833	—	514,772
Machinery and equipment	536,721	60,919	929	596,711
Air rights	145,240	5,659	—	150,899
Parking rights	29,298	1,542	—	30,840
Total accumulated depreciation	3,979,052	298,935	4,509	4,273,478
Total capital assets being depreciated, net	3,232,641	(135,413)	1,941	3,095,287
Capital assets, net	$ 3,963,110	$ 308,311	$ 165,544	$ 4,105,877

Depreciation and amortization for fiscal year 2021 and 2020 was $307.6 million and $299.3 million, respectively. During fiscal year 2021, the Authority wrote off approximately $8.7 million for discontinued projects, which amount is included in depreciation expenses.

	June 30, 2019	Additions and Transfers In	Deletions and Transfers Out	June 30, 2020
Capital assets not being depreciated				
Land	$ 230,600	$ —	$ —	$ 230,600
Construction in progress	260,888	537,187	298,206	499,869
Total capital assets not being depreciated	491,488	537,187	298,206	730,469
Capital assets being depreciated				
Buildings	4,176,228	162,270	—	4,338,498
Runway and other paving	990,046	20,163	—	1,010,209
Roadway	767,973	37,808	—	805,781
Machinery and equipment	749,744	76,075	2,023	823,796
Air rights	185,258	1,890	—	187,148
Parking rights	46,261	—	—	46,261
Total capital assets being depreciated	6,915,510	298,206	2,023	7,211,693
Less accumulated depreciation:				
Buildings	1,985,286	153,309	—	2,138,595
Runway and other paving	603,417	42,842	—	646,259
Roadway	451,388	31,551	—	482,939
Machinery and equipment	474,634	64,092	2,005	536,721
Air rights	139,243	5,997	—	145,240
Parking rights	27,756	1,542	—	29,298
Total accumulated depreciation	3,681,724	299,333	2,005	3,979,052
Total capital assets being depreciated, net	3,233,786	(1,127)	18	3,232,641
Capital assets, net	$ 3,725,274	$ 536,060	$ 298,224	$ 3,963,110

5. Bonds and Notes Payable

Long-term debt at June 30, 2021 consisted of the following and represents maturities on the Authority's fiscal year basis (in thousands):

	June 30, 2020	Additions	Reductions	June 30, 2021	Due within one year
Revenue Bonds:					
Senior Debt-1978 Trust Agreement:					
2008, Series C, 4.60% to 4.70%, issued July 9, 2008	$ 1,305	$ —	$ 1,305	$ —	$ —
2010, Series A, 4.00% to 5.00%, issued August 5, 2010	44,435	—	44,435	—	—
2010, Series B, 3.00% to 5.00%, issued August 5, 2010	46,280	—	46,280	—	—
2012, Series A, 3.50% to 5.00%, issued July 11, 2012	74,960	—	74,960	—	—
2012, Series B, 3.00% to 5.00%, issued July 11, 2012	85,555	—	85,555	—	—
2014, Series A, 3.00% to 5.00%, issued July 17, 2014 due 2024 to 2045	42,910	—	2,835	40,075	—
2014, Series B, 4.00% to 5.00%, issued July 17, 2014 due 2024 to 2045	45,560	—	3,015	42,545	—
2014, Series C, 3.00% to 5.00%, issued July 17, 2014 due 2024 to 2036	124,430	—	16,425	108,005	—
2015, Series A, 5.00%, issued July 15, 2015 due 2024 to 2046	102,570	—	6,320	96,250	—
2015, Series B, 5.00%, issued July 15, 2015 due 2024 to 2046	65,780	—	4,060	61,720	—
2015, Series C, 2.12% to 2.83%, issued June 30, 2015 due 2022 to 2030	116,625	—	12,160	104,465	12,420
2016, Series A, 4.00% to 5.00%, issued July 20, 2016 due 2024 to 2039	47,060	—	4,630	42,430	—
2016, Series B, 4.00% to 5.00%, issued July 20, 2016 due 2042 to 2047	180,285	—	—	180,285	—
2017, Series A, 3.25% to 5.00%, issued July 19, 2017 due 2024 to 2048	157,840	—	26,055	131,785	—
2019, Series A, 3.00% to 5.00%, issued February 13, 2019 due 2024 to 2041	311,930	—	27,535	284,395	—
2019, Series B, 3.00% to 5.00%, issued July 17, 2019 due 2024 to 2050	157,680	—	1,000	156,680	—
2019, Series C, 3.00% to 5.00%, issued July 17, 2019 due 2024 to 2050	297,365	—	4,840	292,525	—
2021, Series A, 5.00%, issued February 17, 2021 due 2034 to 2041	—	35,630	—	35,630	—
2021, Series B, 5.00%, issued February 17, 2021 due 2034 to 2041	—	21,900	—	21,900	—
2021, Series C, 0.384% to 2.869%, issued February 17, 2021 due 2025 to 2052	—	229,740	—	229,740	—
2021, Series D, 5.00%, issued March 24, 2021 due 2025 to 2052	—	56,450	—	56,450	—
2021, Series E, 5.00%, issued March 24, 2021 due 2024 to 2052	—	349,080	—	349,080	—
Subtotal Senior Debt	1,902,570	692,800	361,410	2,233,960	12,420

	June 30, 2020	Additions	Reductions	June 30, 2021	Due within one year
Subordinated debt- 1978 Trust Agreement:					
2000, Series A,B & C, 6.45%, issued December 29, 2000 due 2031	40,000	—	—	40,000	—
2001, Series A,B & C, 6.45%, issued January 2, 2001 due 2031	34,000	—	—	34,000	—
Subtotal Subordinate Debt	74,000	—	—	74,000	—
Senior Debt - CFC Trust Agreement:					
2011, Series B, 4.85% to 6.352%, issued June 15, 2011 due 2021 to 2038	124,420	—	4,165	120,255	—
Subtotal CFC Senior Debt	124,420	—	4,165	120,255	—
Total Bonds Payable	2,100,990	692,800	365,575	2,428,215	12,420
Less unamortized amounts:					
Bond premium (discount), net	256,718	130,401	43,886	343,233	14,148
Total Bonds Payable, net	$ 2,357,708	$ 823,201	$ 409,461	$ 2,771,448	$ 26,568

The following summarizes the Authority's revenue bonds activity at June 30 (in thousands):

	June 30, 2020	Additions	Reductions	June 30, 2021	Due within one year
Senior Debt-1978 Trust Agreement:	$ 1,902,570	$ 692,800	$ 361,410	$ 2,233,960	$ 12,420
Subordinated Debt- 1978 Trust Agreement	74,000	—	—	74,000	—
Senior Debt - CFC Trust Agreement:	124,420	—	4,165	120,255	—
	$ 2,100,990	$ 692,800	$ 365,575	$ 2,428,215	$ 12,420

	June 30, 2019	Additions	Reductions	June 30, 2020	Due within one year
Senior Debt-1978 Trust Agreement:	$ 1,678,315	$ 455,045	$ 230,790	$ 1,902,570	$ 62,680
Subordinated Debt- 1978 Trust Agreement	74,000	—	—	74,000	—
Senior Debt - CFC Trust Agreement:	190,795	—	66,375	124,420	4,165
	$ 1,943,110	$ 455,045	$ 297,165	$ 2,100,990	$ 66,845

Debt service requirements on revenue bonds (1978 Trust and CFC Trust) outstanding at June 30, 2021 are as follows (in thousands):

	Principal	Interest	Total
Year ending June 30:			
2022	$ 12,420	$ 89,470	$ 101,890
2023	17,295	118,316	135,611
2024	59,140	112,297	171,437
2025	64,930	109,698	174,628
2026	68,035	106,860	174,895
2027 – 2031	399,760	486,128	885,888
2032 – 2036	487,735	376,660	864,395
2037 – 2041	459,315	263,319	722,634
2042 – 2046	483,820	155,744	639,564
2047 – 2051	337,990	50,427	388,417
2052	37,775	1,815	39,590
Total	$ 2,428,215	$ 1,870,734	$ 4,298,949

a) Senior Debt - 1978 Trust Agreement

On March 24, 2021, the Authority issued $405.5 million of Massachusetts Port Authority Revenue Bonds in two series. The Series 2021 D Revenue Bonds were issued in the principal amount of $56.5 million with an original issue premium of approximately $16.7 million and an interest rate of 5.0%. The Series 2021 E Revenue Bonds were issued in the principal amount of $349.1 million with an original issue premium of approximately $93.3 million and an interest rate of 5.0%. The 2021 D and E Bonds were issued to finance a portion of the Authority's current Capital Program. Due to the nature of a portion of the construction projects funded with the bonds, the Series 2021 E bonds were issued as bonds subject to the alternative minimum tax (AMT).

On February 17, 2021, the Authority issued $287.3 million of Massachusetts Port Authority Revenue Refunding Bonds in three series. The Series 2021 A Revenue Refunding Bonds were issued in the principal amount of $35.6 million with an original issue premium of approximately $13.0 million and an interest rate of 5.0%. The Series 2021 B Revenue Refunding Bonds were issued in the principal amount of $21.9 million with an original issue premium of approximately $7.4 million and an interest rate of 5.0%. The Series 2021 C Revenue Refunding Bonds were issued in the principal amount of $229.7 million at par value and interest rates ranging from 0.384% to 2.869%. These refundings had an economic gain and achieved a net present value savings of $58.0 million or 19.4%. The following Series of bonds were refunded and defeased with proceeds of the Series 2021 A, B and C Revenue Refunding Bonds (such Bonds, collectively, the "2021 Defeased Bonds"):

	Refunded by			
	2021 A	**2021 B**	**2021 C**	**Total**
Series 2010 A	$ 26,210	$ 15,825	$ —	$ 42,035
Series 2010 B	23,125	13,975	—	37,100
Series 2012 A	—	—	73,255	73,255
Series 2012 B	—	—	78,180	78,180
Series 2014 A	—	—	1,935	1,935
Series 2014 B	—	—	2,050	2,050
Series 2014 C	—	—	11,215	11,215
Series 2015 A	—	—	4,315	4,315
Series 2015 B	—	—	2,770	2,770
Series 2016 A	—	—	3,170	3,170
Series 2017 A	—	—	19,175	19,175
Series 2019 A	—	—	18,800	18,800
Series 2019 B	—	—	1,000	1,000
Series 2019 C	—	—	3,730	3,730
Toral Bonds Refunded	**$ 49,335**	**$ 29,800**	**$ 219,595**	**$ 298,730**

This transaction constituted a legal defeasance. Accordingly, the 2021 Defeased Bonds are no longer outstanding under the 1978 Trust Agreement and the 2021 Defeased Bonds and the funds to pay them are not included in the Authority's financial statements at June 30, 2021.

The Authority, pursuant to its 1978 Trust Agreement, has covenanted to maintain a debt service coverage ratio of not less than 1.25. Debt service coverage is calculated based on a formula set forth in the 1978 Trust Agreement. Historically, the Authority has maintained a debt service coverage ratio higher than its 1978 Trust Agreement requirement. As of June 30, 2021 and 2020, the Authority's debt service coverage under the 1978 Trust Agreement was 5.51 and 3.52, respectively.

b) *Subordinate Debt - 1978 Trust Agreement*

Subordinate debt is payable solely from funds on deposit in the Improvement and Extension Fund and is not subject to the pledge of the 1978 Trust Agreement or the CFC Trust Agreement. The Authority invested $12.0 million in January 2001 in two GICs, which at maturity will provide for the $74.0 million principal payments of the subordinate debt at their respective maturities on December 29, 2030 and January 2, 2031. As of June 30, 2021, the value of the two GICs was approximately $50.5 million as compared to $48.5 million as of June 30, 2020.

c) *Senior Debt - CFC Trust Agreement*

The Authority's outstanding CFC debt continues to be secured by a pledge of the $6.00 per transaction day CFC collections. The Authority earned CFC Revenues, as defined in the CFC Trust Agreement, of approximately $11.7 million and $25.8 million during fiscal years 2021 and 2020, respectively. The CFC Trust Agreement requires that the Authority maintain a debt service coverage ratio of at least 1.30. As of June 30, 2021 and 2020, the CFC debt service coverage ratio was 2.05 and 2.42, respectively. On June 24, 2020, the Authority deposited $65.6 million into an irrevocable trust with the CFC trustee to provide for all future debt service payments in an in-substance defeasance of all of the outstanding CFC Revenue Bonds, Series 2011 A ($58.0 million) and the 2021 maturity ($4.4 million) of its CFC Revenue Bonds, Series 2011 B (collectively the "Defeased CFC Bonds") plus interest thereon of $3.2 million. This transaction constituted a legal defeasance. Accordingly, the Defeased CFC Bonds are no longer outstanding under the CFC Trust Agreement, and the Defeased CFC Bonds and the funds to pay them are not included in the Authority's financial statements at June 30, 2021 or June 30, 2020.

d) Senior Debt – Direct Placement

On April 3, 2020, the Authority entered into a direct purchase agreement with Bank of America, NA ("BAML") for the sale of up to $258.0 million of Massachusetts Port Authority Revenue Bonds in two series. The Series 2020 A Revenue Refunding Bonds ("2020 A Bonds") were issued in the principal amount of $95.6 million at an interest rate of 1.57%. The Series 2020 B Revenue Bonds ("2020 B Bonds") were issued in the principal amount of $162.4 million at an interest rate of 2.08%. The 2020 A and 2020 B Bonds were issued to redeem and defease portions of the Series 2010 A Bonds, the Series 2010 B Bonds, the Series 2012 A Bonds and the Series 2012 B Bonds (collectively, the "Defeased 2010 and 2012 Bonds") and to finance a portion of the Authority's Capital Program. Due to the nature of a portion of the construction projects funded with the bonds, the 2020 A Bonds were issued as bonds subject to the AMT. The 2020 B Bonds were sold as taxable bonds. The 2020 A Bonds consist of a single bond maturing on July 1, 2031 and the 2020 B Bonds consist of a single bond maturing on July 1, 2032.

This transaction constituted a legal defeasance. Accordingly, the Defeased 2010 and 2012 Bonds are no longer outstanding under the 1978 Trust Agreement, and the Defeased 2010 and 2012 Bonds and the funds to pay them are not included in the Authority's financial statements at June 30, 2021 or June 30, 2020.

e) Subordinate Debt – Direct Placement

On November 20, 2018, the Authority entered into a direct purchase agreement with BAML for sale of up to $107.5 million in aggregate principal amount of the Subordinated Obligations, Series 2018 A (AMT) (the "2018 Subordinated Obligations"). The 2018 Subordinated Obligations were issued as a "draw-down loan" to provide bridge financing for capital projects at the Authority's Port properties. The principal of the 2018 Subordinated Obligations was expected to be paid from funds provided pursuant to a Memorandum of Understanding (the "MOU") between the Authority and the Commonwealth to provide grant funds in the amount of $107.5 million, which equals 50% of the expected construction costs of the new Berth 10 and the purchase of three new ship to shore cranes at Conley Terminal. The 2018 Subordinated Obligations bore interest at variable rates with a final maturity on July 1, 2028. On May 3, 2021, the Subordinated Obligations were called for full redemption and retired, and accordingly are no longer outstanding. As of June 30, 2021 and 2020, the outstanding principal balance of the 2018 Subordinated Obligations was $0.0 million and $72.5 million, respectively.

Direct Placement Long-term debt at June 30, 2021 and 2020 consisted of the following and represents maturities on the Authority's fiscal year basis (in thousands):

	June 30, 2020	Additions	Reductions	June 30, 2021	Due within one year
Revenue Bonds Direct Placement:					
Senior Debt-1978 Trust Agreement:					
2020, Series A, 1.57%, issued April 3, 2020 due 2023 to 2032	$ 95,620	$ —	$ —	$ 95,620	$ —
2020, Series B, 2.08%, issued April 3, 2020 due 2024 to 2033	162,380	—	—	162,380	—
Subtotal Senior Debt	258,000	—	—	258,000	—
Subordinated debt- 1978 Trust Agreement:					
2018, Series A, variable rate, issued November 20, 2018 due 2024	72,500	—	72,500	—	—
Subtotal Subordinate Debt	72,500	—	72,500	—	—
Total Direct Placement Bonds Payable	$ 330,500	$ —	$ 72,500	$ 258,000	$ —

The following summarizes the Authority's direct placement bond activity at June 30 (in thousands):

	June 30, 2020	Additions	Reductions	June 30, 2021	Due within one year
Revenue Bonds Direct Placement:					
Senior Debt-1978 Trust Agreement:	$ 258,000	$ —	$ —	$ 258,000	$ —
Subordinated debt- 1978 Trust Agreem	72,500	—	72,500	—	—
Total Direct Placement Bonds Pay	$ 330,500	$ —	$ 72,500	$ 258,000	$ —

	June 30, 2019	Additions	Reductions	June 30, 2020	Due within one year
Revenue Bonds Direct Placement:					
Senior Debt-1978 Trust Agreement:	$ —	$ 258,000	$ —	$ 258,000	$ —
Subordinated debt- 1978 Trust Agreem	40,000	67,500	35,000	72,500	—
Total Direct Placement Bonds Pay	$ 40,000	$ 325,500	$ 35,000	$ 330,500	$ —

Debt service requirements on direct placement bonds outstanding at June 30, 2021 are as follows (in thousands):

		Principal		Interest		Total
Year ending June 30:						
2022	$	—	$	6,071	$	6,071
2023		6,425		4,879		11,304
2024		22,465		4,778		27,243
2025		19,450		4,382		23,832
2026		19,800		4,033		23,833
2027 - 2031		124,055		14,483		138,538
2032 - 2033		65,805		2,042		67,847
Total	$	258,000	$	40,668	$	298,668

f) Special Facility Bonds

To provide for the construction and improvement of various facilities at Logan Airport, the Authority has two outstanding series of special facilities revenue bonds as of June 30, 2021. The Authority's special facilities revenue bonds are special limited obligations of the Authority and are payable and secured solely from and by certain revenues held by a separate trustee. The Authority's special facilities revenue bonds do not constitute a debt or pledge of the full faith and credit of the Authority, or the Commonwealth of Massachusetts or any subdivision thereof and, accordingly, have not been reflected in the accompanying financial statements.

On September 26, 2019, the Authority issued $143.7 million of Massachusetts Port Authority Special Facilities Revenue Bonds (BOSFUEL Project) in two series. The tax-exempt Series 2019A BOSFUEL Bonds were issued in the principal amount of $135.9 million with an original issue premium of approximately $24.1 million and interest rates ranging from 4.0% to 5.0%. The taxable Series 2019B BOSFUEL Bonds were issued in the principal amount of $7.9 million at par with interest rates ranging from 2.7% to 3.7%. A portion of the proceeds of the Series 2019A BOSFUEL Bonds was used to refund the entire $81.1 million principal amount outstanding of the Series 2007 BOSFUEL Bonds and the remaining proceeds, along with the proceeds of the Series 2019B BOSFUEL Bonds, will be used to enhance the Fuel Facilities at Logan Airport to ensure the ability to meet current and future demands. Due to the nature of a portion of the construction projects funded by the bonds, the Series 2019A BOSFUEL Bonds were issued as bonds subject to the AMT.

As of June 30, 2021 and 2020, the aggregate principal amount of the Authority's special facilities revenue bonds outstanding were related to BOSFUEL Projects and were approximately $142.9 million and $143.7 million, respectively. The Authority has no obligation for the $142.9 million of Special Facility Bonds related to BOSFUEL Corporation, a Delaware non-stock membership corporation (BOSFUEL), the members of which are certain air carriers serving the Airport. The Authority leases to BOSFUEL all of the on Airport jet fuel storage and distribution system owned by the Authority that provides jet fuel to the terminals and jet fuel uses at the Airport.

g) *Commercial Paper Notes Payable*

The Authority's commercial paper notes payable as of June 30, 2021 and 2020 were as follows (in thousands):

		2021		2020
Commercial paper notes-beginning	$	22,000	$	104,000
Commercial paper notes issued		22,000		—
Principal paid on commercial paper notes		(22,000)		(82,000)
Commercial paper notes-ending	$	22,000	$	22,000

On December 2, 2020, the Authority renewed and increased its commercial paper program in an aggregate principal amount not to exceed $200.0 million, which notes may be issued as Series A tax-exempt Non-AMT notes, Series B tax-exempt AMT notes or Series C taxable notes. Commercial paper notes payable have been issued under the terms of the 1978 Trust Agreement and are secured by the proceeds of the Improvement and Extension Fund or anticipated bond funds. The aggregate principal amount of commercial paper notes outstanding at any time cannot exceed the lesser of (i) 10% of the Authority's outstanding long-term debt or (ii) $200.0 million, and the payment of debt service on the commercial paper notes is secured by a Letter of Credit with TD Bank N.A. that expires June 1, 2022.

The $22.0 million of commercial paper notes payable as of June 30, 2021 and 2020, which consisted of Series A Non-AMT notes only, has been used to fund PFC eligible projects; therefore, the Authority anticipates that PFC revenues will be the source to pay such redemptions. The blended interest rate on the Series A Notes was 0.645% and 1.659% during fiscal years 2021 and 2020, respectively. The Authority did not have any Series B Notes or Series C Notes outstanding during fiscal years 2021 or 2020. The Authority's commercial paper notes payable mature in July, August and September of the respective years.

h) *Interest Rate Swaps / Hedging*

During fiscal year 2021 and fiscal year 2020, the Authority did not have any interest rate swaps or other interest rate hedging arrangements.

i) *Arbitrage – Rebate Liability*

The United States Treasury has issued regulations on calculating the rebate due to the United States Government on arbitrage liability and determining compliance with the arbitrage rebate provisions of the Tax Reform Act of 1986. Arbitrage liability arises when the Authority temporarily invests the proceeds of tax-exempt debt in securities with higher yields. The Authority has no estimated liability as of June 30, 2021 and 2020, respectively.

6. Pension Plan

a) *Plan Description*

The Massachusetts Port Authority Employees' Retirement System (the "Plan") is a single employer plan established on July 18, 1978, effective January 1, 1979, by enactment of Chapter 487 (an amendment to Chapter 32) of the General Laws of The Commonwealth of Massachusetts to provide retirement benefits for substantially all employees of the Authority, and incidental benefits for their surviving spouses, beneficiaries and contingent annuitants. Prior to this enactment, Authority employees were members of the Commonwealth of Massachusetts Contributory Retirement System and the funding of the pension liability was on a "pay-as-you-go" method. Pursuant to this enactment, the employees' then present rights and benefits were transferred to the new retirement system. The Plan is a contributory defined benefit plan to which the Authority and its employees contribute such amounts as are necessary to provide assets sufficient to meet benefits to be paid to plan participants. The Plan is administered by the Retirement Board.

Detailed information about the Plan's fiduciary net position is available in a separately issued report. The report may be obtained by writing to the Massachusetts Port Authority Employees' Retirement System, One Harborside Drive, Suite 200S, East Boston, MA 02128-2909 or please see the Authority's website, www.massport.com.

b) *Benefits provided*

Benefits are paid by the Plan from plan assets available for plan benefits. Plan participants are entitled at normal retirement age to benefit payments based upon length of service and earnings levels. Vesting occurs after 10 years of service.

Benefits to participants who retired prior to January 1, 1979 are paid by the Massachusetts State Board of Retirement. The Massachusetts State Board of Retirement is reimbursed for all such benefits paid after December 31, 1978 as these benefits represent obligations of the Plan.

Under Chapter 32, Section 3(8) (c), of the General Laws of The Commonwealth of Massachusetts (Chapter 32), the Plan is reimbursed for benefits paid to participants entitled to receive benefits for previous participation in other Massachusetts Chapter 32 plans. The Plan is also obligated to pay a proportionate share of benefits to participants entitled to receive benefits for subsequent participation in other Massachusetts Chapter 32 plans.

Also under Chapter 32, for members leaving the Authority's employment to work for other Massachusetts governmental units, the Plan transfers their accumulated account balances and creditable service to the retirement system of the new employer. Other such retirement systems are in turn required to make comparable transfers to the Plan for employees coming to work for the Authority.

Optional payment methods may be elected, including the contingent annuitant method, which provides for reduced payments during the life of the plan participant and continued payments to the participant's beneficiary after the death of the participant.

At January 1, 2020 and 2019, the Plan's membership consisted of:

	2020	2019
Retirees and beneficiaries receiving benefits	872	858
Terminated employees entitled to benefits but not yet receiving them	74	68
Current members:		
Active	1,348	1,304
Inactive	169	146
Total membership	2,463	2,376

c) Contributions required and contributions made

Contributions are made by the Authority based on amounts required to be funded as determined by annual actuarial valuations and are designed to fund the Plan on a level cost basis, as a percentage of pay, over the average remaining working lifetime of the active participants and to fund operating costs of the Plan. For the years ended June 30, 2021 and 2020, the Authority was required and did contribute to the Plan $14.6 million and $12.0 million, respectively. The Authority bears the risk that plan assets might decline due to fluctuations in the fair value of the Plan's investments and contributions by the Authority will increase as part of its annual assessment.

Employees who became members prior to January 1, 1975 contribute 5% of their regular compensation through payroll deductions. Employees whose membership commenced on or after January 1, 1975 but prior to January 1, 1984 contribute 7%. Those employees whose membership began on or after January 1, 1984 but prior to July 1, 1996 contribute 8%. Employees hired after July 1, 1996 contribute 9% of their regular compensation. Employees who are hired after December 31, 1978 contribute an additional 2% of regular compensation over $30,000. These contributions accumulate and, subject to certain restrictions set forth in Chapter 32, are refundable to employees upon termination of employment by the Authority or payable to another retirement system should the employee transfer to another government unit covered by Chapter 32 of the General Laws of The Commonwealth of Massachusetts.

Contributions totaling $27.7 million ($14.6 million employer and $13.1 million employee) and $24.6 million ($12.0 million employer and $12.6 million employee) were recognized by the Plan for plan years 2020 and 2019, respectively.

d) Net Pension (Asset) Liability

The Authority's net pension (asset) liability at June 30, 2021 and 2020 was measured as of December 31, 2020 and 2019 and the total pension (asset) liability used to calculate the net pension (asset) liability was determined by an actuarial valuation as of January 1, 2020 and

2019 and update procedures were used to roll forward the total pension (asset) liability to December 31, 2020 and 2019, respectively.

	Increase (Decrease)		
	Total Pension Liability (a)	**Plan Fiduciary Net Position (b)**	**Net Pension Liability (a) - (b)**
Balance at December 31, 2018	$ 712,597	$ 607,677	$ 104,920
Service cost	17,529	—	17,529
Interest	51,734	—	51,734
Changes between expected and actual experience	15	—	15
Changes in assumptions	(13,789)	—	(13,789)
Contributions – employer	—	12,029	(12,029)
Contributions – employees	—	12,576	(12,576)
Net investment income	—	118,235	(118,235)
Benefits payments	(33,101)	(33,101)	—
Administrative expenses	—	(1,216)	1,216
Balance at December 31, 2019	$ 734,985	$ 716,200	$ 18,785
Service cost	17,335	—	17,335
Interest	53,204	—	53,204
Changes between expected and actual experience	5,846	—	5,846
Changes in assumptions	15,574	—	15,574
Contributions – employer	—	14,642	(14,642)
Contributions – employees	—	13,100	(13,100)
Net investment income	—	113,321	(113,321)
Benefits payments	(36,952)	(36,952)	—
Administrative expenses	—	(1,152)	1,152
Balance at December 31, 2020	$ 789,992	$ 819,159	$ (29,167)

e) Actuarial Assumptions

The total pension liability in the January 1, 2020 and 2019 actuarial valuations were determined using the following actuarial assumptions, applied to all periods included in the measurement:

- *Inflation – 3.0%*
- *Salary increases – 4.25% for 2020 and 4.5% for 2019*
- *Investment rate of return – 7.0% for 2020, and 7.25% for 2019, net of plan investment expense*
- *Cost–of–living increases – 3.0% on a maximum base of $14,000*
- *Mortality*:
  - Healthy – RP 2014 at Table Healthy Employees (sex-distinct) projected with MP 2018 Generational Mortality. Post-retirement the RP 2014 healthy annuitant Table (sex-distinct) projected with MP 2018 Generational Mortality.
  - Disabled-RP 2014 at 2006 healthy annuitant Table (sex-distinct) projected with MP 2018 Generational Mortality set-forward 2 years. Mortality for accidental disability is assumed to be 50% from the same cause as the disability.
- Long-term Expected Rate of Return:

  The long-term expected rate of return on plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The best estimates of geometric long-term expected real rates of return for each major asset class are summarized in the following table:

	Long-term expected real rate of return	
Asset class	**2020***	**2019***
Domestic equity	4.10 %	4.92 %
International equity	4.74	5.30
Fixed income	0.95	2.18
Real estate	4.67	5.17
Private equity	6.43	7.49

* amounts are net of inflation assumption of 2.36% and 2.23% in fiscal years 2020 and 2019, respectively

f) *Investment Policy*

The provisions of Massachusetts General Laws (M.G.L.) Chapter 32, Section 23(2) and the Retirement Board approved investment policy govern the Plan's investment practice.

Diversification is attained through varied investment management styles that comply with Massachusetts state law. This is accomplished through the retention of investment managers that adhere to M.G.L. Chapter 32, Section 23(3), and the "Prudent Person" rule.

The Plan has retained an investment consultant to work with the Retirement Board in a fiduciary capacity to assure that strategic investment diversification is attained, to employ investment managers with expertise in their respective asset classes, and to closely monitor the implementation and performance of the respective investment strategies.

The Plan is currently invested in stocks (domestic and international), fixed income securities (domestic and international), real estate and private equity.

The target allocation for each major asset class is summarized in the following table:

Asset class	Target Allocation
Domestic equity	27.50%
International equity	27.50%
Fixed income	30.00%
Real estate	7.50%
Private equity	7.50%
Total	100.00%

g) *Changes in Benefit Terms*

In 2020, the interest rate was changed to 7.0% from 7.25%. The salary increase assumption was changed to 4.25% from 4.50%. Compensation limits under Section 401(a) were recognized. The net of these changes resulted in an increased total pension liability totaling $15.6 million.

In 2019, there were three changes to plan provisions resulting in a $13.8 million reduction of the net pension liability.

The assumed rate of retirement, withdrawal, and disability was revised based on the results of an experience study, the mortality tables being used were updated and an additional $500,000 was added to the vacation buyback liability representing interest.

h) *Discount Rate*

The discount rate used to measure the total pension (assets) liability was 7.0% as of December 31, 2020 and 7.25% as of December 31, 2019. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on those assumptions, the Plan's fiduciary net position was projected to be available to make all projected further benefit payments of current plan members. Therefore, the long-term expected rate of return on the plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

i) Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability of the Plan as of December 31, 2020 and 2019, calculated using the discount rate of 7.0% and 7.25% as well as what the net pension liability (asset) would be if it were calculated using a discount rate that is one-percentage point lower or one-percentage point higher than the current rate (in thousands):

Fiscal Year End		**1% decrease (6.00%)**		**Current discount rate (7.00%)**		**1% increase (8.00%)**
2021	$	62,404	$	(29,167)	$	(106,451)

Fiscal Year End		**1% decrease (6.25%)**		**Current discount rate (7.25%)**		**1% increase (8.25%)**
2020	$	102,414	$	18,785	$	(51,964)

j) Pension expense and deferred outflows of resources and deferred inflows of resources related to pensions

For the years ended June 30, 2021 and 2020, the Authority recognized contra pension expense of $11.2 million and pension expense $13.5 million, respectively.

At June 30, 2021 and 2020, the Authority reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources (in thousands):

	2021		2020	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 6,283	$ 856	$ 2,120	$ 1,263
Differences arising from the recognition of changes in assumptions	17,353	9,748	7,592	12,208
Net difference between projected and actual earnings on pension Plan investments	—	73,308	—	34,464
Pension Employer contributions subsequent to measurement date	7,321	—	—	—
Total	$ 30,957	$ 83,912	$ 9,712	$ 47,935

In fiscal year 2021, the Authority reported $7.3 million as deferred outflows of resources related to the Authority's pension contributions subsequent to the measurement date but before the fiscal year end, which amount will be recognized as a reduction of the net pension liability in the subsequent fiscal year.

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension (expense) income as follows (in thousands):

Year ended June 30:	
2022	$ (24,870)
2023	(9,511)
2024	(26,067)
2025	(11,070)
2026	3,229
Thereafter	691

7. Other Postemployment Benefits (OPEB)

a) Plan Description

In addition to providing the pension benefits described in Note 6, the Authority provides post-employment health care and life insurance benefits ("OPEB") for retired employees. The OPEB Plan is a single-employer plan and offers retirees a choice of medical plans, as well as two dental plans, and basic life insurance. The benefit levels, employer contributions and future employee contributions are governed by the Authority and can be amended by the Authority.

In June 2009, the Board made changes to the plan benefits to be paid by the Authority for certain existing and future retirees. All current retired members of the Authority and all existing Authority employees who were vested as of October 1, 2009 would be eligible to have 100% of their premium cost subsidized. Employees not yet vested but employed by the Authority on October 1, 2009 would, upon retirement be eligible to receive 85% of the premium cost for benefits with the balance paid for by the retiree. For employees hired on or after October 1, 2009, the Board voted to implement a sliding scale subsidy for retiree health care premiums (ranging from 0%-85%) based on creditable service at retirement age (retirees must be age 60 or older to receive the subsidy), and whether or not the employee retired within sixty (60) days after leaving the Authority. The Board also voted to eliminate retiree dental and life insurance coverage, as well as Medicare Part B premium subsidy for this group of employees.

In May 2016, the Board made changes to the plan benefits to be paid by the Authority for certain future retirees. Persons who commenced employment with the Authority during the period from October 1, 2009 through May 25, 2016, and who, as of the date such employment commenced, had accrued ten (10) years or more of creditable service pursuant to M.G.L.c. 32, would upon retirement, be eligible to receive 80% of the premium cost for those benefits with the balance paid for by the retiree; provided, however, that employees who retire with at least thirty (30) years of creditable service would be eligible to receive 85% of the premium cost of such benefits with the balance paid for by the retiree. For purposes of calculating the percentage of the subsidy (80% or 85%), years of creditable service shall be calculated at separation from employment with the Authority. The spouse and dependents of eligible retirees will qualify for the same premium subsidy and retiree health benefits as the retiree. Eligible retirees, but not their spouse or dependents, will also qualify for a 100% subsidy from the Authority for retiree basic life insurance.

During fiscal year 2020, the Board voted to change the fiscal year end of the Trust from June 30 to December 31.

The Authority issues publicly available audited financial statements for the Trust. The report may be obtained by writing to the Massachusetts Port Authority, Attn: John P. Pranckevicius, CPA, Director of Administration and Finance and Secretary-Treasurer, One Harborside Drive, Suite 200S, East Boston, MA 02128-2909. Those statements are prepared with an "economic resources" measurement focus on the accrual basis of accounting in accordance with U.S. generally accepted accounting principles. Employer contributions are recognized when the employer has made formal commitments to provide the contributions and benefits are recorded when due and payable in accordance with the terms of the Trust. Investments are reported at fair value. Mutual funds and commingled funds are valued based on fair value and alternative investments are valued based on net asset or unit value at year-end. The Trust did not own any individual securities and no long-term contracts for contributions to the Trust existed at December 31, 2020.

b) *Benefits provided*

The medical plans are either HMOs, PPOs or indemnity plans, and some are designed to work with Medicare benefits, such as Medicare supplement or Medicare HMO plans. The basic life insurance provides a $5,000 death benefit to the retiree. Spouses and dependents are not eligible for this death benefit upon their death.

At December 31, 2020 and 2019, respectively, the Trust's membership consisted of:

	December 31, 2020	**December 31, 2019**
Active Employees		
Pre-Medicare (hired prior to 3/31/1986)	22	42
Post-Medicare (hired after 3/31/1986)	1,241	1,306
Total	1,263	1,348
Inactive Participants (Vested)	70	74
Retired, Disabled, Survivors and Beneficiaries	930	868
Total Membership	2,263	2,290

c) *Contributions required and contributions made*

The Trust has adopted a funding policy that allows for the contributions to attempt to minimize the volatility from year to year and is the sum of the employees normal cost and expenses plus a payment to amortize the unfunded accrued liability as of the date of the valuation. The annual employer contribution rate goal shall be 100% of the Actuarial determined contribution. For the years ended June 30, 2021 and 2020, the Authority contributed to the Trust $16.0 million and $13.3 million, respectively, and $16.0 million and $4.4 million are recorded in the Statement of Net Position as a deferred outflow of resources as of June 30, 2021 and July 1, 2020, respectively. The Authority bears the risk that trust assets might decline due to fluctuations in the fair value of the Trust's investments and contributions by the Authority will increase as part of its annual assessment.

d) Net OPEB liability

The Authority's net OPEB liability at June 30, 2021 and 2020 was measured as of December 31, 2020 and 2019, and the total OPEB liability used to calculate the net OPEB liability was determined using an actuarial valuation as of January 1, 2021 and 2019, respectively.

	Total OPEB Liability (a)	Trust Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
Balance at June 30, 2019	$ 337,624	$ 203,075	$ 134,549
Service cost	9,022	—	9,022
Interest	37,032	—	37,032
Difference between expected and actual experience	(7,968)	—	(7,968)
Change in assumption	(3,552)	—	(3,552)
Contributions – employer	—	29,669	(29,669)
Contributions – employees	—	469	(469)
Net investment income	—	31,460	(31,460)
Benefits payments	(20,432)	(20,901)	469
Administrative expenses	—	(333)	333
Balance at December 31, 2019	$ 351,726	$ 243,439	$ 108,287
Service cost	6,103	—	6,103
Interest	24,569	—	24,569
Difference between expected and actual experience	(16,263)	—	(16,263)
Change in assumption	(11,751)	—	(11,751)
Contributions – employer	—	10,552	(10,552)
Contributions – employees	—	319	(319)
Net investment income	—	36,052	(36,052)
Benefits payments	(13,692)	(14,010)	318
Administrative expenses	—	(222)	222
Balance at December 31, 2020	$ 340,692	$ 276,130	$ 64,562

e) *Actuarial Assumptions*

The following actuarial assumptions were applied to the periods included in the measurement as of December 31, 2020 and 2019, respectively:

- *Inflation – 2.50%*
- *Salary increases – 4.25% for 2020 and 4.5% for 2019*
- *Investment rate of return – 7.00%, net of Trust investment expenses, as of December 31, 2020, and 2019, respectively. 7.25%, net of Trust investment expenses, as of July 1, 2019.*
- *Health care trend rates-Initial annual health care cost trend rates range of 3.5% to 9.0%, which decreases to a long-term trend rate between 5.0% and 6.0% for all health care benefits after six years. The initial annual dental cost trend rates range from 5.0% to 7.0%, which decreases to a long-term trend rate of 5.0% for all dental benefits after two years.*
- *Mortality*:
  - Actives – RP-2014 Table adjusted to 2006, (sex-distinct) for employees projected using Generational Mortality and scale MP-2020.
  - Retirees – RP 2014 Table adjusted to 2006, (sex-distinct), for Healthy Annuitants projected using Generational Mortality and scale MP-2020.
  - Disabled - RP 2014 Table adjusted to 2006, (sex-distinct), for Healthy Annuitants projected using Generational Mortality and scale MP-2020. Set forward 2 years.
- *Other Information*
  - As of January 1, 2019, the effect of eliminating the “Cadillac Tax” on liabilities was recognized.
  - As of January 1, 2018, the scales used to convert the premiums to age weighted claim costs were updated and the effect of the “Cadillac Tax” on liabilities was recognized.
  - As of January 1, 2016, employees hired after September 30, 2009 are not eligible for post –retirement medical insurance until age 60, and retirement age begins at age 60 with 10 years of service.
- *Long-term Expected Rate of Return:*

  The long-term expected rate of return on Trust investments was using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of OPEB Trust investment expense and inflation) are developed for each major asset class and fund. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

f) Discount Rate

The discount rate used to measure the total OPEB liability as of December 31, 2020 and 2019 was 7.00% and as of June 30, 2019 was 7.25%. The projection of cash flows used to determine the discount rate assumed that Trust member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on those assumptions, the Trust's fiduciary net position was projected to be available to make all projected further benefit payments of current Trust members. Therefore, the long-term expected rate of return on the plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

g) Sensitivity of the net OPEB liability to changes in the discount rate

The following presents the net OPEB liability of the Authority as of December 31, 2020 and 2019, calculated using the discount rate of 7.00%, as well as what the net OPEB liability (asset) would be if it were calculated using a discount rate that is one-percentage point lower or one-percentage point higher than the current rate (in thousands):

Fiscal Year End	1% decrease (6.00%)	Current discount rate (7.00%)	1% increase (8.00%)
2021	$ 107,620	$ 64,562	$ 28,994
2020	$ 155,806	$ 108,287	$ 69,385

h) Sensitivity of the Net OPEB Liability to Changes in Health Care Cost Rates

The following presents the net OPEB liability of the Authority as of December 31, 2020 and 2019, calculated using healthcare cost trend rates of 9.0% decreasing to 5.0% as well as what the net OPEB liability (asset) would be if it were calculated using a health care cost trend rate that is one-percentage point lower or one-percentage point higher than the current rate (in thousands):

Fiscal Year End	1% decrease (8.0% decreasing to 4.0%)	Healthcare Cost Trend rate (9.0% decreasing to 5.0%)	1% increase (10.0% decreasing to 6.0%)
2021	$ 26,269	$ 64,562	$ 111,045
2020	$ 63,266	$ 108,287	$ 163,650

i) OPEB expense and deferred outflows of resources and deferred inflows of resources related to OPEB

For the years ended June 30, 2021 and 2020, the Authority recognized OPEB expense of $1.5 million and $22.6 million, respectively.

At June 30, 2021 and 2020, the Authority reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources (in thousands):

	2021		2020	
	Deferred Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 3,580	$ 25,737	$ 6,354	$ 16,764
Changes in assumptions	4,909	13,076	6,453	4,587
Net difference between projected and actual earnings on OPEB investments	—	21,682	—	8,811
OPEB contribution subsequent to measurement date	16,000	—	4,447	—
Total	$ 24,489	$ 60,495	$ 17,254	$ 30,162

The Authority reported $16.0 million and $4.4 million as deferred outflows of resources related to the Authority's OPEB contributions subsequent to the measurement date but before the fiscal year end, which amounts will be recognized as a reduction of the net OPEB liability in the subsequent years ended June 30, 2022 and 2021, respectively, rather than in the current fiscal period.

Amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense as follows (in thousands):

Year ended June 30:	
2022	$ (28,520)
2023	(13,679)
2024	(14,377)
2025	(11,273)
2026	158

8. Leases

a) *Commitments*

The Authority has commitments under various operating leases, which contain escalation clauses, as lessee. The following is a schedule by years of minimum rental payments under non-cancelable operating leases as of June 30, 2021 (in thousands):

Years		Amount	Years		Amount
2022	$	9,800	2037 – 2041	$	5,097
2023		9,729	2042 – 2046		5,129
2024		4,345	2047 – 2051		5,129
2025		3,800	2052 – 2056		4,880
2026		2,816	2057 – 2061		4,880
2027 – 2031		9,650	2062 – 2066		4,880
2032 – 2036		5,076	2067 – 2071		3,578
			Total	$	78,789

Rent expense and other operating lease related payments were $11.1 million and $10.1 million for fiscal years 2021 and 2020, respectively.

b) *Rental Income*

The Authority leases a major portion of its Aviation and Port properties to various tenants. Many of these operating leases provide for periodic adjustments to rental rates, including certain provisions for contingent payments based on specified percentages of the tenant's gross revenue.

The following is a schedule by years of minimum future rental income on non-cancelable operating leases as of June 30, 2021 (in thousands):

Years		Amount	Years		Amount
2022	$	90,529	2062 – 2066	$	97,956
2023		79,448	2067 – 2071		103,798
2024		58,587	2072 – 2076		112,091
2025		51,796	2077 – 2081		119,481
2026		49,507	2082 – 2086		122,837
2027 – 2031		178,350	2087 – 2091		123,001
2032 – 2036		126,773	2092 – 2096		113,503
2037 – 2041		117,156	2097 – 2101		30,556
2042 – 2046		105,123	2102 – 2106		3,822
2047 – 2051		89,777	2107 – 2111		2,228
2052 – 2056		86,583	2112 – 2116		1,842
2057 – 2061		91,198	2117		202
			Total	$	1,956,144

Rental income and concession income, including contingent payments received under these provisions, were approximately \$365.2 million and \$443.1 million for the fiscal years 2021 and 2020, respectively.

9. Risk Management

The Authority, as mandated by the 1978 Trust Agreement, maintains a self-insurance account for general liability and workers compensation within the Operating Fund. The self-insurance accruals are determined based on insurance claim history and actuarial estimates needed to pay prior and current-year claims. The accrued liability was approximately \$10.5 million and \$9.3 million as of June 30, 2021 and 2020, respectively, and is included as a component of accrued expenses in the accompanying financial statements. This liability is fully funded as of June 30, 2021 and 2020.

Changes in the accrued liability accounts, related to self-insurance, in fiscal year 2021, 2020 and 2019 were as follows (in thousands):

	2021	2020	2019
Liability balance, beginning of year	$ 9,268	$ 8,890	$ 8,075
Provision to record estimated losses	5,258	3,594	3,972
Payments	(4,046)	(3,216)	(3,157)
Liability balance, end of year	$ 10,480	$ 9,268	$ 8,890

As part of its normal operations, the Authority encounters the risk of accidental losses stemming from third party liability claims, property loss or damage, and job related injuries and illnesses. In managing these loss exposures, a combination of risk management measures is applied, including safety and loss prevention programs, emergency planning, contractual risk transfer, self-insurance, and insurance.

In connection with the self-insurance and insurance programs, the Authority retains part of the losses incurred and internally manages the self-insured claims. The self-insured retention currently includes: \$1.0 million for worker's compensation per job related accident for Authority employees and International Longshoreman's Association Members; \$5,000 per occurrence for automobile liability; aviation general liability and airport terrorism insurance; \$0.25 million for airside incidents and for non-airside auto losses; \$25 thousand for Comprehensive Marine Liability, Terminal Operator's Liability, Stevedore's liability; and \$1.0 million plus 10% of the first \$50 million layer for property losses per occurrence. Insurance is purchased above the self-insured amounts, subject to availability and the reasonableness of cost. Liabilities for self-insured claims are reported if it is probable that a loss has been incurred and the amount can be reasonably estimated. These losses include an estimate of claims that have been incurred but not reported at year-end and are based on the historical cost of settling similar claims. The Authority records such liabilities as accrued expenses. The Authority from time to time is engaged in various matters of routine litigation. These matters include personal injury and property damage claims for which the

Authority's liability is covered in whole or in part by insurance. The Authority does not expect that these matters will require any amounts to be paid which in the aggregate would materially affect the financial statements.

Settled claims resulting from the risks discussed above have not exceeded the amount of insurance coverage in force in any of the past three fiscal years.

10. Payments in Lieu of Taxes

The Authority's Enabling Act and the 1978 Trust Agreement authorize and direct the Authority, subject to certain standards and limitations, to enter into agreements to make annual payments in lieu of taxes to the City of Boston and the Town of Winthrop (collectively, the "PILOT Agreements").

The PILOT Agreements provide that annual payments may not exceed the balance of revenues remaining after deposits to pay operating expenses, required deposits to the Interest and Sinking Fund and required deposits to the Maintenance Reserve Fund.

Pursuant to the terms of the amended payment–in-lieu-of-taxes agreement between the Authority and the City of Boston (the "Boston PILOT Agreement"), the Boston PILOT Agreement terminates on June 30, 2022; provided, however, that absent an annual election by either party to terminate the Boston PILOT Agreement, the term is subject to automatic one-year extensions of the term on each July 1. In November 2016, the City of Boston notified the Authority of its election to terminate the Boston PILOT Agreement on June 30, 2022, and the parties expect to commence negotiations on a successor agreement or an amendment to the existing agreement. The Boston PILOT Agreement provides for the Authority to pay an annual base amount (the "Base Amount") of $14.0 million, which, commencing in fiscal year 2007, increases annually by the annual percentage change in the consumer price index, provided that such increase shall be no less than 2% nor greater than 8% per year and a community portion (the "Community Portion").

Pursuant to the terms of the amended and restated payment-in-lieu-of-taxes agreement between the Authority and the Town of Winthrop (the "Winthrop PILOT Agreement"), the Winthrop PILOT Agreement expires June 30, 2025. The Winthrop PILOT Agreement was amended in November 2018, and pursuant thereto the Authority expects to make adjusted annual payments for the remainder of the term, commencing with a payment of $1.4 million in fiscal year 2019 and increasing annually to $2.0 million by fiscal year 2025, as well as an additional community portion.

PILOT expenses to the City of Boston for fiscal years 2021 and 2020 were $20.2 million and $19.7 million, respectively. PILOT expenses to the Town of Winthrop for fiscal years 2021 and 2020 were $2.0 million and $1.4 million, respectively.

11. Commitments

a) *Contractual Obligations for Construction*

The Authority enters into construction contracts with various construction and engineering companies. Construction contracts outstanding were approximately $315.2 million and $330.7 million as of June 30, 2021 and 2020, respectively.

b) *Seaport Bond Bill*

The Seaport Bond Bill was enacted in 1996 and among other things, provides for funding improvements to the Massachusetts rail transportation network allowing rail shipment of double stack cargo from Allston Yards in Boston to points west, which is anticipated to encourage expanded container shipments through the Port of Boston. The Seaport Bond Bill requires that the Authority provides up to fifty percent (50%) of the cost of improvements to the rail line from Framingham to the Allston Yard in Boston permitting double stack shipments. Expenditure of funds will not occur until the execution of a Master Agreement, as defined by the statute, between the Commonwealth and the participating railroads. The Authority believes that the likelihood that any such Master Agreement will be executed and Authority funds committed for double stack improvements within the next fiscal year is remote.

c) *Boston Harbor Dredging Project*

During fiscal year 2018, the Authority entered into an agreement with the Department of the Army and The Commonwealth of Massachusetts, Department of Transportation related to the Boston Harbor Deep Draft Improvement Project and the construction of the Dredged or excavated Material Facility at Boston Harbor, Massachusetts. This project includes the deepening and widening of the Broad Sound North Channel to 51 feet, the deepening and widening of the Main Ship Channel (MSC) and Reserve Channel Turning Basin to 47 feet. The non-federal share is split between the Authority and the Commonwealth. The project is expected to be completed in fiscal year 2022.

12. Litigation

The Authority is engaged in numerous matters of routine litigation. These matters include personal injury and property damage claims for which the Authority's liability is covered in whole or in part by insurance. Others include such matters as disputes with contractors, subcontractors, engineers and others arising out of construction and maintenance of the Authority's properties; disputes over leases and concessions; property, theft and damage claims arising from the Authority's operations, employment matters and workers compensation, as to which the Authority is self-insured. The Authority does not expect that these matters will require any amounts to be paid which, in the aggregate, will be material to the results of operations.

13. Federal Grants

The Authority participates in a number of federally assisted grant programs. These programs are subject to financial and compliance audits by the grantors or their representatives. In the opinion of the Authority's management, liabilities resulting from such disallowed expenditures, if any, will not be material to the accompanying financial statements.

In fiscal year 2021, the Authority was awarded $36.9 million of federal Coronavirus Response and Relief Appropriations ("CRRSA") Act funding under the Airport Coronavirus Response Grant Program to help offset the financial impact of the COVID-19 pandemic. The Authority recognized $34.5 million at June 30, 2021.

In fiscal year 2020, the Authority was awarded $143.7 million of federal Coronavirus Aid, Relief, and Economic Security ("CARES") Act funding to help offset the financial impact of the COVID-19 pandemic. The Authority recognized $86.6 million and $57.1 million at June 30, 2021 and 2020, respectively.

Both CARES and CRRSA grants are reported as a component of other non-operating revenues.

14. Pollution Remediation Obligation

The Authority is currently involved in six separate pollution remediation obligations that meet the requirements for accounting treatment under GASB Statement No. 49, Accounting and Financial Reporting for Pollution Remediation Obligations ("GASB No. 49"). These obligations are generally related to the removal and/or treatment of contaminated soil, groundwater and petroleum products associated with fuel storage and conveyance. GASB No. 49 dictates that for each obligating event, an estimate of the expected pollution remediation outlays is required to be accrued as a liability and expensed in the current period. Re-measurement of the liability is required when new information indicates increases or decreases in estimated outlays.

The estimated liability as of June 30, 2021 and 2020 is $2.4 million and $1.3 million, respectively, which represents the approximate amounts the Authority expects to pay for future remediation activities. The Authority paid approximately $1.0 million and $1.4 million in fiscal years 2021 and 2020, respectively. This estimate was generated using input and guidance from internal management and professional consultants, and represents a wide array of remediation activities ranging from onetime events to longer-term sustained monitoring activity. The Authority will continue to closely monitor each of these obligations, working toward regulatory closure, and will make any necessary adjustments to the potential liability as new information becomes available.

15. Interagency Agreements

a) Investment in Joint Venture

In May 1996, the Authority entered into an interagency agreement with the Massachusetts Highway Department ("MHD") and Massachusetts Bay Transportation Authority ("MBTA") for the construction of a Regional Transportation Center ("RTC") in Woburn, Massachusetts ("Interagency Agreement"). Under the terms of the Interagency Agreement, the Authority has paid one third of the costs of acquiring the site and constructing the RTC and will share in a like proportion in the profits and losses of the RTC. During fiscal years 2021 and 2020, the Authority recognized a net loss of approximately $0.3 million and a net income of approximately $0.2 million, respectively, representing its share of the net loss or earnings of the RTC.

b) Logan Airport Silver Line Transportation Agreement

The Authority entered into an agreement with the MBTA to provide public transportation between South Station in Boston, Massachusetts and Logan Airport along a route called the Silver Line. The Authority is responsible for paying the FAA approved rate of 76.06% of the costs to operate and maintain the Silver Line buses and 76.06% of the costs of the future rebuild of the Silver Line buses. During fiscal years 2021 and 2020, the estimated costs to operate and maintain the Silver Line buses was $2.69 million and $2.82 million, respectively.

MASSACHUSETTS PORT AUTHORITY

Required Supplementary Information (Unaudited)

Schedule of Pension Contributions

(In thousands)

For the years ending June 30,	2021	2020	2019	2018	2017
Actuarially determined contribution	$ 14,642	$ 12,029	$ 13,043	$ 13,362	$ 13,552
Actual contribution in relation to the actuarially determined contribution	14,642	12,029	13,043	13,362	13,552
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 117,317	$ 125,749	$ 117,686	$ 111,749	109,652
Contributions as a percentage of covered payroll	12.5%	9.6%	11.1%	12.0%	12.4%

For the years ending June 30,	2016	2015	2014	2013	2012
Actuarially determined contribution	$ 10,845	$ 11,146	$ 11,960	$ 9,594	$ 5,710
Actual contribution in relation to the actuarially determined contribution	10,845	11,146	11,960	9,594	5,710
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -
Covered payroll	$ 101,216	$ 96,686	$ 91,007	$ 86,657	$ 85,605
Contributions as a percentage of covered payroll	10.7%	11.5%	13.1%	11.1%	6.7%

Notes to Schedule

Valuation date: Actuarially determined contribution rates are calculated based on valuations as of January 1, 12 months prior to the end of the Trust's fiscal year in which contributions are reported.

Methods and assumptions used to determine contribution rates:

Actuarial cost method	Frozen entry age
Amortization method	20 Level dollar, closed
Remaining amortization period	Multiple bases with remaining periods from 4 to 20 years
Asset valuation method	Beginning in 2008, fair value of assets using a five year smoothing period. Prior to 2008, used four year asset smoothing period.
Inflation rate	3.0%
Salary increases	2020 val: 4.25% ; 2013 val: 4.50% ; 2009 val: 4.75% ; Prior to 2009: 5.00%
Investment rate of return / discount rate	2020 val: 7.00% ; 2016 val: 7.25%; 2015 val: 7.50%; 2012 val: 7.625% ; 2010 val: 7.75% ; 2009 val: 8.00% ; Prior to 2009: 7.75%
Retirement age	2019 valuation changed based on an experience study. In the 2013 valuation, additional retirement assumptions were added for employees hired after April 1, 2012 and subject to pension reform and the assumption was changed due to an experience study. In the 2008 valuation the retirement assumption was extended to age 70 for Group 1 employees.
Disability and withdrawal	Changed in 2019 and 2013 due to an experience study.
Mortality	2019 valuation saw a change to the RP-2014 mortality table projected generationally using MP-2018. Healthy – RP 2014 at Table Healthy Employees (sex distinct) projected with MP 2018 Generational Mortality. Post-retirement the RP 2014 healthy annuitant Table (sex distinct) projected with MP 2018 Generational Mortality. Disabled-RP 2014 at 2006 healthy annuitant Table (sex-distinct) projected with MP 2018 Generational Mortality set forward 2 years. Mortality for accidental disability is assumed to be 50% from the same cause as the disability. Changed in the 2018 valuation to; Healthy – RP 2000 Table (sex-distinct) projected with Scale BB and Generational Mortality. Post retirement the RP 2000 healthy annuitant Table (sex distinct) projected with Scale BB Generational Mortality. Disabled-RP 2000 healthy annuitant Table (sex-distinct) projected with Scale BB, a base year of 2000 and Generational Mortality for accidental disability is assumed to be 50% from the same cause as the disability.
Other information	Changed in the 2013 valuation due to an experience study. In the 2013 valuation, mortality was changed to RP2000 projected generationally with scale BB. In the 2012 valuation, mortality was changed to RP2000 projected 22 years using scale AA. In the 2009, 2010 and 2011 valuations mortality was changed to RP2000 projected nine, ten and eleven years, respectively, using scale AA. In the 2012 valuation the superannuation retirement liability and normal cost for actives was increased by 1.25% to reflect vacation buybacks. This provision was removed in the 2019 valuation, and replaced with a liability for return of related contributions. As of January 1, 2016, employees hired after September 30, 2009 are not eligible for post-retirement medical insurance until age 60, retirement age begins at age 60 with 10 years of service. As of January 1, 2013, the mortality assumption was changed to the RP2000 Generational Table and the retirement, disability and withdrawal assumptions were changed based on an experience study. As of January 1, 2012, the mortality assumption was changed to the RP2000 Table projected forward 22 years with Scale AA, interest rate changed to 7.625% (from 7.75%) and salary rate to 4.50% (from 4.75%). Vacation buyback factor was increased from 1.00% to 1.25%. As of January 1, 2011, the mortality assumption was changed to the RP2000 Table projected forward 11 years with Scale AA.

MASSACHUSETTS PORT AUTHORITY

Required Supplementary Information (Unaudited)

Schedule of Changes in the Net Pension Liability (Asset) and Related Ratios

(In thousands)

For the years ending December 31,	2020	2019	2018	2017	2016	2015	2014	2013
TOTAL PENSION LIABILITY								
Service cost	$ 17,335	$ 17,529	$ 16,774	$ 16,419	$ 15,920	$ 14,875	$ 13,056	$ 12,516
Interest	53,204	51,734	49,569	47,341	44,962	41,160	40,956	38,660
Change in benefit terms	-	-	(4,891)	-	-	-	-	-
Differences between expected and actual experience	5,846	15	749	(1,474)	2,592	(1,395)	1,929	-
Change of assumptions	15,574	(13,789)	-	-	(1,479)	24,098	-	-
Benefit payments , including refunds of employee contributions	(36,952)	(33,101)	(33,087)	(30,731)	(28,604)	(26,106)	(24,357)	(22,708)
Net change in total pension liability	55,007	22,388	29,114	31,555	33,391	52,632	31,584	28,468
Total pension liability - beginning	734,985	712,597	683,483	651,928	618,537	565,905	534,321	505,853
Total pension liability - ending	$ 789,992	$ 734,985	$ 712,597	$ 683,483	$ 651,928	$ 618,537	$ 565,905	$ 534,321
PLAN FIDUCIARY NET POSITION								
Contributions - employer	$ 14,642	$ 12,029	$ 13,043	$ 13,362	$ 13,552	$ 10,845	$ 11,146	$ 11,960
Contributions - employee	13,100	12,576	11,559	11,242	10,660	9,948	9,628	9,112
Net Investment Income	113,321	118,235	(31,212)	92,226	42,565	(4,572)	32,062	65,818
Benefit payments , including refunds of employee contributions	(36,952)	(33,101)	(33,087)	(30,731)	(28,604)	(26,106)	(24,357)	(22,707)
Administrative expense	(1,152)	(1,216)	(1,182)	(1,149)	(1,189)	(1,189)	(1,417)	(957)
Net change in plan fiduciary net position	102,959	108,523	(40,879)	84,950	36,984	(11,074)	27,062	63,226
Plan fiduciary net position - beginning	716,200	607,677	648,556	563,606	526,622	537,696	510,634	447,408
Plan fiduciary net position - end	$ 819,159	$ 716,200	$ 607,677	$ 648,556	$ 563,606	$ 526,622	$ 537,696	$ 510,634
Massport net pension liability (asset) - ending	$ (29,167)	$ 18,785	$ 104,920	$ 34,927	$ 88,322	$ 91,915	$ 28,209	$ 23,687
Plan fiduciary net position as a percentage of the total pension liability (asset)	103.7%	97.4%	85.3%	94.9%	86.5%	85.1%	95.0%	95.6%
Covered payroll	128,613	119,262	114,541	114,385	112,167	99,190	99,113	90,042
Massport's net pension liability (asset) as a percentage of covered payroll	-22.7%	15.8%	91.6%	30.5%	78.7%	92.7%	28.5%	26.3%

This schedule is intended to present 10 years of data. Additional years will be presented when available.

Note to Schedule
This schedule is presented based on a measurement date that is 6 months in arrears.

Benefit changes None

Changes in assumptions Mortality Tables
Changed in the 2019 valuation to;
Healthy – RP 2014 at Table Healthy Employees (sex distinct) projected with MP 2018 Generational Mortality.
Post-retirement the RP 2014 healthy annuitant Table (sex distinct) projected with MP 2018 Generational Mortality.
Disabled-RP 2014 at 2006 healthy annuitant Table (sex-distinct) projected with MP 2018 Generational Mortality set forward 2 years. Mortality for accidental disability is assumed to be 50% from the same cause as the disability.

Changed in the 2018 valuation to;
Healthy – RP 2000 Table (sex-distinct) projected with Scale BB and Generational Mortality. Post retirement the RP 2000 healthy annuitant Table (sex distinct) projected with Scale BB Generational Mortality.
Disabled-RP 2000 healthy annuitant Table (sex-distinct) projected with Scale BB, a base year of 2000 and Generational Mortality for accidental disability is assumed to be 50% from the same cause as the disability.

Mortality table changes from Scale AA to BB in fiscal year 2017.

MASSACHUSETTS PORT AUTHORITY

Required Supplementary Information (Unaudited)

Schedule of Pension Investment Returns

	December 2020	December 2019	December 2018	December 2017	December 2016
Annual money-weighted rate of return, net of investment expense	16.14 %	19.64 %	(4.83)%	16.51 %	8.14 %

	December 2015	December 2014	December 2013
Annual money-weighted rate of return, net of investment expense	(0.82)%	6.36 %	14.80 %

Note: This schedule is intended to present 10 years of data. Additional years will be presented when available.

MASSACHUSETTS PORT AUTHORITY
Required Supplementary Information (Unaudited)
Schedule of OPEB Contributions

For the years ending June 30,	2021	2020	2019	2018	2017
Actuarially determined contribution	$ 20,294	$ 9,741	$ 15,725	$ 15,177	$ 18,084
Authority contribution	8,894	8,894	18,398	15,682	14,300
Contribution deficiency (excess)	$ 11,400	$ 847	$ (2,673)	$ (505)	$ 3,784
Covered payroll	$ 136,411	$ 144,321	$ 139,318	$ 133,316	$ 129,414
Contributions as a % of covered payroll	6.5%	6.2%	13.2%	11.8%	11.0%

For the years ending June 30,	2016	2015	2014	2013	2012
Actuarially determined contribution	$ 14,390	$ 13,187	$ 14,738	$ 14,006	$ 18,444
Authority contribution	12,000	12,000	14,000	20,851	13,807
Contribution deficiency (excess)	$ 2,390	$ 1,187	$ 738	$ (6,845)	$ 4,637
Covered payroll	$ 117,743	$ 116,302	$ 108,984	$ 101,106	$ 96,137
Contributions as a % of covered payroll	10.2%	10.3%	12.8%	20.6%	14.4%

Methods and assumptions used to determine contribution rates:

Valuation date:
*ADC and Contribution amounts for years prior to December 2019 are measured from July 1 to June 30.
Actuarially determined contribution rates are calculated as of January 1, six months prior to the beginning of the fiscal year in which contributions are reported. The January 1, 2017 valuation established the rate for the fiscal year 2018 contribution and the January 1, 2018 valuation established the fiscal year 2019 contribution. The following assumptions were used for the periods included in the funding for 2020 and 2019:

Actuarial cost method: Contribution: Projected Unit Credit
Net OPEB Liability: Entry Age Normal

Amortization method: 30 year level, closed, 18 years remaining

Asset valuation method: Fair value

Inflation: 3.0%

Salary increases: 4.5%, including inflation 2013 forward
4.75%, including inflation 2009 to 2012

Investment rate of return: 7.00% annually, net of plan investment expenses for funded program 2016 forward
7.25% annually, net of plan investment expenses for funded program 2016 forward
7.50% annually, net of plan investment expenses for funded program 2015
7.75% annually, net of plan investment expenses for funded program pre 2013
4.00% annually, net of plan investment expenses for unfunded program 2013 on
4.25% annually, net of plan investment expenses for unfunded program pre 2013

Health care trend rates Initial annual health care cost trend rate range of 2.7% to 9.0% which decreases to a long-term trend rate between 5.0% and 6.0% for all health care benefits after ten years. The initial annual dental cost trend rates range from 5.0% to 7.0% which decrease to a long term trend rate of 5.0% for all dental benefits after ten years.

Mortality: Actives - RP 2014 Table adjusted to 2006, (sex distinct), for Employees projected using Generational Mortality and scale MP - 2018.
Retirees - RP 2014 Table adjusted to 2006, (sex distinct), for Healthy Annuitants projected using Generational Mortality and scale MP - 2018.
Disabled - RP 2014 Table adjusted to 2006, (sex distinct), for Healthy Annuitants projected using Generational Mortality and scale MP - 2018. Set forward 2 years.

Notes to Schedule

Benefit changes: None

Changes in assumptions: Mortality table changes from RP2000 with Scale BB to RP 2014.
Prior valuation mortality was as follows:
Actives - RP 2000 Mortality Tables, (sex distinct), for Employees projected using generational mortality and scale BB using a base year of 2000 .
Retirees - RP 2000 Mortality Tables, (sex distinct), for Healthy Annuitants projected using generational mortality and scale BB using a base year of 2000 .
Disabled - RP 2000 Tables (sex distinct), for Healthy Annuitants projected using generational mortality and scale BB. Set forward 2 years.

Other information: As of January 1, 2019, the effects of the "Cadillac Tax" on liabilities was eliminated.

As of January 1, 2018, the scales used to convert the premiums to age weighted claim costs were updated and the effect of the “Cadillac Tax” on liabilities was recognized.

As of January 1, 2017, the mortality assumption was changed to the RP 2000 Table with Scale AA to Scale BB.

As of January 1, 2016, employees hired after September 30, 2009 are not eligible for post-retirement medical insurance until age 60, retirement age begins at age 60 with 10 years of service.

As of January 1, 2013, the mortality assumption was changed to the RP 2000 Generational Table and the retirement, disability and withdrawal assumptions were changed based on an experience study.

As of January 1, 2012, the mortality assumption was changed to the RP 2000 Table projected forward 22 years with Scale AA.

As of January 1, 2011, the mortality assumption was changed to the RP 2000 Table projected forward 11 years with Scale AA.

MASSACHUSETTS PORT AUTHORITY
Required Supplementary Information (Unaudited)
Schedule of Changes in the Net OPEB Liability and Related Ratios
(in thousands)

	December 2020	December 2019 *	June 2018	June 2017	June 2016
Total OPEB liability:					
Service cost	$ 6,103	$ 9,022	$ 6,692	$ 6,405	$ 5,891
Interest	24,569	37,032	23,870	22,693	20,285
Differences between expected and actual experience	(16,263)	(7,968)	(17,359)	—	18,841
Change of assumptions	(11,751)	(3,552)	8,575	—	—
Benefits payments	(13,692)	(20,432)	(13,428)	(12,643)	(11,987)
Net change in total OPEB liability	(11,034)	14,102	8,350	16,455	33,030
Total OPEB liability – beginning	351,726	337,624	329,274	312,819	279,789
Total OPEB liability – ending (a)	$ 340,692	$ 351,726	$ 337,624	$ 329,274	$ 312,819
Trust fiduciary net position:					
Contributions – employer	10,552	29,668	17,237	15,787	13,340
Contributions – employees	319	468	279	248	209
Net investment income	36,052	31,460	13,755	19,829	2,348
Benefits payments	(14,010)	(20,900)	(13,428)	(12,643)	(11,987)
Administrative expenses	(222)	(332)	(184)	(173)	(172)
Net change in fiduciary net position	32,691	40,364	17,659	23,048	3,738
Trust fiduciary net position – beginning	243,439	203,075	185,416	162,368	158,630
Trust fiduciary net position – ending (b)	$ 276,130	$ 243,439	$ 203,075	$ 185,416	$ 162,368
Authority's net OPEB liability – end of year (a-b)	$ 64,562	$ 108,287	$ 134,549	$ 143,858	$ 150,451
Trust fiduciary net position as a percentage of the total OPEB liability	81.0%	69.2%	60.1%	56.3%	51.9%
Covered payroll	$ 141,877	$ 125,822	$ 140,995	$ 135,585	$ 131,477
Net OPEB liability as a percentage of covered payroll	45.5%	86.1%	95.4%	106.1%	114.4%

This schedule is intended to present 10 years of data. Additional years will be presented when available.

Notes to Schedule

During FY 2020 the Trust changed its fiscal year end to December 31.
The measurement date for 2020 is 6 months in arrears and previous periods are 1 year in arrears.

Benefit changes - none

Changes in assumptions :

As of January 1, 2020, the mortality assumptions for Actives and Retirees was changed to the RP-2014 Table adjusted to 2006, sex distinct, using generational mortality and scale MP-2020 and the disability assumptions were changed as above, set forward 2 years.

As of January 1, 2019, the effect of the "Cadillac Tax" on liabilities was eliminated.

As of January 1, 2018, the scales used to convert the premiums to age weighted claim costs were updated and the effect of the “Cadillac Tax” on liabilities was recognized.

OPEB liabilities as of December 31, 2020 no longer include an estimate of the impact from the Patient Protection and Affordable Care Act (PPACA),

MASSACHUSETTS PORT AUTHORITY

Required Supplementary Information (Unaudited)

Schedule of OPEB Investment Returns

	December 2020	December 2019	June 2019	June 2018	June 2017	June 2016
Annual money-weighted rate of return, net of investment expense	14.07 %	14.12 %	7.64 %	7.32 %	11.88 %	1.53 %

Note: This schedule is intended to present 10 years of data. Additional years will be presented when available.

Schedule I

MASSACHUSETTS PORT AUTHORITY

Combining Statement of Net Position

Proprietary Fund Type – Enterprise Fund

June 30, 2021

(In thousands)

	Authority Operations	PFC Program	CFC Program	Combined Totals
Current assets:				
Cash and cash equivalents	$ 181,240	$ —	$ —	$ 181,240
Investments	164,363	—	—	164,363
Restricted cash and cash equivalents	218,283	39,828	16,127	274,238
Restricted investments	526,430	21,091	10,178	557,699
Accounts receivable				
Trade, net	71,635	8,868	1,811	82,314
Grants	53,312	—	—	53,312
Total receivables, net	124,947	8,868	1,811	135,626
Prepaid expenses and other assets	8,581	—	41	8,622
Total current assets	1,223,844	69,787	28,157	1,321,788
Noncurrent assets:				
Investments	271,229	—	—	271,229
Restricted investments	379,033	3,109	32,263	414,405
Accounts receivable, long-term	16,420	—	—	16,420
Prepaid expenses and other assets, long-term	6,087	—	580	6,667
Investment in joint venture	2,838	—	—	2,838
Net pension asset	29,167	—	—	29,167
Capital assets-not being depreciated	1,008,373	—	2,218	1,010,591
Capital assets-being depreciated-net	2,521,710	364,352	209,224	3,095,286
Total noncurrent assets	4,234,857	367,461	244,285	4,846,603
Total assets	5,458,701	437,248	272,442	6,168,391
Deferred outflows of resources				
Deferred loss on refunding of bonds	11,801	—	—	11,801
Deferred outflows of resources related to pensions	30,957	—	—	30,957
Deferred outflows of resources related to OPEB	24,489	—	—	24,489
Total deferred outflows of resources	67,247	—	—	67,247
Current liabilities:				
Accounts payable and accrued expenses	192,127	544	301	192,972
Compensated absences	1,140	—	—	1,140
Contract retainage	7,179	—	—	7,179
Current portion of long-term debt	26,568	—	—	26,568
Commercial notes payable	22,000	—	—	22,000
Accrued interest payable	49,488	—	3,772	53,260
Unearned revenues	6,749	—	—	6,749
Total current liabilities	305,251	544	4,073	309,868
Noncurrent liabilities				
Accrued expenses	11,147	—	307	11,454
Compensated absences	14,578	—	—	14,578
Net OPEB liability	64,562	—	—	64,562
Contract retainage	11,690	—	—	11,690
Long-term notes payable,	258,000	—	—	258,000
Long-term debt, net	2,624,625	—	120,255	2,744,880
Unearned revenues	26,941	—	—	26,941
Total noncurrent liabilities	3,011,543	—	120,562	3,132,105
Total liabilities	3,316,794	544	124,635	3,441,973
Deferred inflows of resources				
Deferred gain on refunding of bonds	25,864	—	—	25,864
Deferred inflows of resources related to pensions	83,912	—	—	83,912
Deferred inflows of resources related to OPEB	60,495	—	—	60,495
Total deferred inflows of resources	170,271	—	—	170,271
Net position				
Net investment in capital assets	876,891	364,353	109,846	1,351,090
Restricted for other purposes				
Bond funds	224,209	—	—	224,209
Project funds	423,022	—	—	423,022
Passenger facility charges	—	72,351	—	72,351
Customer facility charges	—	—	37,961	37,961
Other purposes	28,251	—	—	28,251
Total restricted	675,482	72,351	37,961	785,794
Unrestricted	486,510	—	—	486,510
Total net position	$ 2,038,883	$ 436,704	$ 147,807	$ 2,623,394

MASSACHUSETTS PORT AUTHORITY

Combining Statement of Revenues, Expenses, and Changes in Net Position

Proprietary Fund Type – Enterprise Fund

Year ended June 30, 2021

(In thousands)

	Authority Operations	PFC Program	CFC Program	Combined Totals
Operating revenues:				
Aviation rentals	$ 270,643	$ —	$ —	$ 270,643
Aviation parking	58,213	—	—	58,213
Aviation shuttle bus	8,084	—	—	8,084
Aviation fees	141,535	—	—	141,535
Aviation concessions	58,368	—	—	58,368
Aviation operating grants and other	1,759	—	—	1,759
Maritime fees, rentals and other	80,107	—	—	80,107
Real estate fees, rents and other	38,013	—	—	38,013
Total operating revenues	656,722	—	—	656,722
Operating expenses:				
Aviation operations and maintenance	252,482	—	—	252,482
Maritime operations and maintenance	54,747	—	—	54,747
Real estate operations and maintenance	14,338	—	—	14,338
General and administrative	56,196	—	—	56,196
Payments in lieu of taxes	22,247	—	—	22,247
Pension and other post-employment benefits	(9,764)	—	—	(9,764)
Other	13,777	—	—	13,777
Total operating expenses before depreciation and amortization	404,023	—	—	404,023
Depreciation and amortization	240,961	52,278	14,344	307,583
Total operating expenses	644,984	52,278	14,344	711,606
Operating income (loss)	11,738	(52,278)	(14,344)	(54,884)
Nonoperating revenues and (expenses):				
Passenger facility charges	—	27,948	—	27,948
Customer facility charges	—	—	11,657	11,657
Investment income	14,583	240	698	15,521
Net increase (decrease) in the fair value of investments	(6,682)	(41)	(274)	(6,997)
Other revenues	126,443	—	49	126,492
Settlement of claims	2	—	—	2
Terminal A debt service contribution	7,066	(7,066)	—	—
Other expenses	(309)	—	(120)	(429)
Gain on sale of equipment	(41)	—	—	(41)
Interest expense	(90,289)	(305)	(7,552)	(98,146)
Total nonoperating revenue, net	50,773	20,776	4,458	76,007
Increase (decrease) in net position before capital contributions	62,511	(31,502)	(9,886)	21,123
Capital contributions	61,923	—	—	61,923
Increase (decrease) in net position	124,434	(31,502)	(9,886)	83,046
Net position, beginning of year	1,914,449	$ 468,206	$ 157,693	2,540,348
Net position, end of year	$ 2,038,883	$ 436,704	$ 147,807	$ 2,623,394

Schedule III

MASSACHUSETTS PORT AUTHORITY

Combining Statement of Net Position

Proprietary Fund Type – Enterprise Fund

June 30, 2020

(In thousands)

	Authority Operations	PFC Program	CFC Program	Combined Totals
Current assets:				
Cash and cash equivalents	$ 82,623	$ —	$ —	$ 82,623
Investments	142,427	—	—	142,427
Restricted cash and cash equivalents	368,560	37,648	11,974	418,182
Restricted investments	411,386	12,928	51,263	475,577
Accounts receivable				
Trade, net	72,426	1,401	577	74,404
Grants	39,229	—	—	39,229
Total receivables, net	111,655	1,401	577	113,633
Prepaid expenses and other assets	10,306	—	43	10,349
Total current assets	1,126,957	51,977	63,857	1,242,791
Noncurrent assets:				
Investments	254,683	—	—	254,683
Restricted investments	325,531	—	—	325,531
Prepaid expenses and other assets, long-term	5,802	—	620	6,422
Investment in joint venture	3,147	—	—	3,147
Capital assets-not being depreciated	730,375	—	94	730,469
Capital assets-being depreciated-net	2,592,589	416,629	223,423	3,232,641
Total noncurrent assets	3,912,127	416,629	224,137	4,552,893
Total assets	5,039,084	468,606	287,994	5,795,684
Deferred outflows of resources				
Deferred loss on refunding of bonds	13,304	—	—	13,304
Deferred outflows of resources related to pensions	9,712	—	—	9,712
Deferred outflows of resources related to OPEB	17,254	—	—	17,254
Total deferred outflows of resources	40,270	—	—	40,270
Current liabilities:				
Accounts payable and accrued expenses	231,403	400	49	231,852
Compensated absences	1,462	—	—	1,462
Contract retainage	11,007	—	—	11,007
Current portion of long-term debt	74,013	—	4,165	78,178
Commercial notes payable	22,000	—	—	22,000
Accrued interest payable	48,437	—	5,476	53,913
Unearned revenues	5,462	—	—	5,462
Total current liabilities	393,784	400	9,690	403,874
Noncurrent liabilities				
Accrued expenses	9,669	—	356	10,025
Compensated absences	18,698	—	—	18,698
Net pension liability	18,785	—	—	18,785
Net OPEB liability	108,287	—	—	108,287
Contract retainage	10,233	—	—	10,233
Long-term notes payable,	330,500	—	—	330,500
Long-term debt, net	2,159,275	—	120,255	2,279,530
Unearned revenues	27,730	—	—	27,730
Total noncurrent liabilities	2,683,177	—	120,611	2,803,788
Total liabilities	3,076,961	400	130,301	3,207,662
Deferred inflows of resources				
Deferred gain on refunding of bonds	9,847	—	—	9,847
Deferred inflows of resources related to pensions	47,935	—	—	47,935
Deferred inflows of resources related to OPEB	30,162	—	—	30,162
Total deferred inflows of resources	87,944	—	—	87,944
Net position				
Net investment in capital assets	1,014,177	416,629	117,824	1,548,630
Restricted for other purposes				
Bond funds	259,893	—	—	259,893
Project funds	328,897	—	—	328,897
Passenger facility charges	—	51,577	—	51,577
Customer facility charges	—	—	39,869	39,869
Other purposes	34,416	—	—	34,416
Total restricted	623,206	51,577	39,869	714,652
Unrestricted	277,066	—	—	277,066
Total net position	$ 1,914,449	$ 468,206	$ 157,693	$ 2,540,348

Schedule IV

MASSACHUSETTS PORT AUTHORITY

Combining Statement of Revenues, Expenses, and Changes in Net Position

Proprietary Fund Type – Enterprise Fund

Year ended June 30, 2020

(In thousands)

	Authority Operations	PFC Program	CFC Program	Combined Totals
Operating revenues:				
Aviation rentals	$ 275,271	$ —	$ —	$ 275,271
Aviation parking	136,951	—	—	136,951
Aviation shuttle bus	17,013	—	—	17,013
Aviation fees	139,239	—	—	139,239
Aviation concessions	111,130	—	—	111,130
Aviation operating grants and other	2,762	—	—	2,762
Maritime fees, rentals and other	92,952	—	—	92,952
Real estate fees, rents and other	49,196	—	—	49,196
Total operating revenues	824,514	—	—	824,514
Operating expenses:				
Aviation operations and maintenance	295,748	—	—	295,748
Maritime operations and maintenance	61,089	—	—	61,089
Real estate operations and maintenance	14,971	—	—	14,971
General and administrative	68,083	—	—	68,083
Payments in lieu of taxes	21,030	—	—	21,030
Pension and other post-employment benefits	36,058	—	—	36,058
Other	9,684	—	—	9,684
Total operating expenses before depreciation and amortization	506,663	—	—	506,663
Depreciation and amortization	233,992	51,013	14,329	299,334
Total operating expenses	740,655	51,013	14,329	805,997
Operating income (loss)	83,859	(51,013)	(14,329)	18,517
Nonoperating revenues and (expenses):				
Passenger facility charges	—	59,875	—	59,875
Customer facility charges	—	—	25,884	25,884
Investment income	32,375	1,101	2,455	35,931
Net increase in the fair value of investments	8,076	14	117	8,207
Other revenues	65,203	—	49	65,252
Settlement of claims	(22)	—	—	(22)
Terminal A debt service contribution	11,572	(11,572)	—	—
Other expenses	—	—	(187)	(187)
Gain on sale of equipment	264	—	—	264
Interest expense	(92,361)	(1,451)	(15,629)	(109,441)
Total nonoperating revenue, net	25,107	47,967	12,689	85,763
Increase (decrease) in net position before capital contributions	108,966	(3,046)	(1,640)	104,280
Capital contributions	59,899	—	—	59,899
Increase (decrease) in net position	168,865	(3,046)	(1,640)	164,179
Net position, beginning of year	1,745,584	471,252	159,333	2,376,169
Net position, end of year	$ 1,914,449	$ 468,206	$ 157,693	$ 2,540,348

MASSACHUSETTS PORT AUTHORITY **Schedule V**

Combining Statements of Fiduciary Net Position

Fiduciary Funds

June 30, 2021

(in thousands)

	Pension	Retiree Benefit Trust Fund	Total Pension and Retiree Benefit Trust Funds
Assets:			
Cash and cash equivalents	$ 800	$ 217	$ 1,017
Investments, at fair value:			
Common stocks	15,638	—	15,638
Commingled funds:			
Domestic equity	218,759	112,571	331,330
Fixed income	221,215	77,305	298,520
International equity	238,368	60,380	298,748
Real estate	52,881	25,867	78,748
Private Equity	63,494	—	63,494
Total investments, at fair value	810,355	276,123	1,086,478
Receivables:			
Plan member contributions	292	—	292
Employer contributions	7,321	—	7,321
Accrued interest and dividends	19	—	19
Other state retirement plans	1,537	—	1,537
Receivable for securities sold	21	—	21
Other	5	27	32
Total receivables	9,195	27	9,222
Total assets	820,350	276,367	1,096,717
Liabilities:			
Payables to other state retirement plans	679	—	679
Payable for securities purchased			—
Other payables	512	237	749
Total liabilities	1,191	237	1,428
Net position:			
Restricted for:			
Pensions	819,159		819,159
Postemployment benefits other than pensions		276,130	276,130
Total net position	$ 819,159	$ 276,130	$ 1,095,289

Schedule VI

MASSACHUSETTS PORT AUTHORITY

Combining Statements of Change in Fiduciary Net Position

Fiduciary Funds

Year ended June 30, 2021

(in thousands)

	Pension	Retiree Benefit Trust Fund	Total Pension and Retiree Benefit Trust Funds
Additions:			
Contributions:			
Plan members	$ 13,100	$ 319	$ 13,419
Plan sponsor	14,642	8,894	23,536
Total contributions	27,742	9,213	36,955
Intergovernmental:			
Transfers from other state retirement plans	173	—	173
Section 3(8)(c) transfers, net	1,200	—	1,200
Net intergovernmental	1,373	—	1,373
Investment earnings:			
Interest and dividends	10,360	5,335	15,695
Net appreciation in fair value of investments	105,606	30,866	136,472
Less management and related fees	(2,645)	(150)	(2,795)
Net investment earnings	113,321	36,051	149,372
Total additions	142,436	45,264	187,700
Deductions:			
Retirement benefits	36,625	12,351	48,976
Withdrawals by inactive members	1,047	—	1,047
Transfers to other state retirement plans	653	—	653
Administrative expenses	1,153	222	1,375
Total deductions	39,478	12,573	52,051
Net increase in fiduciary net position	102,958	32,691	135,649
Net position - beginning of year	716,201	243,439	959,640
Net position - end of year	$ 819,159	$ 276,130	$ 1,095,289

Schedule VII

MASSACHUSETTS PORT AUTHORITY

Combining Statements of Fiduciary Net Position

Fiduciary Funds

June 30, 2020

(in thousands)

	Pension	Retiree Benefit Trust Fund	Total Pension and Retiree Benefit Trust Funds
Assets:			
Cash and cash equivalents	$ 1,198	$ 5,018	$ 6,216
Investments, at fair value:			
Common stocks	19,900	—	19,900
Commingled funds:			
Domestic equity	171,813	99,488	271,301
Fixed income	217,630	72,145	289,775
International equity	204,197	48,323	252,520
Real estate	52,556	20,775	73,331
Private Equity	47,631	—	47,631
Total investments, at fair value	713,727	240,731	954,458
Receivables:			
Plan member contributions	650	—	650
Employer contributions	—	—	—
Accrued interest and dividends	19	—	19
Other state retirement plans	1,482	—	1,482
Receivable for securities sold	135	—	135
Other	29	26	55
Total receivables	2,315	26	2,341
Total assets	717,240	245,775	963,015
Liabilities:			
Payables to other state retirement plans	623	—	623
Payable for securities purchased	43		43
Other payables	373	2,336	2,709
Total liabilities	1,039	2,336	3,375
Net position:			
Restricted for:			
Pensions	716,201		716,201
Postemployment benefits other than pensions		243,439	243,439
Total net position	$ 716,201	$ 243,439	$ 959,640

Schedule VIII

MASSACHUSETTS PORT AUTHORITY
Combining Statements of Change in Fiduciary Net Position
Fiduciary Funds
Year ended June 30, 2020
(in thousands)

	Pension	Retiree Benefit Trust Fund	Total Pension and Retiree Benefit Trust Funds
Additions:			
Contributions:			
Plan members	$ 12,576	$ 157	$ 12,733
Plan sponsor	12,029	8,894	20,923
Total contributions	24,605	9,051	33,656
Intergovernmental:			
Transfers from other state retirement plans	2,396	—	2,396
Section 3(8)(c) transfers, net	827	—	827
Net intergovernmental	3,223	—	3,223
Investment earnings:			
Interest and dividends	13,996	2,875	16,871
Net appreciation in fair value of investments	106,766	13,032	119,798
Less management and related fees	(2,527)	(292)	(2,819)
Net investment earnings	118,235	15,615	133,850
Total additions	146,063	24,666	170,729
Deductions:			
Retirement benefits	35,378	6,240	41,618
Withdrawals by inactive members	533	—	533
Transfers to other state retirement plans	412	—	412
Administrative expenses	1,216	135	1,351
Total deductions	37,539	6,375	43,914
Net increase in fiduciary net position	108,524	18,291	126,815
Net position - beginning of year	607,677	225,148	832,825
Net position - end of year	$ 716,201	$ 243,439	$ 959,640

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Boston Logan International Airport Market Analysis

June 27, 2022

Submitted to:
Massachusetts Port Authority

Submitted by:
ICF
100 Cambridgepark Drive, Suite 501
Cambridge, MA 02140

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June 27, 2022

Massachusetts Port Authority

One Harborside Drive, Suite 200S

East Boston, MA 02128-2909

Re: Boston Logan International Airport Market Analysis – Massachusetts Port Authority Revenue Bonds, Series 2022-A

Dear Members of the Authority:

This study includes an analysis of the underlying economic basis for air travel demand at Logan International Airport ("Logan Airport" or the "Airport") and a review of current and long-term traffic and air service trends at the Airport. In this report, ICF also presents an overview of the current impact of the COVID-19 health pandemic on the U.S. aviation industry and at Logan Airport. We examine how the industry and Logan Airport are recovering from the current health-related, economic, and aviation-related downturn. Finally, this report presents ICF's review of the Massachusetts Port Authority's aviation activity projections for the Airport.

The analysis used in this report is consistent with industry practices for similar studies in connection with airport bond issuances. ICF has relied on various published economic and aviation statistics, forecasts and information, in addition to statistics provided directly by the Massachusetts Port Authority. ICF believes that these sources are reliable; however, ICF's opinion could vary materially should some of these sources prove to be inaccurate.

ICF's opinions are based upon historical trends and expectations that it believes are reasonable. Some of the underlying assumptions, which are detailed explicitly or implicitly in this report, may or may not materialize because of unanticipated events or circumstances. ICF's opinions could vary materially should any key assumption prove to be inaccurate.

Sincerely,

ICF

ICF

Table of Contents

List of Exhibits

Table of Acronyms/Glossary

Term	Definition
Ancillary Revenue	Non-fare related airline revenue including fees for baggage, reservations and cancellations, early boarding, premium seating, onboard retail, and hotel and car rental commissions.
Boston Service Area	Greater Boston area that includes the following seven (7) counties: Bristol, Essex, Middlesex, Norfolk, Plymouth, Suffolk, and Worcester.
Common-Use Gate	A common-use gate at Boston Logan is a gate which is scheduled and controlled by Massport.
Large Hub	Airports that enplane at least 1.0 percent of total annual U.S. passenger enplanements (defined by the Federal Aviation Administration ("FAA")).
Medium Hub	Airports that enplane at least 0.25 percent but less than one percent of total annual passenger enplanements in the U.S. (FAA).
Non Hub	Airports that enplane more than 10,000 passengers but less than 0.05 percent of total annual passenger enplanements in the U.S. (FAA).
Large Jet	Jet aircraft over 90 seats (FAA).
Low Cost Carrier (LCC)	The opposite of a full service carrier, an LCC typically offers fewer amenities and lower fares; often minimizes the number of aircraft types operated in order to lower costs. In the U.S., there are currently nine LCCs in operation: Aha! (regional airline), Allegiant Air, Avelo Airlines, Breeze Airways, Frontier Airlines, JetBlue, Southwest Airlines, Spirit Airlines, and Sun Country Airlines.
Major Carrier	Major airlines are defined by the U.S. DOT as those exceeding $1 billion per year in revenue and include Allegiant Air (Allegiant), American Airlines (American), Alaska Airlines (Alaska), Delta Air Lines (Delta), Frontier Airlines (Frontier), Hawaiian Airlines (Hawaiian), JetBlue Airways (JetBlue), Southwest Airlines (Southwest), Spirit Airlines (Spirit), and United Airlines (United).
Network/Full Service Carrier (FSC)	A carrier that operates a hub-and-spoke route structure with more amenities included than low cost carriers; typically offers multiple classes of service (e.g., economy, business, first). Also known as a "legacy carrier". In the U.S., American Airlines, Delta Air Lines, United Airlines, Alaska Airlines, and Hawaiian Airlines are considered full service carriers.
Origin & Destination (O&D)	A measure from the point of origination of a passenger to the final destination. It is the true trip of the passenger, although the passenger may change flights and planes at least once during the journey. It allows carriers to determine where their true business lies.
Regional Carrier	Carriers operating smaller piston, turboprop, and regional jet aircraft (up to 90 seats) to provide connecting passengers to the larger carriers (FAA).
Small Hub	Airports that enplane at least 0.05 percent but less than 0.25 percent of total annual passenger enplanements in the U.S. (FAA).
Visiting Friends and Relatives (VFR)	VFR travel is a form of travel involving a visit whereby either (or both) the purpose of the trip or the type of accommodation involves visiting friends and / or relatives.
Ultra-Low Cost Carrier (ULCC)	A type of low cost carrier operating a business model with extreme unbundling of services. The purchase of a ticket on a ULCC typically covers only the seat and does not include seat choice, food or drink, checked or carry-on luggage, or a paper boarding pass - all amenities available for additional a la carte purchase. In this report, six ULCCs are discussed: Allegiant, Avelo Airlines, Breeze Airways, Frontier, Spirit, and Sun Country Airlines (Sun Country). Each of these six ULCCs, with the exception of Sun Country, is also considered a Major Carrier. Sun Country is categorized as a national carrier by U.S. DOT, which is a scheduled airline with annual operating revenues between $100 million and $1.0 billion.
Upgauging	The substitution of larger seat capacity aircraft for smaller capacity aircraft on a specific route.
Year-end (YE)	The previous 12-month period (i.e., YE September 2021 = October 2020-September 2021)
Yield	Passenger ticket revenue per seat mile, excluding fees paid for ancillary products and services.

1 INTRODUCTION AND SUMMARY

1.1 Introduction

The Massachusetts Port Authority ("Massport" or the "Authority") retained ICF to perform a market analysis of Boston Logan International Airport ("Logan" or "Logan Airport" or the "Airport") in connection with the issuance by Massport of its Revenue Bonds, Series 2022-A (AMT) (Green Bonds) (the "2022 Bonds").

This study includes an analysis of underlying regional socioeconomic drivers that generate demand for air travel at Logan Airport. As part of our work, ICF reviewed current air service trends at the Airport as well as long term regional economic trends that are expected to impact future passenger growth at the Airport. This study also presents an overview of the current state of the U.S. aviation industry and the potential implications for Logan. Finally, ICF presents its review and opinion of Massport's aviation projections for Logan Airport.

ICF relied on information from a variety of published sources as the basis of this study, including data from the U.S. Department of Transportation ("U.S. DOT"), the Federal Aviation Administration ("FAA"), the Official Airline Guide ("OAG"), and industry information and surveys, as well as financial records, airport planning documents and aviation activity records provided by Massport. Advance OAG schedules for July 2022, which were reported as of May 30, 2022, are referenced throughout this report. All forward schedule data presented in this report are subject to revisions as airlines continue to make announcements and change their service schedules. Historical trends for Logan, and other airports in the U.S. are generally reported up to and including calendar year ("CY") 2021, unless otherwise stated. All years throughout this report are on a calendar year basis unless otherwise stated. Some analyses rely on the latest available data from the U.S. DOT Origin-Destination ("O&D") Passenger Survey (available through CY 2021) for U.S. flag airlines, the U.S. DOT T-100 Database (available through February 2022 for domestic traffic, and November 2021 for international traffic), the U.S. DOT Form 41 database (available through CY 2021), or the four-quarter period ending 4Q 2021 (Year End ("YE") 4Q 2021), and IATA Airport/PaxIS O&D data (available through CY 2021). Airport activity data that includes foreign flag airlines is reported for the 12-months ended November 2021, as November 2021 was the most recent data available for foreign flag carriers in the T-100 databases when this report was prepared.

As part of this study, ICF did not evaluate, and does not offer an opinion on, the feasibility of the engineering, design plans, or costs of any of the projects expected to be financed with proceeds of the 2022 Bonds. ICF did not engage in a legal review of lease agreements or engineering contracts.

ICF's opinions are based upon historical trends and expectations that it believes are reasonable. Some of the underlying assumptions, which are detailed explicitly or implicitly elsewhere in this report, may or may not materialize because of unanticipated events or circumstances. ICF's opinions could vary materially should any key assumption prove to be inaccurate. The opinions expressed herein are not given as an inducement or endorsement for any financial transaction. This report reflects ICF's expert opinion and best judgment based on the information available to it at the time of its preparation. ICF does not have, and does not anticipate having, any financial interest in this transaction.

1.2 Summary

Over the past two years, the U.S. aviation industry experienced an unprecedented level of disruption due to the COVID-19 pandemic. During early 2020, airports and airlines around the world slowed to a fraction of normal activity, due to COVID-19 travel restrictions. The widespread distribution of COVID-19 vaccines and progress towards achieving target immunization coverage rates reduced the risk of public health systems from being overwhelmed and allowed governments to adjust and ease COVID-19 policy restrictions. Throughout 2021 to the present day many travel restrictions and border controls have eased and businesses have reopened, which contributed to an economic rebound and greater freedom to travel, especially in the U.S. The aviation industry has begun to see a recovery, although renewed COVID-19 outbreaks have contributed to sporadic setbacks in returning to normalcy.

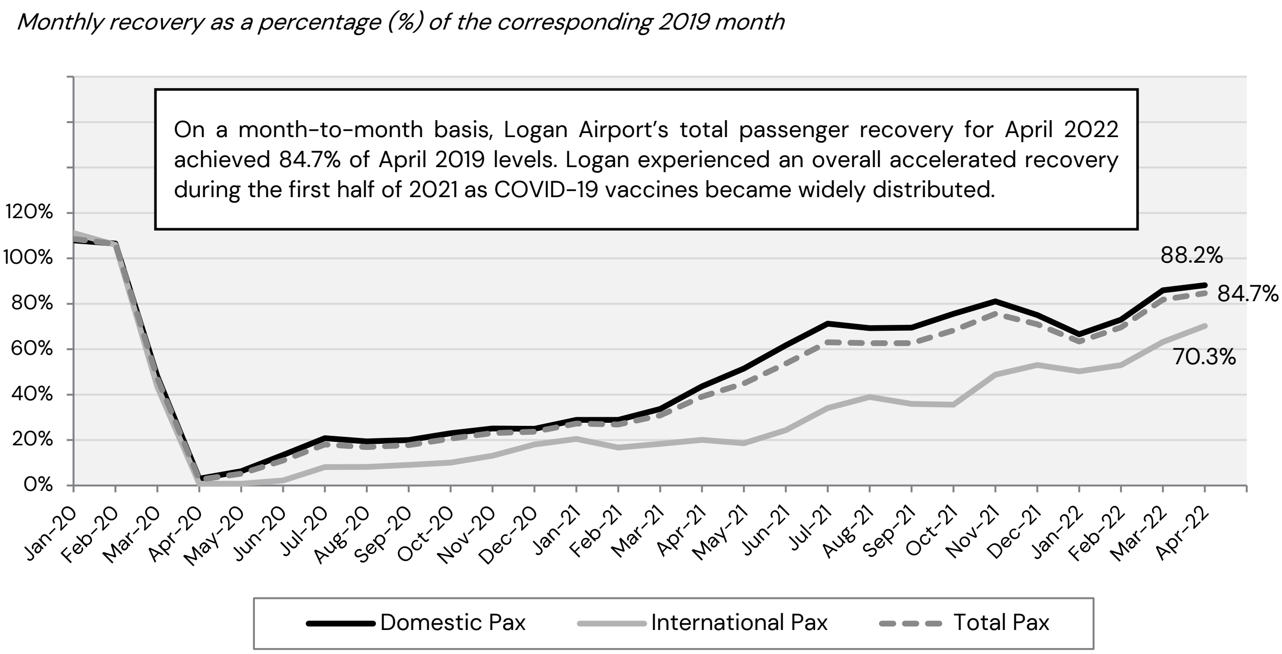
Logan Airport has experienced the same challenges and uncertainties as the U.S. aviation industry as a whole. Logan Airport has weathered the COVID-19 storm, and is now looking forward to a full recovery and renewed growth. How quickly and how robustly the Airport will recover pre-pandemic airline service and historical passenger levels will be a function of multiple factors, including:

1. The underlying market strength and demand for air travel for the Logan Airport catchment area;
2. The recurrence of COVID-19 variant outbreaks around the world;
3. The financial health, viability, and operational capacity of U.S. and Foreign Flag carriers;
4. Structural changes in business travel behavior/technology (including video conferencing); and
5. The impact of pre-departure testing requirements, which act as barriers to international travel and economic recovery.

The last two years have demonstrated a strong and pent-up demand for air travel within this region. The underlying economy of the Logan Airport market area has largely recovered from the initial shock of the pandemic, and as COVID-19 restrictions have eased, airline service has returned. However, the recovery of Logan Airport passenger traffic has lagged economic recovery. The pattern of passenger recovery appears to be leisure travel first, then business, followed by international travel recovery, as various countries reopen their borders to international flights.

As shown in Exhibit 1-1 on the next page, as of April 2022, Logan Airport has recovered to 84.7 of total passenger levels in 2019. The mix of traffic has shifted, however, as different market segments are recovering at differing paces. For the months of March and April 2022, Logan recovered more than 85% of its domestic passenger levels compared to the same months in 2019. International traffic remains soft, but different market segments are recovering at an unequal pace. As a largely leisure/VFR destination, the Caribbean passenger traffic market has recovered quite strongly, having exceeded 2019 levels since March 2022. Although the North Atlantic travel market from Boston remains soft, it is expected to see stronger recovery in the second and third quarters of 2022. The Transpacific market segment, on the other hand, remains at very low levels due to restrictive travel policies in Asia. In total, as of April 2022, international passenger levels have recovered to only 70.3% of April 2019 levels. In general, passenger trends are very positive.

Exhibit 1-1: Logan Monthly Passenger Traffic Recovery, January 2020 to April 2022



Source: Massport. Latest data available through April 2022. Excludes general aviation passengers.

Before the pandemic, Logan Airport had been one of the fastest growing domestic and international airports in the U.S. The vibrant local economy of the Logan Airport catchment area supported a strong level of domestic and international travel demand. This vibrancy was further stimulated by factors including: strong airfare and yields; airline competition; a growing community of interest between Boston and other parts of the U.S. and other parts of the world; new long-range aircraft technology allowing direct service to/from Logan Airport using smaller aircraft; and the emergence of Logan Airport as a secondary European gateway, as other northeast airports become increasingly congested. Logan has largely retained its core international air carriers throughout the COVID-19 pandemic. International air carriers at Logan have begun to rebuild their capacity, or are expected to re-enter this market shortly, if air service was interrupted.

Recovery and rebound of Logan Airport travel is expected to continue over the next several years, as the pandemic eases. Logan Airport retains its strong underlying economic position and aviation fundamentals that have propelled the Airport for more than a decade. Massport is making capital investments to upgrade Logan Airport and make it more flexible, sustainable, and resilient to meet the long-term aviation needs of the region. Based on the strong underlying fundamentals, traffic recovery to pre-pandemic levels is anticipated to occur, and growth will resume to levels consistent with Logan Airport's long-term historical performance. It remains unclear, however, how long it will take to achieve full traffic recovery.

1.3 Report Layout

This market study report presents the key elements that drive aviation growth at Logan Airport.

- Chapter 2 provides an overview of the U.S. aviation industry including the impact of the COVID-19 pandemic on aviation activity, airline financials, and industry recovery trends;
- Chapter 3 discusses the demographic and economic environment in which Logan Airport operates and reflects latest available labor data and forecast materials;
- Chapter 4 provides a detailed profile of passenger traffic recovery at the Airport, a description of airlines serving the Airport, their current service levels, passenger trends, as well as operations, and cargo growth; and
- Chapter 5 presents and provides ICF's views on Massport's projected passenger scenarios.

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2 INDUSTRY OVERVIEW

2.1 Introduction

The global airline industry is currently recovering from the impact of the COVID-19 pandemic. After an initial wave of airline failures[1], state financial support, dramatic rescaling, restructuring and rethinking, the global airline industry is now on the road to recovery. How quickly the industry reaches full recovery depends largely on how the COVID-19 pandemic plays out over the coming months and years. The industry has experienced a number of one-time exogenous shocks to the system (terrorism, fuel price shocks, 9/11, the Great Financial Crisis of 2007/2008). The COVID-19 pandemic, however, is proving to be a much longer-term challenge, as successive waves of virus variants have continued to emerge and create setbacks for the aviation industry. Airlines have been weakened by the events of the past two years, both financially and operationally. The uncertain timing of recovery has challenged the industry as it attempts to bring back resources, particularly labor resources, to meet the rebound in air travel. This has created operational disruptions that are currently plaguing the industry and causing widespread flight delays and cancellations.

In addition to airline challenges operating in a COVID-19 environment, airlines must also navigate in an uncertain economic and geopolitical world. While long term economic trends suggest upward growth in air travel over time, the more short-term conditions remain challenging. Higher fuel prices, inflation, the Russo/Ukrainian war, potential recession, environmental and sustainability issues, and new airline business models will all influence how the U.S. and global air travel markets perform over the next several years. Future passenger growth at airports such as Logan Airport will be impacted by these trends. Also, new aircraft technology is shifting the global aircraft fleet in ways that benefit domestic and international travel to and from medium size markets such as Boston.

This section considers airline industry trends that ultimately impact passenger demand at Logan Airport, and the potential of the Airport to generate revenue, and incur additional operating and capital expenses.

2.2 U.S. Airline Financial Performance

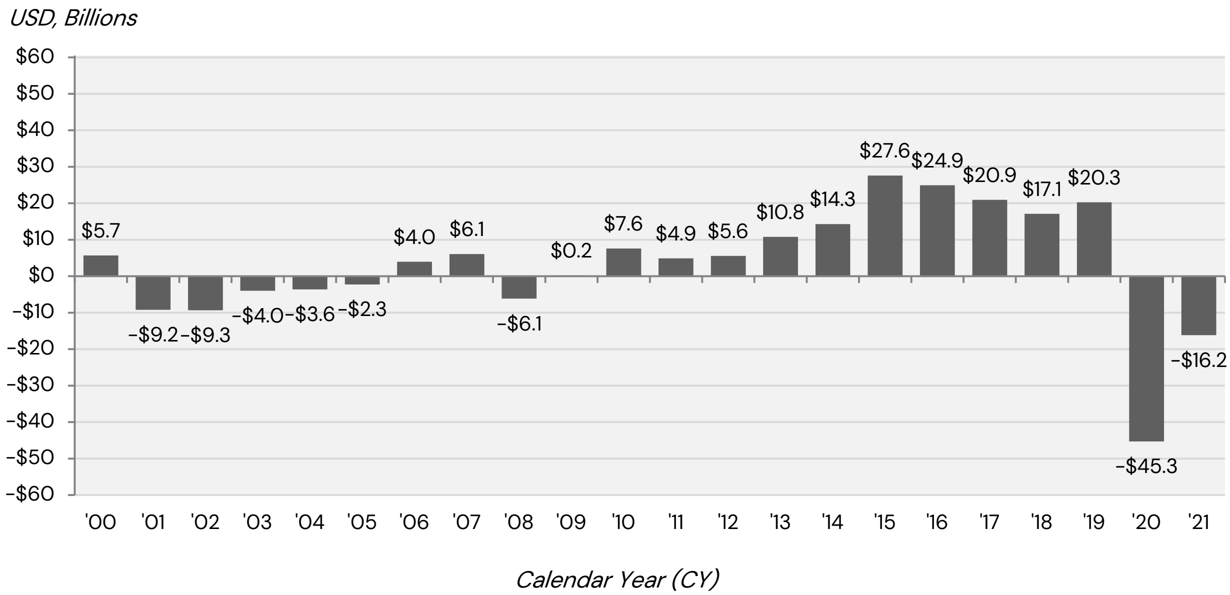
2.2.1 U.S. Airline Profitability

The U.S. airline industry lost $61.5 billion as the result of the COVID-19 pandemic between 2020 and 2021. After a decade of profitability through CY 2019, a significant portion of this profit was wiped out because of the impacts of the COVID-19 pandemic (see Exhibit 2-1). The U.S. federal government

[1] Several airline failures included smaller U.S. regional carriers like Trans States and Compass Airlines ceasing operations; Bankruptcy filings (Chapter 11 protection, etc.) from major international and Latin American carriers like Avianca (Colombia), LATAM (Chile), Interjet (Mexico), and Aeroméxico.

provided $50 billion to the airline industry in the form of grants and loans; however, the financial position of the carriers was weakened and continues to be weakened due to the uncertainty and variability of demand. Airlines on a global scale have attempted to resize and reshape their organization, financials, route network, and fleet in order to meet demand.

Exhibit 2-1: Operating Income of U.S. Scheduled Airlines, in $ Billions (CY 2000 to CY 2021)



Note: *Includes major U.S. passenger airlines (Allegiant, American, Alaska, Delta, Frontier, Hawaiian, JetBlue, Southwest, Spirit, Sun Country and United).*

Source: *U.S. DOT, Form 41 via Airline Data, Inc.*

Overall, the industry continues to maintain a tiered cost structure, with the LCCs reporting both lower yields and lower unit costs than the FSCs. Average unit Revenues per Available Seat Mile ("RASM") and average unit Costs per Available Seat Mile ("CASM") for both carrier types are shown in Exhibit 2-2. In CY 2021, FSCs reported an average unit CASM of 18.4 cents and an average unit RASM of 16.1 cents, while LCCs reported a lower average unit CASM of 11.5 cents and an average unit RASM of 10.6 cents. Even though LCCs generate lower unit RASM, their operating costs are even lower than FSCs. Except for Allegiant and Sun Country, U.S. domestic airlines continued to lose money during this period. As a class, LCCs averaged operating losses that were less than half those of FCSs (-1.8 cents per ASM for LCCs, compared -4.0 cents per ASM for FSCs).

Exhibit 2-2: Systemwide Revenue per Available Seat Mile (RASM) and Cost per Available Seat Mile (CASM) for U.S. Full Service and Low Cost Carriers (CY 2021) ($ in U.S. cents)

	CY 2021				CY 2021		
	RASM	CASM	Diff		RASM	CASM	Diff
Full Service Carriers				Low Cost / Ultra Low Cost Carriers			
Alaska	13.5	14.3	-0.8	Allegiant	9.8	9.5	0.4
American	16.4	19.5	-3.1	Frontier	7.7	9.1	-1.5
Delta	17.0	18.2	-1.2	JetBlue	11.1	12.8	-1.7
Hawaiian	11.0	13.6	-2.7	Southwest	12.0	12.7	-0.7
United	15.8	19.0	-3.2	Spirit	7.9	9.0	-1.1
				Sun Country	8.4	7.9	0.5
Average	**16.1¢**	**18.4¢**	**-2.4¢**	**Average**	**10.6¢**	**11.5¢**	**-0.9¢**
				Total/Average	**14.3¢**	**16.2¢**	**-1.9¢**

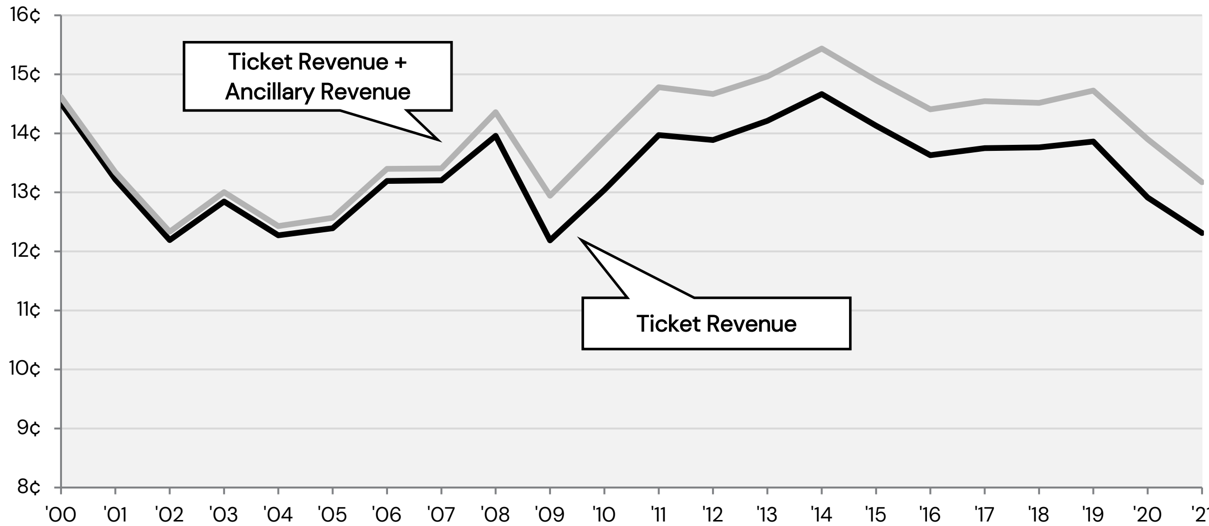
Source: U.S. DOT, Form 41 via Airline Data, Inc.

2.2.2 Revenues

The average nominal domestic yield for the U.S. airline industry since 2000 is displayed in Exhibit 2-3. Domestic yields exhibited an upward trend until 2014, when they began declining. Yield decline accelerated at the start of the COVID-19 pandemic and as of CY 2021 yields have yet to recover. Over the past decade carriers also began to offer à la carte pricing, maintaining a lower base fare, but introducing extra fees for services such as checked baggage and preferential seating ("ancillary fees" are not included in market yield calculations).

Lower yields since 2016 reflect lowered fares due to increased competition, especially from expanded LCC and ULCC segments. The impact of the pandemic caused yields to fall, as revenues slid more than 60% in 2020. Although revenues increased by over 60% in 2021 compared to 2020, domestic yields remained lower than 2020 levels. Some carriers, especially the ULCC segment, have been introducing lower fares to stimulate domestic demand. Revenue from baggage and other fees associated with ancillary products and services has become a key element in the airlines' ability to achieve top-line growth. Since the start of the pandemic, however, many carriers have implemented policies waiving change fees, which reduced auxiliary revenue, and further damaged overall airline yields. While auxiliary revenue remains an important source of revenue, overall yields have yet to recover.

Exhibit 2-3: Domestic Nominal Yields, Revenues per Revenue Passenger Mile (RPM) (in Nominal Terms, CY 2000 to CY 2021)



Note: *Ancillary revenue in this graph includes baggage and reservations/change/cancellation fees but excludes fees for premium seating or boarding and other services as these fees are not explicitly shown in U.S. DOT Form 41 data; All U.S. carriers required to report to Form 41 are shown on this graph.*

CYTD = calendar year-to-date

Source: *U.S. DOT, Form 41 via Airline Data, Inc.*

As shown in Exhibit 2-4, overall domestic yield, excluding fees, for FSCs and LCCs were 12.7% below 2019 levels in CY 2021, holding at around 12.3 cents per revenue passenger mile. The difference in domestic yields between FSCs and LCCs has widened over the past few years, increasing from a 2.0 cent difference in 2017 to a 2.8 cent difference in CY 2021.

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Exhibit 2-4: Full Service and Low Cost Carrier Domestic Yields, Passenger Revenues per RPM (CY 2015 to CY 2021)

	Domestic Yield					Pct. Change			
Carrier	**2017**	**2018**	**2019**	**2020**	**2021**	**'17-'18**	**'18-'19**	**'19-'20**	**'20-'21**
Allegiant	8.5	8.5	9.1	8.8	10.2	0.0%	7.1%	-3.7%	16.2%
Frontier	6.1	5.8	5.6	5.7	5.0	-4.6%	-3.4%	1.1%	-11.9%
JetBlue	13.3	13.3	13.6	12.8	12.1	0.0%	2.4%	-6.3%	-4.9%
Southwest	15.0	15.0	15.3	13.3	12.9	-0.3%	2.0%	-12.7%	-3.1%
Spirit	6.1	6.1	6.0	4.6	5.0	0.4%	-2.5%	-22.7%	8.7%
Sun Country	11.5	9.9	8.8	8.9	6.5	-14.2%	-10.7%	1.4%	-27.5%
Average Yield	**12.7¢**	**12.4¢**	**12.4¢**	**10.6¢**	**10.6¢**	**-1.9%**	**-0.2%**	**-14.5%**	**-0.2%**
Alaska	12.4	13.0	12.6	12.5	11.8	4.5%	-3.4%	-0.2%	-5.9%
American	15.2	15.0	15.1	12.7	13.7	-1.1%	0.7%	-16.2%	7.7%
Delta	15.8	16.4	16.6	15.1	14.2	3.8%	0.8%	-8.7%	-6.4%
Hawaiian	16.1	15.5	14.5	13.8	12.3	-4.1%	-6.3%	-4.9%	-10.5%
United	13.5	14.1	14.3	12.6	12.9	4.5%	1.9%	-12.0%	2.3%
Average Yield	**14.7¢**	**15.0¢**	**15.1¢**	**13.4¢**	**13.4¢**	**1.8%**	**0.5%**	**-11.2%**	**0.2%**
Total/Average	**14.0¢**	**14.1¢**	**14.1¢**	**12.3¢**	**12.3¢**	**0.6%**	**0.3%**	**-13.0%**	**0.3%**

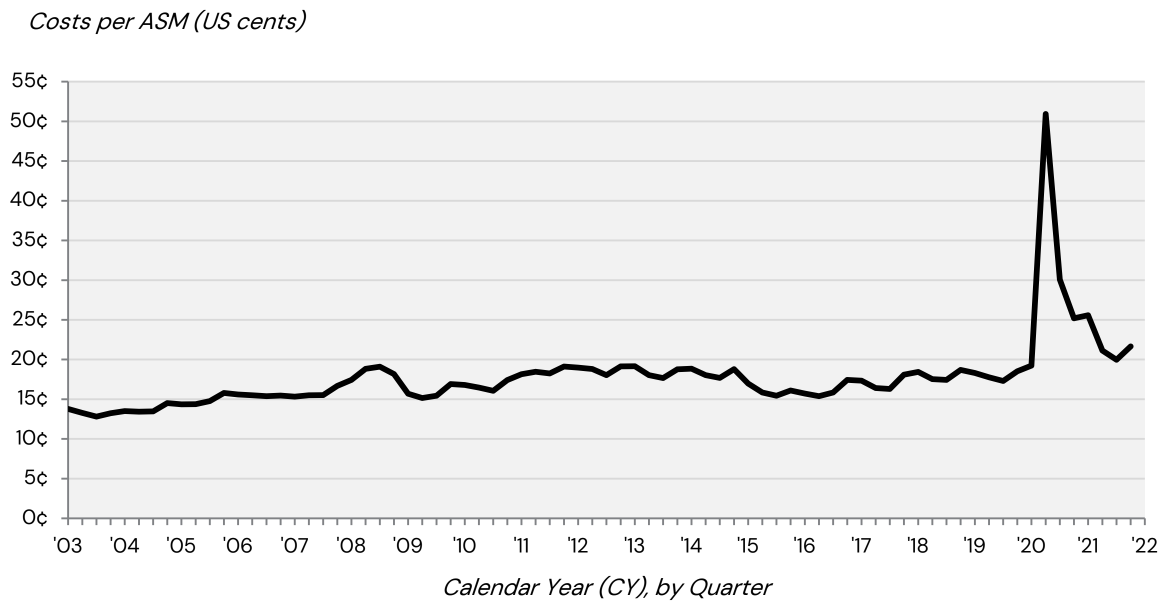
Note: *Yield based on passenger ticket revenues only. Excludes ancillary revenue.*
Source: *U.S. DOT, Form 41 via Airline Data, Inc..*

2.2.3 Costs

Airline costs remained relatively high during the pandemic even as air travel demand was suppressed, as many U.S. airlines were required by the DOT to maintain minimum levels of service if the carrier accepted federal CARES Act assistance. Despite efforts by airlines – both FSCs and LCCs/ULCCs – to reduce costs in areas such as labor, aircraft ownership, maintenance, distribution, and other support activities, total operating costs are expected to continue to increase due to increased fuel prices, as further discussed below.

As shown in Exhibit 2-5 average unit costs spiked to 50.9 cents per ASM in the second quarter of 2020, and while these costs have reduced to approximately 21.7 cents per ASM as of 4Q 2021 (the latest quarter with available data) average unit costs for U.S. carriers remain between 12%-19% greater than pre-pandemic unit costs seen in 4Q 2019 and 1Q 2020. Market volatility of crude oil prices and increased labor wage agreements with airline pilots, employees and labor unions may affect airline operating costs.

Exhibit 2-5: U.S. Scheduled Carrier Nominal Operating Costs per ASM (1Q 2003 to 4Q 2021)



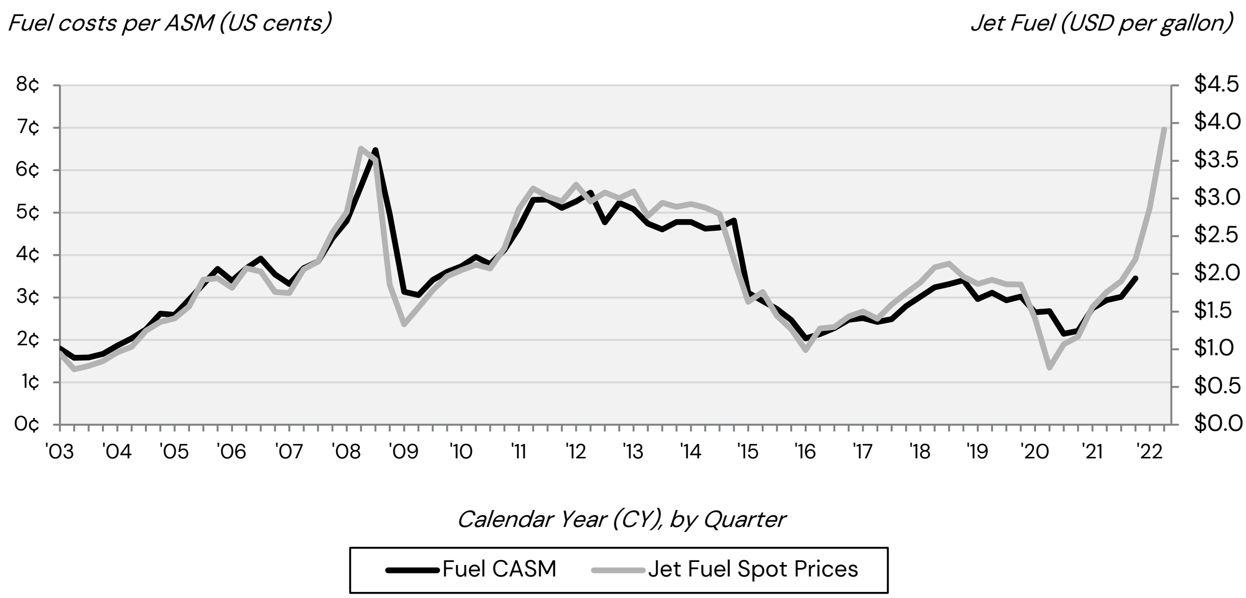
Source: U.S. DOT, Form 41 via Airline Data, Inc.

Exhibit 2-6 below presents U.S. carrier nominal fuel cost per ASM since 2003. Fuel cost per ASM more than tripled between 2000 and 2014, rising from approximately 1.6 cents to 4.7 cents per ASM during 2014. In 2008, a spike in crude oil prices drove up jet fuel prices to an unprecedented 6.5 cents per ASM in 3Q 2008. Fuel cost per ASM rose again sharply between 2009 and 2014, in part due to unrest in the Middle East, and remained high though volatile through most of 2014. Starting in the second half of 2014, oil prices began to decline sharply, falling from a high of $106 per barrel in June 2014 to $54 per barrel at the end of 2016. The drop in oil prices was linked to the rapid increase in domestic oil production in the U.S. during that period, resulting in a reduction in American imports and a glut on world markets. Since 2016, fuel cost per ASM has both risen through 2018 to 3.4 cents per ASM and returned to similar levels seen in 2016, reaching 2.1 cents per ASM in mid-2020. In 2020, amid a surge in crude oil supply, price wars between Saudi Arabia and Russia, the slump in air travel demand, and the global economic uncertainty surrounding the COVID-19 pandemic, crude oil prices fell below $20 a barrel in April 2020. During 2021, crude oil prices increased as global oil demand continued to outpace supply, resulting in an average nominal fuel cost per ASM of 3.45 cents per ASM for U.S. scheduled carriers in 4Q 2021. In addition, war and political tensions across Eastern Europe and the Middle East further contributed to rising crude oil prices, with crude oil selling for over $101 a barrel in April 2022.[2] According to the U.S. Energy Information Administration ("EIA"), the average monthly jet fuel spot price in April 2022 was $3.91 per gallon, which is 60% higher than its January 2022 spot price

[2] EIA.gov, WTI Cushing, Oklahoma spot prices.

of $2.68 per gallon. Fuel prices increased as the U.S. continued to negotiate energy and oil contracts and imposed sanctions on Russian oil supplies. Fuel is a key input for the airline industry, and high fuel prices represent another headwind to airline recovery.

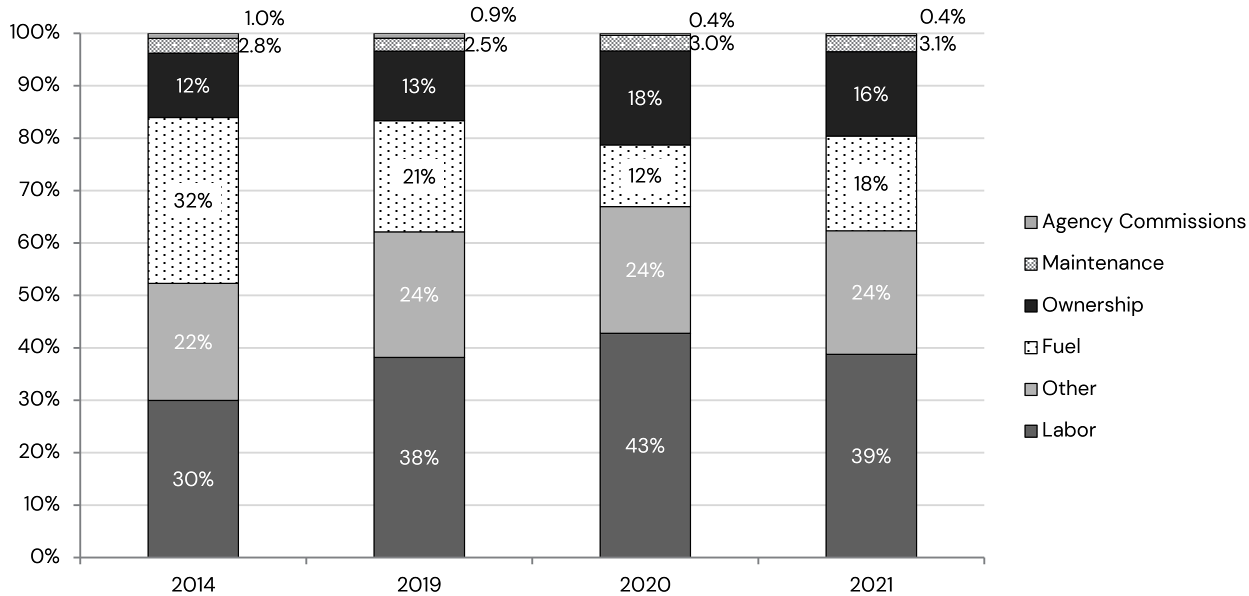
Exhibit 2-6: U.S. Scheduled Carrier Nominal Fuel Cost Per ASM (1Q 2003 to 2Q 2022)



Note: *Latest jet fuel data from the EIA is through April 2022. Latest quarterly Form 41 data available is through 4Q 2021.*
Source: *U.S. DOT, Form 41 via Airline Data, Inc.; EIA.gov.*

Exhibit 2-7 below presents U.S. carrier operating expenses by category since 2014. Fuel, as a percentage of total operating costs, fell from 32.0% in 2014 to about 18.1% in 2021. As fuel costs declined over the recent decade, labor has once again represented the largest component of operating costs in 2021, at approximately 38.8% of total operating expenses. Notwithstanding the recent fuel price increases discussed above, this is still below the fuel proportion of operating costs seen in 2014. Labor costs rose as a percentage of total airline costs (from 30.0% in 2014) due to renegotiations of existing labor contracts between U.S. airlines and their employees (including pilots, flight attendants and maintenance crews) and an increase in the number of U.S. airline employees who have joined airline industry labor unions. The proportions of operating expenses reflected below are expected to change over time depending on prices in the oil market and labor wage policies. Aircraft ownership, which includes aircraft rentals and leases, represented 16.1% of total costs, while other expenses (i.e., landing fees, communications, outside flight equipment maintenance services, insurance) represented 23.6% of total costs in 2021.

Exhibit 2-7: U.S. Scheduled Carrier Share of Operating Expenses by Category (CY 2014, 2019, 2020 and 2021)



Note: *Excludes fees paid to regional carrier affiliates for operating codeshare flights.*
Source: *U.S. DOT, Form 41 via Airline Data, Inc.*

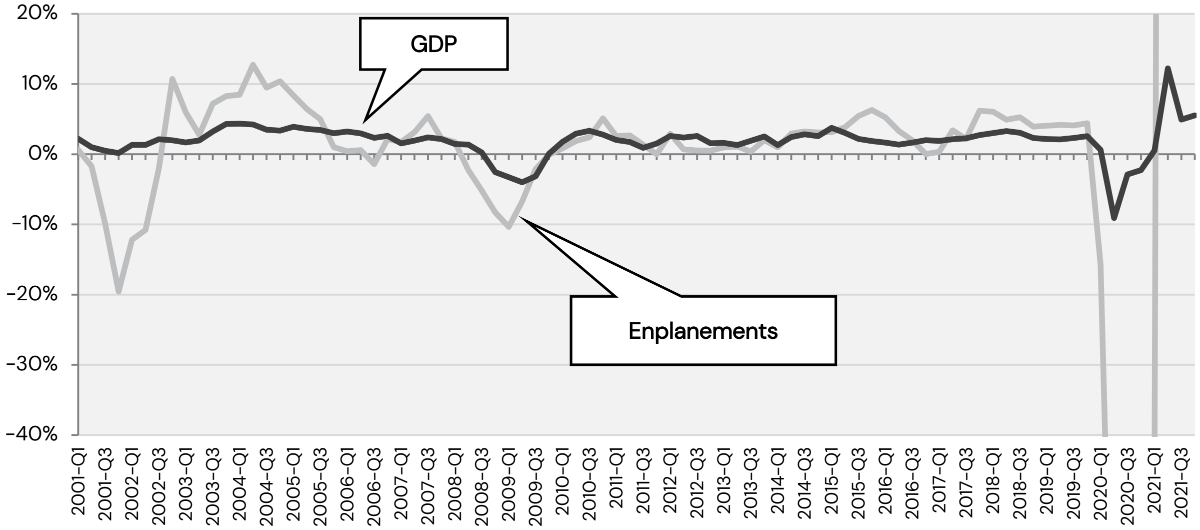
2.3 Airline Capacity and Passenger Traffic Trends

2.3.1 Passenger Demand Trends

U.S. air travel demand has historically demonstrated a strong correlation to the U.S. economy. Airline passenger traffic normally declines during an economic recession with passenger growth resuming during subsequent economic expansions. This correlation can be seen clearly over the last decade as passenger demand fell during the global economic recession and recovered as the economy improved (Exhibit 2-8). As reflected in this chart, the current COVID-19 pandemic represents an exogenous shock to the system, creating a disconnect between GDP and passenger enplanements in 2020 and 2021.

In 2021, the U.S. economy proved resilient, and eventually returned to pre-pandemic annualized GDP levels in 3Q 2021. The U.S. economy grew over 12.2% year-over-year in 2Q 2021, exceeding the previous peak GDP levels in 4Q 2019 by about 0.9%. The U.S. economy continued to grow through 4Q 2021, as the U.S. Department of Commerce reported that real GDP increased its annualized quarterly rate by 6.9%.

Exhibit 2-8: U.S. Scheduled Carrier Enplanements and U.S. Real GDP, Percent Change Over Prior Year (2001 to 2021)



Note: *Latest available quarterly enplanements from Form 41 is 4Q 2021; Real GDP growth is based on chained 2012 U.S. dollars.*

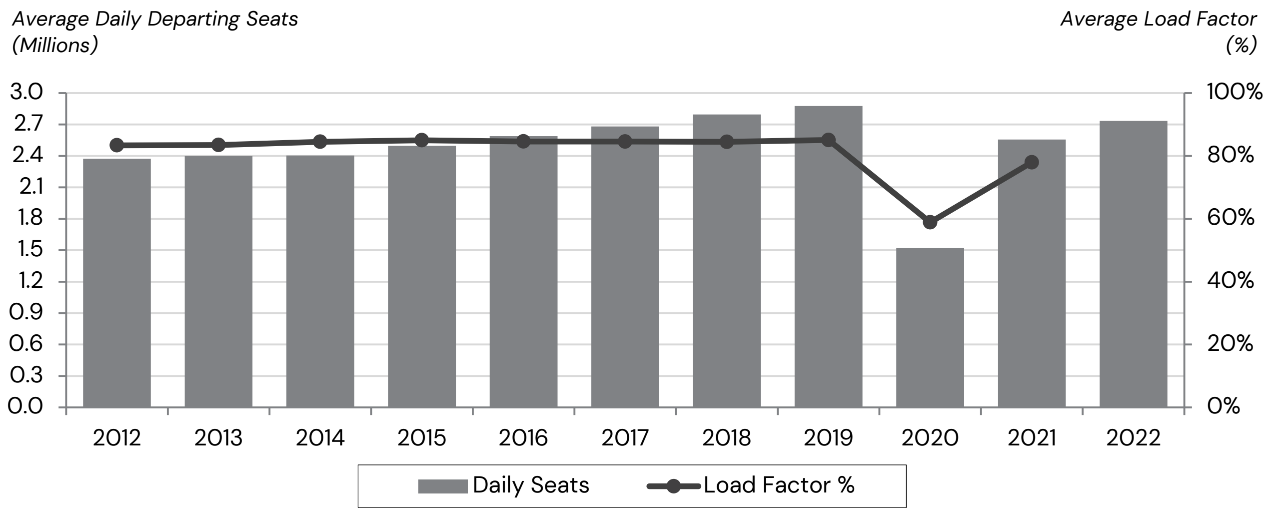
Large percent changes in enplanements are shown between 2Q 2020 and 3Q 2021, that exceed the y-axis range, due to the severe impact presented at the height of the COVID-19 pandemic. The y-axis is not expanded in this case in order to exhibit relative growth over the past two decades. 2Q 2020 YoY growth = -88.3%; 3Q 2020 = -79.6%; 4Q 2020 = -61.1%; 1Q 2021 = -45.2%; 2Q 2021 = 514.0%; 3Q 2021 = 304.7%; 4Q 2021 = 121.7%

Source: *U.S. DOT Form 41 Database via Airline Data, Inc.; U.S. DOC, Bureau of Economic Analysis (BEA).*

As illustrated in Exhibit 2-9, by the summer of 2022 U.S. domestic capacity is projected to recover to 95% of pre-pandemic levels. However, passenger load factors[3] are recovering more slowly. This analysis shows average daily seat capacity and load factors for July of each year. For nearly a decade, the U.S. airlines achieved strong load factors of approximately 85%. In July 2019, domestic scheduled seat capacity was 2.8 million daily departing seats with an average load factor of 85.1%. However, by July 2020, as the result of the pandemic, seat capacity declined nearly 50% and average load factors dropped by 26.2 percentage points to 58.9%. A year later, in July 2021, average daily departing seats increased to 2.5 million, with improved load factors of 78.0%. According to advanced airline schedules, July 2022 seat capacity is scheduled to recover to 2019 levels of 2.7 million domestic daily departing seats.

[3] Passenger load factor (PLF) is an airline industry metric that measures an airline's capacity utilization (i.e., passengers onboard divided by available seats; or revenue passenger miles divided by available seat miles).

Exhibit 2-9: U.S. Domestic Scheduled Daily Seats and Load Factor (July 2012 to July 2022)

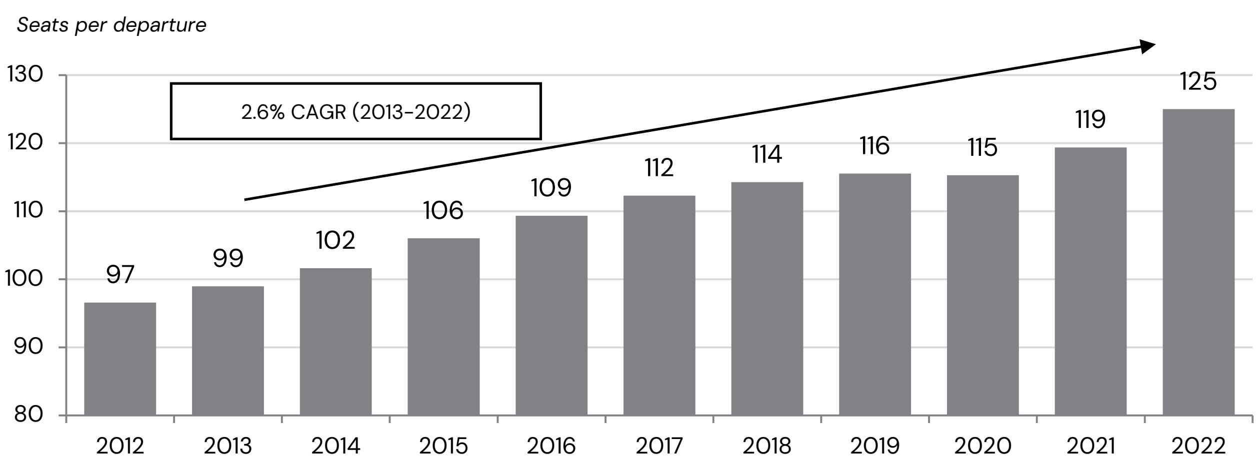


Note: *July 2022 references advance schedules. Load factor percentages are averages for the respective calendar year. Latest available domestic load factors were available through December 2021.*

Source: *OAG schedules, as of the week of May 30, 2022; U.S. DOT, T-100 Database via Airline Data, Inc.*

Seat growth has been driven predominately by increases in the average number of seats per aircraft ("densification"). As seen in Exhibit 2-10 below, average aircraft densification had grown from below 100 seats per departure in July 2013 to 125 seats per departures in July 2022, which is an average growth of 2.6% annually. Aircraft densification is one of several strategies, along with improved revenue management, new fuel-efficient aircraft, and optimized frequencies at airports with congested infrastructure, that U.S. airlines use to improve financial performances.

Exhibit 2-10: Average Number of Seats per Aircraft for Domestic Scheduled Departures (July 2012 to Advance July 2022)



Source: *OAG schedules, as of the week of May 30, 2022.*

2.3.1.1 Full-Service Carriers

U.S. FSCs (which include five major carriers: Alaska, American, Delta, Hawaiian, and United) have undergone scheduled network restructurings to survive during the pandemic. Over the five-year period between 2014 and 2019, FSCs took advantage of the positive economic growth environment and grew their system capacity on average 6.7% annually. These airlines, however, have not yet fully recovered from the dramatic capacity cuts made at the start of the pandemic and the recent further reductions to their upcoming summer schedules, as shown in Exhibit 2-11 below. Many of these airlines are facing several short-term headwinds that continue to impact summer schedule services, including suspensions, delayed resumptions, and cancellations of existing and new nonstop routes. These headwinds may not be entirely reflected in the forward schedule data below, due to the timing of this report, as discussed further in Section 2.3.2.

Exhibit 2-11: FSCs Domestic and International Seat Capacity Growth by Airline, Percent Change (July 2019 vs Advance July 2022)

Carrier	Seat Capacity ('000) - July 2022			Percent Change vs 2019			2014-2019
	Dom	Int'l	Total	Dom	Int'l	Total	CAGR
American Airlines	18,170	1,960	20,131	93.0%	99.5%	93.6%	14.6%
Delta Air Lines	16,616	1,268	17,884	87.8%	77.7%	87.0%	3.4%
United Airlines	12,707	1,775	14,482	89.3%	99.5%	90.4%	2.8%
Alaska Airlines	4,540	111	4,651	89.4%	88.3%	89.4%	9.6%
Hawaiian Airlines	1,105	69	1,174	95.7%	100.8%	96.0%	1.9%
Total	**53,138**	**5,183**	**58,321**	**90.2%**	**92.9%**	**90.4%**	**6.7%**

Note: *5-Year CAGR of the 2014 to 2019 period aggregates merged airlines' seat capacity (e.g., U.S. Airways-American Airlines; Virgin America-Alaska Airlines for July 2014 vs July 2019 growth analysis).*

Source: *OAG schedules, as of the week of May 30, 2022.*

2.3.1.2 Low Cost Carriers and Ultra Low Cost Carriers

By the mid-2010s, a new ULCC business model emerged in the U.S., embraced by Allegiant, Spirit, Frontier, and Sun Country. The ULCC business model is characterized by unbundling of services and often operating at underserved or remote airports. The purchase of a ticket on a ULCC covers only the seat and (depending on the carrier) does not include seat choice, food or drink, checked or carry-on luggage or a paper boarding pass, all of which amenities are available for additional à la carte purchase.

As U.S. LCCs and ULCCs rose to prominence over the past two decades, FSCs rationalized domestic capacity and focused on more profitable international flying, LCCs and ULCCs seized the opportunity to increase their domestic market share. The LCC/ULCC group has outperformed FSC capacity recovery during the COVID-19 pandemic as they expanded service at a much faster rate than FSCs, focusing on point-to-point connectivity, rather than flying to major hub markets (or focus cities). In addition, new airlines Breeze Airways and Avelo Airlines, have commenced operations during the pandemic. Breeze Airways, was established by private investors including David Neeleman, founder of JetBlue and Azul. The airline operates point-to-point services between secondary airports using A220 and Embraer regional jet aircraft. Headquartered in Salt Lake City, Breeze Airways received its air carrier operating certificate in May 2021 from the FAA, launching services from Hartford Bradley (CT) to Charleston, South Carolina. Avelo Airlines is headquartered in Houston and led by Andrew Levy, who was the former CFO at United Airlines and COO at Allegiant Air. Avelo Airlines has flight operations based out of Hollywood Burbank and Tweed New Haven Airports, and aims to connect unserved markets. From the east coast, the airline has launched at least four more routes between New Haven and Florida destinations since November 2021. The carrier is certified by the FAA to conduct domestic and international operations, flying with a single narrowbody fleet of Boeing 737 aircraft. Neither Breeze nor Avelo are currently operating at Logan Airport.

In total, LCCs and ULCCs, together, will account for approximately 36% of domestic seats based on forward schedules for July 2022 and are expected to have recovered 105% of scheduled seat capacity compared to July 2019. In recent years pre-pandemic, LCCs and ULCCs have continued to grow domestic capacity at a faster rate than FSCs, but from a smaller base. Over the past two years, U.S. based ULCCs have rapidly expanded, growing overall capacity by over 40% in July 2021 compared to the previous year, and then by 4.4% in July 2022. ULCCs are rapidly adding seat capacity to their networks; however, these airlines tend to be more vulnerable to economic cycles. Based on forward schedules, overall LCC/ULCC capacity to domestic and international markets is scheduled to exceed July 2019 levels by 4.8% and 16.7%, respectively. In July 2022, international LCC/ULCC capacity growth is driven by both Frontier and Spirit, which is expected to exceed July 2019 capacity levels by 308% and 140%, respectively (see Exhibit 2-12). In 2021, Frontier commenced services to six new countries in the Caribbean and Central America, while Spirit expanded its commitment to Central and South America, particularly from its Fort Lauderdale and Miami international airports, nearly doubling its 2019 systemwide seat capacity to Mexico and Colombia.

Exhibit 2-12: ULCC/LCC Domestic and International Departing Seat Capacity Growth by Airline, Percent Change (July 2019 vs Advance July 2022)

Carrier	Seat Capacity ('000) - July 2022 Dom	Seat Capacity ('000) - July 2022 Int'l	Seat Capacity ('000) - July 2022 Total	Percent Change vs 2019 Dom	Percent Change vs 2019 Int'l	Percent Change vs 2019 Total	2014-2019 CAGR
Southwest Airlines	18,364	228	18,592	102.2%	97.3%	102.2%	3.6%
Spirit Airlines	3,534	275	3,809	102.7%	140.8%	104.7%	22.0%
JetBlue Airways	3,250	558	3,808	93.7%	98.2%	94.3%	4.3%
Frontier Airlines	2,550	155	2,705	106.4%	308.7%	110.5%	15.0%
Allegiant Air	2,567	0	2,567	129.4%	N/A	129.4%	17.4%
Sun Country	362	41	403	95.0%	141.1%	98.3%	14.2%
Avelo Airlines	222	0	222	New	N/A	N/A	0.0%
Breeze Airways	215	0	215	New	N/A	N/A	0.0%
Total	**31,064**	**1,257**	**32,321**	**104.8%**	**116.7%**	**105.2%**	**6.7%**

Note: *5-Year CAGR for 2014 to 2019 aggregates merged airlines' seat capacity (e.g., AirTran-Southwest Airlines are aggregated together as AirTran operated through December 2014).*

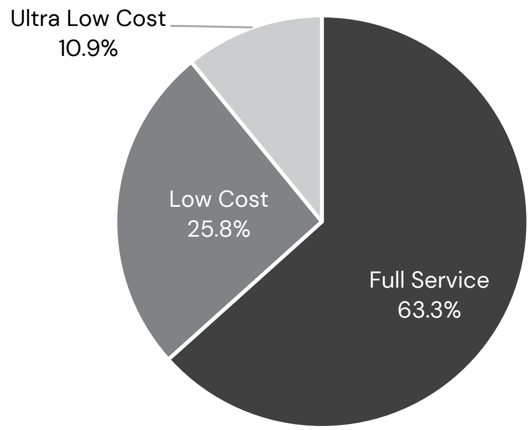
Source: *OAG schedules, as of the week of May 30, 2022.*

LCCs and ULCCs continue to look actively at international expansion possibilities. JetBlue has already established a strong presence in the Caribbean and Latin America, adding service to over 30 VFR and leisure markets.[4] In addition, JetBlue has introduced commercial partnerships with more than 35 foreign airlines. Logan has benefited from JetBlue's expansion of international service, as well as JetBlue's collaborations with foreign airlines. Since its acquisition of AirTran Airways, Southwest has also taken over AirTran's existing Caribbean and Mexico routes, becoming positioned for further international expansion. Spirit has also continued to build up its network to Caribbean and Latin America destinations throughout 2021 and 2022, as mentioned previously.

As of July 2022, U.S. domestic capacity seat shares were composed as shown in the chart below. Over the past five years, ULCCs have expanded their domestic networks, growing on average by 10% per year, and now account for 11% of the domestic seat market.

[4] GlobalData,, a data analytics intelligence company that focuses on Travel & Tourism research, indicated that VFR is "a great incentive for people to travel and can help boost the travel and tourism sector" (Airport Technology, *"Visiting friends and relatives will be a driving force behind travel's recovery"*, 24 November 2021). It is a vital motivation for travel as the impact of the COVID-19 pandemic has taken the freedom of movement away for families to reunite. GlobalData's forecast suggests that VFR travel will experience higher growth (CAGR 2021-2025: 17.0%) than leisure (CAGR: 2021-2025: 16.4%) over the next four years.

Exhibit 2-13: Share of Domestic Seat Capacity by Carrier Type (Advance July 2022)



Source: OAG schedules, as of the week of May 30, 2022.

2.3.2 Recent Challenges Related to Airline Operations and Schedule Reductions

As the airline industry continues to recover from losses and re-examine its cost structure, pent-up air travel demand has overwhelmed industry capacity and is challenging airlines. Currently, the U.S. airline industry is facing a labor shortage for pilots, flight crew, and maintenance workers. In particular, the pilot and crew shortages have caused major airline scheduling, as well as operational, disruptions. Although airlines are hiring new pilots, they require extensive training and certification before they can serve on commercial flights. The current disruption is more pronounced than in 2021, when airlines recalled furloughed pilots, who required ramp up time to get back to flying. The lack of customer-facing staff has also led to less customer service and longer wait times to reach airline representatives. During the pandemic, several U.S. airlines faced widespread computer outages, severe weather, and staffing shortages that forced them to delay and/or cancel thousands of flights, inconveniencing air travelers. The supply shocks and operational constraints experienced disrupted air service and even resulted in airlines announcing major schedule cuts for the upcoming summer 2022 season. As of mid-March 2022, JetBlue announced it had cut or suspended 27 routes for summer 2022, with some routes from Newark, Ft. Lauderdale, and Los Angeles not scheduled to resume until October 2022.[5] For Logan Airport, JetBlue flights to Key West, which commenced in February 2021, will be suspended starting May 1, 2022, but are scheduled to return October 30, 2022. In addition, as of May 17, 2022, JetBlue continued service cut announcements, further suspending 20 routes in its system through at least September. A JetBlue spokesperson indicated that rising fuel prices and the need for reliability

[5] JetBlue's CEO indicated that nearly 74% of the routes started after the pandemic struck, would be suspended. He alluded in the previous year that "a lot of routes won't stick around." (Simply Flying, "JetBlue has Cut or Suspended 27 Routes for Summer 2022". 21 March 2022).

in operations drove the decisions. Three of those route suspensions were from Boston, including its anticipated Vancouver route, along with Rochester and San Jose.

Spirit Airlines has also trimmed its summer schedule by about 5-6% in a bid to avoid any weather-related disruptions and prevent a cascading effect of cancellations that have previously interrupted operations in 2021. Alaska Airlines has also scaled back on some flights by 2% through the end of June 2022, citing the need to catch up on pilot training. Even more recently, as of May 28, 2022, ULCC Avelo Airlines suspended services that had recently launched in fourth quarter 2021, due to rising fuel and operational costs.

Furthermore, delays in aircraft deliveries have forced some carriers to make summer flight schedule changes. American Airlines announced in February 2022 that it would purchase 30 additional 737 MAX 8 aircraft, as the airline will have to wait longer for its Dreamliner 787-9 aircraft. Deliveries of Dreamliner aircraft have been suspended since May 2021 as Boeing faced manufacturing issues.[6] All in all, the 787 delivery delays forced American to change summer schedules as it had expected to have 13 787-9 aircraft for summer 2022, but instead will be forced to utilize four existing aircraft. Aircraft deliveries are further discussed in Section 2.5.

2.4 Airline Consolidation, Alliances and Partnerships

Over the long term, particularly in the U.S., the airline industry has steadily moved towards consolidation. A litany of economic and policy events, including the 9/11 terrorist attacks, high fuel prices, deregulation, open skies and global recession, led to airline bankruptcies and consolidations through mergers and acquisitions. The industry continued to move towards further consolidation during the pandemic.

Several of these moves have potential future impact to air service at Logan Airport. In early 2020, American Airlines and Alaska Airlines entered into a “West Coast International Alliance”, connecting Alaska’s west coast network with American’s long-haul routes. This expanded relationship preceded Alaska officially joining the Oneworld alliance on March 31, 2021. Subsequently, in July 2020, American Airlines and JetBlue announced a “Northeast Alliance” code sharing arrangement. While these alliances do not constitute mergers, these codeshare arrangements bring the carriers into business alignment, providing greater marketing and connecting options for their customers. These two actions further move the U.S. airline industry towards consolidation.

[6] Boeing has not delivered any new 787 passenger jets to airlines since May 2021, as safety regulators halted deliveries for a second time because they found production flaws in the planes, such as unacceptable gaps between fuselage panels. The FAA had also halted 787 deliveries in late 2020 because of production problems. Federal inspectors will retain the authority to certify the airworthiness for each new 787 Dreamliner (NPR.org).

In February 2022, Frontier and Spirit announced plans to merge, thereby creating the country's "most competitive ultra-low fare" airline.[7] The initial $6.6 billion transaction had been expected to close in the second half of 2022, however in April 2022, JetBlue made an unsolicited all cash offer of $3.5 billion for Spirit. As of May 3, 2022, Spirit rejected JetBlue's bid, and is on plan to proceed with the Frontier deal. Spirit's Board of Directors determined that JetBlue's proposal involved an unacceptable level of closing risk and believed that regulators would bar approval of a merger. As of June 20, 2022, Spirit Airlines, Inc. had received a revised proposal from JetBlue to acquire the airline, with an increased cash offer from USD31.50 to USD33.50 per Spirit share. Spirit's board of directors are evaluating the proposal with financial and legal advisors in accordance with the terms of its merger agreement with Frontier. It remains too early to determine what impact a potential transaction between Spirit and either Frontier or JetBlue will have on both the U.S. and Boston aviation markets. At the time of this report, Spirit Airlines is set to provide updates regarding each transaction prior to its shareholders meeting on June 30, 2022 (a vote that was initially scheduled for June 10, 2022).

As of advance July 2022 schedules, the top four domestic carriers by seat capacity – Southwest, American, Delta, and United – account for approximately 77% of total domestic capacity. If one factors in the American Airlines alliances with Alaska and JetBlue discussed above, the concentration exceeds 85%.

Exhibit 2-14: U.S. Airline Domestic Service Concentration – Share of Average Weekly Seat Capacity (Advance July 2022)

Rank	Airline	Capacity Share	Rank	Airline	Capacity Share
1	Southwest	21.7%	6	Spirit	4.2%
2	American	21.4%	7	JetBlue	3.8%
3	Delta	19.6%	8	Allegiant	3.0%
4	United	15.0%	9	Frontier	3.0%
5	Alaska	5.4%	10	Hawaiian	1.3%
	Other	1.6%			
	Total	**100.0%**			

Source: OAG schedules, as of the week of May 30, 2022.

Airline consolidation has also progressed through global airline alliances and joint ventures ("JVs"). Three major global alliances dominate the industry: Star Alliance, SkyTeam, and Oneworld. These alliances allow airlines to combine their networks to create a broader global network, jointly market flights, share lounges, offer reciprocal frequent flyer program benefits, and align schedules to

[7] Frontier Airlines Press Release, https://news.flyfrontier.com/frontier-airlines-and-spirit-airlines-to-combine-creating-americas-most-competitive-ultra-low-fare-airline/, as of April 2022.

maximize connectivity and efficiency of operations. Current airline membership in the three major alliances is shown in Exhibit 2-15.

Exhibit 2-15: Airline Alliance Membership (as of May 2022)

Oneworld	SkyTeam		Star Alliance	
Alaska Airlines	Aeroflot**	Saudia	Aegean Airlines	EVA Air
American Airlines	Aerolineas Argentinas	Tarom	Air Canada	LOT Polish Airlines
British Airways	Aeromexico	Vietnam Airlines	Air China	Lufthansa
Cathay Pacific	Air Europa	Xiamen Airlines	Air India	Scandinavian Airlines
Finnair	Air France		Air New Zealand	Shenzhen Airlines
Iberia	China Airlines		ANA	Singapore Airlines
Japan Airlines	China Eastern		Asiana Airlines	South African Airways
Malaysia Airlines	Czech Airlines		Austrian	SWISS
Qantas Airways	Delta Air Lines		Avianca	TAP Portugal
Qatar Airways	Garuda Indonesia		Brussels Airlines	Thai Airways
Royal Air Maroc	ITA Airways		Copa Airlines	Turkish Airlines
Royal Jordanian	Kenya Airways		Croatia Airlines	United Airlines
S7 Airlines **	KLM		Egyptair	
Sri Lankan Airlines	Korean Air		Ethiopian Airlines	
FIJI Airways*	Middle East Airlines			

** Fiji Airways is a Oneworld connect member.*

*** As of April 28, 2022, SkyTeam and Aeroflot have agreed to temporarily suspend the airline's membership (via a mutual basis) given the ongoing conflicts in Ukraine. S7 Airlines has also found itself in the same situation with Oneworld, as of April 19, 2022. At the time of this report, it is unclear when these suspensions will expire.*

Source: *ICF research.*

In recent years, antitrust immunity has been granted to a number of JVs within the global alliances, allowing carriers to more closely coordinate operations, including pricing, and increase cost savings in international markets. Most of the world's major airlines are members of JV partnerships today (see Exhibit 2-16).

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Exhibit 2-16: U.S. Airline Joint Venture Partnerships (as of April 2022)

Transpacific JV	Transatlantic JV	Trans-American JV
Delta *Korean Air*	**Delta** *Air France, KLM, Virgin Atlantic*	**Delta** *Aéromexico, LATAM*
American *Japan Airlines, Qantas*	**American** *British Airways, Finnair, Iberia, Aer Lingus [1/], JetBlue [2/]*	**American** *GOL [3/], JetSMART*
United *All Nippon Airways (ANA)*	**United** *Air Canada, Austrian, Brussels, Lufthansa, Swiss*	**United** *Avianca, Azul [4/], Copa Airlines*

[1/] In December 2020, Aer Lingus joined the Atlantic Joint Business (AJB) agreement among American Airlines, British Airways, Iberia, and Finnair.

[2/] American Airlines and JetBlue announced their interline agreement in July 2020 with codeshare flights commencing in February 2021.

[3/] GOL, a Brazillian low-cost airline, has closed its partnership deal with American Airlines in April 2022, allowing both carriers to extend their network via codeshare agreements; American had invested $200 million to take a 5.3% holding in GOL.

[4/] United and Brazil's Azul established a four-way partnership along with Avianca and Copa for travel between the U.S. and Latin America. As of late 2019, the proposal still required antitrust approval before reaching an implementation stage. In 2020, United and Azul have brokered a code agreement, which continues to be in effect as of the date of this report.

Source: *Airline websites.*

As customers come to expect seamless global travel and airlines look to expand capacity while mitigating high cost and risk, the rise of immunized JVs is a trend that is expected to continue to dominate international operations in coming years.

Unlike many airports that predominantly cater to flights by one specific carrier or alliance, Logan's service is less concentrated, encompassing members of all three major alliances, as well as unaligned LCCs and ULCCs. This means that the Airport is less susceptible to detrimental changes in service levels due to potential future U.S. airline consolidation or changes in carrier network strategy. The largest carrier at Logan Airport, JetBlue, is not a member of any of the three alliances, however, as previously discussed, it has entered into a Northeast Alliance Partnership (NEA) with American Airlines, and also has engaged in interline and codeshare partnerships with at least ten foreign carriers serving the Airport. As shown in Section 4.3 (Exhibit 4-10), 40% of weekly departing seats at Logan are unaligned. This has been an important factor in Logan Airport's ability to attract new foreign carrier service in recent years, as the lack of a single airline dominating the market creates a better competitive landscape for airlines to consider new service opportunities (Section 4.4 discusses scheduled airline services at Logan Airport).

2.5 Fleet Expansion and Industry Changes

2.5.1 Aircraft Orders

Aircraft orders are constantly shifting as carriers adjust their order books to reflect market activities, changes to long-range plans and available aircraft financing. The COVID-19 pandemic caused a number of airlines to defer aircraft orders or extend delivery over additional years. Between 2022 and 2031, over 2,200 aircraft are scheduled to be delivered to U.S. commercial carriers. Recent aircraft orders have emphasized fuel efficiency, with the incoming aircraft slotted to replace the less efficient older 737s, A320s and older regional jets currently in carrier fleets. In addition, carriers are increasingly placing orders for larger capacity, new generation narrow-body aircraft such as the Boeing B737 MAX, Airbus A220, and A321neo ("new engine option").

As of May 31, 2022, aircraft delivery orders[8] in place over the next ten years are weighted almost equally between FSCs and LCCs (see Exhibit 2-17). A large number of expected deliveries to United Airlines in 2023 skews the overall proportion of deliveries to FSCs over the next several years. This would suggest that FSCs will be adding more fuel-efficient aircraft over the near term and retiring older aircraft in their fleets. LCC/ULCC deliveries are weighted toward the 2026 to 2031 period.[9] Other regional carriers are expecting 42 deliveries of ERJ 175 and ATR 42 aircraft for the remainder of 2022. [10]

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[8] Based upon Centre for Aviation ("CAPA") Fleet database.

[9] "On order" is the status that identifies a confirmed order placed by an airline operator for the production of a specific aircraft that is expected to be delivered on a future date.

[10] Skywest Airlines (not shown in the following exhibit) have on-orders without a delivery date for 100 new Mitsubishi Regional Jets (MRJs) from Japan.

Exhibit 2-17: New Aircraft Deliveries for U.S. Carriers (CY 2022 to CY 2031)

	Backlog					
Carrier	**2022**	**2023**	**2024**	**2025**	**2026-2031**	**Total**
Alaska	16	26	12	12	11	77
American	24	33	49	51	34	191
Delta	39	52	48	45	49	233
Hawaiian	0	4	2	2	2	10
United	52	133	65	68	221	539
Subtotal - FSC	**131**	**248**	**176**	**178**	**317**	**1,050**
Allegiant	0	10	20	20	0	50
Breeze	10	12	12	12	10	56
Frontier	10	21	24	30	145	230
JetBlue	10	29	35	28	52	154
Southwest	95	77	30	30	210	442
Spirit	16	24	25	20	40	125
Subtotal - LCC/ULCC	**141**	**173**	**146**	**140**	**457**	**1,057**
Other Regional Carriers	49	39	24	23	0	135
Total	**321**	**460**	**346**	**341**	**774**	**2,242**
Share - FSCs	40.8%	53.9%	50.9%	52.2%	41.0%	46.8%
Share - LCCs/ULCCs	43.9%	37.6%	42.2%	41.1%	59.0%	47.1%
Share - Other	15.3%	8.5%	6.9%	6.7%	0.0%	6.0%

Note: *Does not include subsidiaries; "Other/Regional Carriers" include Horizon Air, Republic Airlines, Silver Airways, and SkyWest Airlines. Breeze Airways has 20 aircraft and SkyWest Airlines has 100 aircraft on order without a delivery date, which are not reflected in the table. At the time of this report, Avelo Airlines does not have any firm orders for new aircraft.*

Source: *CAPA Fleet, as of May 31, 2022.*

2.5.2 Next Generation Aircraft Trends

New aircraft technology will continue to be a key enabler of new long-haul nonstop services around the world, especially with respect to international services. Aircraft such as the next-generation Boeing 777-8X/9X, 787-8/9/10[11] and the Airbus A330neo and A350 models incorporate new airframe, engine, and wing designs, resulting in significant improvements in aircraft range and fuel efficiency. These aircraft play an important role in Boston and other medium/large size markets, allowing air carriers to create international market service opportunities by effectively filling these mid-sized wide-body aircraft with local and connecting traffic.

[11] The Boeing 777-8X and 777-9X is a next-generation aircraft variant series of the B777 model; the B787 model includes aircraft variant series such as the 787-8, 787-9, and the 787-10.

As shown in Exhibit 2-18, there were more than 2,200 Boeing B777, B787 and Airbus A350 passenger aircraft models in service at the end of May 2022, compared to less than 1,200 prior to 2014. Over 1,000 confirmed orders for these three aircraft have been placed by airlines worldwide.[12] In the next five years, the expected fleet size of B777, B787 and A350 aircraft that will be in service will increase the fleet by over 33%, if wide-body deliveries during this period are not significantly deterred by further shocks resulting from current aircraft delivery conditions.[13] By the end of 2024, an additional 4,300 next generation narrow-body and wide-body aircraft are expected to be delivered globally, including 321 B787s and 197 A350s.

Asia is the leading market for next generation widebody aircraft deliveries, with Asian carriers accounting for nearly a third of all B777, B787 and A350 aircraft orders; Middle Eastern and European carriers follow, representing 23.8% and 18.6% of worldwide confirmed orders, respectively. United, American, and Delta each expect additional B787 and A350 deliveries ranging from 8 to 25 aircraft through 2024; no 777X orders have been announced by these U.S. airlines at the time of this report.

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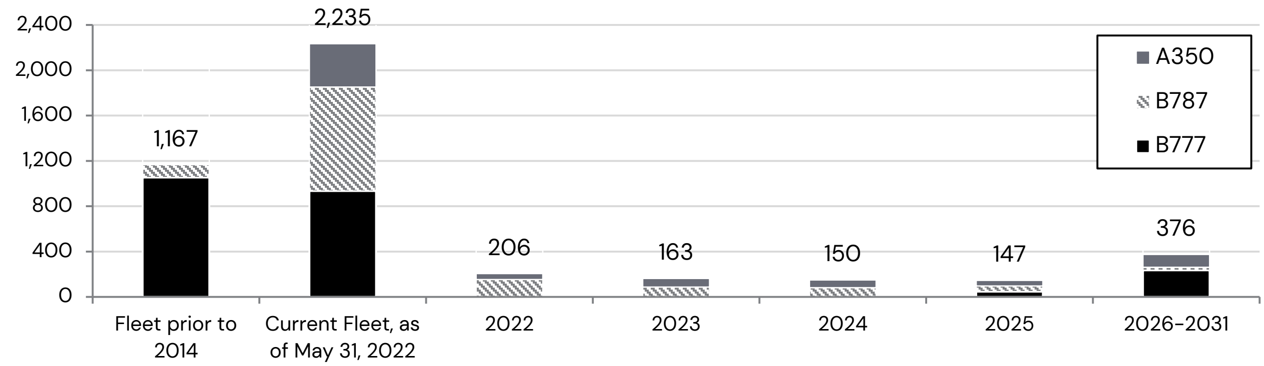
[13] Boeing's first-quarter results in 2022 confirmed that its new flagship aircraft, the 777X (includes two variants, the 777-8X and 777-9X, which support a longer range and larger body than the existing 777s and 787s) is facing further certification delays, temporarily pausing deliveries through 2023. Deliveries are not expected to start again until early 2025. A variety of factors contributed to the delivery delays, ranging from production issues, engine issues, and certification issues.

Exhibit 2-18: Worldwide Boeing B777, B787 and Airbus A350 Current Fleet and Expected Aircraft Deliveries



B777/B787/A350 % Of Total Wide-body Orders	**79.5%**	**82.7%**	**82.9%**	**94.2%**	**94.7%**
On-Option Aircraft Status	**8**	**13**	**15**	**9**	**0**
A350	0	7	7	0	0
B777	0	4	6	4	0
B787	8	2	2	5	0

Note: *As of May 31, 2022, there are an additional 23 Boeing B777, 92 Boeing B787 and 59 Airbus A350 on-order without a delivery date, which are not reflected in the figure above; an additional 155 B777, 130 B787 and 141 A350 are on-option without a delivery date as reported by CAPA Fleets.14 Not shown in the Current Fleet category are 352 inactive B777-200/300s, 67 inactive B787-8/9s, and 96 inactive A350-900/1000s.*

Source: *CAPA Fleet, as of May 31, 2022.*

The use of new fuel-efficient aircraft will continue to allow airlines to introduce new nonstop routes, to markets that may lack significant feeder traffic from a hub carrier, such as Logan Airport. If newer aircraft technologies are deployed at Logan Airport, this will open up airline opportunities to operate longer and thin margin routes, capturing market share and improving quality of service index for air service development purposes.[15] In the 12-month period ending February 2020, there were ten foreign carriers operating the B787 out of Logan providing on average 268 seats per departure. Hainan Airlines and Lufthansa were the only carriers to operate the A350 from Logan during this period, with 322 seats available per departure on average. Based on advance July 2022 schedules, seven airlines are planning to operate either a B777, B787, or A350 aircraft, averaging 290 seats per departure.[16]

[14] Wide-body jet aircraft on-orders include 777X, A330, and A380 (Airbus confirmed it stopped production of the A380 in 2021 following Emirates' decision to reduce its outstanding order. The final A380 was delivered in December 2021 to Emirates; Source: Reuters, 2021).

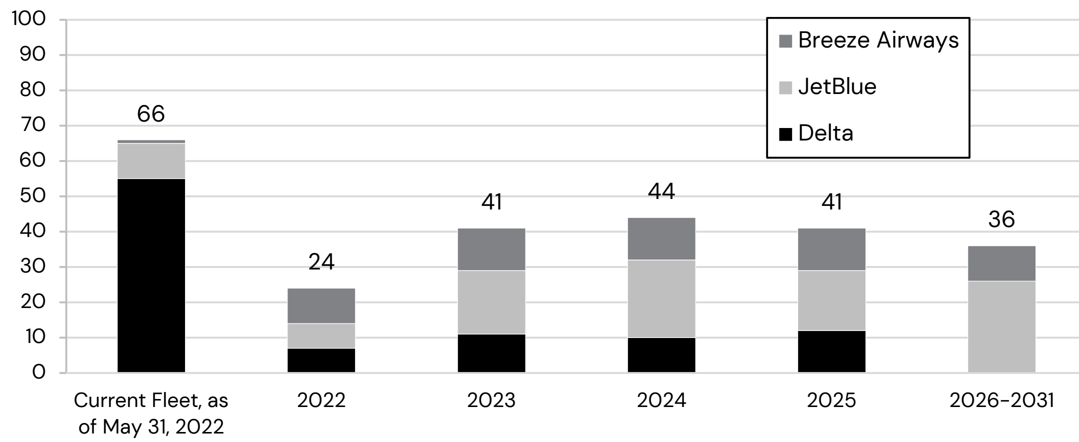
[15] Quality of service index ("QSI") is a share-based model to predict demand across flight schedules. It is best used when exploring the potential demand for scheduled service that does not already operate, but for which there are identifiable traffic flows via alternate points/itineraries. QSI can also be used to analyze the markets where direct service already exists, and the impact of additional frequencies or a new entrant to the market. QSI results help quantify market share, prognosticate predicted passenger traffic, and ultimately help forecast a route's likely profitability, supported by various other sources of data.

[16] According to July 2022 advance OAG schedules as of the week of May 30, 2022. Lufthansa plans to swap its A350 equipment, interchanging flights instead between its A340 and 747-400 fleet.

In early 2019, Airbus began delivering their small narrow-body jet aircraft, the Airbus A220 (previously known as Bombardier's CSeries[17]), providing fuel efficient and comfortable aircraft that serve the 100-135 seat market. Based on CAPA Fleet data, Delta, JetBlue, and Breeze Airways are the only U.S. carriers to have orders for the A220, and Delta already operates its A220s on shuttle flights between Boston and New York, and from Boston to certain U.S. Midwest and Southeast destinations. JetBlue received its first A220 in December 2020 and an additional seven in 2021. JetBlue currently operates the A220 between Boston and several large and medium sized markets such as Chicago, Atlanta, Minneapolis, Nashville, Austin, and San Antonio.

As shown on Exhibit 2-19, both JetBlue and Delta are expected to receive seven A220 deliveries each between June 2022 and December 2022. These airlines are expected to rely on the A220s to replace their older regional jet aircraft and fly transcontinental routes, given the aircraft's maximum range of 3,390 miles.[18]

Exhibit 2-19: Airbus A220 Current Fleet and Projected Aircraft Deliveries Among U.S. Carriers



On-Option Status	**N/A**	**N/A**	**N/A**	**N/A**	**20 (2027-2028)**

Note: *As of May 31, 2022, there are an additional 20 A220s on order without a delivery date for Breeze Airways, which are not reflected in the figure above. The year 2022 reflects the period between June-December 2022.*

Source: *CAPA Fleets, as of May 31, 2022.*

[17] Airbus acquired the majority of Bombardier's and Investissement Quebec's C Series program in July 2018.

[18] Airbus website.

3 ECONOMIC CHARACTERISTICS OF THE BOSTON LOGAN SERVICE AREA

3.1 Introduction

Socio-economic trends of an airport service region are a major contributing factor to long-term airline traffic growth. Once the exogenous shock of the COVID-19 pandemic subsides, economics will again largely dictate long-term market growth for Logan Airport.

The Massachusetts economy continues to recover despite rising uncertainty surrounding labor shortages, the inflation outlook, and the potential of an Omicron B.2 variant surge. As COVID-19 cases and hospitalizations decline and vaccination rates rise, local authorities have been lifting restrictions and people are returning to offices and shopping centers. Markets across the U.S. and the globe have adjusted their lifestyle preferences as they recover economically. Many of these adjustments were amplified by the role of digital economy. Innovation-oriented industries and talent are believed to be key drivers of future economic growth and urban renewal to create more sustainable, resilient and inclusive communities.

Overall, the Logan Airport service area is well positioned to take advantage of and adjust to these trends. According to a recent JLL Innovation Geographies report, Boston was ranked No. 4 for innovation, among other top global markets like Silicon Valley (i.e., San Jose) and Tokyo. The Boston region and Massachusetts are leaders in the life sciences industry and home to the largest number of life sciences headquarters in the world, with more than 250 companies that each have over $100 million in funding.[19]

The Boston Service Area[20] is a central player in the nation's finance, technology, biotechnology, healthcare, and education sectors, all of which are highly travel dependent, thereby boosting local O&D passenger demand and business travel mix. The Boston area is also a major tourist destination for both domestic and international tourists. As one of the nation's largest population and economic centers, Boston is a growing market with a per capita income of $85,724, which was 44.9% above the U.S. average of $59,147 in 2020.[21] [22] Such favorable economic conditions contribute to the region's sustained demand for air travel. Future GDP growth of the region is anticipated to track closely with national growth rates. The strong underlying economic conditions support high travel propensity and also suggest continued growing demand for air travel through Logan Airport over the medium- and long-term horizons.

[19] Boston Business Journal. "Resilience and recovery: What is driving Boston's economy forward?", 21 March 2022.

[20] The Boston Service Area includes Bristol, Essex, Middlesex, Norfolk, Plymouth, Suffolk, and Worcester counties; as identified in the Glossary (page B-2).

[21] Bureau of Economic Analysis (BEA). Per capita personal income for the Boston-Cambridge-Newton, MA-NH (Metropolitan Statistical Area) is presented in current dollars (not adjusted for inflation).

[22] Latest per capita income data available from the U.S. Department of Commerce is 2020.

For more than a decade, the Massachusetts economy maintained steady and consistent growth until the COVID-19 pandemic. This region experienced faster growth than the New England and U.S. national averages. According to Woods & Poole data, the Boston Service Area ranks 7th among U.S. metropolitan areas in terms of economic output for 2021, with average annual economic growth of 2.7% per year between 2010 and 2019, exceeding the national average of 2.5%.[23] Based on latest available data provided by the U.S. Bureau of Economic Analysis, The Commonwealth of Massachusetts (the "Commonwealth") reported state GDP of $533 billion in 2021 while the U.S. reported national GDP of $19.4 trillion in 2021. These GDP levels exceeded 2019 production by 3.0% and 2.3%, respectively.[24] Prior to the pandemic, the Commonwealth benefitted from improving economic conditions after the 2008/2009 recession and was further buoyed by its strong reliance on the growing health and technology sectors.

MassBenchmarks' near-term forecast suggests Massachusetts' GDP will grow in line with U.S. GDP, which is projected to increase between 1.5% to 2.0% for 2022.[25] Although the U.S. and Massachusetts continue to face labor constraints due to shifting demographic trends, the Commonwealth's industrial sector and skilled labor force are well positioned for economic growth through investments in information, health, and climate technology. Growth in business investments and increased economic spending support personal income within the Commonwealth, and total personal income for the Boston Service Area is forecast to grow by 1.9% annually over the long-term (2020-2030).[26]

This section of the report covers various economic indicators for Massachusetts and the metro Boston region and the outlook for long-term demographic and economic growth. Although long-term trends look positive, short-term uncertainty over inflation, rising interest rates and U.S. stock market volatility which may lead to an economic downturn and/or recession. The short-term outlook is further discussed in Section 3.3.3 of this report.

[23] Woods & Poole Economics CEDDS, 2022. Gross Regional Product in constant 2012 dollars for the Boston Service Area (BSA).

[24] Bureau of Economic Analysis (BEA), chained 2012 dollars.

[25] MassBenchmarks (an initiative of the University of Massachusetts Donahue Institute and Federal Reserve Bank of Boston), "Current and Leading Indexes", January 2022.

[26] Woods & Poole Economics CEDDS, 2022.

3.2 Review of Historical Massachusetts Economic Trends

3.2.1 Economic Output

Exhibit 3-1 shows long term historical real GDP growth trends for Massachusetts and the U.S. through the end of CY 2021, as well as annualized growth rates by quarter in 2020 and 2021. Over the past two decades, the Massachusetts economy has closely followed national trends. As shown in the exhibit below, this was also true for the COVID-19 pandemic period of the past two years. Both the U.S. and Massachusetts experienced a pandemic shock to the economy in 2Q 2020 followed by an equally strong annualized rebound in 2Q 2021.

Over the past 20 years, Massachusetts GDP as a percentage of U.S. GDP has averaged 2.7%. Considering its population base, the Commonwealth has a disproportionately high contribution to the national economic output. For example, in 2019, Massachusetts accounted for approximately 2.7% of U.S. GDP,[27] though only accounting for 2.1% of the total U.S. population.[28]

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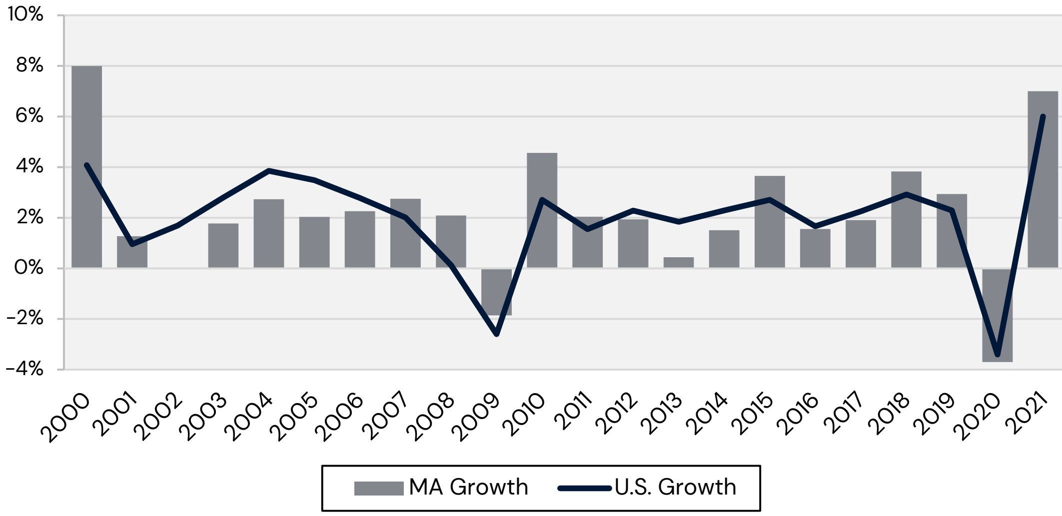
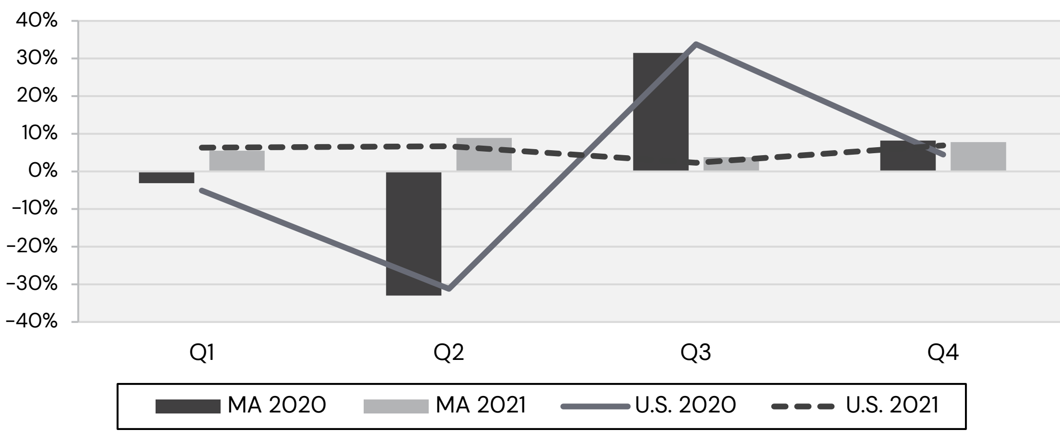
[27] Ibid.

[28] Ibid.

Exhibit 3-1: Real GDP Annual Growth in Massachusetts and U.S. (CY 2000 – CY 2021) and Annualized Growth by Quarter





Note: *Growth rates are based on real GDP values chained (or inflation-adjusted in real terms) on 2012 dollars. Percent changes show growth of the same quarter compared to the previous year. At the time of this report, Q4 2021 data was the latest available from BEA.*

Source: *U.S. Department of Commerce, BEA.*

3.2.2 Employment

The Boston metropolitan area maintains one of the largest employee bases in the nation, as shown in Exhibit 3-2. Boston is currently ranked 10th in the nation with an estimated 2.77 million nonfarm employees according to preliminary April 2022 U.S. labor data, compared to a population rank of 11th.[29]

[29] Woods & Poole Economics. Boston is based on Metropolitan Statistical Areas for United States, which includes Boston-Cambridge-Newton, MA-NH.

Showing a strong recovery, Boston area employment as of April 2022 increased 5.0% from April 2021, compared to the national increase of 4.6% in employment over the same period.

Exhibit 3-2: Non-Agricultural Employment for Major Metropolitan Areas and Total U.S. (April 2022 vs April 2021)

Metropolitan Area	Employment Rank	April 2022 ('000) (p.)	April 2021 ('000)	Net Change	% Change	Rank by % Change
New York-Newark-Jersey City	1	9,641.3	9,157.4	484	5.3%	8
Los Angeles-Long Beach-Anaheim	2	6,139	5,806	334	5.7%	4
Chicago-Naperville-Elgin	3	4,648	4,458	190	4.3%	11
Dallas-Fort Worth-Arlington	4	4,058	3,780	278	7.4%	1
Washington-Arlington-Alexandria	5	3,286	3,183	103	3.2%	14
Houston-The Woodlands-Sugar Land	6	3,198	3,029	170	5.6%	5
Atlanta-Sandy Springs-Roswell	7	2,949	2,765	184	6.7%	2
Philadelphia-Camden-Wilmington	8	2,949	2,841	108	3.8%	12
Miami-Fort Lauderdale-West Palm Beach	9	2,768	2,625	143	5.5%	7
Boston-Cambridge-Nashua	**10**	**2,774**	**2,642**	**132**	**5.0%**	**9**
San Francisco-Oakland-Hayward	11	2,432	2,294	138	6.0%	3
Phoenix-Mesa-Scottsdale	12	2,276	2,193	83	3.8%	13
Seattle-Tacoma-Bellevue	13	2,084	1,974	110	5.6%	6
Detroit-Warren-Dearborn	14	1,985	1,894	92	4.8%	10
Minneapolis-St. Paul-Bloomington	15	1,978	1,921	57	2.9%	15
Sub Total		**53,165**	**50,559**	**2,606**	**5.2%**	
Rest of US		97,818	93,799	4,019	4.3%	
Total US		**150,983**	**144,358**	**6,625**	**4.6%**	

Note: *Data are counts of jobs by place of work. Area delineations are based on Office of Management and Budget (OMB) Bulletin No. 15-01, dated July 15, 2015, and are available on the BLS website at www.bls.gov/lau/lausmsa.htm.*

Areas in the six New England states are Metropolitan New England City and Town Areas (NECTAs), while areas in other states are county-based. Some metropolitan areas lie in two or more states. Estimates for the latest month are subject to revision the following month. Principal cities in the Boston-Cambridge-Nashua, MA-NH Metropolitan NECTA include Boston, MA, Cambridge, MA, Nashua, NH, Newton, MA, Framingham, MA, and Waltham, MA. Not seasonally adjusted.

** Area boundaries do not reflect official OMB definitions*

(p.) Preliminary figures

Source: *U.S. Department of Commerce, Bureau of Labor Statistics (BLS), as of May 2022.*

The leading industries for employment (accounting for approximately half of non-farm employees) in Boston[30] and Massachusetts, as categorized by the U.S. Department of Commerce, are: Education & Health Services; Professional & Business Services; and Trade, Transportation, & Utilities.

[30] Employment ranking for Boston is based on Metropolitan Statistical Areas for United States, which includes Boston-Cambridge-Nashua, MA-NH.

As reflected in Exhibit 3-3, preliminary figures for April 2022 show that Education & Health Care Services account for 21.7% of Boston's non-farm employees; Professional & Business Services account for 19.6%; and Trade, Transportation, & Utilities represent 14.7% of non-farm employees in Boston. The high proportion of employment within the Education & Health Services sectors in Massachusetts reflects Boston's leading role in medical care and health/life sciences. The Commonwealth's share of Educational and Health Services employment was 6.3 percentage points greater than the national level reported by the U.S. BLS.

Exhibit 3-3: Non-Agricultural Employment by Industry Sector for Boston,[31] Massachusetts, and the U.S. (April 2022 vs April 2019)

	April 2022 Non-Farm Employees ('000)			April 2019 Non-Farm Employees ('000)			Percent Change from 2019		
Industry Sector	**U.S.**	**MA**	**BOS***	**U.S.**	**MA**	**BOS***	**U.S.**	**MA**	**BOS***
Education and Health Services	24,334.0	818.0	602.6	24,202.0	829.6	606.7	0.5%	-1.4%	-0.7%
Professional and Business Services	22,118.0	634.6	544.4	21,159.0	599.8	514.5	4.5%	5.8%	5.8%
Trade, Transportation, and Utilities	28,372.0	562.6	406.6	27,427.0	569.8	420.7	3.4%	-1.3%	-3.4%
Government	22,501.0	449.4	309.3	22,952.0	465.6	318.1	-2.0%	-3.5%	-2.8%
Leisure and Hospitality	15,318.0	328.4	241.6	16,409.0	367.5	276.0	-6.6%	-10.6%	-12.5%
Manufacturing	12,679.0	240.5	184.4	12,769.0	244.0	187.6	-0.7%	-1.4%	-1.7%
Financial Activities	8,900.0	216.2	178.9	8,680.0	223.8	184.9	2.5%	-3.4%	-3.2%
Mining, Logging, and Construction	8,167.0	170.7	126.6	8,108.0	161.0	120.6	0.7%	6.0%	5.0%
Other Services	5,649.0	126.2	95.0	5,882.0	135.2	101.7	-4.0%	-6.7%	-6.6%
Information	2,945.0	97.4	84.9	2,833.0	92.0	80.8	4.0%	5.9%	5.1%
Total	**150,983.0**	**3,644.0**	**2,774.3**	**150,421.0**	**3,688.3**	**2,811.6**	**0.4%**	**-1.2%**	**-1.3%**
Percent of Total							**MA More/Less than U.S. (%-pts)**		
Education and Health Services	16.1%	22.4%	21.7%	16.1%	22.5%	21.6%	6.3%		
Professional and Business Services	14.6%	17.4%	19.6%	14.1%	16.3%	18.3%	2.8%		
Trade, Transportation, and Utilities	18.8%	15.4%	14.7%	18.2%	15.4%	15.0%	-3.4%		
Government	14.9%	12.3%	11.1%	15.3%	12.6%	11.3%	-2.6%		
Leisure and Hospitality	10.1%	9.0%	8.7%	10.9%	10.0%	9.8%	-1.1%		
Manufacturing	8.4%	6.6%	6.6%	8.5%	6.6%	6.7%	-1.8%		
Financial Activities	5.9%	5.9%	6.4%	5.8%	6.1%	6.6%	0.0%		
Mining, Logging, and Construction	5.4%	4.7%	4.6%	5.4%	4.4%	4.3%	-0.7%		
Other Services	3.7%	3.5%	3.4%	3.9%	3.7%	3.6%	-0.3%		
Information	2.0%	2.7%	3.1%	1.9%	2.5%	2.9%	0.7%		
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**			

Note: *The non-farm employees' statistics are not seasonally adjusted.*

** Areas in the six New England states are Metropolitan New England City and Town Areas (NECTAs); Principal cities in the Boston-Cambridge-Nashua, MA-NH Metropolitan NECTA include Boston, MA, Cambridge, MA, Nashua, NH, Newton, MA, Framingham, MA, and Waltham, MA; Boston's natural resources & mining is included under Construction.*

April 2022 figures are preliminary.

Source: *U.S. Department of Commerce, Bureau of Labor Statistics (BLS), as of May 2022.*

[31] Boston is based on Metropolitan Statistical Areas for United States, which includes Boston-Cambridge-Nashua, MA-NH.

Over the past decade, Education & Health Services has remained the largest employment sector within Boston-Cambridge-Nashua, MA-NH Metropolitan area, and grew its headcount by 18.8% between April 2011 and April 2022. Manufacturing was the only sector that experienced a decline in overall employment between April 2011 and April 2022, of 4.0% (see Exhibit 3-4).

Exhibit 3-4: Non-Agricultural Employment by Industry Sector for Boston[32] (April 2011 to April 2022)

Industry Sector	April 2011	April 2019	April 2022	Percent Change '11-'22	Percent Change '19-'22	Net Change ('000) '11-'22	Net Change ('000) '19-'22
Education and Health Services	507.3	606.7	602.6	18.8%	-0.7%	95.3	(4.1)
Professional and Business Services	410.4	514.5	544.4	32.7%	5.8%	134.0	29.9
Trade, Transportation, and Utilities	394.7	420.7	406.6	3.0%	-3.4%	11.9	(14.1)
Government	306.3	318.1	309.3	1.0%	-2.8%	3.0	(8.8)
Leisure and Hospitality	225.6	276.0	241.6	7.1%	-12.5%	16.0	(34.4)
Manufacturing	192.1	187.6	184.4	-4.0%	-1.7%	(7.7)	(3.2)
Financial Activities	175.4	184.9	178.9	2.0%	-3.2%	3.5	(6.0)
Mining, Logging, and Construction	77.3	120.6	126.6	63.8%	5.0%	49.3	6.0
Other Services	94.6	101.7	95.0	0.4%	-6.6%	0.4	(6.7)
Information	73.7	80.8	84.9	15.2%	5.1%	11.2	4.1
Total	**2,457.4**	**2,811.6**	**2,774.3**	**12.9%**	**-1.3%**	**316.9**	**(37.3)**
Percent of Total							
Education and Health Services	20.6%	21.6%	21.7%				
Professional and Business Services	16.7%	18.3%	19.6%				
Trade, Transportation, and Utilities	16.1%	15.0%	14.7%				
Government	12.5%	11.3%	11.1%				
Leisure and Hospitality	9.2%	9.8%	8.7%				
Manufacturing	7.8%	6.7%	6.6%				
Financial Activities	7.1%	6.6%	6.4%				
Mining, Logging, and Construction	3.1%	4.3%	4.6%				
Other Services	3.8%	3.6%	3.4%				
Information	3.0%	2.9%	3.1%				
Total	**100.0%**	**100.0%**	**100.0%**				

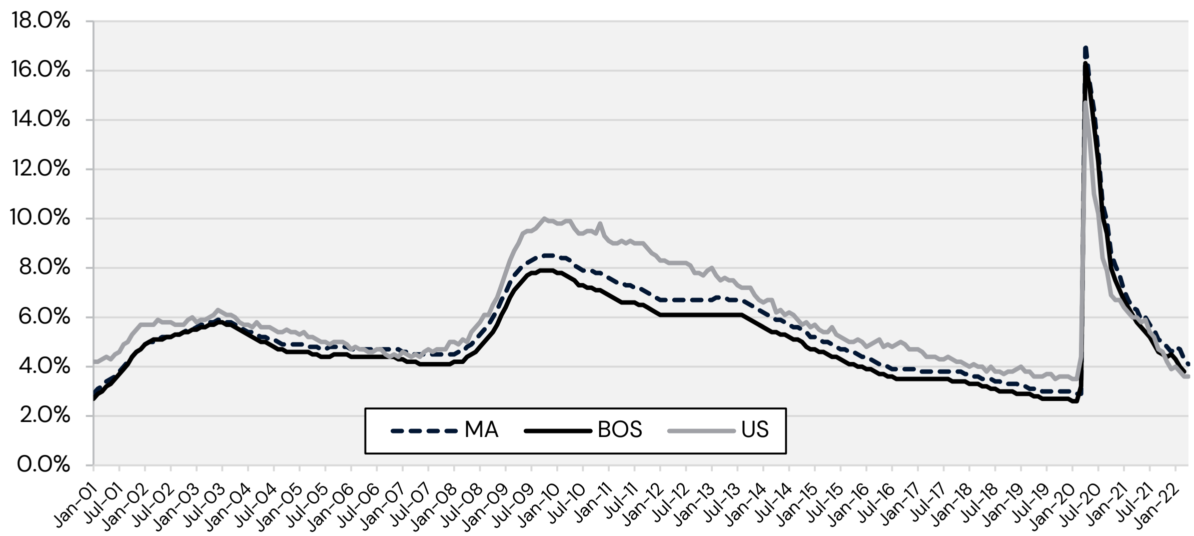
Note: *Areas in the six New England states are Metropolitan New England City and Town Areas (NECTAs); Principal cities in the Boston-Cambridge-Nashua, MA-NH Metropolitan NECTA include Boston, MA, Cambridge, MA, Quincy, MA, Nashua, NH, Newton, MA, Framingham, MA, Waltham, MA, and Peabody, MA. Employment numbers are not seasonally adjusted. April 2022 figures are preliminary.*

Source: *U.S. Department of Commerce, Bureau of Labor Statistics (BLS), as of May 2022.*

[32] Boston is based on Metropolitan Statistical Areas for United States, which includes Boston-Cambridge-Nashua, MA-NH.

For most of the past two decades, unemployment rates in Massachusetts and the Boston-Cambridge-Nashua, MA-NH Metropolitan area[33] have been below the national rate (Exhibit 3-5). The COVID-19 pandemic has had a greater impact on unemployment in Boston and across Massachusetts compared to the national average, in large part because the Northeast states were impacted by the pandemic earlier than other regions of the country and the response of Northeast states was generally stricter with respect to closures and restrictions to protect public health.[34] Starting in April 2020, unemployment rates for both Boston and the Commonwealth were greater than the national average. As of March 2022, the most recent month for which data was available for all three areas, the Boston unemployment rate of 3.3% was below the 3.8% unemployment rates seen at the Massachusetts and national levels. In April 2022, the Massachusetts and U.S. unemployment rates had further improved to 3.3%.[35]

Exhibit 3-5: Unemployment Rates for Boston, Massachusetts, and the U.S. (January 2000 – April 2022)



Note: *Chart above shows seasonally adjusted unemployment rates. Boston unemployment rate for April 2022 was not available at the time of this report being written. Boston refers to the Metropolitan Area. Areas in the six New England states are Metropolitan New England City and Town Areas (NECTAs); Principal cities in the Boston-Cambridge-Nashua, MA-NH Metropolitan NECTA include Boston, MA, Cambridge, MA, Quincy, MA, Nashua, NH, Newton, MA, Framingham, MA, Waltham, MA, and Peabody, MA.*

Source: *U.S. Department of Commerce, Bureau of Labor Statistics (BLS), as of May 2022.*

As of March 2022, the Boston area's unemployment rate ranked the 25th lowest among the nation's large metropolitan areas that have labor forces with greater than 250,000 people and tracked below

[33] As identified by the U.S. Department of Commerce, Bureau of Labor Statistics.

[34] MassBenchmarks, July 2020.

[35] Boston level data was not available for April 2022 at the time of this report.

5.0% in terms of unemployment rate (shown in Exhibit 3-6). Boston's unemployment rate of 3.3% is 0.2 percentage points higher than its pre-pandemic rate in January 2020. Prior to the pandemic, Boston had experienced relatively low levels of unemployment in part due to the creation of technology jobs and increased corporate information technology ("IT") spending within the expanding industry sectors.

Exhibit 3-6: Large Metropolitan Areas with Unemployment At or Under 5.0% (March 2022 Rankings)

Rank	Metropolitan Area	Unemployment Rate March 2022	Rank	Metropolitan Area	Unemployment Rate March 2022
1	Birmingham-Hoover	2.3%	21	Atlanta-Sandy Springs-Roswell	3.2%
2	Fayetteville-Springdale-Rogers	2.3%	22	Jackson	3.2%
3	Phoenix-Mesa-Scottsdale	2.4%	23	Urban Honolulu	3.2%
4	North Port-Sarasota-Bradenton	2.4%	24	Grand Rapids-Wyoming	3.3%
5	Jacksonville	2.5%	**25**	**Boston-Cambridge-Nashua**	**3.3%**
6	Cape Coral-Fort Myers	2.5%	26	Little Rock-North Little Rock-Conway	3.3%
7	Palm Bay-Melbourne-Titusville	2.5%	27	Baton Rouge	3.4%
8	Minneapolis-St. Paul-Bloomington	2.5%	28	San Diego-Carlsbad	3.4%
9	Indianapolis-Carmel-Anderson	2.5%	29	Oxnard-Thousand Oaks-Ventura	3.5%
10	Tampa-St. Petersburg-Clearwater	2.5%	30	Augusta-Richmond County	3.6%
11	San Jose-Sunnyvale-Santa Clara	2.5%	31	Wichita	3.6%
12	Miami-Fort Lauderdale-West Palm Beach	2.8%	32	Denver-Aurora-Lakewood	3.6%
13	Boise City	2.8%	33	Washington-Arlington-Alexandria	3.6%
14	Tucson	2.8%	34	Colorado Springs	3.7%
15	San Francisco-Oakland-Hayward	2.9%	35	Sacramento--Roseville--Arden-Arcade	3.7%
16	Deltona-Daytona Beach-Ormond Beach	2.9%	36	Worcester	3.9%
17	Orlando-Kissimmee-Sanford	2.9%	37	New Haven	3.9%
18	Lexington-Fayette	3.1%	38	Louisville/Jefferson County	4.2%
19	Des Moines-West Des Moines	3.1%	39	Baltimore-Columbia-Towson	4.2%
20	Lakeland-Winter Haven	3.1%	40	Hartford-West Hartford-East Hartford	4.2%

Note: *Seasonally unadjusted rates shown are a percentage of the labor force. Data refers to place of residence. Estimates for the current month are subject to revision the following month. Large metropolitan areas are defined as having labor forces greater than 250,000. Preliminary data for April 2022 was unavailable at the MSA level.*

Source: *U.S. Department of Commerce, Bureau of Labor Statistics (BLS).*

3.2.2.1 Employers

As shown in Exhibit 3-7, 17 Fortune 500 companies are headquartered in Massachusetts. In 2021, revenues for the Massachusetts-based Fortune 500 firms ranged from $6.1 billion (Alexion Pharmaceuticals) to $79.6 billion (General Electric). These companies span diverse industry sectors including technology, finance, retail, aerospace, healthcare, energy, and food and beverages. Fifteen of the 17 companies appeared in the 2020 list, while Vertex Pharmaceuticals and Alexion Pharmaceuticals were new additions in 2021, indicating a growing business base in Massachusetts. Furthermore, State Street Corporation, a large financial services company, recently reiterated its commitment to a lease agreement it signed in 2019 that positions the company to lease 500,000 square-feet of office space in Boston beginning in 2023.[36] Eight of the companies improved their Fortune 500 ranking during the year, although General Electric, the largest company in the Commonwealth, saw a slight decline in revenues between 2020 and 2021 of 2.6%.[37]

Exhibit 3-7: Massachusetts Fortune 500 Companies (Ranked by 2021 Revenue)

2021 MA	2021 National	2020 National	2019 National	Company (Location)	Industry	2021 Revenue (Millions)	No. of Employees
1	38	33	21	General Electric (Boston)	Industrial Machinery	79,619	184,000
2	57	39	114	Raytheon Technologies (Waltham)	Aerospace & Defense	56,587	181,000
3	71	77	75	Liberty Mutual Insurance Group (Boston)	Insurance: Property & Casualty	43,796	45,000
4	95	119	124	Thermo Fisher Scientific (Waltham)	Scientific, Photographic, and Control Equip.	32,218	84,362
5	97	80	85	TJX (Framingham)	Specialty Retailers: Apparel	32,137	320,000
6	123	89	84	Massachusetts Mutual Life (Springfield)	Insurance: Life & Health	23,663	9,974
7	198	243	245	BJ's Wholesale Club (Westborough)	General Merchandising	15,430	32,000
8	217	348	46	Wayfair (Boston)	Internet Services and Retailing	14,145	16,122
9	228	223	25	Biogen (Cambridge)	Pharmaceuticals	13,445	9,100
10	252	244	247	State Street (Boston)	Financial Services	12,078	39,439
11	267	288	409	Keurig Dr Pepper (Burlington)	Beverages	11,618	27,000
12	305	296	319	Boston Scientific (Marlborough)	Medical Products & Equipment	9,913	38,000
13	338	371	358	Eversource Energy (Springfield)	Utilities: Gas & Electric	8,904	9,299
14	361	246	254	Global Partners (Waltham)	Wholesalers: Diversified	8,324	2,958
15	375	414	410	American Tower (Boston)	Real Estate	8,042	5,618
16	448	626	752	Vertex Pharmaceuticals (Boston)	Pharmaceuticals	6,206	3,400
17	459	547	614	Alexion Pharmaceuticals (Boston)	Pharmaceuticals	6,070	3,837

Note: *The Fortune 500 excludes private companies that do not file financial statements with a government agency; companies incorporated outside the U.S.; and U.S. companies owned or controlled by other companies, domestic or foreign, that file with a government agency. Employees are global figures. Revenues and employee numbers are as reported by Fortune. Revenues are for the last fiscal year.*

Source: *Fortune website.*

3.2.2.2 Leading Massachusetts Industries

Six major industries have posted large contributions to the Boston region's economy since the early 1990s and currently account for approximately one half of the Boston area employment base.

These leading industries are:

- High technology
- Biotechnology
- Health care
- Financial services
- Higher Education
- Tourism

[36] The Boston Globe, Logan, Tim, *"State Street says Goodbye to Manhattan offices, but does not intend to bail on Boston."* 16 August 2021.

[37] General Electric Form 10-K for Fiscal Year 2021.

High Technology

The high technology industry encompasses a number of economic activities that cut across traditional definitions of industrial sectors. Massachusetts high technology companies are heavily involved in computer software and related information technology development. These range from cloud computing, cybersecurity, and research and development programs related to new technology products and procedures. Beyond software, high technology companies in the Commonwealth also manufacture and distribute computer and electronic related equipment. Boston-based companies like Analog Devices, Nuance Communications, Skyworks Solutions, and Akamai Technologies all employ thousands of Massachusetts workers within the technology industry. In addition, Amazon announced in January 2021 that it will expand its Boston Tech Hub, with plans to create more than 3,000 new corporate and technology jobs in the next several years, providing roles that support Amazon Web Services (AWS), Amazon Robotics, and Amazon Pharmacy.[38] Over the past decade, Amazon had invested more than $6.2 million in Massachusetts, and generated more than 20,000 jobs across various functions including retail, corporate, and technology. More recently on the contrary, as of June 7, 2022, Waltham-based Raytheon Technologies announced plans to move its headquarters to Arlington, Virginia, to increase agility in supporting its U.S. government and commercial aerospace customers.[39] A company spokesperson, however, iterated that there would be no reduction in its workforce in Massachusetts as a result of the move.

Biotechnology

Boston is one of the leading centers for biopharma (including pharmaceuticals and medical devices), and biotechnology in the U.S. The existence of a well-trained and highly educated work force and the wealth of medical and higher education facilities and personnel in the region make the Boston area one of the most desirable locations in the nation for the biotechnology industry. The biopharma industry employed nearly 85,000 people in Massachusetts in 2021.[40] Companies like Moderna, Sanofi, Philips, Thermo Fisher Scientific, Shire, Takeda Pharmaceutical, and Boston Scientific Corporation, all with large offices in the Boston area, contribute substantially to the biotechnology industry.

Health Care

Boston has a world-renowned reputation as a leader in the health care industry, which is a strong driver of the local economy. From medical education to training, research and the provision of medical services, Boston's medical institutions perform a wide variety of activities. The large amount of research and health care related activities at these institutions also act as a driver of other health care related industries, such as the biotech industry. Hospitals in the Boston metro area accounted

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[38] Amazon, Job Creation and Investment, 2021. https://www.aboutamazon.com/, 26 January 2021.

[39] The Boston Globe, "Raytheon relocating headquarters to Virginia", 7 June 2022.

[40] Massachusetts Biotechnology Council, 2021 Industry Snapshot.

for over 155,000 full-time employees in 2021. Massachusetts General Hospital, Brigham and Women's Hospital, and UMass Memorial Medical Center are the three largest hospitals in the Boston area.

Financial Services

The Boston area is also a leader in the financial services industry. A substantial number of mutual fund companies, hedge funds, venture capital firms and wealth management and financial advisory companies are based in or have significant operations in Boston, including Fidelity Investments, State Street Corporation, and John Hancock Financial. Other noteworthy firms include mutual funds and investment managers such as MFS, Putnam Investments, and Wellington Management.

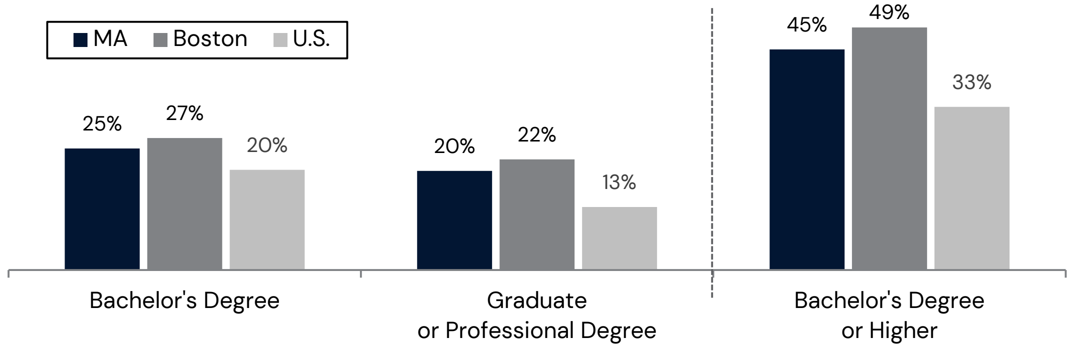
Higher Education

Massachusetts is the home of some of the nation's most prestigious colleges and universities. These higher education institutions attract undergraduate and graduate students from across the U.S. and around the world, generating increased demand for air travel. The top three institutions by enrollment – Harvard University, Boston University, and Northeastern University – represent about one-fifth of the combined total enrollment of full and part-time students in the Commonwealth, of nearly 460,000 students. These institutions play an important role in the regional economy, not only in terms of their direct workforce but also by spawning important scientific research that in turn leads to industry developments. A significant portion of the region's growth in high technology, biotechnology, financial services and health care emanates from the graduates and research produced by the area's universities. These well-known universities also provide a continuous supply of well-educated and highly trained workers for Boston's economy.

Massachusetts and the Boston metro area[41] have significantly higher levels of educational attainment when compared to the rest of the nation as well. According to the 2020 American Community Survey, as shown in Exhibit 3-8, 45% of the Massachusetts population over the age of 25 held a bachelor's degree or higher, while in Boston, 49% of individuals over 25 had a bachelor's degree or higher. This is higher than the U.S. average of which 33% of the population over 25 years old held a bachelor's degree of higher.

[41] The Boston MSA (Metropolitan Statistical Area) encompasses the Boston-Cambridge-Newton, MA-NH Metro Area.

Exhibit 3-8: Educational Attainment Levels for Population Over 25 Years Old



Note: The U.S. provides educational attainment data for Boston only by Metropolitan Statistical Area (MSA).
Source: U.S. Census Bureau, 2020 American Community Survey (ACS) on Educational Attainment.

Tourism

Tourism has been and continues to be an integral part of the Massachusetts economy. Pre-pandemic, millions of people visited Massachusetts and Boston every year to enjoy its rich historic and cultural heritage, attend cultural or sporting events, conduct business, visit nearby beaches in the area, and attend conventions at one of Boston's convention centers. Massachusetts received 30.5 million visitors in 2019. Visitor spending in the Commonwealth during the same period supported over 155,500 jobs and a payroll totaling $5.9 billion. Domestic and international travelers in Massachusetts spent $24.9 billion on transportation, lodging, food, entertainment, recreation, and retail shopping in 2019.[42]

In 2021, hotels in Boston had an average occupancy rate of 45%.[43] While still below pre-pandemic levels, occupancy rates in Boston were more favorable than the 26% average occupancy rate averaged in Boston in 2020 and the 41% average occupancy rates[44] in Philadelphia and Washington D.C. in 2021. Boston also added more than 1,400 new hotel rooms during 2021 and is scheduled to add an additional 534 hotel rooms in 2022.[45] Two grant programs totaling $10 million will also be distributed by the Massachusetts Office of Travel and Tourism to support the recovery of the tourism industry and extend its season in the state.[46] The grant money is expected to be used to assist campaigns and initiatives that would increase consumer spending, support local Massachusetts businesses, and advance other community recovery efforts, along with website developments, digital advertisements, and other marketing-related initiatives.

[42] Massachusetts Office of Travel & Tourism, 2020 Annual Report.

[43] The Greater Boston Convention & Visitors Bureau, Hotel Openings & Statistics.

[44] City of Philadelphia, 2021 Center City Hotel Highlights. Washington, DC Economic Partnership, Development Report 2021/2022.

[45] The Greater Boston Convention & Visitors Bureau, Hotel Openings & Statistics.

[46] Massachusetts Office of Travel & Tourism, Press Release (April 6, 2022).

3.3 Historical Socioeconomic Trends and Future Outlook

3.3.1 Population

Massachusetts has a slow growing population base compared to the U.S. overall, but the Commonwealth's population is tightly clustered within the Boston metro area. As of July 1, 2019, the Massachusetts Data Center estimated that population density was 883.6 persons per square mile in Massachusetts versus 92.9 on a national level. Only three states are reported to be more concentrated than Massachusetts: Rhode Island, Delaware, and New Jersey.[47] As of 2020, the population within the Boston Service Area was estimated at 5.8 million. As shown in Exhibit 3-9, between 2010 and 2020, the population of the Boston Service Area has grown marginally faster than the Massachusetts population, twice the average growth rate of New England and similar to the U.S. population. Woods & Poole projects the Boston Service Area population to continue to grow and maintain its share of 1.7-1.8% of the U.S. population and slightly increase its share of the New England population to 39.3% by 2030, an increase of 1.3 percentage points relative to 2010.

Exhibit 3-9: Historical and Forecast Regional and National Population Growth (2010 to 2030)

	Historical		Estimate	Forecast	
	2010	2015	2020	2025	2030
Population (in 000s)					
Boston Service Area	5,497.5	5,776.4	5,931.7	5,987.0	6,091.1
Massachusetts	6,566.4	6,861.8	7,022.2	7,086.1	7,197.4
New England	14,470.0	14,862.3	15,101.3	15,284.1	15,493.7
Total U.S.	309,327.1	321,748.3	331,501.1	340,970.9	352,070.3
Boston Service Area Population as a Percent of:					
% of Massachusetts	83.7%	84.2%	84.5%	84.5%	84.6%
% of New England	38.0%	38.9%	39.3%	39.2%	39.3%
% of U.S. Total	1.8%	1.8%	1.8%	1.8%	1.7%
	10 Years	**5 Years**	**5 Years**	**5 Years**	**10 Years**
Average Annual Growth	**'10-'20**	**'15-'20**	**'20-'25**	**'25-'30**	**'20-'30**
Boston Service Area	0.8%	0.5%	0.2%	0.3%	0.3%
Massachusetts	0.7%	0.5%	0.2%	0.3%	0.2%
New England	0.4%	0.3%	0.2%	0.3%	0.3%
Total U.S.	0.7%	0.6%	0.6%	0.6%	0.6%

Note: *The Boston Service Area includes Bristol, Essex, Middlesex, Norfolk, Plymouth, Suffolk, and Worcester counties; 1969-2019 Woods & Poole population data is historical from the U.S. Department of Commerce; Numbers for 2020 are estimates.*

Source: *Woods & Poole Economics CEDDS, 2022.*

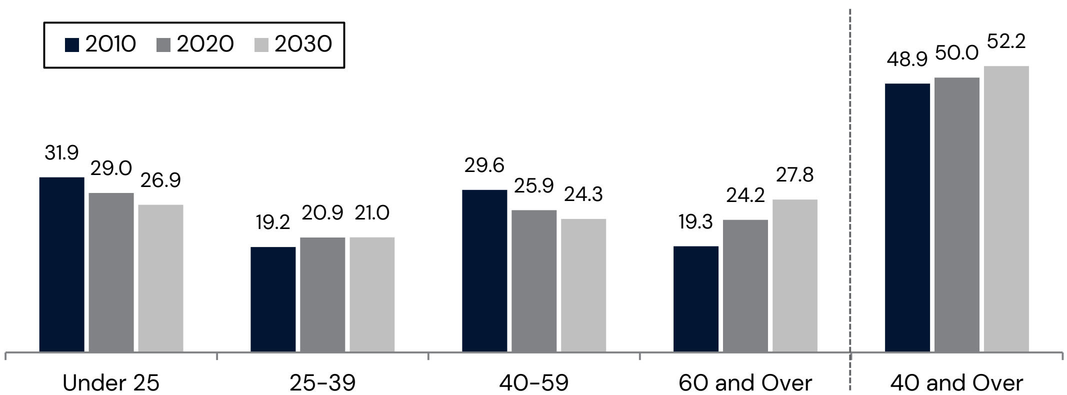
Population growth for the Boston Service Area is forecast by Woods & Poole Economics to increase by 0.3% annually from 2025 through 2030, which is slightly ahead of the anticipated growth for both Massachusetts and New England (Exhibit 3-9). The Boston Service Area is a mature, densely

[47] UMass Amherst Donahue Institute, Massachusetts Economic Due Diligence, Quarterly Report for the Massachusetts State Treasurer's Office of Debt Management (3Q FY 2021).

populated region, and as a result, population is forecast to grow slower than the national average; the U.S. average annual population growth rate is forecast at 0.6% for the same time period.

In addition to the region's growing population, demographics are also shifting to an older age distribution. The region is shifting towards the 40 and above age group (Exhibit 3-10), which Woods & Poole expects to noticeably grow over the next decade. In 2020, an estimated 50.0% of the population in Boston's combined statistical area ("CSA") were 40 years and older compared to 48.9% in 2010. By 2030, that combined age group is expected to represent approximately 52.2% of the total Boston CSA population. As the majority of the region's population will be over 40 years old, consumption patterns will be changing. Generally, the over 40 age cohort has more wealth and higher disposable income and will support a greater propensity to travel. According to data from the U.S. Federal Reserve,[48] the over 40 age group has $145.7 trillion in wealth, which is 10.8 times greater than the $13.9 trillion held by those under 40.

Exhibit 3-10: Distribution of Population by Age in Boston Combined Statistical Area (2010 to 2030)



Note: *Data values represent percent distributions. Boston's combined statistical area (CSA) is defined to include the municipality of Boston and its surrounding areas (Worcester, MA; Providence, Rhode Island; and southeastern New Hampshire)*

Source: *Woods & Poole Economics CEDDS, 2022.*

3.3.2 Personal Income and Per Capita Income

Personal income for the Boston Service Area has historically increased at a similar rate as personal income for New England and the U.S. From 2010 to 2020, total personal income for the Boston Service Area grew by 2.5% annually, compared to 1.9% for New England and 2.2% for the nation as seen in Exhibit 3-11.

Per capita income levels in the Boston Service Area have been consistently higher than those of the New England region and the rest of the U.S. In 2020, the Boston Service Area's per capita income was estimated at $69,164, approximately 10.3% higher than New England's per capita income and 36.8%

[48] The Federal Reserve. "Compare Wealth Components across Groups 2021:Q4"

higher than the U.S. average. After the 2008/2009 recession, average growth of per capita income in the Boston Service Area (1.9% per annum) and in Massachusetts (1.6% per annum) grew slower than the national average of 2.2%. However, from 2020 to 2030, total personal income in the Boston Service Area is projected to grow on average 2.4% annually, reflecting growth in population and average income, while per capita income is forecast to grow 2.0% annually (Exhibit 3-11). Boston's per capita income is forecast to grow faster than the per capita income of New England and the nation over the next decade.

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Exhibit 3-11: Historical and Forecast Regional and National Income Growth (CY 2010 to CY 2030)

	Historical		Estimate	Forecast	
	2010	2015	2020	2025	2030
Total Personal Income (Millions)					
Boston Service Area	$ 315,236	$ 361,240	$ 425,168	$ 460,474	$ 510,741
Massachusetts	$ 362,927	$ 415,289	$ 486,271	$ 524,972	$ 581,438
New England	$ 785,866	$ 859,931	$ 976,874	$ 1,053,535	$ 1,159,906
Total U.S.	$ 13,145,591	$ 15,207,372	$ 17,628,633	$ 19,230,887	$ 21,525,689
Boston Service Area Income as a Percent of:					
% of Massachusetts	86.9%	87.0%	87.4%	87.7%	87.8%
% of New England	40.1%	42.0%	43.5%	43.7%	44.0%
% of U.S. Total	2.4%	2.4%	2.4%	2.4%	2.4%
	10 Years	**5 Years**	**5 Years**	**5 Years**	**10 Years**
Average Annual Growth	**'10-'20**	**'15-'20**	**'20-'25**	**'25-'30**	**'20-'30**
Boston Service Area	3.0%	3.3%	1.6%	2.1%	1.9%
Massachusetts	3.0%	3.2%	1.5%	2.1%	1.8%
New England	2.2%	2.6%	1.5%	1.9%	1.7%
Total U.S.	3.0%	3.0%	1.8%	2.3%	2.0%
Personal Per Capita Income	**2010**	**2015**	**2020**	**2025**	**2030**
Boston Service Area	$ 57,341	$ 62,537	$ 71,677	$ 76,913	$ 83,850
Massachusetts	$ 55,270	$ 60,522	$ 69,248	$ 74,085	$ 80,784
New England	$ 54,310	$ 57,860	$ 64,688	$ 68,930	$ 74,863
Total U.S.	$ 42,497	$ 47,265	$ 53,178	$ 56,400	$ 61,140
Boston Service Area Per Capita Income as a Percent of:					
% of Massachusetts	103.7%	103.3%	103.5%	103.8%	103.8%
% of New England	105.6%	108.1%	110.8%	111.6%	112.0%
% of U.S. Total	134.9%	132.3%	134.8%	136.4%	137.1%
	10 Years	**5 Years**	**5 Years**	**5 Years**	**10 Years**
Average Annual Growth	**'10-'20**	**'15-'20**	**'20-'25**	**'25-'30**	**'20-'30**
Boston Service Area	2.3%	2.8%	1.4%	1.7%	1.6%
Massachusetts	2.3%	2.7%	1.4%	1.7%	1.6%
New England	1.8%	2.3%	1.3%	1.7%	1.5%
Total U.S.	2.3%	2.4%	1.2%	1.6%	1.4%

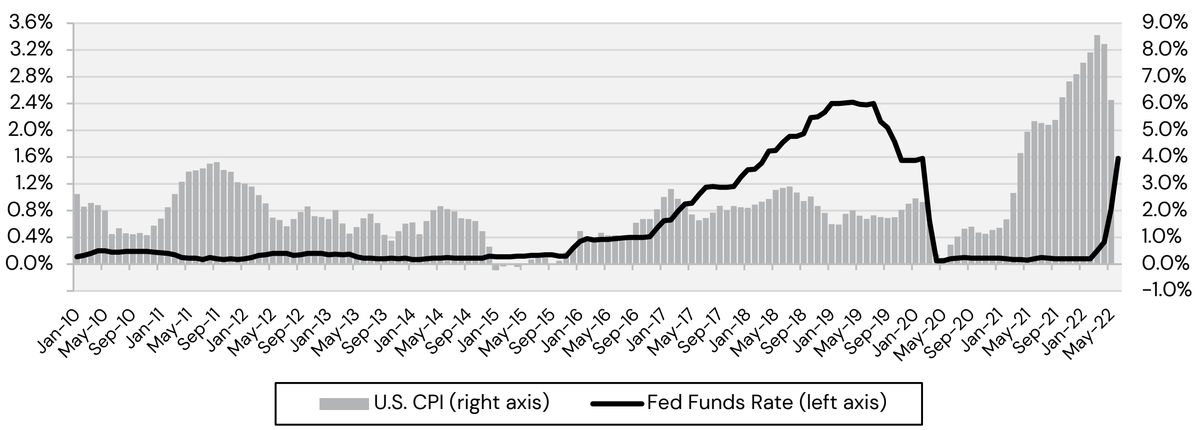
Note: *The Boston Service Area includes Bristol, Essex, Middlesex, Norfolk, Plymouth, Suffolk, and Worcester counties.*

Source: *Woods & Poole Economics CEDDS, 2022. All dollar values are reported in chained 2012 USD.*

3.3.3 Short-Term Economic Outlook

The short-term outlook for Massachusetts and the nation are clouded by concerns of inflation, war, higher interest rates, low economic confidence[49], and the possibility of recession. According to the U.S. BLS, consumer prices increased 8.5% for the 12 months ended March 2022, the largest 12-month advance since May 1981 and above the Federal Reserve's ("the Fed") target of 2%. In April 2022, this declined to 8.2%. To combat inflation, the Fed raised interest rates by 0.50 percentage points (or 50 basis points ("bps")) on May 4, 2022, and scaled back other pandemic-era economic supports (i.e., bond-buying stimulus program) as an effort to mitigate and sustain the nation's footing as Russia's invasion of Ukraine has driven up energy prices and COVID-19 shutdowns in China have led to supply chain delays.[50] As of June 15, 2022, the Fed raised interested rates by 75 bps, lifting short-term borrowing costs to a new target range of between 1.50% to 1.75% compared to the previous range of 0.75% to 1.00%. Prior to the most recent Fed announcements, the Fed had introduced rate hikes of 25 bps in mid-March 2020, resulting in an effective federal funds rate ("EFFR") of 0.33% through April 2020. The May 2022 announcement increased the EFFR to 0.83%, as shown in Exhibit 3-12 below, in addition to annual changes in the U.S. consumer price index ("CPI") for similar periods. According to Reuters as of June 21, 2022, the Federal Reserve is poised to deliver another 50 or 75 bps interest rate hike in July 2022 (not depicted below) as it seeks to tame inflation to its 2% target level, as mentioned earlier.

Exhibit 3-12: Consumer Price Index for All Urban Consumers (YoY Percent Change) vs the Effective Federal Funds Rate (January 2010 to June 2022)



Note: *The Business Cycle Dating Committee of the National Bureau of Economic Research (NBER) indicated that the U.S. had been in a recession between February 2020 to April 2020. Latest CPI data (U.S. city average, seasonally adjusted) is available through May 2022; Latest EFFR for June 2022 is 1.58% within the recent new Fed target range of 1.50% to 1.75%.*

Source: *FRED St. Louis Fed, Economic Data, U.S. Bureau of Labor Statistics, Federal Reserve Bank of New York.*

[49] Gallup Economic Confidence Index, 2020-2022. Gallup's Economic confidence index is an average of Americans' net ratings of current economic conditions and outlook for the economy. As of April 2022, the index fell to -39, lower than where was indexed previously at -33 in both April 2020 and December 2021. https://news.gallup.com/poll/392159/inflation-concerns-fueling-low-economic-confidence.aspx/.

[50] The Washington Post. "Fed hikes rates by half a percentage point in fight against inflation", 4 May 2022.

4 BOSTON LOGAN INTERNATIONAL AIRPORT TRAFFIC AND SERVICE CHARACTERISTICS

4.1 Introduction

Consistent with the U.S. airport industry, Logan Airport experienced steep declines in airline activity and passenger volumes over the past two years. The restrictions imposed in response to the COVID-19 pandemic have differed across the U.S. states and geographic regions within the U.S., and this, together with consumers hesitancy to travel, has resulted in an uneven pattern of air travel recovery. Air travel recovery has also been impacted by corporate travel policies, employee work-from-home policies and the significant increase in the use of video conferencing. Finally, international destinations enacted various travel restrictions, which has impacted the recovery of international travel. The net result is that air travel recovery at Logan Airport is still a work in progress. Analyses presented in this section of the report will reference the latest Massport monthly data through April 2022, where appropriate.

Logan's recent recovery trajectory has been encouraging, and indications suggest these trends will continue. Through the end of CY 2021, the Airport had recovered to 58.8% of CY 2019 passenger enplanement levels, but an examination of monthly passenger volumes, comparing monthly performance to the same month in CY 2019, shows that the Airport's rate of recovery accelerated throughout CY 2021, with particularly strong growth during the most recent months of CY 2022. As of April 2022, the Airport has recovered 84.7% of April 2019 total passenger levels after having fallen in January 2022 to 63.4% of 2019 levels due to the wave of Omicron-related COVID cases across the country and the globe and the cyclical slowdown in post-year-end holiday travel.

Airline forward schedules and airline service announcements, suggest the recovery of passenger volumes at Logan Airport will continue, fueled in part by pent-up travel demand. As U.S. employees return to the office, business and conference travel is anticipated to resume. Changes in work at home practices and the rise of video conference technology will likely change business travel patterns, but it remains unclear how much this will reduce overall business travel in the medium and long term. On the one hand, it may be that remote work will increase the requirement for air travel, as employees move to different regions of the country, needing to periodically return to the home office. Alternatively, business travel may be permanently dampened by these changing work patterns. According to the U.S. Travel Association's Business Travel Sentiment survey, as of April 2022, about 85% of U.S. companies are currently conducting business travel, up from 65% in January 2022, however, eight in 10 travel managers did report many company business travel policies requiring additional layers of approvals and evaluations for trips.[51]

[51] U.S. Travel Association Monthly Travel Data Report (28 April 2022). Global Business Travel Association Survey referenced along with 20 other data providers, including Oxford Economic, National Travel and Tourism Office, Key Data, and Tourism Economics.

In light of this uncertainty in structural demand, ICF attempted to place Logan Airport's recovery in context. Two measures were used for this analysis: (1) how Logan has recovered compared to its historical trends, particularly compared to its performance in 2019, and (2) how it is recovering compared to a peer group of comparable airports.

ICF created a peer group of comparable airports based on a profile of U.S. large non-airline hub O&D airports located in the Northeast and the West Coast. Based on recovery of airline seats, passengers load factors, and other metrics, Logan Airport has been more negatively impacted than its peer group. The performance of the last several quarters of data and airline forward schedules and service announcements, however, suggests that the Airport's recovery will accelerate through 2022, as domestic seat capacity is expected to return to near 2019 levels**.**

There are a number of aviation trends that highlight the strength and resiliency of the Logan Airport market, which support full recovery and new growth. These include:

1. **High revenue market** – Despite industrywide disruption over the past two years, with limited business travel, Logan has retained its attractive market attributes to airlines, including: (a) above average market yields, (b) a strong premium market segment, and (c) total revenue that is significantly above its level of enplanements. These factors, buttressed by a strong and diverse local economy, represent highly desirable attributes to airlines.
2. **Airline competition** – Boston remains a contestable market where no single airline dominates this market. JetBlue, Delta, and American continue to actively compete for market share. Further, both JetBlue and Delta are looking to use the Airport as a secondary gateway airport for North Transatlantic international travel.
3. **International airline confidence** – A large number of international airlines either maintained service to Logan throughout the COVID-19 pandemic or have resumed, or announced a planned resumption in, service to the Airport.
4. **New route announcements** – Delta and JetBlue continue to expand both their domestic and international networks at Logan, connecting Boston to new markets across North America and transatlantic destinations. Foreign carriers and domestic ULCCs have also announced new services.
5. **Aircraft technology** – The move to long range narrow-body aircraft will continue to benefit Logan Airport. This is evidenced by the introduction of London service by JetBlue operating the narrow-body Airbus A321neoLR, and Delta/JetBlue utilizing the new A220 aircraft in their respective fleets.

4.2 Logan Airport Service Area

Logan Airport fulfills several roles in the local, New England, and national air transportation networks:

- It is the primary airport serving the Boston metropolitan area and the principal New England airport for long-haul service;
- It is a major U.S. international gateway airport for transatlantic service;
- The Airport serves as a regional connecting hub for small northern New England markets and the Massachusetts maritime counties of Barnstable, Dukes, and Nantucket; and
- It is the busiest air cargo center in New England.

An airport's service area refers to the local geographic region from which it draws passengers. The quality of service at an airport, as well as the proximity, accessibility, and service offerings of other airports in the region, generally determine airport service area boundaries. The "core" or primary service area generates the majority of an airport's passengers. The secondary service area extends outward from the core and may overlap with the service areas of other airports.

The primary service area for Logan Airport consists of Suffolk, Middlesex, Norfolk, Essex, and Plymouth counties in Massachusetts, referred to as the "Logan Airport Service Area" (Exhibit 4-1). Logan is the principal commercial airport serving this region. While Hanscom Field (also owned and operated by Massport) is located within Logan's primary service area, it currently has no scheduled commercial operations and serves as a general aviation reliever airport to Logan.

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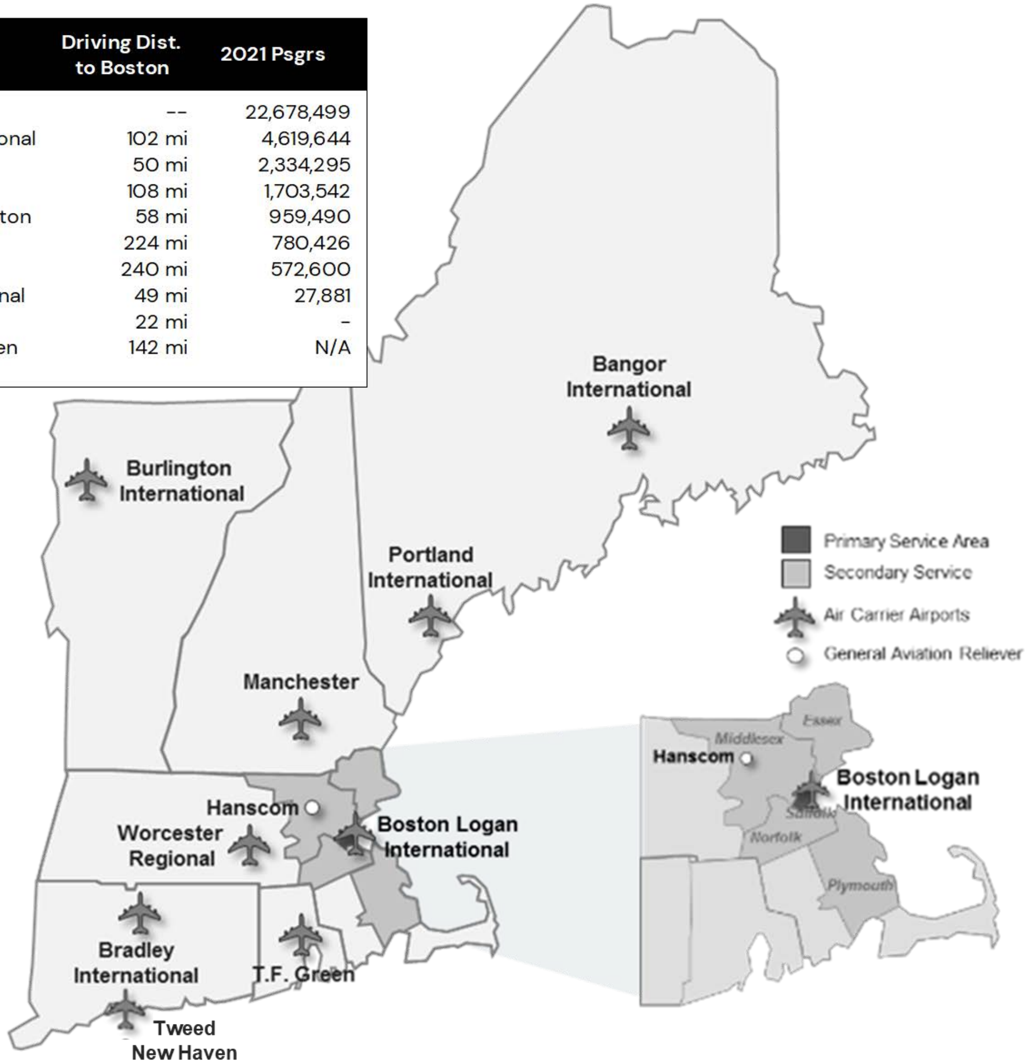
Exhibit 4-1: Logan Airport, Primary and Secondary Service Areas

Airport	Driving Dist. to Boston	2021 Psgrs
Boston Logan	--	22,678,499
Bradley International	102 mi	4,619,644
T.F. Green	50 mi	2,334,295
Portland Jetport	108 mi	1,703,542
Manchester-Boston	58 mi	959,490
Burlington	224 mi	780,426
Bangor	240 mi	572,600
Worcester Regional	49 mi	27,881
Hanscom Field	22 mi	-
Tweed New Haven	142 mi	N/A



Note: *Worcester and Hanscom airports are owned by the Authority.*

Source: *Massport, U.S. DOT, T-100 Database via Airline Data, Inc., and airport records.*

The Airport's secondary service area encompasses the rest of Massachusetts and the other New England states. Smaller regional commercial service airports, such as T.F. Green in Warwick, Rhode Island and Manchester-Boston in Manchester, New Hampshire, are located nearby in the secondary service area and have some overlap with and may draw some of their passengers from Logan's primary service area. However, this trend has waned in recent years as LCC/ULCC services have expanded at Logan and airlines have withdrawn many services from the secondary airports.

Other commercial service airports in the Airport's secondary service area are Worcester Regional Airport in Worcester, Massachusetts, which is also owned by Massport[52]; Portland International Jetport in Portland, Maine; Bangor International Airport in Bangor, Maine; Bradley International Airport in Hartford, Connecticut; Burlington International Airport in Burlington, Vermont; and Tweed New Haven Airport in New Haven, Connecticut – where ULCC Avelo Airlines has established its east coast base of operations starting in 2021.

4.3 Airport Passengers

In 2021, Logan Airport served 22.7 million total passengers, including general aviation. This compares with 42.5 million total passengers in 2019. The initial months of CY 2022 have seen somewhat of a setback as the Omicron variant peaked, but passenger traffic is now resuming its upward trend. The long-term history of Logan's passenger traffic is presented in Exhibit 4-2.

Since 2010, Airport passenger traffic experienced strong growth, setting record levels each year until the start of the pandemic. Factors contributing to traffic growth at Logan include the continued expansion of Delta and JetBlue, the entry of other LCCs such as Southwest, service reductions at secondary airports in the region (Manchester-Boston), and new international air service. Between 2010 to 2019, Logan's passenger traffic grew faster than the national average, at 5.0% per year compared to 2.8% per year for total U.S. passengers.[53]

The COVID-19 pandemic brought passenger traffic to almost a standstill in the second quarter of CY 2020. The total passenger traffic for 2020 fell to 12.6 million, a 70.3% decline compared to 2019 passenger traffic volumes. This decline was greater than the U.S. national average of 60.2%, as the U.S. northeast was more impacted than other U.S. sub-regions by COVID-19 during the second and third quarters of 2020. By the end of 2021, Logan Airport passenger traffic had recovered to 53.3% of 2019 levels, still well below the U.S. national average of 67.1%.

We believe that the overall slower traffic recovery at Logan Airport does not reflect weakness in the underlying regional economy, but rather reflects the more stringent state-imposed travel restrictions in Massachusetts and the Northeast, temporary pandemic-induced consumer/human behavior changes that reflected greater COVID-19 travel hesitancy, and the historically strong business travel segment at the Airport.

[52] On July 1, 2010, in accordance with the Commonwealth's Transportation Reform Act, Massport assumed ownership of the Worcester Regional Airport from the City of Worcester. In November 2013, JetBlue commenced daily nonstop services from Worcester to Orlando and Ft. Lauderdale. Worcester has scheduled nonstop service offered by Delta, JetBlue, and American Airlines.

[53] Bureau of Transportation Statistics.

Exhibit 4-2: Historical Passenger Traffic at Logan Airport (CY 1970 to CY 2021)

	BOS Passengers ('000) [1]			General	Logan	U.S. Passengers ('000) [2]		
Year	Domestic	Intl.	Total	Aviation	Total	Domestic	Intl.	Total
1970	8,476	916	9,393	n/a	9,393	153,660	16,260	169,920
1980	12,564	2,159	14,722	n/a	14,722	247,070	49,830	296,900
1990	19,455	3,359	22,814	n/a	22,814	423,570	41,990	465,560
2000	23,101	4,513	27,614	113	27,727	599,570	69,720	669,280
2005	22,729	4,237	26,966	122	27,088	657,260	81,370	738,630
2010	23,688	3,682	27,370	59	27,429	629,540	90,960	720,500
2015	27,810	5,534	33,344	105	33,450	696,020	102,200	798,220
2016	29,591	6,587	36,179	110	36,288	719,990	104,050	824,040
2017	31,101	7,200	38,301	112	38,412	741,730	107,680	849,410
2018	33,246	7,584	40,830	112	40,942	777,970	111,060	889,020
2019	34,099	8,318	42,417	106	42,522	811,480	115,260	926,740
2020	10,730	1,838	12,568	50	12,618	335,050	34,160	369,210
2021	20,041	2,550	22,591	88	22,678	611,910	61,760	673,670
Average Annual Growth								
1970-1980	4.0%	8.9%	4.6%	N/A	4.6%	4.9%	11.9%	5.7%
1980-1990	4.5%	4.5%	4.5%	N/A	4.5%	5.5%	-1.7%	4.6%
1990-2000	1.7%	3.0%	1.9%	N/A	2.0%	3.5%	5.2%	3.7%
2000-2010	0.3%	-2.0%	-0.1%	-6.3%	-0.1%	0.5%	2.7%	0.7%
2010-2019	4.1%	9.5%	5.0%	6.7%	5.0%	2.9%	2.7%	2.8%
Percent Change over Prior Year								
2017	5.1%	9.3%	5.9%	2.2%	5.9%	3.0%	3.5%	3.1%
2018	6.9%	5.3%	6.6%	0.3%	6.6%	4.9%	3.1%	4.7%
2019	2.6%	9.7%	3.9%	-5.8%	3.9%	4.3%	3.8%	4.2%
2020	-68.5%	-77.9%	-70.4%	-52.5%	-70.3%	-58.7%	-70.4%	-60.2%
2021	86.8%	38.7%	79.8%	74.6%	79.7%	82.6%	80.8%	82.5%
2021 as a % of 2019	58.8%	30.7%	53.3%	83.0%	53.3%	75.4%	53.6%	72.7%

1\ *Includes commercial airline and charter passengers. General aviation passengers include passengers flying on private, corporate, and on-demand air taxi flights. Domestic includes regional passengers.*

2\ *Total U.S. enplanements; Excludes GA passengers. Scheduled flights by U.S. air carriers only.*

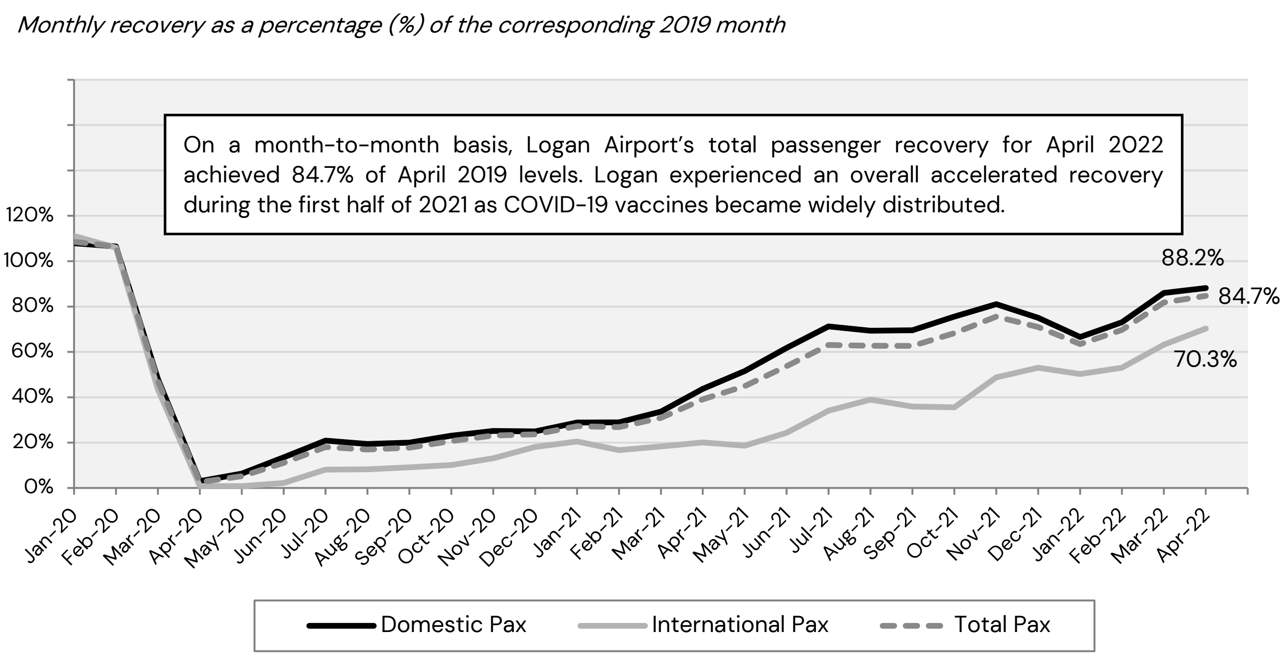
Source: *Massport, U.S. Bureau of Transportation Statistics (BTS).*

4.3.1 Logan Airport Passenger Traffic Recovery

The U.S. domestic travel segment experienced a rather uneven traffic recovery during 2021. COVID-19 inoculations and rapidly declining infection rates provided some comfort to travelers that air travel was once again safe. Outbreaks of new COVID-19 variants, however, created setbacks for the industry in late 2021 and early 2022. As foreign countries and the U.S. began to lift their travel restrictions for non-resident visitors who were fully vaccinated, the U.S. international air travel segment gradually began to recover.

Logan Airport experienced trends similar to the industry as a whole. The following chart (Exhibit 4-3) examines domestic, international, and total passenger traffic trends at Logan Airport on a monthly basis during 2020, 2021 and through April 2022, in each case as a percentage of 2019 annual levels, and shows how the Airport is recovering. As of April 2022, domestic enplanements at Logan have returned to 88.2% of April 2019 traffic levels, while international volumes reached 70.3%.

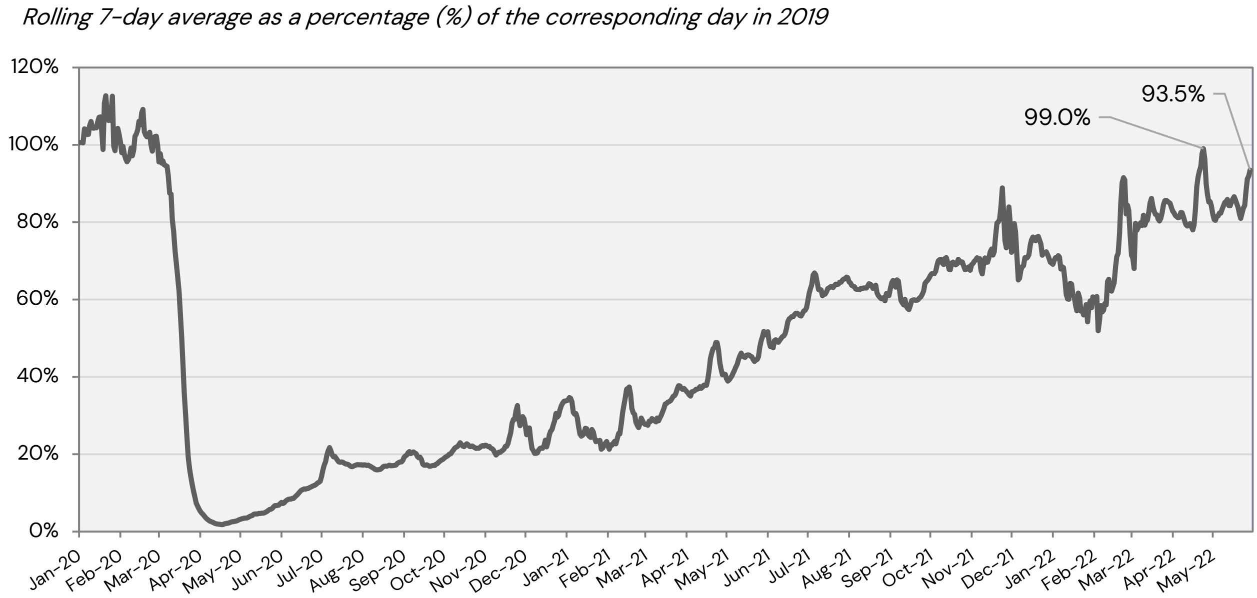
Exhibit 4-3: Logan Airport's Monthly Passenger Traffic Recovery, January 2020 to April 2022



Source: Massport. Latest data available through April 2022. Excludes general aviation passengers.

According to the most recent daily TSA throughput data provided for Logan Airport at the time of this report, TSA screened a 7-day rolling average of 55,500 passengers daily between May 23, 2022 and May 29, 2022, which represented 93.5% of the average day screenings processed for the equivalent period in May 2019. Compared to the previous month with 48,385 passenger screenings during the last week, this was a 15% increase in average daily screenings, resulting in a 9.3 percentage point increase in Logan's TSA screening recovery rate to the equivalent month in 2019 (the week of April 24, 2022 recovered to 84.2% of the levels reported during the same week in April 2019).

Exhibit 4-4: Logan Daily TSA Passenger Throughput Recovery, January 2020 to May 2022



November 8, 2021: U.S. lifts COVID-19 travel restrictions for fully vaccinated foreign travelers seeking to enter the country.

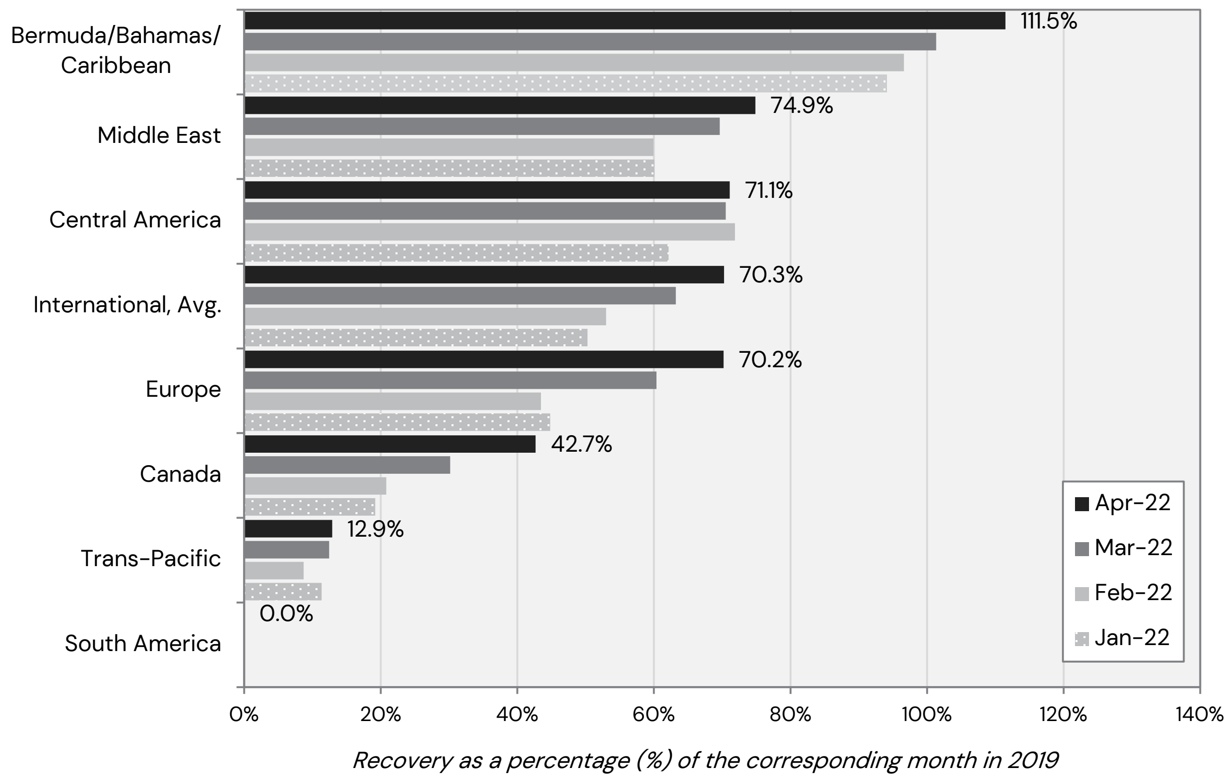
Mid-to-late December 2021: Detection of the Omicron-variant increased from 0.7% to 73% of U.S. COVID-19 cases in the span of two weeks.

Source: *TSA. Latest data available through May 29, 2022. Excludes known crew members.*

The international passenger segment at Logan Airport has been recovering more slowly than the domestic segment as a consequence of government travel restrictions and various political, economic and health issues experienced across various global markets. The recovery of international travel has been highly unequal across the various regions served by the Airport. According to the latest monthly Massport data available, in March 2022, the Bermuda/Bahamas/Caribbean market (which includes Puerto Rico and the U.S. Virgin Islands) has recovered the fastest among Logan's international market segments, with total passenger volumes exceeding March 2019 levels (Exhibit 4-5). The second and third fastest recovering international markets are Central America and the Middle East, recovering 70.5% and 69.6% of their March 2019 levels, respectively. The Trans-Pacific market lags all others, with a recovery of less than 15% of pre-pandemic volumes, as various government policies have reinstated lockdowns and retained travel restrictions following the spread of the Omicron-variant across Asian countries. These restrictions are expected to ease during the course of 2022.

South America remains at 0% given that previous direct service to the region has not yet resumed. LATAM, the only carrier offering non-stop services to South America from Boston, plans to resume scheduled service to São Paulo/Guarulhos in November 2022.

Exhibit 4-5: Logan International Passenger Recovery by Market, January to April 2022

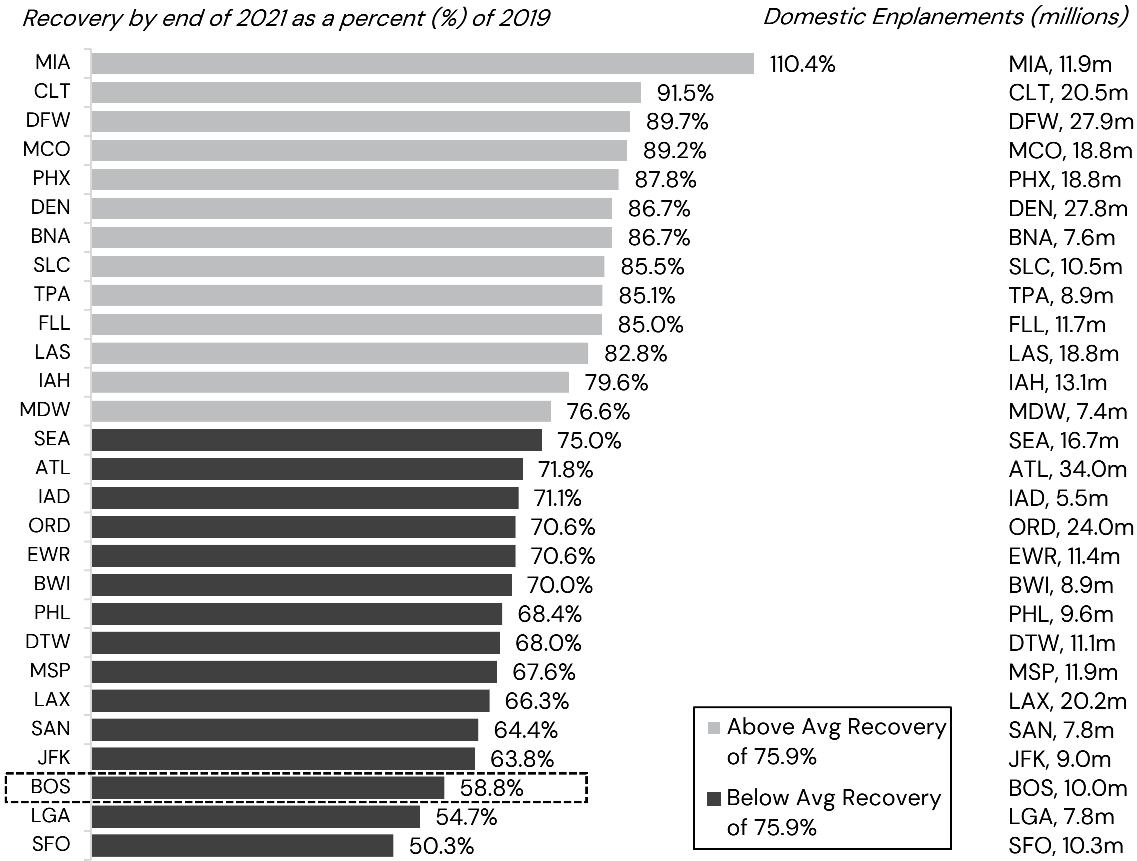


Note: *International markets ranked by percent recovery as of April 2022.*

Source: *Massport. Latest data available through April 2022. Excludes general aviation passengers.*

The FAA classified Logan Airport as a Large Hub U.S. airport according to 2020 enplanements across all U.S. airports. In terms of domestic passengers reported in the T-100 database through December 2021, the Airport ranked as the 19th busiest U.S. airport in 2021, having recovered 58.8% of domestic passenger traffic (see Exhibit 4-6). Among the 28 large hub airports classified by the FAA in 2020, 15 airports tracked below 75.9%, the average domestic enplanement recovery of 2019 levels. The exhibit below illustrates that most of the airports that are recovering faster than the large hub average are either (1) airline connecting hubs, or (2) major leisure destinations. Origin and destination airports, particularly in the U.S. Northeast (like Logan Airport) and the West Coast are recovering more slowly than the national average. In fact, as of 2021, Logan Airport has experienced one of the slowest levels of recovery. The bottom six airports (Los Angeles–LAX, San Diego–SAN, New York–JFK, Logan Airport–BOS, New York–LGA, and San Francisco–SFO) all share a similar profile of being strong O&D markets with large business and international travel market shares.

Exhibit 4-6: Ranking of U.S. Large Hub Airports Based on Domestic Enplaned Passengers (CY 2021)[54]



Note: *Excludes general aviation passengers. Data presented in this exhibit measures enplaned passengers, while Exhibit 4-2 shows total passengers. BOS percent recovery data represents total domestic passengers at Logan Airport (excluding general aviation). Latest domestic enplanement data from T-100 was available through February 2022 at the time of this report.*

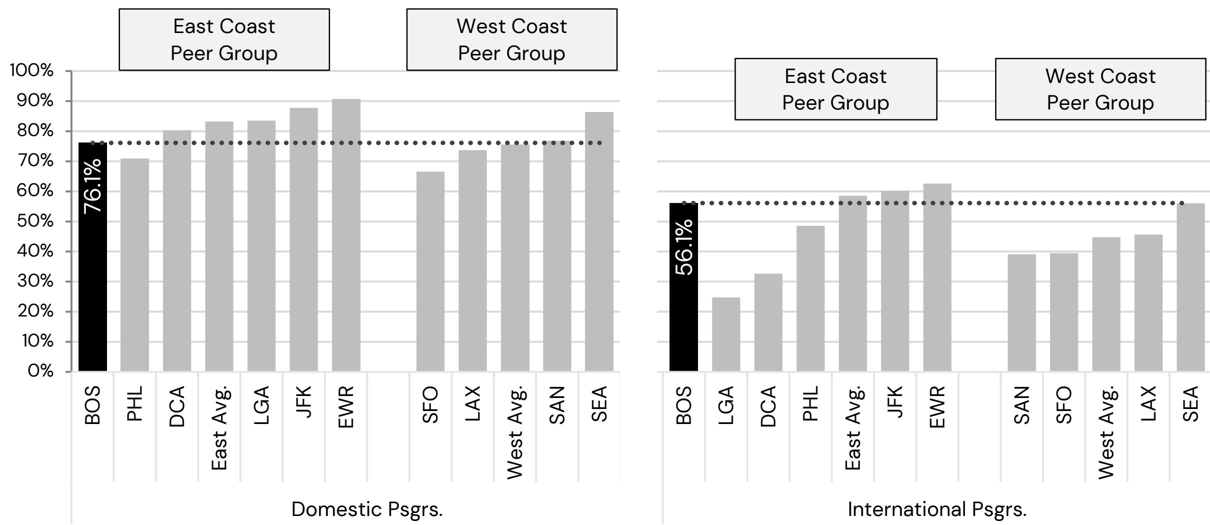
Source: *U.S. DOT T-100 via Airline Data, Inc.; Massport.*

To better compare recovery performance, ICF established a peer group of U.S. large hub coastal airports of a similar profile, with which to compare Logan Airport. Logan Airport's domestic passenger recovery is in line with the recovery trend experienced at New York airports, and exceeds the rate of recovery for both domestic and international segments across the majority of its West Coast peer airports during the first quarter of 2022. As shown in Exhibit 4-7, Logan Airport's domestic traffic recovery during the first quarter of 2022, represented as a percentage of volumes from the same quarter in 2019, lags that of most of its East Coast peer group, but is in line with the West Coast average at 76.1%. Logan's international passenger recovery profile for the same quarter, however, was better than most of the peer airports, except for New York/JFK and Newark, having recovered 56.1%

[54] Only large hub airports within the continental United States are shown.

of traffic. As shown in the supplemental table as part of Exhibit 4-7, Logan Airport has experienced a moderate acceleration in traffic recovery rates between January 2022 and March 2022 compared to its peer group, where its domestic segment recovery increased by 19.4 percentage points, from 66.6% of January 2019 levels to 86.0% of March 2019 levels, and its international recovery rose 12.9 percentage points from 50.3% in January to 63.2% in March.

Exhibit 4-7: Comparison of Logan Airport's Passenger Traffic Recovery to its Peer Group (1Q 2022 as a % of 1Q 2019)



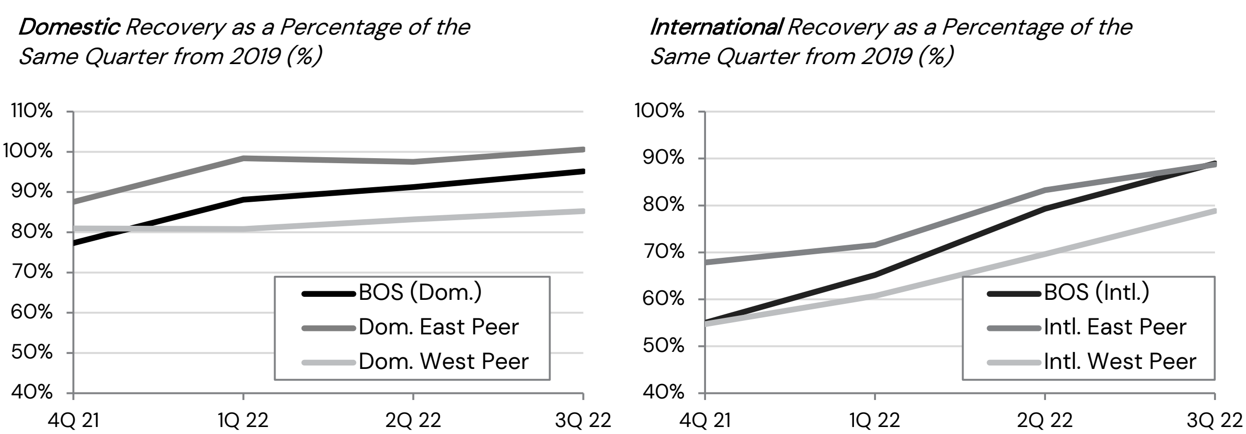
Airport	Domestic Psgrs. Recovery Jan-22	Feb-22	Mar-22	Variance Mar '22 vs Jan '22	International Psgrs. Recovery Jan-22	Feb-22	Mar-22	Variance Mar '22 vs Jan '22
Boston Logan	**66.6%**	**73.1%**	**86.0%**	**19.4%-pts**	**50.3%**	**53.0%**	**63.2%**	**12.9%-pts**
LaGuardia	71.8%	79.5%	96.0%	24.2%-pts	13.6%	21.4%	36.9%	23.3%-pts
New York JFK	74.2%	89.5%	97.9%	23.7%-pts	53.0%	60.5%	66.7%	13.7%-pts
Newark	80.7%	91.9%	97.7%	17.0%-pts	58.7%	63.6%	65.5%	6.8%-pts
Philadelphia	63.3%	73.5%	74.9%	11.5%-pts	38.2%	48.6%	57.0%	18.8%-pts
Washington National	75.1%	85.4%	96.6%	21.5%-pts	26.3%	39.5%	44.7%	18.4%-pts
East Avg.	**73.3%**	**84.3%**	**92.8%**	**19.5%-pts**	**51.9%**	**58.8%**	**64.3%**	**12.4%-pts**
San Francisco	55.8%	68.7%	74.2%	18.4%-pts	35.8%	35.9%	46.2%	10.4%-pts
San Diego	66.9%	78.4%	84.1%	17.2%-pts	30.8%	33.7%	50.8%	20.0%-pts
Los Angeles	66.0%	77.0%	77.8%	11.8%-pts	41.7%	43.0%	51.9%	10.2%-pts
Seattle-Tacoma	76.1%	91.4%	91.2%	15.2%-pts	49.4%	53.3%	64.3%	14.9%-pts
West Avg.	**66.2%**	**78.7%**	**81.2%**	**15.0%-pts**	**40.5%**	**41.7%**	**51.6%**	**11.1%-pts**

Note: *Excludes general aviation passengers. East Coast average excludes Logan Airport. Recovery rates shown in the supplemental table are compared to the same month in 2019. For the purposes of this analysis, and the available data at peer group airports, March 2022 records were the latest month compared.*

Source: *Massport. Individual airport records.*

While Logan Airport's recovery performance lagged other large hub airports through the end of 2021, preliminary indications, based on airline forward schedules, suggest a stronger recovery for Logan Airport in 2022, with respect to airline service cuts and pilot/staffing shortages as discussed in Section 2.3.2. As presented in Exhibit 4-8, advance OAG schedules (as of the week of May 30, 2022) indicate that airlines will add back additional domestic and international seat capacity at Logan. Note that as previously mentioned in Section 1.1, advance OAG schedules at Logan Airport are subject to changes and revisions by the airlines, which have been announcing recent changes. At the time of this report, according to schedules observed the week of May 30, 2022, Logan Airport is anticipated to recover nearly 95% of its 2019 domestic scheduled seat capacity during the third quarter of 2022, below the recovery trend of its east coast peer group which expect between 105% to 109% recovery rates, and greater than the majority of west coast peers. During this same quarter, Logan Airport is expected to recover international seat capacity faster than its peer group and reach approximately 89% of 2019 levels.

Exhibit 4-8: Comparison of Scheduled Seat Capacity Recovery Among Logan's Peer Group (4Q21-3Q22)



Note: *Quarterly periods are based on calendar year (i.e., 1Q = January through March).*

Source: *OAG schedules, as of the week of May 30, 2022*

Using forward looking schedules, Boston Logan's international seat capacity is anticipated to make a full seat capacity recovery by end of 2022, as more airlines compete for high demand routes like London, new unserved markets are connected via Delta's international expansion, new foreign operators commence service at the Airport, and the introduction of improved narrow-body aircraft with longer range (i.e., A321neoLR aircraft, 737 MAX) provide economic feasibility for nonstop service to smaller/medium-sized international markets.

Logan is a highly competitive market where multiple carriers compete actively for passenger traffic share. In 2021, JetBlue carried approximately 6.8 million passengers, maintaining a market share of 30.0% at Logan. Delta followed behind JetBlue, ranking second with 5.1 million passengers, or 22.6% of total passengers at Logan. American is the third largest carrier at Logan, carrying 4.3 million passengers in 2021, or 19.1% of total passengers at Logan, increasing by 1.0% from the previous year. United ranked fourth with 9.3% passenger market share, followed by Southwest with 5.1% market share. In 2021, the top five carriers at Logan accounted for approximately 86.1% of the Airport's passenger traffic. All top five carriers have recovered more than 50% of their respective 2019 passenger volumes at the Airport. American Airlines recovered the most at 68.7% followed by Delta with 61.7%. The breakdown of passenger market share by airline at Logan is presented in Exhibit 4-9.

Exhibit 4-9: Airline Share of Total Logan Passengers, Domestic and International (CY 2019 to CY 2021)

Airline \1	CY 2019			CY 2020			CY 2021			Recovery vs 2019
	Rank	Passengers	Share	Rank	Passengers	Share	Rank	Passengers	Share	
JetBlue	1	12,343,981	29.0%	1	4,028,789	31.9%	1	6,802,289	30.0%	55.1%
Delta	2	8,310,797	19.5%	2	2,310,286	18.3%	2	5,125,409	22.6%	61.7%
American	3	6,324,404	14.9%	3	2,279,877	18.1%	3	4,342,311	19.1%	68.7%
United	4	3,843,551	9.0%	4	1,149,404	9.1%	4	2,099,866	9.3%	54.6%
Southwest	5	2,520,938	5.9%	5	687,082	5.4%	5	1,153,803	5.1%	45.8%
Subtotal		**33,343,671**	**78.4%**		**10,455,438**	**82.9%**		**19,523,678**	**86.1%**	**58.6%**
All Other Carriers		9,178,740	21.6%		2,162,690	17.1%		3,154,821	13.9%	34.4%
Total Airport		**42,522,411**	**100.0%**		**12,618,128**	**100.0%**		**22,678,499**	**100.0%**	**53.3%**

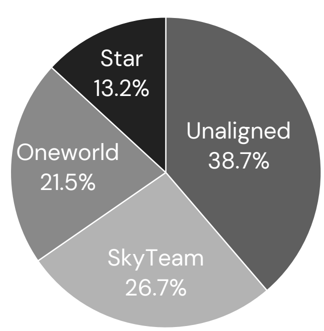
\1 *Includes passengers on regional airline affiliates.*

Note: Leading carriers at Logan saw a slight decline in market share due to growth by other carriers.

Source: Massport.

Unlike other airports that predominantly cater to flights by a single carrier or a single airline alliance, Logan's service is well-diversified. As of July 2022, 38.7% of scheduled weekly departing seats at Logan are on carriers that are unaligned with one of the three major alliances, while 61.4% is split among SkyTeam, Oneworld, and Star Alliance (Exhibit 4-10).

Exhibit 4-10: Share of Weekly Departing Seats at Logan (Advance July 2022)

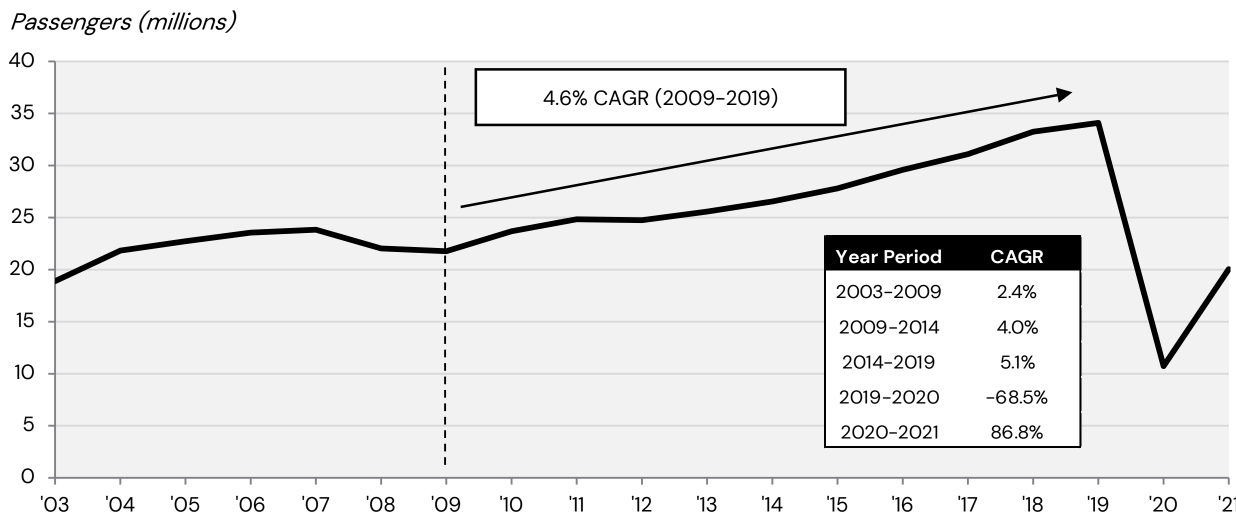


Source: OAG schedules, as of the week of May 30, 2022.

4.3.2 *Domestic Passengers*

Prior to the COVID-19 pandemic, Logan's domestic passenger traffic reached a new peak of 34.1 million[55] in CY 2019 (see Exhibit 4-11), recording its seventh consecutive year of positive annual growth. Rising fuel costs and the economic recession caused Logan's passengers to decline from 2007 to 2009. Domestic passenger traffic began to recover in 2010, largely as a result of the expansion of LCC service at Logan. JetBlue's market entry in 2004 and subsequent aggressive expansion at the Airport has led to sustained growth in the domestic passenger market segment. Between 2014 and 2019, domestic passenger traffic at Logan grew by an average annual rate of 5.1%, faster than overall U.S. domestic passenger traffic, which increased by 4.1%[56] per year over the same period. In CY 2021, Logan saw total domestic passenger traffic reach 20.0 million, returning to 58.8% of its 2019 domestic levels while total U.S. domestic traffic had recovered to 75.4% of its 2019 domestic levels.[57]

Exhibit 4-11: Historical Domestic Passenger Traffic at Logan Airport (CY 2003 to CY 2021)



Note: *Excludes general aviation passengers.*
Source: *Massport.*

JetBlue was the leading domestic carrier at Logan in 2021 with a 29.0% share of the domestic market (see Exhibit 4-12). Delta overtook American at second with a 24.7% market share, while American ranked the third largest domestic carrier at Logan with 21.4% of domestic passengers. Following American was United with 10.5% and then Southwest with 5.8%.

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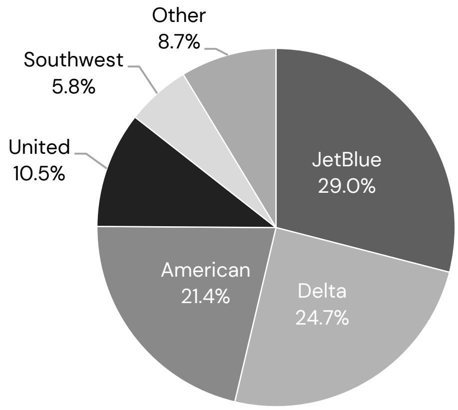
[55] Includes Domestic regional passengers, excludes GA.

[56] U.S. DOT, Bureau of Transportation Statistics; includes scheduled traffic only.

[57] Ibid.

Exhibit 4-12: Airline Market Share of Logan Domestic Passengers (CY 2021)



Note: *Regional airline passengers are grouped with their mainline carrier partners; Excludes general aviation passengers.*
Source: *Massport.*

4.3.3 Strength of the Boston Domestic Market

Even through the COVID-19 pandemic, Boston continues to present strong attributes that make it an attractive market for U.S. airlines. This strength derives from a combination of factors, including:

1. the strong O&D nature of the market;
2. the competition among Delta, JetBlue, and American to establish Boston as a focus hub market, coupled with relative balanced growth from other U.S. carriers;
3. the large pool of competitive domestic fares generated along with increased airline revenue;
4. the large share of premium traffic generated; and
5. the breadth of service offerings (FSC, LCC, and ULCC)

Logan Airport is principally an O&D airport, meaning that the majority of passengers originate from or travel to the Boston Service Area. Because of Logan's geographic location on the Northeast U.S. coast, no major airline has established domestic connecting hub operations at the Airport. More than nine out of ten (96.6%[58]) domestic outbound passengers using Logan are O&D passengers. This is the third highest O&D share among U.S. large hub airports (see Exhibit 4-13) and is a distinguishing characteristic of Logan that has remained stable over time. Since connecting domestic passengers represent only a small percentage of Logan's domestic passenger traffic, long-term passenger growth at the Airport is primarily a function of underlying market demand. Unlike major connecting hub

[58] For CY 2021 period – domestic traffic.

airports, Logan is not reliant on connecting passengers and therefore is not subject to large traffic fluctuations that may result from changes in a hub carrier's network strategy.

Exhibit 4-13: Domestic Local and Connecting Passenger Shares for Top U.S. Large Hub Airports (CY 2021)

% Local Rank	Apt Code	Market	% of Domestic Psgrs O&D	% of Domestic Psgrs Connecting	% Local Rank	Apt Code	Market	% of Domestic Psgrs O&D	% of Domestic Psgrs Connecting
1	SAN	San Diego	97.1%	2.9%	16	BWI	Baltimore	67.9%	32.1%
2	TPA	Tampa	96.9%	3.1%	17	SEA	Seattle/Tacoma	65.4%	34.6%
3	**BOS**	**Boston**	**96.6%**	**3.4%**	18	DTW	Detroit	65.1%	34.9%
4	LGA	New York	94.3%	5.7%	19	MSP	Minneapolis/St. Paul	64.4%	35.6%
5	MCO	Orlando	93.7%	6.3%	20	MDW	Chicago	62.4%	37.6%
6	EWR	New York	88.5%	11.5%	21	SLC	Salt Lake City	60.1%	39.9%
7	FLL	Fort Lauderdale	87.7%	12.3%	22	DEN	Denver	57.9%	42.1%
8	LAS	Las Vegas	86.7%	13.3%	23	IAH	Houston	56.8%	43.2%
9	JFK	New York	86.0%	14.0%	24	ORD	Chicago	56.1%	43.9%
10	LAX	Los Angeles	84.3%	15.7%	25	IAD	Washington	55.0%	45.0%
11	SFO	San Francisco	82.1%	17.9%	26	ATL	Atlanta	42.1%	57.9%
12	BNA	Nashville	80.9%	19.1%	27	DFW	Dallas/Fort Worth	41.2%	58.8%
13	PHL	Philadelphia	78.0%	22.0%	28	CLT	Charlotte	27.5%	72.5%
14	MIA	Miami	72.3%	27.7%					
15	PHX	Phoenix	69.3%	30.7%					
	Average Large Hub		**67.1%**	**32.9%**					

Note: *Includes only airports in the continental United States. All distribution percentage statistics are estimated and calculated based on outbound passengers.*

Source: *U.S. DOT O&D Survey via Airline Data, Inc. (Flow Over Point report); ICF analysis.*

In terms of domestic O&D passenger volumes, the Boston market has grown slightly less than the average five-year growth rate of the top 20 largest U.S. markets prior to 2020, having grown 5.4% on average between 2014 and 2019. In 2021, Logan Airport served 18.1 million domestic O&D passengers, which was 40% below its 2019 levels, making Boston the 14th largest domestic O&D market in the United States. Similar large hub coastal markets included in the peer groups discussed earlier in this section, like Washington, San Francisco, and New York, also have yet to recover 70% of their 2019 domestic O&D traffic.[59]

[59] The latest quarterly data available from the U.S. DOT O&D Survey is 4Q 2021 – data is released on a quarterly-basis.

As shown in Exhibit 4-14, Boston had grown at a similar rate as other markets with a high proportion of O&D traffic, like New York and Tampa. On average, domestic O&D growth at the overall top 20 U.S. markets increased 5.8% annually since 2014 and as of 2021, recovered to 74.7% of 2019 levels.

Exhibit 4-14: Comparison of Domestic O&D Passenger Growth in Largest U.S. Markets (CY 2014, 2019, 2021)

Avg. Annual Change Rank	Market	Domestic O&D Passengers 2014	2019	2021	CAGR ('14-'19)	2021 Recovery to 2019 (%)	Avg. Annual Change Rank	Market	Domestic O&D Passengers 2014	2019	2021	CAGR ('14-'19)	2021 Recovery to 2019 (%)
1	New York	57.3	74.7	49.0	5.4%	65.6%	11	Houston	20.5	26.0	21.2	4.9%	81.5%
2	Chicago	39.3	50.7	35.7	5.2%	70.3%	12	Fort Lauderdale	17.5	23.4	20.3	6.0%	86.5%
3	Orlando	28.8	41.7	37.1	7.7%	88.9%	13	Tampa	15.8	21.2	18.5	6.1%	86.9%
4	Los Angeles	35.3	47.3	32.7	6.0%	69.2%	**14**	**Boston**	**23.2**	**30.2**	**18.1**	**5.4%**	**60.0%**
5	Denver	28.2	40.4	31.9	7.5%	78.8%	15	Miami	9.6	14.1	16.6	7.9%	117.9%
6	Las Vegas	29.3	37.6	31.9	5.1%	84.6%	16	Washington	23.2	28.4	16.3	4.2%	57.3%
7	Dallas/Fort Worth	28.2	38.1	30.5	6.2%	80.1%	17	San Francisco	26.1	30.9	16.2	3.4%	52.4%
8	Atlanta	25.4	36.1	28.3	7.3%	78.3%	18	Minneapolis/St. Paul	16.0	21.1	15.0	5.7%	70.9%
9	Phoenix	22.5	29.6	26.5	5.6%	89.6%	19	San Diego	16.0	22.1	14.6	6.6%	66.3%
10	Seattle/Tacoma	22.4	30.6	21.5	6.4%	70.3%	20	Philadelphia	14.8	19.3	14.2	5.4%	73.6%
	Total Top 20	**499.5**	**663.7**	**496.0**	**5.8%**	**74.7%**							

Note: *Passenger numbers are in millions. Top 20 markets based on CY 2021 domestic O&D passengers. A recovery of 100% and above indicates that a market has returned (or exceeded) it historic 2019 O&D passenger volumes.*

New York includes JFK, LaGuardia, and Newark airports. Washington includes Reagan National and Dulles airports. Houston includes Hobby and George Bush Intercontinental airports. Dallas includes Love Field and Dallas/Ft. Worth airports. Chicago includes Midway and O'Hare airports. Includes only airports in the continental United States.

Source: *U.S. DOT O&D Survey via Airline Data, Inc.; ICF analysis.*

Over the five years prior to the COVID-19 pandemic, the average domestic airline yield at Logan and a majority of other U.S. large hub airports had declined as airlines competed with highly competitive fares and expanded nonstop opportunities. As shown in Exhibit 4-15, Logan Airport experienced a 1.7% average annual decline in average airline yield between 2014 and 2019, consistent with the average annual decline of 1.9% for all U.S. large hubs. Airlines at Logan Airport continue to adjust their network and yield management strategies to retain and capture their fair market share of passenger demand, which is reflected through seats made available, especially as new LCCs and ULCCs enter and penetrate the market.

In 2021, however, Boston's average domestic airline yield was the third least impacted large hub market after San Diego and San Francisco, having fallen from 13.6 cents in 2019 to 12.3 cents in 2021, which represented an 8.9% variance. Boston's ability to maintain a moderately high and competitive yield remains an attractive financial indicator for airlines to continue pursing Boston for domestic service opportunities. Logan Airport ranked 13th in terms of average domestic yield in 2021, with domestic passenger revenues at the Airport totaling $3.1 billion. Yield levels are often tied to an airline's dominance of service at a particular airport, and compared to other large hub U.S. airports with a Delta network hub presence from Exhibit 4-15, Logan was the least impacted, followed by New York JFK, Seattle/Tacoma, and Salt Lake City airports in terms of declining yields.

Exhibit 4-15: Comparison of Average Domestic Yield Trends at U.S. Large Hubs (CY 2014, 2019, 2021)

Avg. Annual Change Rank	Airport	Avg. Stage Length (miles)	Domestic Yield 2014	2019	2021	Avg. Annual Change '14-'19	Pct. Diff '21 vs '19
1	San Diego - SAN	1,049	13.5¢	12.4¢	11.8¢	-1.7%	-5.3%
2	San Francisco - SFO	1,326	13.5¢	13.4¢	12.4¢	-0.1%	-7.7%
3	**Boston - BOS**	**1,142**	**14.8¢**	**13.6¢**	**12.3¢**	**-1.7%**	**-8.9%**
4	Washington - IAD	1,042	16.5¢	16.7¢	15.0¢	0.2%	-9.9%
5	New York - JFK	1,466	13.8¢	12.9¢	11.5¢	-1.3%	-10.7%
6	Seattle/Tacoma - SEA	1,232	12.8¢	12.2¢	10.6¢	-1.1%	-12.5%
7	Baltimore - BWI	915	15.5¢	13.3¢	11.5¢	-3.0%	-13.5%
8	Las Vegas - LAS	1,048	13.1¢	11.5¢	9.8¢	-2.7%	-14.9%
9	Los Angeles - LAX	1,388	13.2¢	11.9¢	9.9¢	-2.2%	-16.1%
10	Salt Lake City - SLC	911	17.4¢	16.8¢	13.9¢	-0.7%	-17.2%
11	Denver - DEN	954	15.4¢	13.6¢	11.2¢	-2.4%	-17.3%
12	Tampa - TPA	886	15.0¢	13.4¢	10.8¢	-2.1%	-19.4%
13	Phoenix - PHX	1,008	14.5¢	14.6¢	11.7¢	0.1%	-19.7%
14	Orlando - MCO	953	14.4¢	12.0¢	9.5¢	-3.6%	-20.8%
15	Nashville - BNA	731	20.4¢	18.0¢	14.3¢	-2.5%	-20.8%
16	Atlanta - ATL	816	21.5¢	19.1¢	15.1¢	-2.4%	-21.0%
17	New York - LGA	844	19.8¢	17.7¢	14.0¢	-2.1%	-21.4%
18	Philadelphia - PHL	982	17.3¢	15.4¢	12.1¢	-2.3%	-21.5%
19	Detroit - DTW	906	19.4¢	17.1¢	13.4¢	-2.5%	-21.7%
20	Minneapolis/St. Paul - MSP	963	19.0¢	16.0¢	12.5¢	-3.4%	-22.1%
21	Houston - IAH	927	20.6¢	17.9¢	13.8¢	-2.8%	-22.6%
22	New York - EWR	1,194	16.4¢	15.0¢	11.5¢	-1.7%	-23.3%
23	Dallas/Fort Worth - DFW	937	19.1¢	18.9¢	14.4¢	-0.2%	-23.8%
24	Charlotte - CLT	766	23.5¢	23.4¢	17.4¢	-0.1%	-25.7%
25	Chicago - ORD	982	19.4¢	17.2¢	12.7¢	-2.3%	-26.2%
26	Fort Lauderdale - FLL	1,011	12.9¢	11.7¢	8.5¢	-1.9%	-27.4%
27	Chicago - MDW	921	16.7¢	14.8¢	10.6¢	-2.4%	-28.0%
28	Miami - MIA	1,029	16.5¢	15.5¢	10.4¢	-1.3%	-32.8%
	Average Large Hub	1,026	15.8¢	14.5¢	11.7¢	-1.8%	-18.8%

Note: *Includes only airports in the continental United States; Yields do not include ancillary fees. Ranked by percent difference between 2021 vs 2019 domestic yields.*

Source: *U.S. DOT, O&D Survey via Airline Data, Inc.*

Logan Airport represents a large and important domestic revenue market for U.S. airlines. Based on enplaned passengers, the Airport captures an oversized share of revenue. In 2021, Logan Airport was the 19th largest in terms of domestic enplaned passengers but the 11th largest U.S. airport in terms of airline passenger fare revenues reported (Exhibit 4-16) due to having longer on average stage length routes and, as discussed below, premium fares.

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Exhibit 4-16: Domestic Airline Revenue Generation for Large Hub U.S. Airports (CY 2021)

Rank Rev.	Rank Enpl.	Airport	Revenue ($, millions)	Rank Rev.	Rank Enpl.	Airport	Revenue ($, millions)
1	6	Los Angeles - LAX	$ 5,268	16	13	Minneapolis/St. Paul - MSP	$ 2,118
2	1	Atlanta - ATL	$ 3,834	17	12	Miami - MIA	$ 2,079
3	8	Las Vegas - LAS	$ 3,818	18	16	Detroit - DTW	$ 2,032
4	3	Denver - DEN	$ 3,798	19	20	Philadelphia - PHL	$ 2,025
5	7	Orlando - MCO	$ 3,622	20	14	Fort Lauderdale - FLL	$ 1,998
6	4	Chicago - ORD	$ 3,592	21	17	Salt Lake City - SLC	$ 1,975
7	9	Phoenix - PHX	$ 3,477	22	25	New York - LGA	$ 1,961
8	2	Dallas/Fort Worth - DFW	$ 3,321	23	23	Tampa - TPA	$ 1,952
9	10	Seattle/Tacoma - SEA	$ 3,300	24	5	Charlotte - CLT	$ 1,713
10	18	San Francisco - SFO	$ 3,222	25	26	Nashville - BNA	$ 1,547
11	**19**	**Boston - BOS**	**$ 3,115**	26	22	Baltimore - BWI	$ 1,488
12	15	New York - EWR	$ 3,014	27	28	Washington - IAD	$ 1,142
13	21	New York - JFK	$ 2,754	28	27	Chicago - MDW	$ 978
14	24	San Diego - SAN	$ 2,344				
15	11	Houston - IAH	$ 2,203				

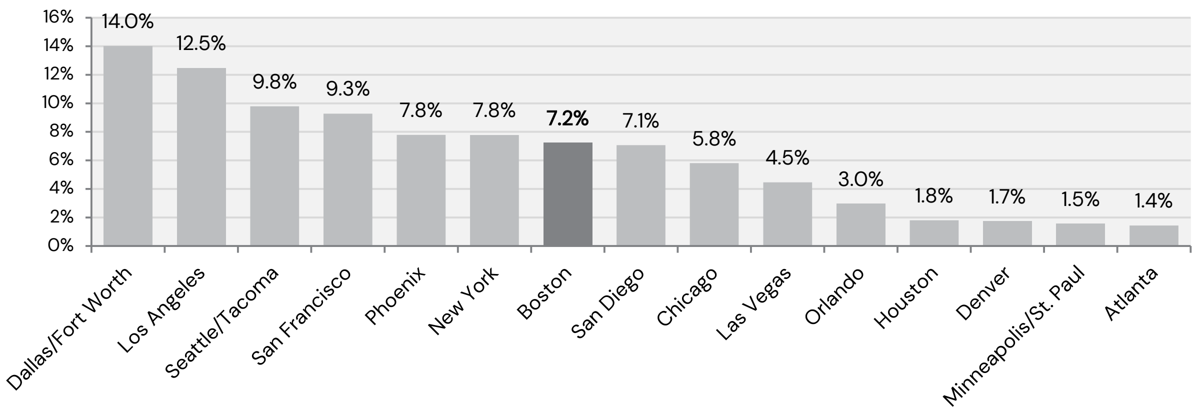
Note: *All figures are estimates provided by O&D survey data. Includes only airports in the continental United States. Excludes ancillary revenue. Enplanement rank is for domestic passengers.*

Source: *U.S. DOT, O&D Survey via Airline Data, Inc..*

Premium airline revenue[60] is most prominent among U.S. business markets that have regional jet/large jet service. Boston ranks 7th among the top U.S. markets with a large hub airport in terms of total revenue share that is generated from domestic airline premium fares (Exhibit 4-17). In CY 2021, Boston generated the 9th largest amount of domestic premium class airline revenue among U.S. large hub (about $225.0 million), which equates to approximately 7.2% of its total domestic airline revenue (excluding ancillary fees) as seen in Exhibit 4-18. The significance of the Boston premium segment to airlines is that Logan Airport is one of the few markets where airlines can actively pursue and offer passengers premium products, which is one of the reasons airlines are attracted to serve the Airport.

[60] Based on U.S. DOT, premium class revenues include: First Class and Business Class designations. Coach and Unknown cabins reported by U.S. DOT are grouped as Economy class.

Exhibit 4-17: Premium Fare Revenue Share of Total Domestic Revenue at the Top 15 U.S. Large Hub Markets (CY 2021)



Note: *Includes only airports in the continental United States. New York includes JFK, LaGuardia, and Newark airports. Washington includes Reagan National and Dulles airports. Chicago includes Midway and O'Hare airports. Dallas/Ft. Worth includes DFW and Love Field airports.*

Source: *U.S. DOT, O&D Survey via Airline Data, Inc., ICF analysis.*

Exhibit 4-18: Rank of U.S. Large Hub Airports by Domestic Premium Class Revenue (CY 2021)

Rank Rev.	Rank Enpl.	Airport	Est. Premium Revenue ($, millions)	Rank Rev.	Rank Enpl.	Airport	Est. Premium Revenue ($, millions)
1	6	Los Angeles - LAX	$ 656.2	16	25	New York - LGA	$ 95.4
2	2	Dallas/Fort Worth - DFW	$ 465.1	17	14	Fort Lauderdale - FLL	$ 93.5
3	21	New York - JFK	$ 397.5	18	23	Tampa - TPA	$ 72.4
4	10	Seattle/Tacoma - SEA	$ 322.7	19	3	Denver - DEN	$ 65.4
5	18	San Francisco - SFO	$ 298.5	20	1	Atlanta - ATL	$ 55.3
6	12	Miami - MIA	$ 290.8	21	26	Nashville - BNA	$ 54.3
7	9	Phoenix - PHX	$ 270.5	22	17	Salt Lake City - SLC	$ 42.6
8	4	Chicago - ORD	$ 264.9	23	11	Houston - IAH	$ 39.7
9	**19**	**Boston - BOS**	**$ 225.0**	24	13	Minneapolis/St. Paul - MSP	$ 32.7
10	20	Philadelphia - PHL	$ 219.0	25	16	Detroit - DTW	$ 31.7
11	5	Charlotte - CLT	$ 201.1	26	22	Baltimore - BWI	$ 26.5
12	8	Las Vegas - LAS	$ 170.3	27	28	Washington - IAD	$ 24.2
13	24	San Diego - SAN	$ 165.4	28	27	Chicago - MDW	$ 0.3
14	15	New York - EWR	$ 107.4				
15	7	Orlando - MCO	$ 107.3				

Source: *U.S. DOT, O&D Survey via Airline Data, Inc., ICF analysis*

Because of the large O&D base, high domestic O&D passenger ratio, strong total revenue and premium class revenue generations, Logan is a highly attractive market for airlines. Logan is also a highly competitive airport. Of all U.S. airports, Logan has the 4th lowest concentration of service flown by the top carrier, highlighting the competitive nature of the Boston market (Exhibit 4-19).

JetBlue is currently the leading domestic air service provider at Logan in terms of seat capacity, with 28.4% of the Airport's scheduled domestic seats in July 2022. Delta, including its regional carrier affiliates, is second with a 27.1% share. The 1.3 percentage point share difference at Logan is the smallest between the first and second largest carriers among other large hub airports.

Exhibit 4-19: Domestic Carrier Market Share at Logan and Other Large Hub Airports, Share of Scheduled Seats (Advanced July 2022 Schedule)

Rank	Airport	Carrier Share of Annual Nonstop Domestic Seats				Carriers		Diff. (%-pts)
		Largest	2nd Largest	3rd Largest	All Other	Largest	2nd Largest	1st vs 2nd
1	Orlando - MCO	22.2%	15.9%	15.2%	46.7%	Southwest	Spirit	6.3%
2	Los Angeles - LAX	22.3%	20.4%	19.2%	38.1%	Delta	United	1.9%
3	Fort Lauderdale - FLL	26.4%	18.5%	16.5%	38.5%	Spirit	JetBlue	7.9%
4	**Boston - BOS**	**28.4%**	**27.1%**	**20.7%**	**23.8%**	**JetBlue**	**Delta**	**1.3%**
5	Tampa - TPA	31.2%	19.2%	18.4%	31.3%	Southwest	American	11.9%
6	New York - JFK	39.0%	37.0%	17.4%	6.7%	Delta	JetBlue	2.0%
7	Las Vegas - LAS	39.1%	14.8%	9.5%	36.6%	Southwest	Spirit	24.4%
8	New York - LGA	39.3%	26.4%	10.9%	23.4%	Delta	American	12.9%
9	Phoenix - PHX	40.6%	38.8%	6.6%	14.1%	American	Southwest	1.8%
10	San Diego - SAN	41.2%	15.3%	11.7%	31.8%	Southwest	Alaska	25.8%
11	Denver - DEN	44.7%	32.3%	10.8%	12.2%	United	Southwest	12.4%
12	Chicago - ORD	47.8%	37.3%	4.4%	10.5%	United	American	10.5%
13	San Francisco - SFO	51.7%	15.0%	10.0%	23.3%	United	Alaska	36.7%
14	Nashville - BNA	52.7%	13.0%	12.9%	21.4%	Southwest	American	39.7%
15	Seattle/Tacoma - SEA	57.4%	24.0%	6.2%	12.5%	Alaska	Delta	33.4%
16	Philadelphia - PHL	62.1%	12.0%	7.7%	18.1%	American	Frontier	50.1%
17	Miami - MIA	64.6%	9.4%	8.9%	17.1%	American	Spirit	55.2%
18	Minneapolis/St. Paul - MSP	70.0%	11.3%	5.8%	12.9%	Delta	Sun Country	58.7%
19	New York - EWR	70.2%	8.4%	7.8%	13.6%	United	American	61.8%
20	Salt Lake City - SLC	71.2%	11.5%	4.5%	12.8%	Delta	Southwest	59.6%
21	Baltimore - BWI	71.2%	7.1%	6.9%	14.8%	Southwest	Spirit	64.2%
22	Houston - IAH	72.2%	7.1%	7.0%	13.7%	United	American	65.2%
23	Detroit - DTW	72.9%	9.8%	6.2%	11.1%	Delta	Spirit	63.2%
24	Atlanta - ATL	77.3%	10.2%	3.3%	9.2%	Delta	Southwest	67.2%
25	Washington - IAD	82.5%	6.8%	3.8%	6.9%	United	Delta	75.7%
26	Dallas/Fort Worth - DFW	84.7%	4.6%	3.8%	6.9%	American	Spirit	80.1%
27	Charlotte - CLT	90.0%	3.5%	2.3%	4.2%	American	Delta	86.4%
28	Chicago - MDW	93.4%	3.6%	2.1%	0.9%	Southwest	Frontier	89.8%

Note: *Ranked in ascending order by largest air carrier market share. Includes only large hub airports in the continental United States. July 2022 advance schedules as of May 30, 2022. Calculations of the variance may not equate properly due to rounding.*

Source: *OAG schedules, as of the week of May 30, 2022.*

Any future U.S. airline consolidation (through bankruptcies or mergers) is not anticipated to have a detrimental long-term effect on service levels, as Logan's strong position as an O&D market, high yield business passengers, and positive growth outlook are expected to attract new services from incumbent carriers or new carriers seeking to capitalize on new opportunities.

4.3.4 International Passengers

Prior to the pandemic, international passenger traffic at Logan exhibited strong growth over the past decade, reaching a new peak of 8.3 million passengers in 2019 (see Exhibit 4-20). Between 2014 and 2019, Logan's international passengers grew by an average annual rate of 10.8% compared to an average annual rate of 2.9% for the U.S.

In 2020, international passengers fell sharply by 77.8% to 1.8 million, as international air travel came to a halt as governments enacted temporary travel restrictions directed primarily to non-essential travel across the globe. By 2021, U.S. and foreign governments began to lift travel restrictions and reopen borders to vaccinated visitors who were also required to provide proof of a negative COVID test upon arrival. As more travelers became fully vaccinated, thereby avoiding the risk of having to self-quarantine upon arrival, and as airlines recommenced international services suspended during the pandemic, 2021 international passenger volumes improved 38.7% from 2020, reaching 2.5 million passengers. This still only represents a 30.7% recovery of 2019 levels, however, reflecting that the international segment still has a long way to go to recover.

A recent survey conducted by Morning Consult for U.S. Travel Association revealed that inbound pre-departure testing requirements imposed by the federal government have been impacting travelers' likelihood of visiting the U.S. and other countries, and thus remain a major barrier to economic and international demand recovery.[61] Nearly 54% of international fully vaccinated travelers surveyed indicated that the added uncertainty of potentially having to cancel a trip due to pre-departure testing requirements would have a "big impact on their likelihood to visit the U.S." while 57% are less likely to visit given the risk of testing positive for COVID-19. Conversely, 46% of those surveyed would be more likely to visit if the testing requirements for vaccinated adults were lifted.

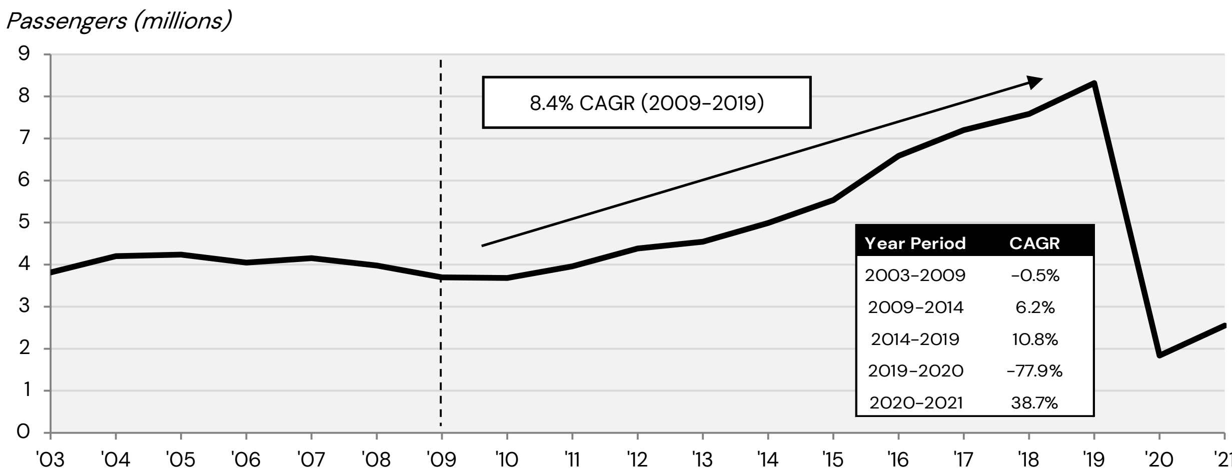
A combination of factors has driven international passenger expansion over the past decade. Delta and JetBlue have pursued international expansion at Boston, and foreign flag carriers have entered and expanded service in this market. Since 2011, JetBlue has steadily expanded its Caribbean network from Logan, and in 2022 is expected to commence service to new markets, including London, utilizing new long-range A321 aircraft.[62] Delta had expanded its transatlantic network to five new markets in Europe since 2019, most recently adding Tel Aviv in the Middle East, and will operate its first scheduled service to Canada (Toronto Pearson) in 2022. With a large foreign-born and university population in

[61] "Opinions of Pre-Departure COVID-19 Testing Requirements to the U.S. Travel Association", *Morning Consult*, 9 May 2022.

[62] London is JetBlue's first-ever transatlantic destination from Boston.

Boston, Logan has also attracted expanding service from ITA Airways (formerly Alitalia), Japan Airlines, KLM, Korean Air, TAP-Portugal, and Cathay Pacific. Promising signs of recovery include announcements of new foreign carrier nonstop service coming in the spring and summer of 2022, offered by Condor Flugdienst and Fly Play Airlines.

Exhibit 4-20: Historical International Passenger Traffic at Logan Airport (CY 2003 to CY 2021)



Note: *Excludes general aviation passengers.*
Source: *Massport.*

In 2021, in terms of international passengers, JetBlue was the leading international carrier, carrying 38.7% of Logan's international passengers (Exhibit 4-21). Delta, which is expected to offer service to eight European destinations, six Caribbean destinations, and one Middle East and one Canadian destination in 2022,[63] was the second largest international carrier with a 7.0% share, followed by Lufthansa (5.3%), which is scheduled to operate one to two daily flights to Frankfurt, and one daily to Munich in July 2022. Foreign flag carriers accounted for 48.2% of the Airport's international passengers in 2021, compared to 74.6% in 2019.

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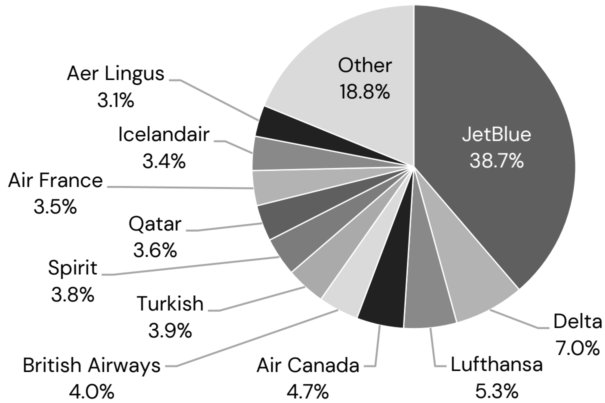
[63] OAG schedules, YE December 2022 accessed April 2022.

Exhibit 4-21: Airline Market Share for International Passengers (CY 2021)



Note: *Regional airline passengers are grouped with their mainline carrier partners. Excludes general aviation passengers. Per Massport data, Puerto Rico is classified as international traffic to the Caribbean/Bermuda market.*

Source: *Massport.*

Boston is currently the 12th largest U.S. gateway for international air travel, as shown in Exhibit 4-22 below. As the second fastest growing international gateway of all large hub U.S. Airports behind only Fort Lauderdale, Logan Airport is expected to see its market share of international traffic grow as top carriers like Delta and JetBlue continue to expand Boston's domestic and international networks. In particular, Delta is continuing with its plan to establish Logan Airport as a transatlantic connecting hub. Below is a list of recent international routes Delta and JetBlue have flown or are expected to commence in 2022.

Delta:

- **Caribbean:** Aruba*, Cancun (year-round), Montego Bay*, Nassau*, Punta Cana*, St. Thomas (U.S. Virgin Islands)*
- **Transatlantic:** Amsterdam, Athens* (commenced May 2022), Dublin, Edinburgh*, Lisbon*, London-Heathrow, Paris de Gaulle, Rome* (commenced August 2021), Tel Aviv (commenced May 2022).

JetBlue:

- **Caribbean:** Aruba, Bermuda*, Bridgetown, Cancun, Grand Cayman*, Liberia*, Montego Bay, Nassau, Port-au-Prince*, Providenciales, Puerto Plata, Punta Cana, Santiago (DR), Santo Domingo, St. Lucia, St. Maarten, St. Thomas (USVI)
- **Transatlantic:** London Gatwick (August 2022, expected) and London Heathrow (September 2022, expected)

** Indicates seasonal service.*

In addition, JetBlue's extended alliance partnership with American will enable its customers to book American operated international flights to other international destinations. American operates daily service to London, launched Toronto Pearson service in April 2022, and plans to commence summer seasonal service to Halifax in June 2022.

Exhibit 4-22: Top U.S. Gateways for International Traffic (YE November 2019 vs YE November 2021)

YE Nov 2021 Rank	U.S. Gateway	Hub	Total Enplaned Passengers YE Nov 2019	Total Enplaned Passengers YE Nov 2021	YE Nov 2021 Pct. Share	CAGR 14-'19	Growth Rate Rank	Proportion Int'l Traffic (2019)	Recovery (as % of '19)
1	New York	✓	25,338,740	8,937,126	20.4%	4.5%	9	36%	35%
2	Miami	✓	10,682,119	5,780,337	13.2%	1.2%	15	50%	54%
3	Los Angeles		12,587,590	3,590,459	8.2%	6.7%	7	29%	29%
4	Houston	✓	5,880,190	3,314,859	7.6%	4.4%	10	20%	56%
5	Dallas/Fort Worth	✓	4,584,570	2,892,245	6.6%	6.0%	8	11%	63%
6	Chicago	✓	7,289,683	2,694,894	6.2%	4.2%	11	14%	37%
7	Atlanta	✓	6,232,932	2,593,387	5.9%	3.5%	12	12%	42%
8	Fort Lauderdale		4,249,676	1,888,174	4.3%	14.4%	1	24%	44%
9	Washington	✓	4,287,386	1,511,922	3.5%	3.3%	13	18%	35%
10	San Francisco	✓	7,319,488	1,412,967	3.2%	8.0%	5	26%	19%
11	Charlotte	✓	1,753,444	1,019,048	2.3%	2.7%	14	7%	58%
12	**Boston**	✓	**3,918,049**	**934,678**	**2.1%**	**11.8%**	**2**	**19%**	**24%**
13	Denver	✓	1,543,361	843,929	1.9%	7.1%	6	5%	55%
14	Orlando		3,579,955	768,173	1.8%	9.7%	3	14%	21%
15	Seattle/Tacoma	✓	2,767,479	677,786	1.5%	8.6%	4	11%	24%
	Subtotal Top 15:		**102,014,662**	**38,859,984**	**88.7%**	**5.3%**		**20%**	**38%**
	Other		19,588,007	4,954,363	11.3%	4.1%		5%	25%
	Grand Total		**121,602,669**	**43,814,347**	**100.0%**	**5.1%**		**13%**	**36%**

Note: *November 2021 is the latest international traffic data available from U.S. DOT T-100 as of May 2022; Boston is now indicated as a hub status airport given Delta's strategy to expand Logan's role as a transatlantic connecting hub for the carrier. CAGR '14-'19 is calculated referencing the 12-month period ending through November.*

Source: *U.S. DOT, T-100 Database via Airline Data, Inc.*

Historically, the growth of international services has been heavily concentrated at major airline connecting hubs in the U.S. (e.g., Atlanta, Chicago O'Hare, Dallas/Ft. Worth, Houston Intercontinental, Miami, New York JFK, Newark, San Francisco, and Washington Dulles), as a hub carrier's connecting network was often needed to generate sufficient passenger traffic to fill the large wide-body aircraft used on international flights. However, the local O&D strength of the Boston market makes Logan an attractive gateway for foreign flag airlines despite Logan's lack of a network carrier hub. As discussed, this summer JetBlue will be entering the transatlantic competition, with flights from Boston to both London Heathrow and London Gatwick. JetBlue had initially planned its first Canadian market from the U.S. with seasonal service to Vancouver, but recently cancelled this anticipated route as schedule adjustments are made due to rising fuel prices and to ensure reliable summer schedules and operations.

As discussed previously in Section 2.5, new aircraft technology introduced to the market has allowed for use of smaller and more fuel-efficient aircraft on international routes, benefitting medium sized O&D markets like Boston. As shown in Exhibit 4-23, next generation medium-sized wide-body aircraft such as the A330neo, A350, and B787 account for a combined 14.1% of Logan's long-haul international seats in July 2022, down 2.0 percentage points from July 2019. Foreign carriers that previously operated the 787 that have yet to resume service (i.e., Royal Air Maroc) or dropped service from Logan Airport (i.e., Norwegian Air and Hainan Airlines) contributed to the decline in 787 seats, while several carriers have swapped the 787 for other wide-body aircraft in their respective fleets (i.e., Virgin Atlantic, British Airways, Korean Air). The A330neo technology was introduced by TAP Portugal on its nonstop Lisbon route, and Delta plans to operate the aircraft to Amsterdam and Tel Aviv in 2022. Newer narrow-body aircraft like the A321neoLR and 737 MAX are being scheduled for international services beyond Canada and the Caribbean. TAP Portugal will utilize the A321neoLR to Lisbon in 2022, and Icelandair will operate 737 MAX aircraft to Reykjavik after the FAA cleared the aircraft to fly, ending the 20-month grounding of the aircraft in November 2020. Through 2021 and 2022, older aircraft with inefficient fuel consumption like the B757, B767, B747, A340, and A380 are being backfilled by newer aircraft within the respective airlines' fleets, changing the wide-body aircraft mix at Boston. British Airways is the only carrier operating the A380 at Boston in 2022, where it plans to intermix operations with the B777.

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Exhibit 4-23: International Weekly Departing BOS Seat Share by Aircraft Type (July 2018 – Advance July 2022)

Aircraft	Weekly Seat Share				
	2018	2019	2020	2021	2022
A330	32.2%	31.1%	29.5%	27.3%	33.5%
B777	13.4%	15.5%	9.4%	10.8%	12.3%
B767	12.0%	10.9%	9.3%	6.2%	13.2%
A350	4.9%	2.6%	33.6%	9.4%	5.7%
A320neo	-	-	5.0%	6.9%	8.9%
A340	2.9%	5.5%	-	-	4.7%
A380	1.9%	7.9%	-	-	4.4%
A330neo	-	0.6%	-	3.6%	3.8%
B747	7.8%	2.9%	-	-	3.5%
B787	10.4%	12.9%	4.7%	20.3%	4.6%
737 MAX	-	-	-	1.7%	2.6%
B757	3.9%	4.6%	-	4.4%	-
Other	10.6%	5.5%	8.5%	9.4%	2.8%

Note: *Excludes Caribbean and Canada destinations.*

In 2021, TAP Portugal was the only foreign carrier operating an A330neo to Lisbon through 2021, but swapped to its new narrow-body A321neoLR in 2022. Delta is expected to operate its A330neo aircraft to Amsterdam and Tel Aviv; The 737 MAX aircraft is being utilized by Icelandair.

Source: *OAG Schedules, as of the week of May 30, 2022.*

Recent developments in international air service at Logan are discussed further in Section 4.4.3.

4.3.5 Logan Top Domestic O&D Markets

The top 20 domestic O&D markets (as shown in Exhibit 4-24) accounted for approximately 62% of Boston's total domestic O&D passengers in 2021. The top ten markets listed have O&D shares ranging between 3.0% and 6.5%, but are geographically dispersed, spanning the West Coast, the East Coast, and the Midwest.

Exhibit 4-24: Top Boston Domestic O&D Passenger Markets (CY 2021)

Rank 2021	Rank 2019	City	Nonstop Miles	O&D Psgrs	Pct. of Total	5-Year CAGR	Sched. Daily Nonstop Depts	No. of Carriers Serving
1	6	Orlando	935	1,174,834	6.5%	9.5%	11	5
2	4	Los Angeles	2,110	865,239	4.8%	5.0%	14	4
3	9	Fort Lauderdale	855	824,630	4.5%	5.9%	6	3
4	2	Chicago	859	795,075	4.4%	4.1%	25	5
5	26	Miami	790	724,975	4.0%	4.4%	11	4
6	3	Washington	302	703,650	3.9%	1.7%	34	4
7	5	San Francisco	1,928	623,493	3.4%	2.1%	12	4
8	7	Atlanta	940	611,110	3.4%	11.2%	12	2
9	13	Tampa	709	570,720	3.1%	9.5%	5	3
10	10	Denver	1,682	544,362	3.0%	6.4%	9	4
11	15	Fort Myers	1,238	508,138	2.8%	4.7%	3	2
12	1	New York	190	506,575	2.8%	4.5%	61	4
13	12	Dallas/Fort Worth	1,257	441,171	2.4%	5.0%	9	3
14	31	San Juan	1,214	404,520	2.2%	1.4%	4	2
15	17	Seattle/Tacoma	2,197	367,742	2.0%	6.2%	8	3
16	18	Las Vegas	1,753	338,266	1.9%	5.2%	4	3
17	22	Charlotte	717	331,019	1.8%	5.7%	13	3
18	25	Phoenix	2,289	326,430	1.8%	5.4%	5	2
19	19	West Palm Beach	1,190	313,557	1.7%	7.0%	3	2
20	24	San Diego	1,283	313,150	1.7%	3.7%	4	3
		Subtotal Top 20:		**11,288,656**	**62.3%**	**5.2%**	**252**	
		All Other		6,835,348	37.7%	5.7%	282	
		Grand Total		**18,124,004**	**100.0%**	**5.4%**	**535**	

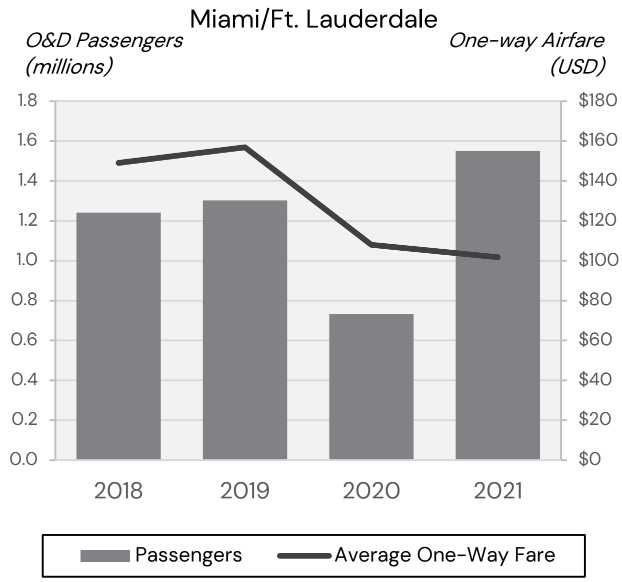
Note: *New York includes JFK, LaGuardia and Newark airports. Washington includes Reagan National and Dulles airports. Houston includes Hobby and George Bush Intercontinental airports. Dallas includes Love Field and Dallas/Ft. Worth airports. Chicago includes Midway and O'Hare airports. Totals may not add up due to rounding.*

Discrepancies between the O&D passenger figures in Exhibit 4-24 and Appendix A to the Official Statement to which this report is attached are due to proprietary data processing methods.

Source: *U.S. DOT, O&D Survey via Airline Data, Inc.; OAG Schedules, as of the week of May 30, 2022 (Advance July 2022).*

Prior to the start of the COVID-19 pandemic, New York, Chicago, and Washington were the largest markets for Boston having represented 5.5%, 5.4%, and 5.0% of Boston's total passengers in 2019. However, all three markets have declined significantly, with New York experiencing the greatest impact. The pandemic has pushed leisure-oriented destinations such as Orlando, Los Angeles, and Miami/Ft. Lauderdale into the top O&D market spots for Boston. Markets such as Orlando and Miami (including Ft. Lauderdale) have nearly recovered, or exceeded, their 2019 traffic levels, at 89.1% and 119.0%, respectively. In addition, average fares fell rapidly during the pandemic as LCC/ULCC fares stimulated the market. For example, average fares between Boston and Orlando fell from $132 in 2019 to $112 in 2021. The Boston to Miami market, including Ft. Lauderdale, saw a decline in average one-way fares of 35.1%, from $157 in 2019 to $102 in 2021, as shown in Exhibit 4-25.

Exhibit 4-25: O&D Passengers and Average Fares between Boston and Leisure-Growth Markets



Note: *Miami includes Miami and Ft. Lauderdale airports.*
Source: *U.S. DOT, O&D Survey via Airline Data, Inc.*

In terms of annual seat capacity, Delta, Frontier, and Southwest operated more seats in 2021 to Orlando than in 2019, as shown in Exhibit 4-26. Annual seat capacity from Boston to Miami and Ft. Lauderdale in 2021 far exceeded 2019, as shown in Exhibit 4-27, where all carriers that operated nonstop service in 2019 invested additional capacity to the Miami area. In 2020 and 2021, several carriers also rerouted flights to Florida, which bypassed their business market hubs, reflecting new demand growth. For example, United Airlines, re-invented its domestic route map during the winter of 2020, adding routes that bypassed the carrier's hub airports. United's Vice President of Domestic Network Planning, Ankit Gupta, mentioned that the expansion of point-to-point, non-hub flying reflects the carrier's data driven approach to add capacity where customers are telling the carrier. This allowed United to offer its Northeast customers more options to fly nonstop to Florida. In addition, United's increased frequencies in Boston were a competitive response to JetBlue re-entering and expanding its Newark operation in July 2020 and growing its Northeast footprint.

Exhibit 4-26: Annual Departing Airline Seat Capacity Changes between CY 2019-2021: Boston-Orlando

Carrier	Annual Scheduled Seat Capacity ('000) 2019	2020	2021	2021 as % of 2019
JetBlue	418.4	251.2	316.1	75.6%
Delta	170.6	90.7	177.6	104.1%
Spirit	139.6	79.2	130.1	93.2%
Frontier	46.6	43.7	58.9	126.6%
United	0.0	10.3	10.1	n/a
Southwest	5.3	3.6	9.0	170.2%
Total	**780.5**	**478.7**	**701.9**	**89.9%**

Source: *OAG schedules.*

Exhibit 4-27: Annual Departing Airline Seat Capacity Changes between CY 2019-2021: Boston-Miami

Carrier	Annual Scheduled Seat Capacity ('000) 2019	2020	2021	2021 as % of 2019
American	358.1	217.8	442.1	123.5%
JetBlue	298.1	234.9	390.8	131.1%
Delta	74.9	74.4	209.4	279.5%
Spirit	139.7	103.3	150.6	107.8%
Frontier	6.5	12.6	29.2	449.3%
United	0.2	9.6	11.7	6543.0%
Southwest	1.1	2.6	2.3	198.9%
Total	**878.6**	**655.2**	**1,236.1**	**140.7%**

Note: *Miami includes Miami and Ft. Lauderdale airports.*
Source: *OAG schedules.*

In 2021, the geographic distribution of Boston passenger demand shifted noticeably towards the Southeast and Mountain regions. As shown in Exhibit 4-28, the Southeast, which is dominated by the Florida market, is currently the leading destination region for Boston O&D passengers, accounting for 38.9% of domestic O&D passengers in 2021. The Pacific region now represents the second largest designation region for the Airport with an 18.1% share. The Mid-Atlantic region fell to third and now represents 12.1% of total Boston domestic demand, compared to its 20.3% share in 2019 (ranking second), and its 22.5% share in 2014. This overall shift by region reflects a more leisure-oriented travel mix, and the current softness in business travel during the pandemic.

Exhibit 4-28: Logan Airport Domestic O&D Passengers by Region (CY 2014, 2019, 2021)

	O&D Passengers			% of BOS Market Share			Share Diff. (%-pts)	Recovery
Region	2014	2019	2021	2014	2019	2021	'21 vs '19	'21 vs '19
Southeast	6,331,972	9,228,465	7,049,645	27.2%	30.5%	38.9%	8.4%	76.4%
Pacific	4,488,508	5,641,361	3,287,192	19.3%	18.7%	18.1%	(0.5%)	58.3%
Mid Atlantic	5,222,294	6,145,132	2,190,940	22.5%	20.3%	12.1%	(8.2%)	35.7%
Great Lakes	2,750,814	3,569,902	1,816,912	11.8%	11.8%	10.0%	(1.8%)	50.9%
Southwest	2,052,784	2,563,026	1,597,523	8.8%	8.5%	8.8%	0.3%	62.3%
Mountain	932,327	1,354,467	980,214	4.0%	4.5%	5.4%	0.9%	72.4%
Midwest	932,092	1,210,486	663,289	4.0%	4.0%	3.7%	(0.3%)	54.8%
U.S. Territories	396,755	375,460	485,837	1.7%	1.2%	2.7%	1.4%	129.4%
New England	138,949	129,562	52,452	0.6%	0.4%	0.3%	(0.1%)	40.5%
Total	**23,248,225**	**30,217,991**	**18,124,004**	**100.0%**	**100.0%**	**100.0%**		**60.0%**

Note: *Southeast includes Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. U.S. Territories include Puerto Rico, U.S. Virgin Islands, Guam, and U.S. Pacific Trust Territories and Possessions,*

Source: *U.S. DOT, O&D Survey via Airline Data, Inc., as of April 2022.*

4.4 Scheduled Airline Service

Airline service and aircraft operations at Logan can be grouped into three major market segments: domestic large jet, domestic regional, and international. Domestic large jet service includes all domestic services operated by aircraft of 90 or more seats, including the Embraer E-190 aircraft operated by JetBlue. Domestic regional service includes domestic services operated by smaller regional jets of less than 90 seats and turboprop/piston aircraft. The domestic large jet and international segments have principally served O&D passengers, while domestic regional carrier services historically operated as feeder flights carrying passengers from small New England and upstate New York markets to Logan Airport for connecting services to other destinations (see maps in Exhibit 4-30).

4.4.1 Domestic Large Jet Services

Eleven U.S. airlines provide scheduled domestic large jet services at Logan as of July 2022 (Exhibit 4-29). Frontier Airlines and Hawaiian Air Lines commenced service at Logan Airport in April 2019, while Allegiant Air was the most recent addition commencing point-to-point operations at Logan Airport in September 2020. Logan is served by all major U.S. carriers with operating revenues over $1 billion. Logan's current nonstop domestic jet service is illustrated in Exhibit 4-30.

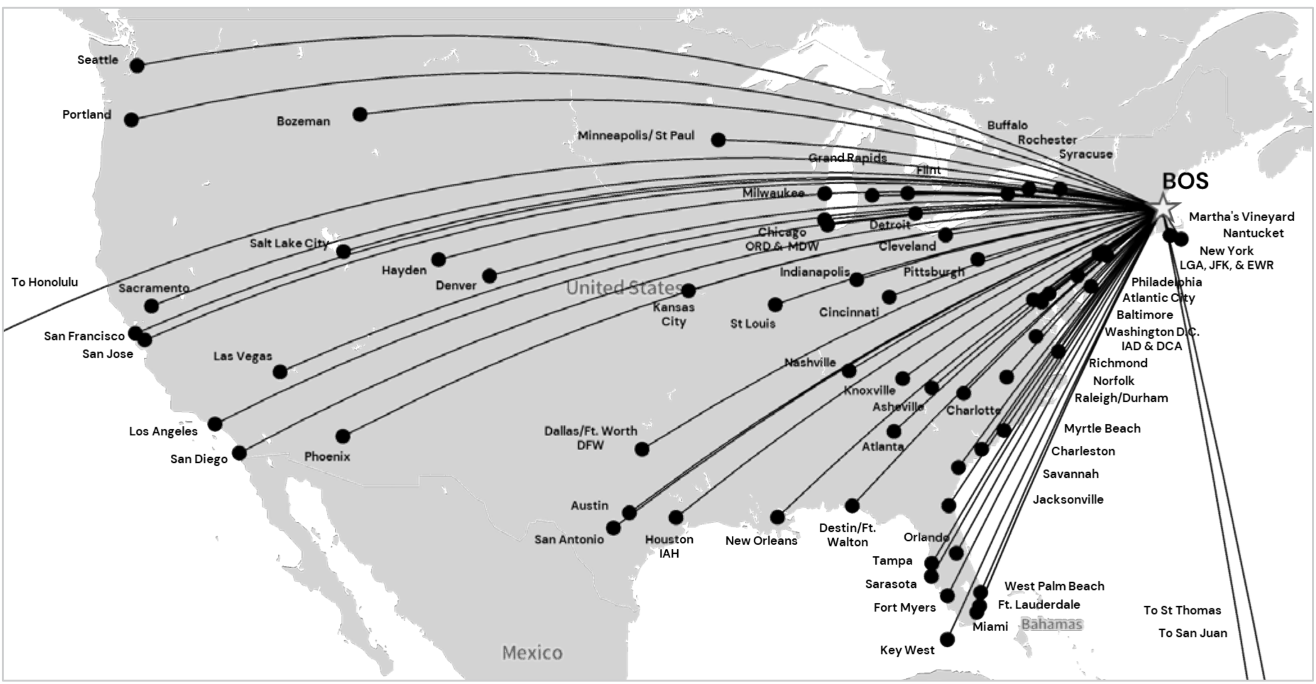
Exhibit 4-29: U.S. Large Jet Carriers Serving Logan Airport

U.S. Large Jets	
Alaska Airlines	JetBlue Airways
Allegiant Air	Southwest Airlines
American Airlines	Spirit Airlines
Delta Air Lines	Sun Country Airlines
Frontier Airlines	United Airlines
Hawaiian Airlines	

Note: *Excludes charter only airlines.*

Source: *OAG schedules (advance CY 2022), as of the week of May 30, 2022.*

Exhibit 4-30: Domestic Nonstop Large Jet Markets Served from Logan Airport (CY 2022)



Note: *The following are operated on a seasonal basis: Atlantic City, Bozeman, Destin/Ft. Walton, Key West, Norfolk, Sacramento, San Jose, Steamboat Springs (Hayden), Traverse City.*

Source: *OAG schedules, as of the week of May 30, 2022.*

Changes in Logan's scheduled large jet domestic airline services by FSCs, LCCs, and ULCCs over the past year are shown in Exhibit 4-31. Domestic large jet services in July 2022 are 53 daily departures fewer than the average flown in July 2019, prior to the pandemic, operating at 86% of 2019 levels. In 2022, Delta was the only domestic carrier to operate more average daily departures on jet aircraft than in 2019, adding eight departures overall. JetBlue is expected to operate on average 22 fewer departures per day while American and Southwest will operate 23 fewer daily departures.

Delta continues to expand utilization of jet aircraft on existing routes, adding another daily flight to Los Angeles (B757) and Cincinnati (A220). In terms of new markets, Delta introduced nonstop large jet service to Miami, Dallas/Fort Worth, Fort Myers, New Orleans, Palm Beach, San Diego, and Denver, most of which are leisure-oriented growth markets. Delta's new A220 aircraft operate on the short- and medium-haul routes to/from Logan Airport, frequenting Raleigh-Durham, Cincinnati New York LaGuardia and JFK airports, Austin, and New Orleans. As of July 2022, Delta offers nonstop domestic large jet service from Logan to 25 destinations.

JetBlue operates its jet aircraft from Logan to 49 domestic destinations in July 2022. It has more than doubled frequencies to LaGuardia, its second busiest scheduled route after Washington National, where it will operate on average 12 daily flights, compared to four daily flights in July 2019, with a departure nearly every hour. The carrier also added 2-3 daily departures to Washington National and an additional 4-5 daily flights to Los Angeles, where it will operate A320neo aircraft and offer premium lie-flat seat products and Mint-class experiences on its transcontinental flights as it competes with other FSC product offerings (i.e., Delta). Between 2021 and 2022, JetBlue commenced operations to Miami (twice daily starting February 2021) in addition to its current services to Fort Lauderdale, San Antonio (daily starting October 2021), Milwaukee (daily starting March 2022), Kansas City (daily starting March 2022), and Asheville (summer seasonal daily starting June 2022). On the other hand, JetBlue had adjusted its schedules and reduced its 2019 frequencies by 2 daily departures to markets such as Raleigh-Durham, Philadelphia, Baltimore, Newark, and Las Vegas. Over the past decade, Delta and JetBlue have been showcasing the highly competitive landscape of the Boston market. Whenever one airline shifts its capacity or announces new service to/from Boston, the other has responded with similar changes to capture and/or re-capture its capacity share.

American and Southwest have seen a decline in average daily frequency from Logan. American continues to operate 10-30% fewer flights to its hub markets in Washington National, Philadelphia, Chicago O'Hare, and Los Angeles than in 2019. In terms of seats, American has exceeded its 2019 levels to Phoenix, Dallas/Fort Worth, Charlotte, and Miami by 7%, 7%, 15%, and 28%, respectively, supported by aircraft upgauging from E-190s and A319s to the larger A320/321 models.

In April 2019, Frontier and Hawaiian Airlines commenced service from Boston. After a seven-year hiatus, Frontier re-commenced nonstop service from Boston to Denver in 2019, and then added five destinations in 2020. In 2022, Frontier is scheduled to connect Logan Airport to the following domestic destinations: Orlando, Miami, Philadelphia, and San Juan. Hawaiian Airlines also commenced its longest domestic flight segment flying between Boston and Honolulu, daily, on its A330 aircraft in April 2019. In September 2020, Allegiant commenced its first services out of Boston after a four month delay due to the onset of the pandemic. Allegiant currently operates to seven destinations, with less than daily service on each route.

Exhibit 4-31: Scheduled Large Jet Domestic Airline Service at Logan Airport (July 2019 – July 2022)

	July - Avg. Daily Nonstop Depts				Change ('22 vs '19)	
Reporting Carrier	**2019**	**2020**	**2021**	**2022**	**Net Change**	**% Diff**
Alaska Airlines	10	2	5	7	(3)	(31.6%)
Allegiant Air	0	0	2	3	3	New
American Airlines	71	31	44	61	(11)	(15.2%)
Delta Air Lines	53	19	39	61	8	14.6%
Frontier Airline	3	2	1	1	(2)	(61.3%)
Hawaiian Airlines	1	0	1	1	(0)	(34.6%)
JetBlue Airways	145	68	86	123	(22)	(15.4%)
Southwest Airlines	31	14	15	18	(13)	(41.2%)
Spirit Airlines	15	14	9	9	(6)	(38.9%)
Sun Country Airlines	1	1	1	1	(0)	(3.2%)
United Airlines	40	9	24	33	(7)	(17.3%)
Total	**370**	**160**	**227**	**317**	**(53)**	**(14.4%)**

Note: *JetBlue and American mainline departures include operations with the Embraer E-190 large regional jet. Net changes may not sum due to rounding of average calculations. CRJ-900 is classified as regional jet equipment, therefore excluded from this analysis. Large jet includes narrow-body and wide-body aircraft.*

Source: *OAG schedules, as of the week of May 30, 2022.*

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4.4.2 Regional Domestic Service

Eight U.S. regional carrier operators provide domestic passenger services at Logan Airport as of July 2022 (see Exhibit 4-32). The majority of U.S. regional carriers serving Logan are either wholly-owned by an FSC or operate under joint marketing agreements with FSCs. Regional airline Republic Airways operates for more than one FSC. The domestic services provided by the mainline, independent, and affiliated regional carriers are shown below.

Exhibit 4-32: Domestic Regional Airlines (and Affiliates) Operating at Logan Airport

Independent	Affiliated
Boutique Air	Envoy Air (American Eagle)
Cape Air	Piedmont Airlines (American Eagle)
	Republic Airways (American Eagle, Delta Connection, United Express)
	Endeavor Air (Delta Connection)
	Mesa Airlines (United Express)
	Skywest Airlines (United Express)

Note: *Regional carriers providing domestic service only. Cape Air includes Hyannis Air. Endeavor Air was previously named Pinnacle Air. Shuttle America ceased operations and merged with Republic Airlines in February 2017. Excludes charter only airlines.*

Source: *OAG schedules (advance CY 2022), as of the week of May 30, 2022.*

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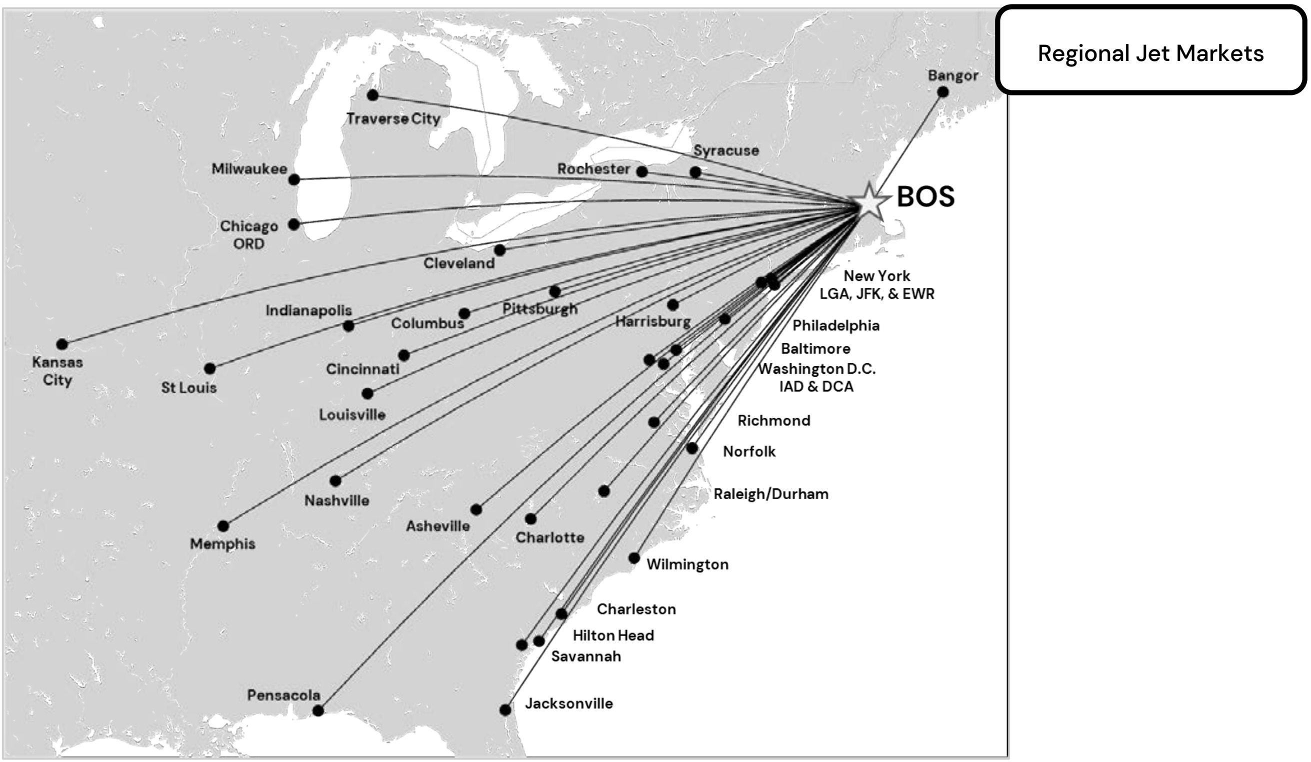
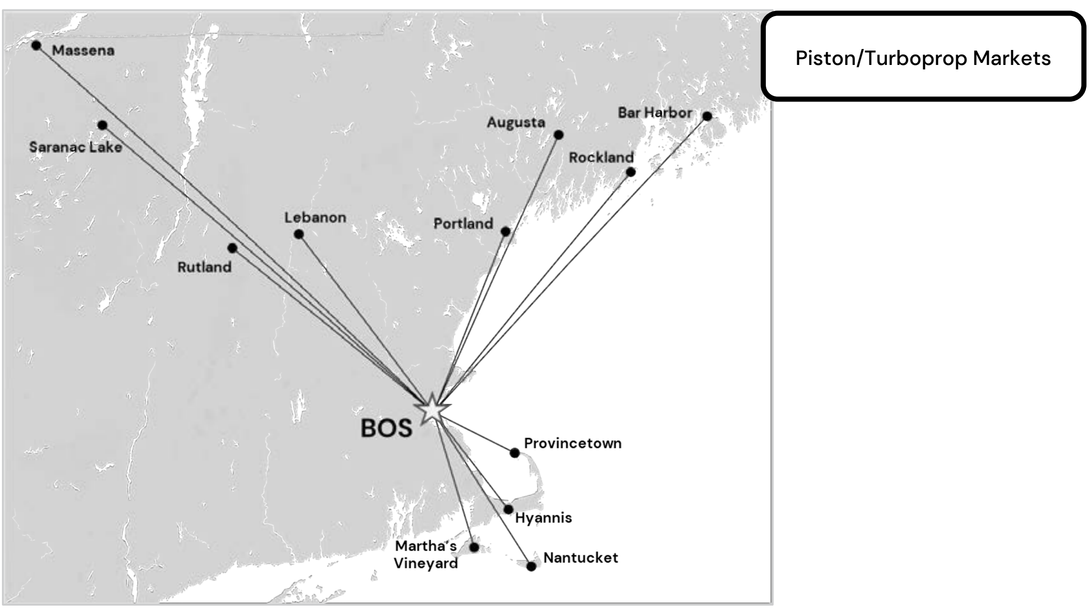
Exhibit 4-33: Regional Carrier Domestic Nonstop Markets Served from Logan Airport (CY 2022)





Note: *Essential Air Service (EAS) markets from Logan Airport, as of February 2022 from the U.S. DOT, include Augusta/Waterville (ME), Bar Harbor (ME), Rockland (ME), Lebanon (NH), Massena (NY), Saranac Lake (NY), and Rutland (VT). Pensacola and Traverse City are seasonal services.*

Source: *OAG schedules, as of the week of May 30, 2022.*

Small regional jet service grew rapidly at Logan Airport at the beginning of the 2000s, when airlines deployed RJs to replace smaller turboprop aircraft and to compete with other airlines on short-haul high-density routes. Following the run-up in fuel prices in 2007 and the pilot shortage that began in 2015, airlines have eliminated large numbers of smaller regional jets from their fleets because of high per seat operating costs. However, given the impacts of the pandemic, airlines optimized their networks and traffic performance by utilizing RJs, replacing narrow-body jet routes to improve passenger load factors as demand was still recovering.

According to advance OAG schedules, in July 2022, RJ seat capacity at Logan Airport is scheduled to be 21.4% greater than RJ capacity offered in July 2019. Seat capacity is driven mainly by increased RJ activity by Delta, which represents nearly 80% of RJ scheduled activity, followed by American Airlines with 21%.

Major market routes with shuttle service (e.g., Delta's New York shuttle to LaGuardia) have seen increased utilization in RJ aircraft given the high demand of O&D passengers between the two markets, especially as it competes with JetBlue's narrow-body jet operations. Delta operates 18 daily nonstop flights to the New York market, which includes three to four times new daily RJ service to Newark airport and introduced RJ aircraft service to Washington National in 2021. In general, Delta has been introducing additional daily RJ frequencies recently in response to new JetBlue routes and markets where they have expanded operations, including New York, Washington D.C./Baltimore, Charlotte, and Milwaukee. American introduced RJ service to 11 new smaller regional markets, since 2021, including Indianapolis, Cincinnati, Columbus, Pensacola, Traverse City, and Wilmington (NC), with at least once daily departures.

While RJ service to New York has increased in 2022, United continues to operate to Newark once daily, which is the only RJ destination offered by the carrier. United removed RJ service to Washington Dulles and Chicago O'Hare in the last two years.

Daily departures for turboprop aircraft are scheduled to operate about 4.8% below 2019 levels, but average daily RJ departures has grown from 55 to 84 between July 2019 and July 2022, as shown in Exhibit 4-34. Total non-jet nonstop daily departures grew by 26 departures (or 21.4%) as airlines adapted to the recovering domestic aviation market, optimizing and balancing their networks with RJ aircraft. In July 2022, Cape Air is scheduled to provide services to ten short-haul destinations in the Northeast. Notably, Cape Air has added seven daily flights to Bar Harbor, compared to once daily flights in 2019, as part of the U.S. DOT affirming Cape Air's selection for state-subsidized essential air service through October 2024. Cape Air's service has experienced improved feeder traffic due to its partnership with JetBlue at Logan, where Cape Air offers interline and codeshare connections.

Exhibit 4-34: Scheduled Regional Domestic Airline Service at Logan Airport (July 2019 – July 2022)

	July - Avg. Daily Nonstop Depts				Change ('22 vs '19)	
Reporting Carrier	**2019**	**2020**	**2021**	**2022**	**Net Change**	**% Diff**
Regional Jets						
American Airlines	5	3	14	19	14	304.2%
Delta Air Lines	50	7	40	62	12	23.7%
United Airlines	0.1	4	4	3	3	2350.0%
Subtotal	**55**	**14**	**58**	**84**	**29**	**52.9%**
Turboprops / Pistons						
Boutique Air	3	3	3	2	(1)	(33.3%)
Cape Air	61	42	60	61	(0)	(0.3%)
Hopscotch Air	-	1	-	-	-	-
Silver Airways	2	1	-	-	(2)	(100.0%)
Subtotal	**66**	**47**	**63**	**63**	**(3)**	**(4.8%)**
Total Daily Nonstop Departures	**121**	**61**	**121**	**147**	**26**	**21.4%**

Note: *May not sum to total due to rounding; Net changes may not sum due to rounding of average daily calculations.*
Source: *OAG schedules, as of the week of May 30, 2022.*

4.4.3 International Service

Five U.S. and 27 non-U.S. ("foreign flag") airlines will provide scheduled services from Logan Airport to international destinations as of calendar year advance schedules for 2022 (Exhibit 4-**35**). The three major global airline groups – Oneworld, SkyTeam and Star Alliance – are represented at Logan Airport by multiple carriers. Exhibit 4-36 shows the international markets served nonstop from Logan in July 2022.

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Exhibit 4-35: U.S. and Foreign Carriers International Service at Logan Airport (CY 2022 Advanced Schedules)

U.S. Flag Airlines
American Airlines (Oneworld)
Delta Air Lines (Skyteam)
Frontier Airlines Inc.
JetBlue Airways Corporation
United Airlines (Star Alliance)

Foreign Flag Airlines	
Aer Lingus **	KLM (Skyteam)
Air Canada (Star Alliance) *	Korean Air (Skyteam)
Air France (Skyteam)	LATAM
British Airways (Oneworld)	Lufthansa (Star Alliance)
Cathay Pacific Airways (Oneworld)	Porter Airlines **
Condor Flugdienst	Qatar Airways (Oneworld) **
Copa Airlines (Star Alliance)	SAS (Star Alliance)
El Al Israel Airlines	SATA International Airlines
Emirates **	SWISS (Star Alliance)
Fly Play	TAP Portugal (Star Alliance)
Iberia (Oneworld)	Turkish Airlines (Star Alliance)
Icelandair **	Virgin Atlantic Airways
ITA Airways (Skyteam)	Westjet
Japan Airlines (Oneworld)	

* *Includes regional carrier Jazz Air, which operates at Logan as part of Air Canada Express. Westjet Encore operates for Westjet to Toronto Pearson*

** *JetBlue Partner Airlines – where passengers can book destinations beyond the JetBlue-operated route map via jetblue.com.*

Note: Excludes U.S. regional airline affiliates serving the U.S. and Canada. Excludes charter-only airlines.

Not shown: Low cost carrier LEVEL Airlines, owned by International Airlines Group ("IAG") and operated by Iberia on its Barcelona service (A330).

LATAM exited the Oneworld alliance May 1, 2020, ending their codeshare agreement with American, and started a codeshare agreement with Delta. In October 2021, a Chilean court gave the green light for a Delta-LATAM trans-American joint venture LATAM will be maintaining its bilateral agreements with a majority of foreign Oneworld member airlines (i.e., British Airways, Cathay Pacific, Finnair, etc.) LATAM is currently scheduled to resume service in November 2022.

JetBlue and American Airlines formed a Northeast Alliance partnership in the summer of 2021, building on JetBlue's domestic network and American's growing international network, allowing its customers to unlock more travel destinations.

Source: OAG schedules (advance CY 2022), as of the week of May 30, 2022.

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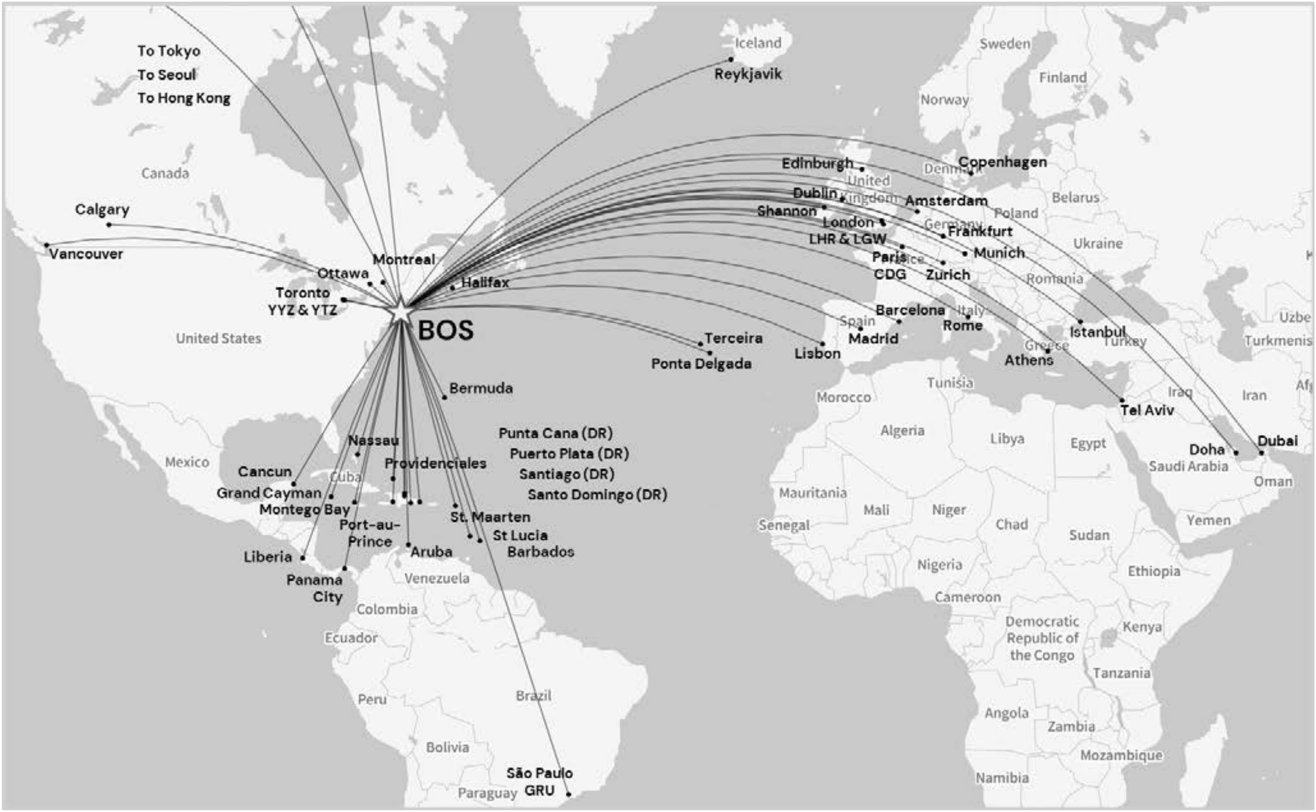
Exhibit 4-36: Nonstop International Service from Logan Airport (CY 2022)



Note: *The following are operated on a seasonal basis: Edinburgh (May-September), Grand Cayman (November-April), Liberia (November-April), Port-au-Prince (September-December), Vancouver (June-October), Calgary (July-September).*

Source: *OAG schedules, as of the week of May 30, 2022.*

Exhibit 4-37 below shows international carrier service changes at Logan from July 2019 to July 2022. Logan had seen a significant expansion of international services prior to the pandemic and looks to rebuild its pre-existing international network as international demand recovers. During the height of the pandemic, international service levels at Logan fell to 15% of 2019 weekly departures in 2020, but rose to 37% in July 2021. According to advance schedules, airlines have restored nearly 88% of international capacity for July 2022, and are scheduled to operate 501 average weekly departures. The net recovery includes previously flown and new routes.

Over the past few years as foreign carriers have either ceased operations, filed for bankruptcy protection, or undergone financial restructuring strategies as a result of airline economics and suppressed air travel demand during the pandemic, some carriers have also swapped scheduled aircraft to utilize larger efficient wide-body aircraft, evidently reducing its frequencies. In 2019, Aeromexico, Avianca, and Bahamasair suspended services from Logan Airport to Mexico City, Bogota/San Salvador, and Nassau (license suspension; regulatory issue related), respectively, as they shifted their airline network strategies and re-evaluated route profitability across their network. By 2020 and 2021, Norwegian Air sought bankruptcy protection from its creditors, while Latin American carriers LATAM and Avianca filed for Chapter 11 protection and restructured their airline business models. As of December 2021, Avianca emerged from Chapter 11, but is not scheduled to return to Logan in 2022. LATAM is scheduled to operate less than once daily flights to São Paulo in the fourth quarter of 2022 according to forward OAG schedules. Alitalia Airways also underwent an insolvency agreement between Italy and the European Union ("EU"), ceasing to exist in October 2021, but re-emerged as ITA Airways with scheduled service from Logan to Rome starting March 2022.

Notwithstanding the restructuring noted above, the core group of European carriers have remained at Logan Airport and will continue to support transatlantic traffic recovery. In addition, Logan Airport has welcomed new entrants like Condor and Fly Play Airlines, as well as additional frequencies on existing international routes provided by U.S. flag carriers.

The list of international routes flown by Delta and JetBlue are discussed in Section 4.3.4 herein. Delta increased its nonstop international weekly departures in July 2022 by 4% compared to 2019, expanding its transatlantic services, which include Tel Aviv in the Middle East. With respect to international regional jet service, although Air Canada (and its regional affiliates), Westjet, and Porter continue to operate frequencies more than 20% below 2019 levels, American Airlines has entered the Canadian market in 2022 with flights to Toronto Pearson and Halifax (expected to commence in June 2022).

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Exhibit 4-37: Scheduled International Service at Logan International Airport (July 2019 – July 2022)

Reporting Carrier	July - Avg. Weekly Dept.				Change ('22 vs '19)		Reporting Carrier	July - Avg. Weekly Dept.				Change ('22 vs '19)	
	2019	2020	2021	2022	Net Change	% Change		2019	2020	2021	2022	Net Change	% Change
Jets													
Aer Lingus	21	6	7	21	-	-	SAS	7	-	-	3	(4)	(58%)
Air Canada	20	-	<1	14	(6)	(30%)	SATA Azores Airlines	12	4	7	7	(5)	(42%)
Air France	14	3	7	14	-	-	SWISS	13	-	4	10	(3)	(21%)
Alitalia	7	2	-	-	(7)	(100%)	TACV Cabo Verde Airlines	<1	-	<1	-	(1)	(100%)
American Airlines	<1	<1	8	8	7	800%	TAP Air Portugal	7	3	7	11	4	58%
British Airways	27	7	7	17	(10)	(37%)	Turkish Airlines	7	-	7	10	3	42%
Cathay Pacific	7	-	-	-	(7)	(100%)	United Airlines	-	-	-	7	7	
Condor	-	-	-	3	3		Virgin Atlantic Airways	17	-	3	7	(10)	(59%)
Copa Airlines	11	-	5	3	(8)	(76%)	Westjet	-	-	-	3	3	
Delta Air Lines	60	2	13	62	2	4%							
Lufthansa	21	3	10	19	(2)	(10%)	**Subtotal**	**406**	**72**	**181**	**352**	**(53)**	**(13%)**
El Al	3	-	-	2	(1)	(31%)							
Emirates	7	-	4	7	-	-	**Regional Jets**						
Fly Play	-	-	-	7	7		Air Canada	82	14	28	69	(13)	(16%)
Hainan Airlines	11	-	-	-	(11)	(100%)	American Airlines	-	-	-	22	22	
Iberia	10	-	3	10	-	-							
Icelandair	14	2	10	19	5	37%	**Subtotal**	**82**	**14**	**28**	**91**	**9**	**11%**
ITA Airways	-	-	-	7	7								
Japan Airlines	7	-	4	5	(2)	(29%)	**Turboprops / Pistons**						
JetBlue	58	33	63	58	(1)	(2%)	Air Canada	14	-	-	7	(7)	(51%)
KLM	4	2	3	4	-	-	Porter Airlines	46	-	-	37	(9)	(20%)
Korean Air	5	-	3	7	2	41%	Westjet	21	-	-	14	(7)	(33%)
LATAM	5	-	-	-	(5)	(100%)							
Norwegian Air Shuttle	11	-	-	-	(11)	(100%)	**Subtotal**	**81**	**-**	**-**	**58**	**(23)**	**(29%)**
Norwegian Air UK	7	-	-	-	(7)	(100%)							
Qatar Airways	7	5	7	7	-	-	**Total Weekly Departures**	**568**	**86**	**208**	**501**	**(67)**	**(12%)**
Royal Air Maroc	3	-	-	-	(3)	(100%)							

Note: *Air Canada includes Air Canada Express. Net changes may not sum due to rounding of average weekly calculations.*
Source: *OAG schedules, as of the week of May 30, 2022.*

As Logan's international services begin to recover, its focus remains heavily oriented toward European (transatlantic) destinations where during the 12-month period ending September 2021, Logan Airport ranked 7th busiest among other top U.S. gateway markets for transatlantic passenger traffic (Exhibit 4-38). Prior to the pandemic, with growth exceeding 9.0% per year between 2014 to 2019, Logan was ranked 5th busiest for transatlantic air travel in 2019. As of July 2022, Logan Airport will have 276 weekly European departures, which represents 47.2% of total international departures.

Exhibit 4-38: Top U.S. Gateway Markets for Transatlantic Passengers (YE November 2021)

Psgr. Rank	U.S. Gateway	Total Psgrs. YE Nov 2021	Percent Share	Recovery vs 2019	CAGR '14-'19	Psgr. Rank	U.S. Gateway	Total Psgrs. YE Nov 2021	Percent Share	Recovery vs 2019	CAGR '14-'19
1	New York	7,466,635	35.0%	27%	4.3%	9	Dallas/Fort Worth	769,591	3.6%	34%	8.8%
2	Chicago	2,471,320	11.6%	36%	4.3%	10	Houston	636,979	3.0%	29%	-0.7%
3	Washington	1,988,851	9.3%	35%	2.9%	11	Seattle/Tacoma	455,245	2.1%	25%	8.8%
4	Los Angeles	1,498,589	7.0%	23%	9.9%	12	Philadelphia	324,955	1.5%	13%	0.0%
5	Atlanta	1,489,811	7.0%	34%	3.2%	13	Detroit	315,231	1.5%	19%	2.8%
6	Miami	1,154,532	5.4%	25%	7.2%	14	Denver	225,392	1.1%	22%	18.1%
7	**Boston**	**1,030,105**	**4.8%**	**21%**	**9.3%**	15	Minneapolis/St. Paul	201,836	0.9%	18%	6.4%
8	San Francisco	993,949	4.7%	21%	9.6%						
	Subtotal Top 15	**21,023,021**	**98.6%**	**27%**	**5.3%**						
	Other	307,079	1.4%	5%	9.7%						
	Grand Total	**21,330,100**	**100.0%**	**25%**	**5.6%**						

Note: *Includes Atlantic international services only (Africa, Europe, and Middle East). Latest international T-100 data available at the time of this report was through November 2021.*

Source: *U.S. DOT, T-100 Database via Airline Data, Inc.*

4.4.4 Significant Air Service Trends

The expansion of service by Delta, JetBlue, LCCs, ULCCs, and foreign carriers has driven the majority of passenger and capacity growth at Logan, further solidifying the Airport's dominance in the New England market. JetBlue is the largest carrier at the Airport in terms of seats, and 39 foreign carriers now serve the Airport. Both JetBlue and Delta have continued to build competition by establishing hub operations at the Airport, whereas the latter utilizes Logan Airport as its secondary transatlantic hub. American Airlines has been posing as a disruptor, announcing new domestic point-to-point flights, given demand growth, and has strategically formed its NEA partnership with JetBlue, as discussed in Section 2.3.2, establishing codeshare flights. These major trends will be further discussed in the sections below.

4.4.4.1 LCC/ULCC Development

Six domestic LCCs and ULCCs currently operate a Boston Logan: JetBlue, Southwest, Spirit, Sun Country, Frontier, and Allegiant.[64] In addition to these domestic LCCs and ULCCs, Logan also is serviced by four foreign LCCs/ULCCs, including Condor, Fly Play Airlines, Porter, and Westjet. As of July 2022 schedules to domestic, Canada, Caribbean and Mexico markets, JetBlue accounts for 76% of total LCC/ULCC departing seat capacity followed by Southwest (14%) and Spirit (9%).

[64] Frontier commenced service in late April 2019. Allegiant commenced service in September 2020.

Since entering the Boston market in 2004, JetBlue has grown to become Logan's largest carrier, offering an average of 960 weekly departures to 64 destination airports within the U.S., Caribbean, and Mexico, having also recently announced nonstop service to London, as of July 2022. JetBlue has significantly broadened its network at Boston to include transcontinental flights, business destinations, and flights to the Caribbean in addition to its traditional Florida destinations. In April 2022, JetBlue officially announced it will start new daily service between Boston and London Gatwick in July 2022 and to London Heathrow in August 2022, utilizing its new A321neoLR (long-range) aircraft. JetBlue currently has three A321neoLR aircraft in service, and has confirmed orders for ten additional aircraft, along with 13 A321neoXLR aircraft that are expected to be delivered in the next five years. These aircraft support the feasibility of flying transatlantic operations to Europe, with JetBlue's inaugural transatlantic flight from New York in August 2021. As previously discussed, the introduction of longer range narrow-body planes like the Airbus A321neoLR will benefit Logan Airport, as the economics of these aircraft open up new lower density markets in Europe for direct service to/from Boston. In addition, JetBlue has introduced A220 operations to its network, with the inaugural flight between Boston and Tampa taking place in April 2021. As of June 1, 2022, JetBlue has ten A220-300 aircraft in service with 90 confirmed orders. Approximately 33% of JetBlue's seat capacity from Logan Airport is flown to medium- and long-haul markets (greater than 1,500 miles), and its top three short-haul markets, New York, Washington D.C., and Philadelphia, make up 26% of its total capacity in July 2022.

Exhibit 4-39: Change in LCC/ULCC Share of Weekly Departures and Seats at Logan (July 2019 – July 2022)

Carrier	2019 Avg. Weekly			2020 Avg. Weekly			2021 Avg. Weekly			2022 Avg. Weekly		
	Depts	Seats	Seat Share	Depts	Seats	Seat Share	Depts	Seats	Seat Share	Depts	Seats	Seat Share
JetBlue	1,076	139,347	70%	508	79,406	68%	668	93,189	73%	916	119,788	74%
Southwest	214	31,855	16%	98	15,834	14%	108	16,247	13%	126	19,738	12%
Spirit	105	19,173	10%	96	17,193	15%	66	12,363	10%	64	11,350	7%
Allegiant	-	-	-	-	-	-	14	2,532	2%	19	3,220	2%
Porter	46	3,375	2%	-	-	-	-	-	-	37	2,853	2%
Westjet	21	1,638	1%	-	-	-	-	-	-	17	1,565	1%
Frontier	18	3,329	2%	13	2,478	2%	9	1,721	1%	7	1,397	1%
Sun Country	7	1,281	1%	7	1,302	1%	7	1,302	1%	7	1,260	1%
Total	**1,487**	**199,998**	**100%**	**723**	**116,214**	**100%**	**872**	**127,355**	**100%**	**1,192**	**161,172**	**100%**

Note: *Weekly schedule operations to domestic, Canada, Caribbean, and Mexico destinations; excludes European nonstop destinations provided by Condor, Fly Play, and JetBlue. Net changes may not sum due to rounding of average calculations.*

Source: *OAG schedules, as of the week of May 30, 2022.*

JetBlue has entered into marketing partnerships with other U.S. and foreign airlines. These partnerships are primarily structured as interline agreements that allow passengers to book one itinerary on multiple carriers. JetBlue's partnerships with American Airlines, Aer Lingus, Cape Air, Hawaiian Airlines, Icelandair, JSX, Porter Airlines, Qatar Airways, Seaborne, Silver Airways, and South African Airways allow passengers flying to or from markets that JetBlue would otherwise not serve to connect to JetBlue flights at the Airport, further strengthening its position at Logan Airport[65]. The partnerships are one-way code sharing agreements, where the partner airlines place their operating codes and flight numbers on flights operated by JetBlue, creating a seamless travel experience for passengers connecting at Logan. JetBlue has a two-way codeshare partnership with American. The two-way code share agreement allows American to place its code on flights operated by JetBlue and vice versa.

Southwest is currently the second largest LCC at Logan Airport. After emerging recently from a period of network reconciliation and operations integration following its merger with AirTran, Southwest is scheduled to provide 126 weekly nonstop departures serving six destinations (Baltimore, Chicago Midway, St. Louis, Nashville, Denver, and Orlando (less than daily)) as of July 2022. Compared to 2019, Southwest reduced its average weekly seat capacity by 38% at Boston Logan, after re-evaluating its network. This resulted in the removal of nine nonstop services to Columbus, Dallas Love Field, Houston Hobby, Atlanta, Milwaukee, Austin, Indianapolis, Kansas City, and Fort Lauderdale.

Since 2010, ULCC Spirit Airlines has expanded its service offerings from Logan from three destinations to at most 15 starting in 2018. Per July 2022 forward schedules, Spirit provides year-round service to Fort Lauderdale, Las Vegas, Miami, Myrtle Beach, Orlando, and San Juan, as well as seasonal service to Atlantic City, Atlanta, Baltimore, Fort Myers, New Orleans, and Tampa. Spirit is scheduled to operate 64 weekly flights on average, operating at 67% of its 2019 levels.

Allegiant, Frontier, and Sun Country each account for less than 5% of weekly seats at Logan Airport as of July 2022 forward schedules.

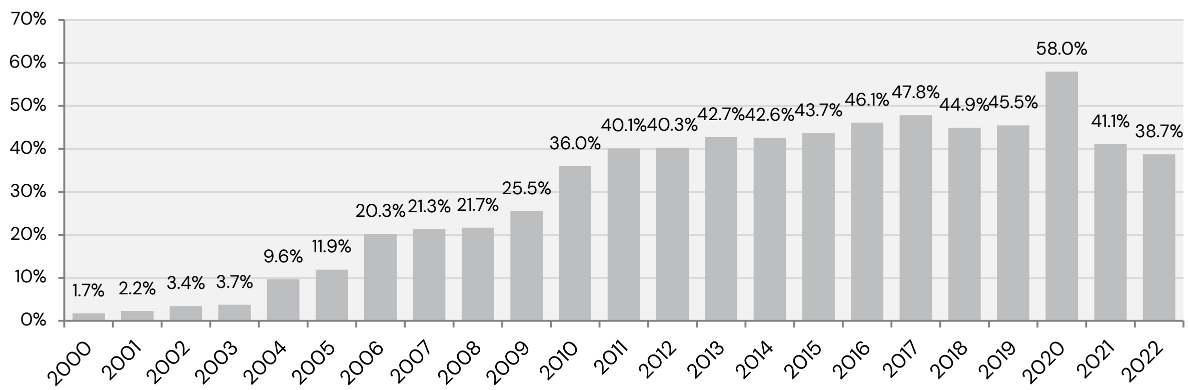
- Most recently, **Allegiant Air** launched service to Logan in September 2020, after facing a four-month delay due to the pandemic, as part of the airline's "largest service expansion in company history".[66] Their system-wide expansion plan included 44 nonstop routes, initially connecting Boston to Grand Rapids, Asheville, Knoxville, and Destin/Ft. Walton Beach. In addition to those four markets, Allegiant has added Flint, Indianapolis, Norfolk (summer seasonal), and Sarasota.
- **Frontier Airlines** has dropped several of its initial routes including Denver and Raleigh-Durham when it commenced Boston service in 2019, and has refocused attention to leisure east coast markets including Orlando, Miami, Philadelphia, and San Juan. Frontier offers winter seasonal service to Cancun, operated on A320neo and A321 aircraft.
- **Sun Country** provides nonstop service to Minneapolis, with daily flights in July 2022 and four times weekly outside the summer period.

[65] JetBlue also has codeshare relationships with Etihad, Qatar Airways, Singapore Airlines, and South African Airways, allowing their passengers to travel to/from Boston on JetBlue flights at select stations (such as New York/JFK and Washington National) and then connect to the partner-operated flight(s).

[66] Quote from Drew Wells, Allegiant VP of Planning and Revenue in a press release.

As of July 2022, LCCs and ULCCs provide 40.1% of the domestic scheduled seat capacity at Logan Airport, up from 11.9% in 2004, when JetBlue first launched service at the Airport (Exhibit 4-40). Since 2011, the U.S. LCC/ULCC seat share has stabilized at approximately 33.4%. Calendar year 2020 was an outlier as LCC/ULCC domestic seat shares rose to 58.0% as a result of FSCs (network/legacy carriers) having significantly reduced their scheduled capacity in order to meet minimum service level requirements of the federal CARES Act. Over the past decade, LCC/ULCC shares for domestic segments have historically ranged between 40%-48%. Advance OAG schedules as of the week of May 30, 2022 indicate that LCC/ULCC domestic seat share will drop to 38.7% in July 2022 as a result of ongoing announcements to trim summer schedules, particularly by JetBlue, Southwest, and Spirit, as discussed in Section 2.3.

Exhibit 4-40: LCC/ULCC Share of Weekly Domestic Seats at Logan Airport (July 2000 to July 2022)



Note: *Scheduled services only.*

Source: *U.S. DOT, T-100 via Airline Data, Inc. OAG advance schedules as of the week of May 30, 2022.*

4.4.4.2 U.S. Competitors' Pressure on JetBlue

JetBlue has grown tremendously after operating about 4,500 flights from one gate in its first year at Logan Airport in 2004. JetBlue continues to invest in Boston as a focus city and occupies the majority of Terminal C along with several gates in Terminal E (that are also classified as common-use, discussed further in Section 4.8) for a total of 28 gates. JetBlue was also made a preferential gate holder for two of the Terminal E common-use gates (which is included in the 28 gates mentioned). According to July 2022 advance schedules, Boston accounts for 15% of JetBlue's total departing seat capacity in its network. American's partnership and expansion plans outlined below will support JetBlue's on-going operations at Boston, however, Delta's continued network expansion, JVs/partnerships and product enhancement strategies could further fuel competition for JetBlue going forward on the transatlantic, Caribbean, and domestic segments.

In October 2021, Delta announced further expansions to service at Boston, adding Athens, Tel Aviv, Baltimore, Denver, and San Diego.[67] Prior to the pandemic, as part of Delta revealing its growth plan to make Logan Airport a Delta hub airport, Delta's President, Glen Hauenstein, mentioned the airline aimed to achieve 200 daily departures by 2021 as a reasonable medium-term target.[68] The airline made its first step towards establishing its new Boston hub when it took over operations of all gates in Terminal A in late 2019. A layout of Logan Airport's gates by terminal and leaseholder is discussed in Section 4.8. Despite the impacts of the pandemic, Delta is currently scheduled to operate about 148 daily departures by September 2022, based on advance OAG schedules. According to the Points Guy article and interview[69] with Delta's Boston-based sales director, Charlie Schewe, Delta is turning Boston into its secondary gateway for transatlantic flights, adding new routes to compete with JetBlue and American (both at Logan and JFK), building upon its existing SkyTeam and JV partnerships with foreign carriers (i.e., Virgin Atlantic, Air France, KLM, Korean Air, etc.) that operate at Logan, utilizing new aircraft and outfitting their fleet with enhanced premium passenger products, and improving its Delta Sky Clubs at Terminal A, and soon, Terminal E. Mr. Schewe also mentioned that the return of corporate travel will help drive growth, where Logan Airport is ahead of the corporate demand curve "in the mid-to-upper 80% range, whereas other hubs are maybe more like that 60% or 70% range".

While Delta continues its strategy to grow operations at Logan Airport, benefiting from the strength of the market and increasingly applying competitive pressure on JetBlue's services, JetBlue continues to focus on expanding route opportunities and maintaining its available seat capacity advantage. JetBlue's network expansion and partnership growth are factors to help reduce potential passenger losses to its competitors and provide increased aircraft utilization for its A220 fleet as part of replacing older E-190s and optimizing route profitability.

4.4.4.3 International Carrier Development

International air carriers have made a major commitment to Boston and have been adding new service and new destinations. U.S. air carriers are also using Logan Airport in new and strategic ways. Since 2018, Logan has seen a rapid expansion of international service with the addition of 27 new routes (that are operating at the Airport today) serving ten new international destinations in 2022, as listed in Exhibit 4-41. As of July 2022, five U.S. carriers and 26 foreign carriers are scheduled to provide service to 46 international destinations from Logan Airport.

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[67] "Delta Air Lines Announces Boston Expansion as Northeast Competition Heats Up", *Barron's*, 4 October 2021.

[68] "Delta Eyes 200 Boston Daily Departures in 2021", *Aviation Week Network*, 15 July 2019.

[69] "Delta goes all-in on Boston, is set to become the region's biggest carrier", *The Points Guy*, 26 May 2022.

Exhibit 4-41: New U.S. and Foreign Flag Carrier International Services at Logan Airport Over the Past Five Years (CY 2018 – CY 2022)

Foreign-Flag Carrier	Destination	Service Began
TACV Cabo Verde Airlines	Praia	Jan 2018
	Sal Island	Dec 2019
Iberia	Barcelona	Mar 2018
LATAM Airlines	Sao Paulo	Jun 2018
Avianca	San Salvador	Aug 2018
KLM	Amsterdam	Mar 2019
Korean Air	Seoul	Apr 2019
Royal Air Maroc	Casablanca	Jun 2019
TAP Air Portugal	Ponta Delgada	Jul 2020
Condor	Frankfurt	Aug 2021
Fly Play	**Reykjavik**	**May 2022**
Westjet	**Calgary**	**Jun 2022**

U.S. Flag Carrier	Destination	Service Began
Delta Air Lines	Aruba	Jun 2018
	Edinburgh	May 2019
	Lisbon	May 2019
	Reykjavik	May 2021
	Rome	Aug 2021
	Athens	**May 2022**
	Tel Aviv	**May 2022**
JetBlue Airways	Mexico City	Oct 2018
	Havana	Nov 2018
	London Gatwick	**Jul 2022**
	London Heathrow	**Aug 2022**
American Airlines	Grand Cayman	Jan 2020
	Nassau	Jan 2020
	London Heathrow	Jun 2021
	Toronto Pearson	**Apr 2022**
	Halifax	**Jun 2022**
Eastern Airlines	Port Au Prince	Dec 2020
	Santo Domingo	Dec 2020
Frontier Airlines	Cancun	Dec 2021
United Airlines	**London Heathrow**	**Apr 2022**

** LATAM switched marketing airline brands from LATAM Brasil to LATAM Group S.A. in October 2019.*

Note: *Destinations in bold indicate new service that commenced or are expected to commence in 2022. LEVEL Air is operated by Iberia; Although Royal Air Maroc commenced Boston service in June 2019, the carrier has yet to publish its scheduled return to the Boston market. Norwegian Air commenced operations in 2018 as Norwegian Air Shuttle and Norwegian Air UK to multiple European markets (not shown in the table above). In 2020, Norwegian Air exited Boston along with other low-cost long-haul markets. The carrier and its Board of Directors outlined a new simplified business plan that is dedicated to a short haul route network, with operations focused within Norway and to key European destinations.*

Source: *OAG schedules, as of the week of May 30, 2022.*

In addition to foreign carrier growth at Logan, U.S. carriers American, JetBlue and Delta have announced new international services in 2022. Bolstered by these new services offered by both U.S. and foreign flag carriers, Logan's international seat capacity recovery to 2019 levels ranks 16th highest among U.S. large hub airports in July 2022, as seen in Exhibit 4-42. Logan also ranks 7th among U.S. large hubs in terms of the number of foreign carriers providing international services. The diversity of foreign carriers serving Logan Airport offers itinerary options for its growing international passenger segment. For example, as of August 2022 advance schedules, London will be served by six carriers, American (once daily), British Airways (once to twice daily), Delta (once daily), JetBlue (once or twice daily), United (once daily), and Virgin Atlantic (once daily), which represents more than 1,800 daily departing seats.

Exhibit 4-42: Growth of International Seats at U.S. Large Hub Airports and Number of Foreign Carriers Serving (July 2018 – Advance July 2022)

Rank	Airport	Average Weekly International Seats (July) 2018	2019	2020	2021	2022	Seats Change YoY	Recovery '22 vs '19	CAGR '14-'19	Foreign Carriers Serving	Rank of Foreign Carriers Serving
1	Nashville - BNA	3,900	4,244	168	775	6,323	716%	149%	40.0%	6	17
2	Phoenix - PHX	20,819	19,656	5,175	14,676	25,071	71%	128%	25.0%	5	20
3	Chicago - MDW	8,924	7,823	1,801	7,539	9,734	29%	124%	16.7%	3	26
4	Salt Lake City - SLC	12,919	13,650	2,143	7,858	15,999	104%	117%	15.0%	4	24
5	Denver - DEN	37,275	39,535	3,436	31,602	45,590	44%	115%	13.8%	10	15
6	Baltimore - BWI	12,206	8,990	2,064	3,760	9,946	164%	111%	12.3%	5	20
7	Dallas/Fort Worth - DFW	111,611	125,656	42,828	104,687	135,208	29%	108%	9.2%	16	11
8	Charlotte - CLT	27,266	29,865	3,872	14,995	29,686	98%	99%	9.1%	3	26
9	Miami - MIA	182,465	178,912	18,229	149,441	174,677	17%	98%	8.7%	30	5
10	Washington - IAD	107,581	114,385	20,967	59,761	111,314	86%	97%	7.4%	29	6
11	Houston - IAH	135,209	134,897	22,681	105,113	124,760	19%	92%	7.1%	17	10
12	New York - EWR	170,031	164,765	25,445	86,537	151,954	76%	92%	5.6%	19	9
13	Chicago - ORD	180,930	182,646	38,776	98,882	164,689	67%	90%	5.5%	33	4
14	Seattle/Tacoma - SEA	69,896	71,908	10,668	28,213	62,436	121%	87%	5.3%	21	8
15	Tampa - TPA	8,202	11,317	0	1,830	9,804	436%	87%	3.7%	6	17
16	**Boston - BOS**	**91,737**	**101,609**	**11,752**	**31,577**	**87,971**	**179%**	**87%**	**3.6%**	**26**	**7**
17	Fort Lauderdale - FLL	50,546	54,931	7,163	35,941	46,479	29%	85%	3.3%	8	16
18	New York - JFK	363,579	363,498	50,321	178,346	307,538	72%	85%	3.3%	58	1
19	Orlando - MCO	70,025	78,514	1,523	22,613	64,826	187%	83%	2.7%	16	11
20	Las Vegas - LAS	46,084	44,232	2,913	8,347	36,321	335%	82%	2.6%	15	13
21	Atlanta - ATL	128,326	127,578	22,281	74,633	103,391	39%	81%	2.1%	11	14
22	San Francisco - SFO	186,136	195,655	28,638	67,362	152,970	127%	78%	2.0%	37	3
23	Philadelphia - PHL	52,963	51,325	2,002	11,579	39,401	240%	77%	1.4%	5	20
24	Los Angeles - LAX	331,117	318,645	60,989	148,406	237,082	60%	74%	0.8%	49	2
25	New York - LGA	28,603	27,561	1,782	2,637	20,475	676%	74%	0.0%	2	28
26	San Diego - SAN	14,191	13,538	1,246	2,655	9,955	275%	74%	-1.4%	6	17
27	Detroit - DTW	47,854	48,016	10,280	16,623	31,862	92%	66%	-1.9%	4	24
28	Minneapolis/St. Paul - MSP	34,435	37,695	961	9,306	24,506	163%	65%	-2.8%	5	20
	Total Large Hubs	**2,534,828**	**2,571,045**	**400,103**	**1,325,695**	**2,239,968**	**69%**	**87%**	**3.3%**		

Note: *This analysis excludes Caribbean destinations. Ranked by 2022 vs 2019 percent average annual growth in weekly seats. July 2022 is referencing advance schedules. Net changes may not sum due to rounding of average calculations.*

*Number of foreign carriers serving Logan Airport does not match Exhibit 4-**35** as this exhibit only references July schedules.*

Source: *OAG schedules, as of the week of May 30, 2022.*

4.4.4.4 New Technology Aircraft for Long-Haul International Service

The introduction of new technology aircraft will continue to be a key enabler of new international service at Logan and around the world. New long-range, fuel efficient aircraft with fewer seats have made previously uneconomical long-haul routes feasible, as discussed in Section 2.5. Long-range aircraft such as the Boeing B777 are sometimes too large for carriers to profitably serve non-hub markets that do not benefit from significant feeder traffic. The Boeing B787, Airbus A350, and Airbus A330neo, however, which offer fewer seats than the B777 and greater fuel efficiency, allow carriers to bypass connecting hubs, thereby creating significant opportunities for Logan Airport international market pairings that do not include two hubs, such as the services offered by Japan Airlines from Boston to Tokyo Narita, and by Delta and El Al to Ben Gurion Airport in Tel Aviv. Use of new fuel-efficient aircraft will continue to allow airlines to open up new nonstop routes, introducing more service to markets that may lack significant feeder traffic from a hub carrier, like Logan Airport. Smaller narrow-body aircraft like the new A220 and A321neoLR will disrupt markets as airlines will be able to schedule additional frequencies while operating lower cost margins on a per seat basis. Delta and JetBlue have already introduced A220 domestic operations, while JetBlue and TAP Portugal have scheduled transatlantic flights with the A321neoLR.

4.5 Aircraft Operations

There were approximately 266,000 aircraft operations (including commercial and general aviation) at Logan in 2021, (Exhibit 4-43), representing a 62.3% recovery compared to 2019 operations of 427,200. Aircraft operations in 2020 were 206,700, which was approximately 15% lower than levels seen in 1970, reflecting the pandemic's impact on air travel demand, economic pressures, and short-term shifts in airline network strategies. Previous declines in Logan's regional jet operations prior to 2010, and between 2015 and 2016 reflected airline capacity cuts and aircraft upgauging in response to industry consolidation, changes in operating strategy, the withdrawal of the operating entity American Eagle (renamed Envoy Air) from Logan, along with changing aircraft fleet mix. In 2021, Airport passengers had only recovered to 53.3% of 2019 levels, less than the Airport's operations recovery level of 62.3%, resulting in an average passenger per operation of 93.4, which was 12.4% below the 2019 average of 106.5. Prior to the pandemic, the average number of seats per aircraft at Logan was increasing as passenger load factors improved.

Prior to 2000, domestic regional carrier operations were the fastest growing segment of aircraft activity, averaging increases of 4.9% annually between 1970 and 2000. From 2014 through 2019, however, the domestic regional segment experienced an average increase of only 0.8% per year compared to increases of approximately 6.4% and 3.7% per year for international operations and domestic large jet operations, respectively. During that same period, Delta and JetBlue attributed much of their growth in domestic jet aircraft operations to short/medium-haul routes along with quick turnarounds on their shuttle services to New York and Washington D.C.

By 2019 and 2021, Delta and JetBlue, respectively, introduced the A220 to improve route economics, especially between distant markets with higher yields. In 2020, international operations declined 65.4% compared to 2019, primarily due to international travel restrictions, while regional jet operations fell the least, by 40.6%, as airlines managed to operate smaller aircraft to yield higher load factors and connect traffic through their major hub airport markets, given the lack of demand. As shown in Exhibit

4-43, although domestic regional jet activity has recovered the greatest, to 85.0% of 2019 levels in 2021, and domestic large jet and international operations continue to lag at 57.3% and 41.6% of 2019 levels during the same year, respectively, domestic large jet activity at Logan remains the largest segment of total operations with a 61.1% share in 2020, and a 56.8% share in 2021. The large jet segment is expected to continue growing as more airlines utilize and introduce new jet aircraft to their fleets.

Exhibit 4-43: Historical Aircraft Operations at Logan Airport (CY 1970 to CY 2021)

	Aircraft Takeoffs and Landings\1						Aircraft Takeoffs and Landings\1				
Calendar Year	Domestic Large Jet\2	Domestic Regional	Int'l	General Aviation	Total	Calendar Year	Domestic Large Jet\2	Domestic Regional	Int'l	General Aviation	Total
1970	189,192	37,800	17,599	N/A	244,591	2012	208,364	80,220	38,171	28,114	354,869
1980	178,686	60,623	18,858	N/A	258,167	2013	216,343	80,356	37,958	26,682	361,339
1990	223,955	144,179	31,458	24,976	424,568	2014	220,324	77,087	39,970	26,416	363,797
2000	248,555	159,025	45,183	35,233	487,996	2015	231,378	70,732	42,654	28,166	372,930
2005	205,548	132,169	38,697	32,652	409,066	2016	241,795	68,608	50,039	30,780	391,222
2006	212,011	126,378	36,286	31,444	406,119	2017	248,928	69,139	52,184	31,120	401,371
2007	210,944	120,503	39,458	28,632	399,537	2018	264,217	75,188	53,679	30,940	424,024
2008	199,514	111,964	36,306	23,820	371,604	2019	263,614	80,164	54,476	28,922	427,176
2009	192,356	106,507	34,201	12,242	345,306	2020	126,374	47,625	18,845	13,858	206,702
2010	210,194	94,193	33,574	14,682	352,643	2021	151,179	68,149	22,664	24,042	266,034
2011	216,502	88,837	35,418	28,230	368,987						
Average Annual Growth						**Percent Change over Prior Year**					
1970-1980	-0.6%	4.8%	0.7%	-	0.5%	2016	4.5%	-3.0%	17.3%	9.3%	4.9%
1980-1990	2.3%	9.1%	5.3%	-	5.1%	2017	3.0%	0.8%	4.3%	1.1%	2.6%
1990-2000	1.0%	1.0%	3.7%	3.5%	1.4%	2018	6.1%	8.7%	2.9%	-0.6%	5.6%
1970-2000	0.9%	4.9%	3.2%	-	2.3%	2019	-0.2%	6.6%	1.5%	-6.5%	0.7%
2014-2019	3.7%	0.8%	6.4%	1.8%	3.3%	2020	-52.1%	-40.6%	-65.4%	-52.1%	-51.6%
2000-2019	0.3%	-3.5%	1.0%	-1.0%	-0.7%	2021	19.6%	43.1%	20.3%	73.5%	28.7%
						2021 as % of 2019	57.3%	85.0%	41.6%	83.1%	62.3%

\1 *Includes general aviation operations.*

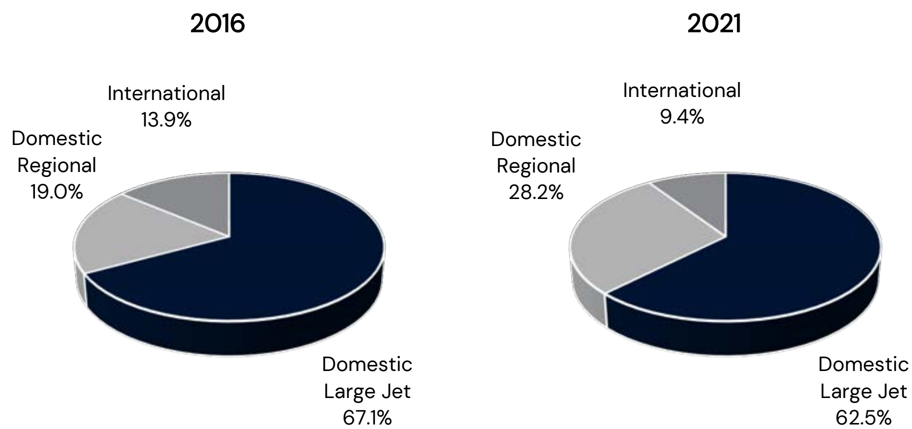
\2 *Includes charter operations.*

Note: *Operations include arrivals and departures. International operations include scheduled and charter operations for U.S. certificated, U.S. regional, and foreign flag carriers.*

Source: *Massport.*

Exhibit 4-44 below shows the change in the share of aircraft operations (excluding general aviation) by segment at Logan in 2021, compared to 2016. As a result of border control measures during the global pandemic and the suspension of most long-haul international travel, Logan's international operations declined by 4.6 percentage points in 2021 compared to 2016. By contrast, domestic regional jet operations accounted for 28.2% of total operations in 2021, growing 9.1 percentage points over the last five years, and resulting in a decline in domestic large jet shares compared to 2016. Domestic large jet operations accounted for 62.5% of total aircraft operations excluding general aviation at Logan in 2021, down from 67.1% in 2016.

Exhibit 4-44: Aircraft Share of Operations at Logan (CY 2016 vs CY 2021)



Source: Massport. Excludes general aviation passengers.

As illustrated in Exhibit 4-45, the average number of passengers per commercial airline operation at Logan increased from 61 passengers in 2000 to a peak of 107 passengers in 2019. In 2021, average passengers per operation reached 91, due to the higher weighting of regional aircraft and less international wide-body capacity. Prior to the pandemic, between 2014 and 2019, the average number of passengers per commercial airline operation grew by approximately 3.0% from 94 to 107 passengers. This trend reflected the airlines' focus on maintaining high load factors, more effectively assigning appropriately sized aircraft to routes and fleet up-gauging. Regional carriers at Logan had increased average aircraft sizes and nearly doubled the average passengers per operation from 14 in 2000 to at most 33 in 2019. Domestic large jet carriers operated at record high load factors and continued to replace older aircraft models with newer, denser, and slightly larger ones. This pattern is expected to continue as the air travel industry and demand recovers from the impact of the pandemic. Domestic large jet carriers at Logan have increased the average number of passengers carried per flight from 84 in 2000 to 120 in 2019. The average number of passengers per international flight also grew from 100 in 2000 to 153 in 2019 given the increased frequencies of larger wide-body aircraft such as the Airbus A380, A350 and Boeing B777/787 flown by foreign carriers (such as Emirates, British Airways, Japan Airlines, and Air France), especially to high demand international markets such as London and Paris. The pandemic impacted average passengers per operation across all segments in 2020. In 2021, however, domestic large jets and regional jets had recovered to within roughly 1.0 average passenger per operation versus 2019 levels. International average passengers per operation improved to 113 passengers per operation in 2021 but remained 40 passengers below peak levels of approximately 153, seen in 2019.

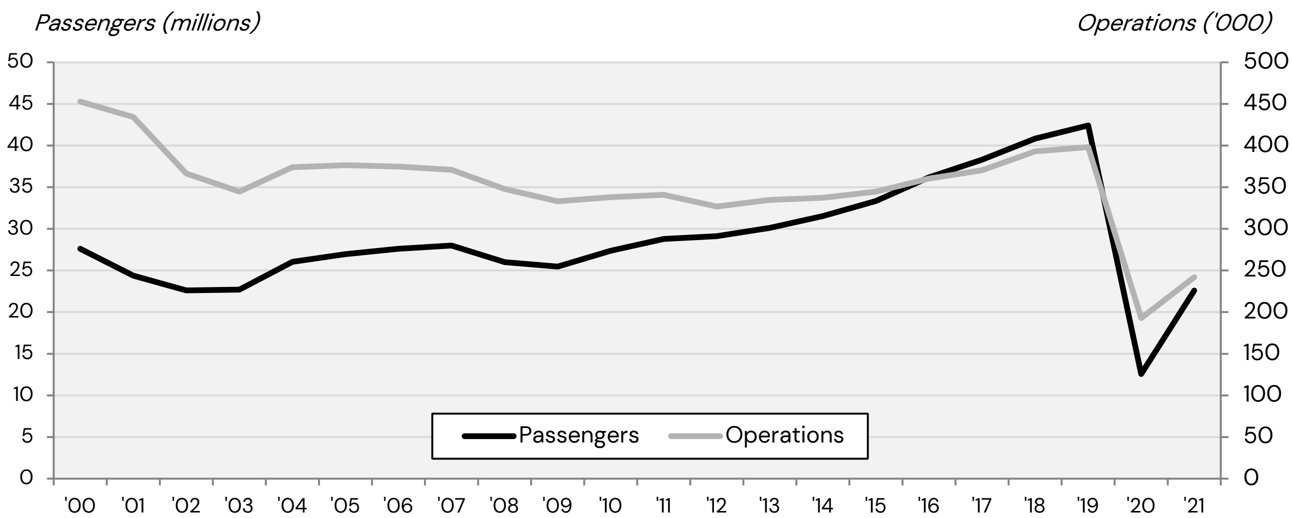
Exhibit 4-45: Trend in Average Passengers per Operation at Logan (CY 1970 to CY 2021)

Calendar Year	Average Passengers per Operation\1			
	Domestic Large Jet \2	Domestic Regional	Int'l \2	Total
1970	43.4	7.2	52.1	38.4
1980	67.7	7.7	114.5	57.0
1990	80.2	10.3	106.8	57.1
2000	84.2	13.7	99.9	61.0
2005	97.7	20.0	109.5	71.6
2006	98.4	21.3	111.6	73.7
2007	99.9	22.9	105.3	75.5
2008	97.4	23.1	109.5	74.8
2009	99.7	24.3	108.1	76.5
2010	101.7	24.5	109.7	81.0
2011	104.0	26.1	111.9	84.5
2012	108.9	25.7	114.8	89.1
2013	108.9	25.1	119.8	90.0
2014	111.2	26.4	124.9	93.5
2015	112.3	26.0	129.7	96.7
2016	115.2	25.1	131.6	100.4
2017	117.0	28.5	138.0	103.4
2018	117.6	29.1	141.3	103.9
2019	119.5	32.5	152.7	106.5
2020	78.9	16.0	97.5	65.2
2021	118.2	31.9	112.5	93.4
Average Annual Growth				
1970-1980	4.6%	0.7%	8.2%	4.0%
1980-1990	1.7%	2.9%	-0.7%	0.0%
1990-2000	0.5%	2.9%	-0.7%	0.7%
2000-2014	2.0%	4.8%	1.6%	3.1%
2014-2019	1.4%	4.2%	4.1%	2.6%
2000-2019	1.9%	4.7%	2.3%	3.0%
2021 vs 2019	-1.1%	-1.6%	-26.3%	-12.3%

\1 *Excludes general aviation passengers.*
\2 *Includes charter passengers.*
Source: *Massport.*

As illustrated in Exhibit 4-46, since 2000, carriers have been able to increase passenger traffic while reducing operations at Logan Airport. This reflects the trend of aircraft upgauging and airlines continuing to focus on achieving higher load factors. Data reported for 2021 suggests the trend has resumed following the initial uncertainty of the pandemic.

Exhibit 4-46: Trend in Average Passengers per Operation at Logan (CY 2000 – CY 2021)



Note: *Excludes general aviation passengers; Includes charter passengers.*

Source: *Massport.*

4.6 Cargo Traffic

Logan Airport fell to the 25th largest U.S. airport in terms of cargo volume, including mail, for the year ended September 2021 (Exhibit 4-47), having ranked 21st prior to the onset of the pandemic. Of the top 30 airports based on cargo volume, 14 are primary or regional sorting hubs[70] for air freight integrators[71] and all-cargo carriers. If all-cargo airline hubs are excluded, Logan ranks as the 12th largest airport in the nation in terms of cargo volume, as reported by the U.S. DOT.

[70] Includes FedEx hubs (Memphis, Miami, Anchorage, Indianapolis, Newark, and Oakland); UPS hubs (Louisville, Dallas/Fort Worth, Philadelphia, Rockford (IL), and Ontario (CA)); and DHL superhub (Cincinnati). In addition, Amazon Air (formerly Amazon Prime Air) has grown its focus cities, primarily with express package freight at Cincinnati, Dallas (Alliance AFW Airport), Ontario (ONT International), and Wilmington (Ohio, Air Park ILN Airport).

[71] The three major U.S. air freight integrators include FedEx, UPS, and DHL. Integrators arrange cargo movements while owning the assets used to transport freight/mail, unlike freight forwarders (or third-party agents).

Exhibit 4-47: Top U.S. Airports Ranked by Cargo Volume (YE November 2021)

Rank YE Nov '21	Rank YE Nov '19	Airport	Total Cargo (Tons)	Recovery (% of 2019)	Rank YE Nov '21	Rank YE Nov '19	Airport	Total Cargo (Tons)	Recovery (% of 2019)
1	2	Anchorage - ANC	6,156,701	135%	16	17	Philadelphia - PHL	642,228	105%
2	1	Memphis - MEM	4,980,468	104%	17	15	San Francisco - SFO	633,163	94%
3	3	Louisville - SDF	3,368,406	113%	18	19	Seattle/Tacoma - SEA	606,915	113%
4	4	Los Angeles - LAX	3,187,266	126%	19	18	Houston - IAH	588,718	97%
5	6	Chicago - ORD	2,595,302	132%	20	22	Chicago - RFD	513,049	146%
6	5	Miami - MIA	2,473,038	111%	21	20	Phoenix - PHX	442,249	111%
7	7	Cincinnati - CVG	1,726,383	105%	22	36	Dallas/Fort Worth - AFW	406,706	240%
8	8	New York - JFK	1,685,719	114%	23	24	Portland - PDX	405,400	122%
9	10	Indianapolis - IND	1,325,478	129%	24	23	Denver - DEN	353,017	103%
10	9	Dallas/Fort Worth - DFW	1,102,003	101%	**25**	**21**	**Boston - BOS**	**324,615**	**90%**
11	11	Atlanta - ATL	987,639	108%	26	29	Baltimore - BWI	301,484	127%
12	13	Ontario - ONT	902,132	118%	27	25	Washington - IAD	274,584	89%
13	12	New York - EWR	862,039	96%	28	32	San Juan - SJU	267,119	130%
14	14	Honolulu - HNL	720,105	98%	29	72	Wilmington - ILN	254,720	614%
15	16	Oakland - OAK	712,884	109%	30	27	Minneapolis/St. Paul - MSP	249,482	93%

Source: U.S. DOT, T-100 via Airline Data, Inc. Latest international cargo data available through November 2021, Massport (CY 2021).

Nine all-cargo airlines had operations at Logan in 2021 (Exhibit 4-48); four of these carriers did not operate in 2020. In addition to the all-cargo carriers serving the Airport, passenger airlines also provided belly cargo capacity at the Airport and numerous charter carriers also transported cargo to and from Logan.

Exhibit 4-48: All Cargo Airlines Operating at Logan (CY 2021)

Dedicated All Cargo Airlines	
21 Air (under DHL)	Kalitta Air (under DHL)
ABX Air (under DHL)	Mountain Air Cargo (under FedEx)
Atlas Air (under DHL)	UPS
Cargo Jet (under DHL)	Wiggins Airways (under FedEx)
FedEx	

Source: Massport.

In 2021, Logan Airport handled 618 million pounds of cargo (freight plus small package/express), excluding mail (see

Exhibit 4-49). Since 2000, total non-mail cargo volumes at Logan have fallen at an average annual rate of 1.5%. Both cargo market segments, express/small package and heavy freight, have been declining as a result of slower economic growth, greater use of trucking by the integrators and

Amazon,[72] the loss of 757 capacity on transcontinental passenger airline routes, and the widespread use of electronic document delivery. In 2021, although freight volumes at Logan improved 38.5% year-over-year compared to a 43.0% year-over-year decline in 2020, cargo volumes reached only 89.7% of 2019 volumes. Recent growth in air cargo, particularly express packages and freight, has been attributed to continued growth trends in e-commerce and digitalization seen across the nation and globe. E-commerce retailers fly cargo to their respective U.S. hubs and then transfer those packages/freight onto passenger planes as belly cargo freight, which passenger planes then fly into Boston Logan. In 2020, the limited international passenger carrier operations contributed to the decline in passenger belly freight volumes, with cargo service provided by Delta, British Airways and Lufthansa falling by 54%, 32%, and 57% year-over-year, respectively. In addition, foreign passenger carriers that exited or reduced operations to Boston Logan, ceased business operations, or faced financial restructuring pressures like WOW Air, Norwegian Air, Avianca, and Hainan Airlines contributed to the passenger belly freight decline in 2020. It is worth noting that the following passenger carriers that serve Logan exceeded pre-pandemic freight volumes in 2021: Icelandair (up 173%), American Airlines (up 151%), Emirates (up 29%), Japan Airlines (up 24%), and Air France (up 11%). In terms of logistics, a truck parking pilot program has been in place since early 2019 to help mitigate trucking congestion at the Airport for freight pickup/drop-off. This initiative was meant as a way to support and modernize the flow of freight, especially for time and price sensitive goods.

Exhibit 4-49: Historical Trends in Cargo Volume (CY 1990 to CY 2021)

	Total	Annual Percent Change				Total	Annual Percent Change		
Year \2	Pounds \1 ('000)	Express/Small Packages	Freight	Total Cargo	Year \2	Pounds \1 ('000)	Express/Small Packages	Freight	Total Cargo
1990	633,435	–	–	–	2013	538,193	2.2%	-0.4%	1.2%
2000	852,347	1.7%	5.8%	3.4%	2014	585,460	6.7%	12.2%	8.8%
2005	741,517	-1.2%	-4.2%	-2.3%	2015	575,782	-5.8%	4.8%	-1.7%
2006	679,068	-10.7%	-4.5%	-8.4%	2016	616,934	4.9%	10.3%	7.1%
2007	632,450	-4.5%	-10.7%	-6.9%	2017	679,408	6.7%	14.8%	10.1%
2008	587,772	-4.7%	-11.2%	-7.1%	2018	704,201	5.4%	1.5%	3.6%
2009	517,557	-15.0%	-6.1%	-11.9%	2019	688,939	-0.3%	-4.6%	-2.2%
2010	546,379	4.0%	8.3%	5.6%	2020	575,472	3.2%	-43.0%	-16.5%
2011	529,213	-2.0%	-5.1%	-3.1%	2021	617,962	-5.4%	38.5%	7.4%
2012	531,831	-1.7%	4.2%	0.5%					
<u>Average Annual Growth</u>					<u>Volumes as % of 2019 Levels</u>				
1990-2000		6.7%	-0.3%	3.0%	2020		103.2%	57.0%	83.5%
2000-2014		-2.2%	-3.3%	-2.6%	2021		97.7%	79.0%	89.7%
2014-2019		2.1%	5.1%	3.3%					
2000-2021		-1.1%	-2.2%	-1.5%					
2016-2021		1.8%	-2.6%	0.0%					

\1 *Includes freight and express/small packages; excludes mail.*

\2 *Before 1991, freight and express/small packages were not reported individually.*

Source: *Massport.*

[72] Unlike traditional all-cargo airlines, which only provide air services for packages and freight shipments, the integrated cargo carriers (FedEx and UPS) provide door-to-door delivery, including the air and ground portions of a cargo shipment.

4.7 General Aviation

Annual general aviation ("GA") activity at Logan Airport is shown in Exhibit 4-50. In 2021, Logan Airport accommodated 24,042 general aviation operations, increasing to 83.1% of 2019 levels after declining to 13,858 in 2020, which represented a 52.1% decline compared to 2019 operations. While the larger GA sector encompasses a broad range of activity from pilot training to recreational and corporate use, the GA activity at Logan consists primarily of business and corporate aviation.

Exhibit 4-50: General Aviation Activity at Logan Airport (CY 1990 to CY 2021)

Year	GA Operations	Annual % Change	Year	GA Operations	Annual % Change
1990	24,976	-10.9%	2014	26,416	-1.0%
1995	23,901	-0.5%	2015	28,166	6.6%
2000	35,233	3.9%	2016	30,780	9.3%
2005	32,652	4.5%	2017	31,120	1.1%
2010	14,682	19.9%	2018	30,940	-0.6%
2011	28,230	92.3%	2019	28,922	-6.5%
2012	28,114	-0.4%	2020	13,858	-52.1%
2013	26,682	-5.1%	2021	24,042	73.5%
Average Annual Growth					
1990-1995		-0.9%			
1990-2000		3.5%			
2014-2019		1.8%			
2000-2019		-1.0%			
2021 as % of 2019		83.1%			

Source: Massport.

In the past, GA activity at Logan closely followed national trends in the use of private jet transportation for business/corporate use and personal travel. GA operations fell sharply in 2008 and 2009 following the global credit crisis, the economic recession in the U.S., and a public backlash against corporate use of private air transportation that prompted many businesses to limit their use of general aviation. After bottoming out in 2009 at 12,200 operations, GA activity began to recover in 2010. Between 2014 and 2019, GA operations at Logan increased at an average annual rate of 1.8%. The sharp drop in fuel prices in 2015 helped boost GA activity, with GA operations growing by 6.6% in 2015 and 9.3% in 2016 after a few previous years of decline. Although the recent fluctuations in oil prices have again adversely impacted the economics of GA demand and activity at Logan Airport, notwithstanding, business aviation ("BA") and GA is expected to continue its recovery pattern nationwide into 2022, as aircraft sales transactions, charter and fractional ownership services continue to grow. In terms of BA, President and CEO of Mesinger Jet Sales, Jay Mesinger, indicated that corporate operators are just starting to fly again, and will need to consider their fleet needs. In addition, a push to attract more labor and the upward pressure on salaries among the limited supply of pilots and maintenance technician pools is needed to create more balance in the market.[73]

According to the FAA Traffic Flow Management System Counts ("TFMSC")[74], 2021 GA and BA operations nationally exceeded 2019 activity by 3.7% and 4.5%, respectively, driven mainly by the domestic segment.

4.8 Logan Airport's Terminal Layout and Airline Gate Leaseholds

Massport has implemented several policies and tools that allow for effective reallocation of the Airport's facilities. These include an Airport-wide Preferential Gate Use Policy, greater use of short-term leases and gate recapture as well as forced sublet provisions that have been incorporated into all new long-term leases at the Airport. Massport has successfully used these policies during carrier bankruptcies and mergers to reassign underused gates quickly.

This section summarizes the current allocation of gates at Logan (see Exhibit 4-51) and the ability of Massport to exert control over underutilized facilities and ensure optimum utilization of the Airport's facilities. Since 2019, Delta occupies all of Terminal A gates after Southwest relocated to Pier A in Terminal B. Delta being a sole leaseholder and operator of gates in Terminal A further demonstrates its commitment to Boston, similar to JetBlue operating a majority of gates located in Terminal C.

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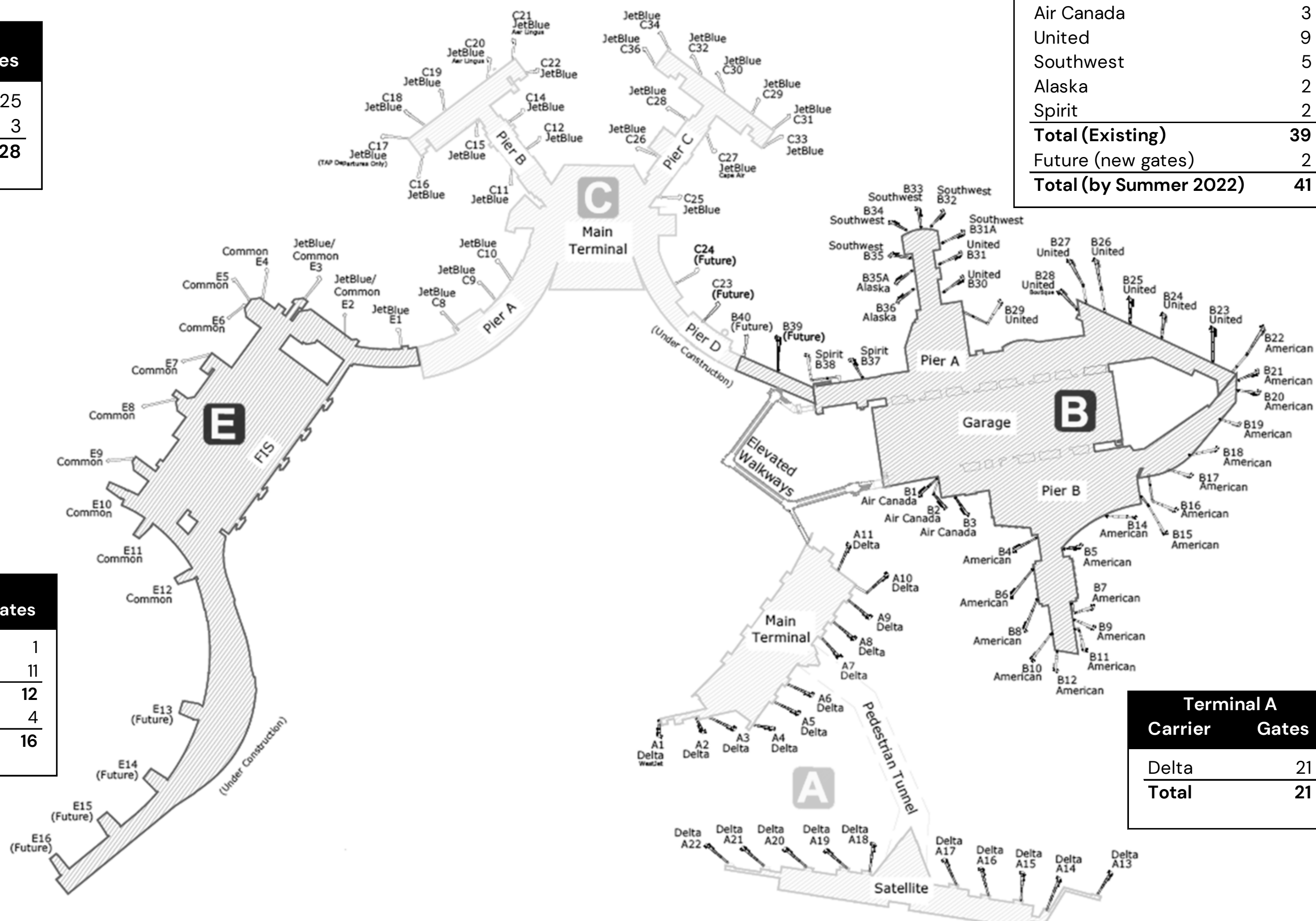
[73] Lynch, Kerry. "Bizav Market Frenzy Pushing into 2022, Leaders Say", *AIN Online*. 16, February 2022.

[74] The FAA's TFMSC is designed to provide information on traffic counts by airport or by city pair for various data groupings such as aircraft type or by the hour of the day. It includes data for flights that fly under Instrument Flight Rules (IFR) and are captured by the FAA's en route computers. Most VFR and some non-en route IFR traffic are excluded.

Exhibit 4-51: Logan Airport Terminal Layout and Contact Gates by Leaseholders

Terminal C	
Carrier	**Gates**
JetBlue	25
Future (renovations)	3
Total	**28**

Terminal B	
Carrier	**Gates**
American	18
Air Canada	3
United	9
Southwest	5
Alaska	2
Spirit	2
Total (Existing)	**39**
Future (new gates)	2
Total (by Summer 2022)	**41**



Terminal E	
Carrier	**Gates**
JetBlue	1
Common	11
Total (Existing)	**12**
Future (new gates)	4
Total (by Summer 2023)	**16**

Terminal A	
Carrier	**Gates**
Delta	21
Total	**21**

Note: *As of September 2021. Update: Gate C25 should be labelled as "(Future)". New additional gates in Terminal B (B39 and B40), and existing gates in Terminal C (C23, C24, and C25) are under construction/renovation and expected to be completed in Summer 2022; In Terminal E, four new gates are under construction (E13, E14, E15, and E16) expected to be completed by Summer 2023.*

Source: *Massport.*

Exhibit 4-52 presents leaseholders with Massport by terminal as of September 2021. Delta currently leases 21 gates in Terminal A.[75] American currently leases 18 gates at Terminal B, and other leaseholders in Terminal B include Air Canada (three gates), Spirit (two gates), Alaska (two gates), Southwest (five gates), and United (nine gates). In Terminal C, JetBlue leases 25 gates, subleasing one of these gates to Cape Air. TAP Portugal (departures only) operates at one gate in Terminal C pursuant to a Facility Use Agreement, while Aer Lingus international operates at two gates for departures and arrivals. U.S. Customs and Border Protection ("CBP") pre-clearance is available prior to departure from Dublin and Shannon, which allows for a direct arrival process at Logan, providing easy same terminal connections for Aer Lingus with its partner, JetBlue. JetBlue also leases one gate at Terminal E, and has been made a preferential gate holder of two Terminal E common use gates (designated gates E2 and E3 between 12am and 12pm), which enables the Authority to better accommodate JetBlue's peak operations at Terminal C during the morning time period. In total, there are 11 common-use gates, in Terminal E, which allow for simpler reconfiguration to accommodate new international carriers and domestic carriers including Hawaiian and ULCCs like Sun Country, Allegiant, and Frontier.

In addition to the gates listed above, (i) three gates that are currently closed for renovations in Terminal C are expected to be put back into service during the summer of 2022, (ii) two new gates are expected to be put into service in Terminal B in Summer 2022 upon completion of the Terminal C Optimization and Terminal B-C airside connector projects, and (iii) four new gates are expected to be put into service in Terminal E in Summer 2023 upon completion of the Terminal E Modernization project. Upon completion of the Terminal B-C airside connector in Summer 2022, JetBlue and American passengers will have airside access to each airline's gate holdroom spaces, bypassing the need to be screened by TSA once more when making a connection and transferring between terminals. Enabling airside connectivity across multiple terminals, from Terminal B through Terminal C and to Terminal E, adds greater flexibility for the Authority to shift and co-locate airlines and allow airlines to optimize their schedules for increased passenger connectivity opportunities.

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[75] Delta subleases Gate A1 to Westjet.

Exhibit 4-52: List of Contact Gate Leaseholders by Terminal at Logan Airport

Terminal Building	Lease Holders with Massport	Other Carriers Operating in Terminal	
A	Delta	Westjet [1]	
B	American Air Canada [2] Alaska Southwest Spirit United	Boutique Air	
C	JetBlue [3]	Aer Lingus [4] Cape Air [5] TAP Portugal [6]	
E	JetBlue	Air France American [7] Azores Airlines (SATA) British Airways Delta [8] El Al Emirates Iberia Icelandair ITA Airways Japan Airlines JetBlue [9] Allegiant Air Frontier Airlines Hawaiian Airlines Sun Country	KLM Korean Airlines Lufthansa Porter Airlines Qatar Airways SAS Swiss TAP Portugal [7] Turkish Airlines United [7] Virgin Atlantic

1 One contact gate subleased from Delta.

2 Air Canada includes Air Canada Jazz.

3 JetBlue subleases one gate to Cape Air. It also allows Aer Lingus to operate out of two of its gates pursuant to a Facility Use Agreement and allows TAP Portugal to operate out of one of its gates pursuant to a Facility Use Agreement, for departures only.

4 Operates from two of JetBlue's gates pursuant to a Facility Use Agreement.

5 Subleased from JetBlue. Cape Air provides ramp operations only from its gate in Terminal C.

6 Operates from one of JetBlue's gates pursuant to a Facility Use Agreement, departures only.

7 International arrivals only.

8 International departures and arrivals.

9 JetBlue is a preferential common-use gate user, operating between midnight to noon.

Note: As of September 2021. Domestic carriers that operate from Terminal E include Allegiant, Frontier, Hawaiian, and Sun Country. The following foreign carriers have deferred/pending service to Logan Airport, Terminal E: Cathay Pacific, Copa, Hainan Airlines, LATAM, and Level Airlines. New services from Terminal E include: Condor, Connect Airlines (pending), and Fly Play Airlines.

Source: Massport.

5 REVIEW OF MASSPORT ACTIVITY PROJECTIONS

5.1 Introduction

The COVID-19 pandemic has made aviation projections a highly challenging effort. Aviation demand is typically highly correlated to economic and demographic trends. The exogenous shock of the pandemic to aviation, however, makes it difficult to project how aviation activity will develop over the short and medium terms. As discussed in this report, the underlying socio-economic trends of the Logan Airport service area (defined in Section 4.2) remain strong. Passenger traffic recovery is expected to eventually reach pre-pandemic levels and resume growth, however, there remains uncertainty regarding the outlooks of the economy, global politics and supply chain, and further waves of COVID-19 cases, which makes it difficult to predict the exact timing of that recovery.

Historically, Massport has utilized two types of aviation activity forecasts to manage the future requirements of the Airport:

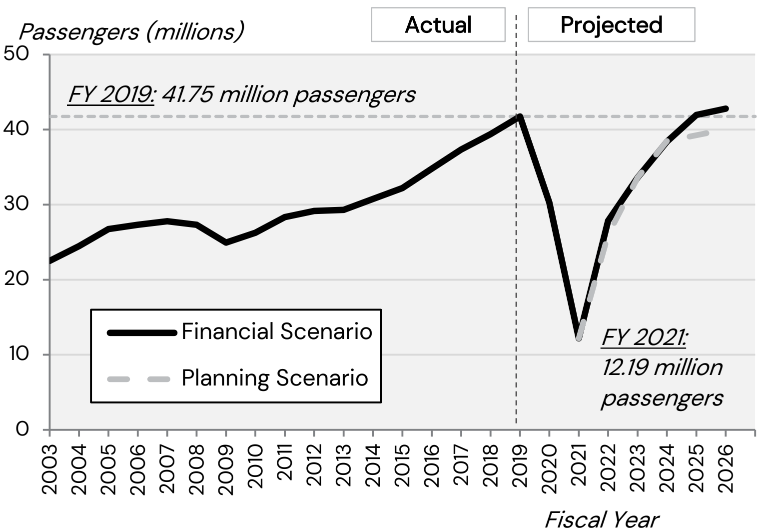
- The Massport planning forecast; and
- The Massport financial forecast.

The Massport planning forecast is used to anticipate future landside and airside infrastructure requirements at the Airport and to estimate the potential environmental impacts of future aviation activity. The Massport financial forecast, which is typically more conservative than the planning forecast, is used for financial planning purposes. Passenger activity levels indicated in the following exhibits in this section align with Massport's fiscal year, which starts July 1 and ends June 30.

Given uncertainties of managing through the COVID-19 pandemic and the recent growth of passengers and operations at Logan Airport, Massport has adopted two scenario-based projections (rather than forecasts) of passenger traffic to guide its facility and financial planning, at least for the interim. The two scenario-based projections of passenger traffic serve as the basis of planning using a combination of factors: recent general industry trends, recent service recovery at the Airport, airline announcements, and discussions with airlines as to their expectations of service in the Boston market. The two projection scenarios are (1) the Financial Planning projections and (2) the Planning projections. Both projections are presented in Exhibit 5-1 (on the next page). Until health and aviation conditions stabilize and exhibit a more traditional correlation with economic growth, Massport will use this approach to project passenger traffic activity over the short-term for capital budgeting and financial planning purposes.

From FY 2003 to 2019, Logan Airport experienced solid passenger growth, except for the period of the Great Financial Crisis (between FY 2007 and FY 2009). For the six-year period between FY 2013 to FY 2019 Logan Airport was one of the fastest growing large hub airports in the U.S., peaking at 41.7 million passengers in FY 2019. As shown in Exhibit 5-1, the Massport Planning projections show a gradual passenger traffic recovery to FY 2019 levels over the next 5+ years (by some time in FY 2027). The Massport Financial Planning projections, by contrast, project over 125% annual growth in FY 2022 compared to FY 2021, and then a slower growth rate than the Planning projection's growth rate between FY 2023 and 2024. In FY 2025, however, passenger growth is projected to be four times faster in the Financial Planning projections than the Planning projections, with FY 2025 being the fiscal year period in which annual passenger volume is expected to exceed the FY 2019 level. Overall, the Financial Planning projections expect recovery to FY 2019 levels in four years (by FY 2025), two years sooner than the Authority's Planning projection scenario.

Exhibit 5-1: Logan Airport Passenger Projection Scenarios Compared to Historical Performance (FY 2009 – FY 2026)



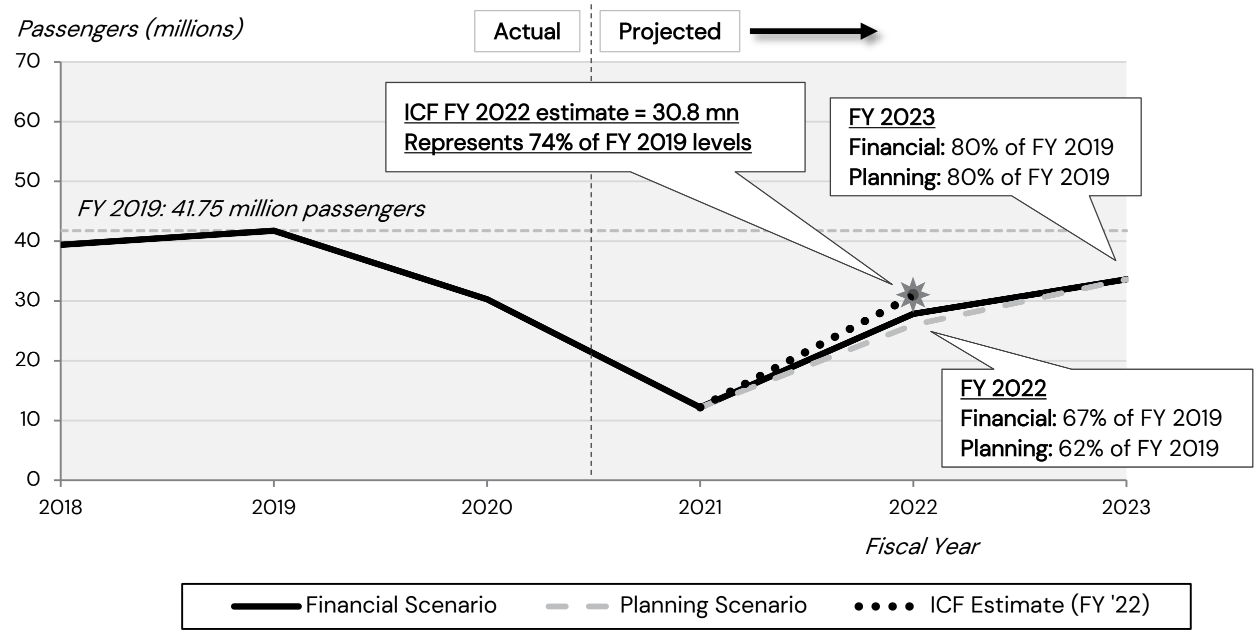
Fiscal Year	Massport Passenger Projections (millions) Planning	Financial	Year-over-Year Growth (%) Planning	Financial
2019	41.75	41.75		
2020	30.29	30.29	-27.5%	-27.5%
2021	12.19	12.19	-59.7%	-59.7%
2022F	26.00	27.85	113.2%	128.4%
2023F	33.61	33.61	29.3%	20.7%
2024F	38.48	38.40	14.5%	14.3%
2025F	39.25	41.95	2.0%	9.3%
2026F	40.03	42.79	2.0%	2.0%

Note: *Massport's Planning projections after FY 2024 are assumed to continue growing at a rate of 2.0% per annum. Total passengers exclude GA passengers; FY 2022 in the Financial Planning scenario reflects actual data for nine-months ended March 31, 2022.*

Source: *Massport.*

ICF has tracked actual Logan Airport passenger traffic recovery through April 2022, and the performance to date is ahead of both the Planning and Financial Planning projections. For the ten-month period between July 2021 and April 2022, the Airport has seen 24.3 million passengers, which represents 72% of passenger activity for the same 10-month period in FY 2019. Assuming Logan Airport continues to track at its current recovery rates for the final two months of this fiscal year, Logan Airport will reach 30.8 million passengers (or 74% of FY 2019 levels), which is 10%-20% above both the Authority's Planning and Financial Planning projections for FY 2022 (see Exhibit 5-2).

Exhibit 5-2: Logan Airport Short-Term Passenger Projection Scenarios (FY 2019 – FY 2023)



(a) *If the latest recovery rate trends continue during the final two months of FY 2022.*

Note: *Logan Airport's latest monthly recovery rate as of April 2022 for total passengers (excluding GA passengers) compared to April 2019 was 84.7% (domestic = 88.2%, international = 70.3%).*

Source: *Massport.*

Given the actual performance thus far in FY 2022, aviation industry trends cited in this report, and the economic outlook for the region, ICF considers Massport's Planning and Financial Planning projections over the next 4-5 years to be conservative.

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5.1.1 Recovery Projection Scenario Risks

In the current aviation and economic environment, developing future projections of any kind are highly challenging. The recovery projection scenarios presented here represent the Authority's conservative assessment of what it believes will occur over the next four years. They have been used by Airport management for financial modeling and planning purposes. The actual results will likely be different as economic, social and health conditions evolve.

In the best of times forecasting is subject to uncertainties. Inevitably, some assumptions will not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the projections and actual results, and those differences may be material. While the Massport projections are based on historical data and future assumptions that ICF believes are reasonable, some of the underlying assumptions that are detailed explicitly or implicitly may not materialize due to unforeseen events or circumstances. The main uncertainties to the projections are:

- Future outbreak of the COVID-19 virus or variants of this virus;
- Global pandemics and quarantine policies;
- Future crude oil and jet fuel prices;
- The Russian war in Ukraine and possible expansion of hostilities in other parts of the world;
- Changes in governmental foreign or economic policy;
- Weak global economic growth;
- Cybersecurity breaches and disruption of trade;
- Aviation security and terrorist attacks that could disrupt air travel demand;
- Environmental regulation and cost implications;
- Climate change;
- Natural disaster or accident;
- Long-term changes in air travel propensities;
- Congestion and delays in the national airspace system;
- Individual airline route decisions and operating constraints that lead to short-term interruptions at the Airport;
- Airline restructuring activities (due to consolidations or liquidations); and
- Airport capacity limitations

APPENDIX D

REVIEW OF AIRPORT PROPERTIES NET REVENUES PROJECTION

related to the proposed issuance of

MASSACHUSETTS PORT AUTHORITY

REVENUE BONDS
SERIES 2022-A (AMT) (Green Bonds)

Prepared for

Massachusetts Port Authority
Boston, Massachusetts

Prepared by
LeighFisher
San Francisco, California

June 27, 2022

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TABLES

EXHIBIT

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LeighFisher

June 27, 2022

Ms. Lisa S. Wieland
Chief Executive Officer and Executive Director
Massachusetts Port Authority
One Harborside Drive, Suite 200S
East Boston, Massachusetts 02128

Re: **Review of Airport Properties Net Revenues Projection**
Massachusetts Port Authority
Revenue Bonds, Series 2022-A (AMT) (Green Bonds)

Dear Ms. Wieland:

LeighFisher is pleased to submit this review of the Airport Properties Net Revenues Projection in connection with the proposed issuance of Revenue Bonds, Series 2022-A (AMT) (Green Bonds) (the 2022 Bonds), by the Massachusetts Port Authority (the Authority). The 2022 Bonds are being issued pursuant to the Trust Agreement by and between the Authority and U.S. Bank Trust Company, National Association, as successor-in-interest to State Street Bank and Trust Company, as trustee, dated as of August 1, 1978, as amended and supplemented (the 1978 Trust Agreement). Capitalized terms not otherwise defined have the meanings given to such terms in the 1978 Trust Agreement.

The Authority is a multipurpose agency that owns, operates, and manages Boston-Logan International Airport (the Airport or Logan Airport); L.G. Hanscom Field (Hanscom Field), a general aviation reliever airport; and Worcester Regional Airport (Worcester Airport, and collectively with Logan Airport and Hanscom Field, the Airport Properties); and certain Port Properties. As described in the Official Statement, to which this review is attached as an appendix, the 2022 Bonds are payable solely from Revenues of the Authority, which include revenues from both the Airport Properties and the Port Properties. However, this review focuses solely on the Airport Properties, which in Fiscal Year (FY) 2021 represented 80.6% of total Authority Revenues. (The FY of the Authority ends June 30.)

The Authority intends to issue the 2022 Bonds under the terms of its 1978 Trust Agreement to pay for the completion of the Terminal E Modernization project at Logan Airport, as well as to pay for the funding of a debt service reserve and costs of issuance. The Terminal E Modernization project involves the construction of an additional four gates and associated holdrooms at Terminal E, renovations to existing Terminal E facilities, rehabilitation of existing elevators, construction of a new security checkpoint, reconfiguration of the customs and border protection hall, development of additional baggage carousels, and enhancements to other passenger amenities.

The Authority has prepared certain financial projections in connection with the issuance of the 2022 Bonds, which financial projections are included in Appendix A to the Official Statement for the 2022 Bonds, to which this review is attached as Appendix D.

THE CONTINUING EFFECTS OF THE COVID-19 PANDEMIC

Historical patterns of passenger and cargo traffic at Logan Airport and other airports around the world were drastically disrupted by the COVID-19 pandemic beginning in early 2020. Since then, work-at-home requirements, mandated closures of offices and businesses, and other restrictions imposed to contain the pandemic caused serious economic contraction, unemployment, and financial hardship.

This economic dislocation, combined with travel restrictions, public health concerns about the contagion, and social distancing requirements, resulted in drastic and unprecedented reductions in airline travel and associated passenger-related revenues at the Airport and nearly all other U.S. airports beginning in March 2020.

At the Airport, passenger traffic declined by 97.4% in April 2020 (which was the trough) compared to the same month in 2019 with the rate of decline slowly improving over succeeding months. Passenger numbers fell from 41.8 million in FY 2019, to 30.3 million in FY 2020, and to 12.2 million in FY 2021, as a result of the impacts of the COVID-19 pandemic. During the first ten months of FY 2022 (July 2021 to April 2022), passenger numbers have recovered significantly but still lag pre-pandemic levels, reaching 71.6% of July 2018 to April 2019 levels during that period.

Airlines serving the Airport adjusted their networks to largely focus on domestic and leisure travel given the shift in the profile of air travelers based on the recovery of leisure travel in lieu of business and international travel, sectors that are still lagging the general recovery in air travel. In reaction to the pandemic and the resulting significant decline in passengers and passenger-related revenues, the Authority implemented a number of financial measures, including:

- Reducing expenses, including a reduction in total Authority staffing levels compared to pre-pandemic levels;
- Deferring and reducing non-critical capital expenditures, and temporarily reducing the overall size of the Authority's capital program;
- Preparing and implementing plans to apply COVID-19 relief grants received from the federal government, including relief grants under the Coronavirus Aid, Relief, and Economic Security Act (CARES Act), the Coronavirus Response and Relief Supplemental Appropriations Act of 2021 (CRRSAA), and the American Rescue Plan Act (ARPA);
- Providing temporary financial relief to Airport tenants, including deferring airline terminal rentals and landing fees, and deferring terminal concessionaire minimum annual guarantees (MAGs)
- Refunding and restructuring certain outstanding Bonds as part of the Series 2021-A, Series 2021-B, and Series 2021-C Bond financing completed in early 2021, and restructuring its commercial paper program; and
- Close monitoring of the Authority's liquidity levels in relation to cash flow needs

In total, the Authority was awarded COVID-19 relief grants of $327.2 million, including $22.2 million for relief for concessionaires operating at the Airport. These grants may be used for reimbursement of operating expenses, debt service, and certain types of capital expenditures and must be used within four years of the respective award dates. The Authority has developed a plan for utilizing these COVID-19 relief grants to pay operation and maintenance (O&M) expenses and debt service. (For purposes of the calculation of debt service coverage under the 1978 Trust Agreement, COVID-19 relief funds so designated by the Authority are treated as a component of Revenues).

Given the unprecedented nature of, and continuing uncertainty regarding, the COVID-19 pandemic and its impact on the aviation industry and worldwide economies, this report does not include a specific forecast of aviation activity. Rather, the report presents a projection of enplaned passengers and aviation activity for the period FY 2022 to FY 2026, prepared by the Authority for financial planning purposes. Projections of revenues, expenses, and airline cost per enplaned passenger were developed based on the projected levels of aviation activity.

The level of uncertainty regarding the recovery of traffic to its pre-pandemic levels remains elevated and dependent upon numerous variables, including among other things, the level of success of governments in the United States and around the world in controlling the virus, the emergence of mutations of the virus (such as the Omicron and Omicron B.2 variants), the potential for breakthroughs in COVID-19 treatments, the continued deployment of vaccines on a large scale basis and the willingness of people to get vaccinated, the medium-term and long-term changes to the economy brought about from the pandemic, the resilience of the U.S. airline industry, and the potential for a structural shift in industry and consumer behaviors. The COVID-19 pandemic has had and will continue to have material adverse effects on Airport passenger traffic and Airport Properties operations and financial performance in the short term, although these effects are expected to lessen as passenger numbers return to FY 2019 levels.

SCOPE OF STUDY

In conducting our study, we reviewed:

- The estimated costs and funding sources for Airport Properties capital improvements included in the Authority's current capital program for the five-year period FY 2022 to FY 2026, as in effect as of April 14, 2022 (the FY 2022-FY 2026 Capital Program).

- The estimated sources and uses of proceeds of the 2022 Bonds, and associated estimated annual debt service requirements for the 2022 Bonds, as prepared by the Authority and its financial advisor, PFM Financial Advisors LLC. (As part of separate services provided to the Authority under LeighFisher's contract with the Authority, we assisted the Authority and its financial advisor in formulating a plan of finance for implementing the FY 2022-FY 2026 Capital Program.)

- The Authority's continuing initiatives, actions, and planned approaches for addressing the impact of the COVID-19 pandemic on its business operations.

- The Authority's grant awards under the CARES Act, CRRSAA, and ARPA, and the allocation of these funds to Revenues. (CARES Act, CRRSAA, and ARPA grant funds may be included in the definition of Revenues pursuant to the 1978 Trust Agreement as Available Funds, upon approval by the Authority's Board.)

- The Authority's expectations regarding receipt of grants under the federal Bipartisan Infrastructure Law (BIL).

- The Authority's approved passenger facility charge (PFC) program. PFC revenues of the Authority are not pledged to the payment of debt service on the 2022 Bonds or any of the Authority's outstanding Bonds issued under the 1978 Trust Agreement. However, the Authority anticipates, and the projections described herein assume, that the Authority will apply PFCs to pay a portion of the debt service on the Authority's 2019-A Bonds, 2019-C Bonds, 2021-C Bonds, 2021-E Bonds, and the 2022 Bonds expected to be issued as part of this transaction.

- The Authority's projected deposits to the Payment in Lieu of Taxes (PILOT), Self-Insurance, Maintenance Reserve, Capital Budget, and Improvement and Extension funds or accounts.

- The Authority's policies and rate-making procedures relating to the calculation of airline terminal rents and landing fees, as documented in the Authority's financial model for calculating annual airline rates and charges, the Authority's document titled "Preliminary FY22 Commercial Aviation Rates," which was adopted as the rate schedule in effect for FY 2022, and documentation of Authority Board votes related to airline rates and charges.

- Contractual agreements relating to the use and occupancy of the Airport Properties (as affected by the Authority's efforts to provide temporary relief to tenants related to COVID-19) focusing on those that materially contribute to Airport Properties revenue totals, including the Delta Air Lines lease for Terminal A; the American Airlines, United Airlines, Southwest Airlines, Air Canada, Alaska Airlines, and Spirit Airlines leases for portions of Terminal B; and the JetBlue Airways lease for the majority of Terminal C and one gate in Terminal E; as well as agreements governing the operation of concession privileges in the terminal area, agreements related to the operation of rental car activities at the Airport, and agreements with transportation network companies (e.g., Uber and Lyft) providing services using mobile phone app-based technology (Ride App companies) operating at the Airport.

- The Authority's procedure for allocating general and administrative expenses and PILOT costs as documented in the Authority's financial model for calculating annual airlines rates and charges.

- Historical correlations between and among Airport Properties revenues, Airport Properties operating expenses, and passenger enplanements at the Airport.

- The Authority's actual Airport Properties operating expenditures for FY 2021, the Authority's estimated operating expenditures for FY 2022 based on trends in actual data for the first nine months of FY 2022 and budgeted amounts for the remaining three months of FY 2022, and the Authority's projected operating expenses for FY 2023 through FY 2026.

- The Authority's actual Airport Properties operating revenues for FY 2021, the Authority's estimated revenues for FY 2022 based on trends in actual data for the first nine months of FY 2022 and budgeted amounts for the remaining three months of FY 2022, and the Authority's projected revenues for FY 2023 through FY 2026.

- The Authority's rental car customer facility charge (CFC) program, including its history of CFC collections. CFC revenues of the Authority are not pledged to the payment of debt service on the 2022 Bonds.
- The Authority's business arrangements related to the development and operation of the Rental Car Center, as well as the concession agreements between the Authority and the rental car companies related to rental car operations at the Airport.
- The Authority's Annual Comprehensive Financial Reports (ACFR) for FY 2019, FY 2020, and FY 2021.

We have relied upon the information listed above and other information provided to us without validating the accuracy, completeness, or reliability of such information. While we have no reason to believe that the information does not provide a reasonable basis for the financial projections set forth in this review, we offer no assurances as to the accuracy or reliability of such information.

We have relied upon the estimates of project costs and construction schedules for projects included in the FY 2022-FY 2026 Capital Program. We did not conduct an independent review of the cost estimates or the construction schedules, and offer no opinion on the reasonableness of such costs or the achievability of such schedules.

We reviewed the key factors upon which the Airport Properties Net Revenues may depend, and assisted the Authority in formulating certain assumptions about those factors. Specifically, we assisted the Authority in formulating assumptions regarding passenger enplanements, airline revenues, and operating expenses, including incremental operating expenses for new Airport Properties facilities; and we reviewed the Authority's projections of parking, rental car, Ride App company, and terminal concession revenues.

KEY FACTORS AFFECTING THE NET REVENUES PROJECTIONS

The projection of Airport Properties Net Revenues under the case where aviation activity at Logan Airport returns to FY 2019 levels by FY 2025 (the "Financial Planning Scenario") is set forth in the accompanying Exhibit A. Achievement of the financial projections will depend particularly on achievement of the assumptions regarding the key factors described below.

Aviation Activity Projections

Passenger numbers at the Airport reached a record high of 41.8 million (excluding general aviation passengers) in FY 2019. In FY 2020, passenger numbers at the Airport decreased 27.5% to 30.3 million as air travel fell significantly due to COVID-19. Passenger numbers further decreased to 12.2 million in FY 2021 – representing an overall decline of 70.8% from FY 2019 (the last full Fiscal Year pre-pandemic).

As shown in Table 1, the Authority's Financial Planning Scenario is based on the assumption that total passengers at the Airport will increase by 128.4% in FY 2022 compared to FY 2021, to 27.8 million passengers for the full FY 2022. This assumption is based on nine months of actual passenger activity for FY 2022 (July 2021 to March 2022) and three months of budgeted activity for the remaining three months of FY 2022 (April 2022 to June 2022), and reflects approximately 67% of actual FY 2019 passenger levels.

Table 1
ACTUAL AND PROJECTED PASSENGERS – FINANCIAL PLANNING SCENARIO
Boston-Logan International Airport
(For the 12 months ending June 30, in thousands)

	Actual			**Projection**				
	FY 2019	**FY 2020**	**FY 2021**	**FY 2022 (b)**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Total passengers (a)	41,752	30,290	12,193	27,846	33,610	38,400	41,953	42,792
Percentage change								
From prior year		*-27.5%*	*-59.7%*	*128.4%*	*20.7%*	*14.3%*	*9.3%*	*2.0%*
From FY 2019		*-27.5%*	*-70.8%*	*-33.3%*	*-19.5%*	*-8.0%*	*0.5%*	*2.5%*

(a) Excludes general aviation passengers.
(b) Reflects actual data for nine months ended March 31, 2022, and budgeted data for the remaining three months of FY 2022.

Source: Massachusetts Port Authority.

Since the Authority prepared its Financial Planning Scenario, passenger activity statistics for April 2022 have become available, and show an increase of 84.7% compared to April 2021. During the first ten months of FY 2022, total passengers have approximately tripled compared to the same months in FY 2021, and are 71.6% of FY 2019 levels. If current monthly activity trends persist for the remainder of FY 2022, it can be expected that full year FY 2022 passenger totals will exceed 30 million, or 71.9% of actual FY 2019 levels.

The Authority's Financial Planning Scenario reflects a 20.7% annual year-over-year increase in FY 2023, followed by a 14.3% increase in FY 2024, 9.3% in FY 2025, and 2.0% in FY 2026, to reach 42.8 million passengers in FY 2026. Under this recovery trajectory, the Airport would attain approximately the total number of passengers last observed in FY 2019 by FY 2025. The Authority's assumptions for projected passenger growth are based upon partial year actual results, discussions with individual airlines and advance airline schedules, and assumptions regarding future air travel demand. The Authority and LeighFisher believe the passenger projection provides a reasonable basis for financial planning under the Financial Planning Scenario; however, any projection is subject to risk, volatility, and uncertainty, such as that described in more detail within this section of the report.

Aviation Activity Projection Risk Factors

In the near-term to medium-term, the impact of the COVID-19 pandemic and the speed of recovery of both the economy and public confidence in the aviation system has and will continue to significantly affect aviation activity levels at the Airport and, as of the date of this report, uncertainty remains regarding the length of time it will take for aviation activity levels to recover to FY 2019 levels. As the Airport predominantly serves origin and destination activity (and has limited connecting passenger activity), future long-term growth in aviation activity at the Airport (subsequent to recovery from the COVID-19 pandemic) will occur largely as a function of the growth in the population and economy of the Boston area, as well as regional, national, and international economic performance.

Several factors will play a role in the long-term growth in aviation activity at the Airport, including:

- The COVID-19 pandemic and public health concerns;
- Local demographic and national and international economic conditions;
- Structural changes in the travel market;
- Airline service at the Airport and other regional airports, particularly Manchester-Boston Regional Airport in Manchester, New Hampshire (Manchester) and T.F. Green Airport in Warwick, Rhode Island (T.F. Green);
- Aviation safety and security concerns;
- The financial health of the airline industry;
- Airline service, competition, routes, and fares;
- Demand for air cargo;
- Availability and price of aviation fuel;
- Climate change concerns;
- Capacity of the national air traffic control system; and
- Capacity of Boston-Logan International Airport

COVID-19 Pandemic and Public Health Concerns. Public health concerns and associated restrictions on travel have periodically reduced airline travel demand to and from various parts of the world. Examples include Severe Acute Respiratory Syndrome (SARS) in 2002-2003, the H1N1 influenza virus in 2009, Middle East Respiratory Syndrome (MERS) in 2013, Ebola Virus Disease (EVD) in 2014-2016, and the Zika virus in 2016-2017. In all these historical examples, reductions in airline travel were geographically localized and fairly short-lived, with travel soon recovering to pre-health-concern trends.

By comparison, the COVID-19 pandemic has had far more serious and widespread effects on airline travel worldwide. During the early months of the pandemic, governmental actions to slow the spread of the disease, including the mandated closure of businesses and offices, work-at-home requirements, prohibitions of public gatherings, quarantines, and travel restrictions contributed to a recession in the global economy and widespread job losses. The economic recession, combined with fears about the contagion, resulted in a severe reduction in the demand for air travel, the grounding of much of the world's airline fleets, and cuts in airline service that extended through much of 2020.

In December 2020, the first COVID-19 vaccines were administered in the United States and, following a peak of new COVID-19 cases at the end of 2020, the number of new COVID-19 cases fell as more people were vaccinated. By August 2021, 50% of the total U.S. population had been fully vaccinated. The success of COVID-19 vaccines in preventing the transmission of the virus and reducing its effects resulted in a steady recovery in domestic air travel during the summer of 2021.

Notwithstanding the success of the vaccines, new variants of the COVID-19 virus emerged and the highly contagious Delta and then Omicron variants resulted in new waves of cases in the fall and winter of 2021. These new cases contributed to cancelled travel bookings and reduced airline schedules, as well as delays in office openings and continued travel restrictions, particularly for corporate and international travel. The Omicron variant also contributed to flight cancellations at the end of 2021, as airline crews tested positive for the virus. The combination of these factors inhibited recovery in airline travel during the second half of 2021.

In May 2022, average daily TSA passenger screenings nationwide had recovered to approximately 90% of May 2019 levels.

The availability and acceptance of vaccines and treatments offers hope that the pandemic will be brought under control and economic activity will resume, but until governments and public health authorities are able to contain the spread, or reduce the severity, of the disease and its variants worldwide through widespread immunization, and relax quarantine, testing, and other travel restrictions, COVID 19 may continue to overshadow other factors affecting future airline travel.

Questions remain about how some determinants of travel demand may change once control of the pandemic and economic recovery allow a stable travel environment to be restored. Some observers anticipate there may be permanent reductions in some business travel for in-person meetings as a result of the widespread adoption of videoconferencing during the pandemic. Many companies have also reduced travel by their employees and thereby achieved cost savings that may become a permanent feature of their financial operations.

Local demographic and national and international economic conditions. Both the demographics of the region in which the Airport operates as well as national and international economic conditions generally impact the level of passenger traffic at the Airport.

The Boston metropolitan area* was the 11th largest metropolitan area in the United States in terms of population as of July 2021** (the most recent data available), and it ranked 10th in the nation with 2.7

*The Boston metropolitan area, as defined here, includes the counties of Essex, Middlesex, Norfolk, Plymouth, and Suffolk counties in Massachusetts, and Rockingham and Strafford counties in New Hampshire.
**Source: census.gov, accessed April 4, 2022.

million employees as of March 2022. It had an unemployment rate of 2.1% in December 2019, below the national average of 3.4% at that time, and below the previous peak of 9.8% in June 2010. Because of the COVID-19 pandemic and associated economic disruption, however, the unemployment rate increased to 17.0% by June 2020, higher than the national average of 11.2% at that time. However, by March 2022, the unemployment rate in the Boston Metropolitan area had decreased to 3.3%, the same as the national average. The Boston metropolitan area has historically had one of the nation's lowest unemployment rates, when compared to other large metropolitan areas, but that trend was temporarily interrupted by the COVID-19 pandemic. The Boston metropolitan area was the second lowest rate among the nation's 51 largest metropolitan areas (i.e., those with a 2010 Census population of one million or more) as of December 2019, but had risen to be near the midrange of the group as of March 2022***, according to information from the U.S. Census website and the Bureau of Labor Statistics.

The Boston metropolitan area's average per capita personal income in calendar year 2020 (the most recent data available) was 44.9% above the national average and 19.1% above the New England average. During the 2002 to 2020 period, Massachusetts per capita income grew slightly faster than the national average****.

As the nation's 11th largest metropolitan area, the Boston metropolitan area provides a large pool of potential travelers using the Airport in "normal" times. Moreover, increases in employment and per capita income translate into an increased likelihood of that population's propensity to travel by air. In addition, the Boston metropolitan area's status as a major business, tourism, and education destination serves as a draw for visitors, many of whom arrive by air.

Structural changes in the travel market. With the globalization of business and the increased importance of international trade and tourism (prior to the onset of COVID-19), international economics, trade balances, currency exchange rates, government policies, and political relationships all influence passenger traffic at major U.S. airports. Concerns about hostilities and other perceived security and public health risks and associated travel restrictions also affect travel demand to and from particular international destinations. Once the economy and the aviation system recover from the effects of the COVID-19 pandemic, it is once again expected that sustained future increases in passenger traffic at the Airport will depend on global economic growth, stable and secure international conditions, and government policies that do not materially restrict international travel.

Airline service at the Airport and other regional airports. The Airport is scheduled to have an average of 475 scheduled daily nonstop departures to destinations throughout the United States during June 2022 (compared to 491 in June 2019). Additionally, there are approximately 70 scheduled average daily international departures in June 2022 (compared to 79 in June 2019), primarily to Canadian and European destinations, but also to destinations in Central America, the Caribbean, Asia, and the Middle

***Source: bls.gov, accessed April 4, 2022.
****Source: bea.gov, accessed April 4, 2022.

East. Pre-pandemic, the Airport also had service to South America and Africa. Service to South America is scheduled to resume in July 2022.

Several foreign flag carriers have commenced service at the Airport since 2015 and continued to serve the Airport through March 2020 (prior to COVID-19 service cancellations), including Alitalia (now ITA Airways), Austrian, Cathay Pacific, Cabo Verde, El Al, KLM, Korean Air, LATAM Airlines, Norwegian Air Shuttle, Qatar, Royal Air Maroc, SAS, SATA, TAP Portugal, and WestJet. Although some foreign flag carriers suspended or ceased service at the Airport during the pandemic, Condor and Fly Play commenced new service. As of June 2022, 25 foreign flag airlines are scheduled to provide service to the Airport (compared to 30 in June 2019).

There was no significant market share concentration among either domestic or foreign flag carriers at the Airport in FY 2019 (prior to the COVID-19 pandemic) or subsequently, although the combined market share of the two largest carriers in the market (JetBlue and American Airlines) now exceeds 50%. JetBlue had the largest share of total Airport passengers with 33.7% in FY 2021 (compared to 28.6% in FY 2019), followed by American Airlines and Delta Air Lines with 19.7% and 18.3% market shares, respectively. The Airport is primarily an origin-destination airport, with approximately 96% of passengers beginning or ending their travel at the Airport.

The Airport is the second largest focus airport in JetBlue's network based on passengers. In August 2021, JetBlue expanded into Europe, with service from New York-Kennedy to London. Service from Boston to London is scheduled to start in August 2022. In February 2022, Spirit and Frontier announced plans to merge, which would create the nation's fifth largest airline by enplaned passengers. In April 2022, JetBlue made an unsolicited offer to acquire Spirit, which would likewise create the nation's fifth largest airline. Spirit's board of directors recently rejected JetBlue's offer; Spirit shareholders are expected to vote on the Spirit-Frontier merger at their June 30, 2022, meeting. Either the announced Frontier-Spirit merger or any JetBlue-Spirit merger would be subject to approval by the U.S. DOT and Justice Department and would be scrutinized for its potential effects on competition and airfares.

JetBlue places emphasis on routing international connecting traffic through its major East Coast airports (New York-Kennedy, Fort Lauderdale, and Logan Airport). JetBlue's strategy is to enter into alliances and agreements with foreign flag carriers to feed its domestic route network with international passengers. JetBlue has such agreements with Aer Lingus, Emirates Airlines, Qatar Airways, and South African Airways, among other airlines. While to date there has been no discernible impact on connecting passenger activity levels at Logan Airport resulting from these arrangements, there may be a resulting increase in connecting passenger activity at Logan Airport in the future. The Authority's passenger traffic projections described in this report do not incorporate increases in passenger hubbing activity that could potentially occur in the future, which would likely be accretive to the projected passenger numbers.

Of the three major airports serving the Boston area (which include T.F. Green and Manchester, in addition to Logan Airport), the Airport has always had by far the largest passenger market share in the region. The Airport's regional market share was 87% in calendar year 2021.

Aviation safety and security concerns. Concerns about the safety of airline travel and the effectiveness of security precautions influence passenger travel behavior and airline travel demand. Anxieties about the safety of flying and the inconveniences and delays associated with security screening procedures, COVID-19 testing, and vaccination requirements, lead to both the avoidance of travel and the switching from air to surface modes of transportation for short trips. Quarantine requirements and other restrictions create additional impediments for international travelers.

Safety concerns in the aftermath of the September 2001 terrorist attacks were largely responsible for the steep decline in airline travel nationwide in 2002. Since 2001, government agencies, airlines, and airport operators have upgraded security measures to guard against changing threats and maintain confidence in the safety of airline travel. Measures have included strengthened aircraft cockpit doors, increased presence of armed sky marshals, federalization of airport security under the TSA, and more intensive screening of passengers and baggage. The TSA has introduced "pre-check" service to expedite the screening of passengers who have submitted to background checks. At Logan Airport, the system known as CLEAR is also available for expedited passenger screening.

Historically, airline travel demand has recovered after temporary decreases stemming from terrorist attacks or threats, hijackings, aircraft crashes, and other safety concerns. Provided that precautions by government agencies, airlines, and airport operators serve to maintain confidence in the safety of commercial aviation without imposing unacceptable inconveniences for airline travelers, future demand for airline travel at the Airport will depend primarily on economic, not safety or security, factors.

***The financial health of the airline industry*.** The number of passengers using the Airport will depend partly on the profitability of the U.S. airline industry and the associated ability of the industry and individual airlines to make the necessary investments to provide service. In 2015, the industry achieved record net income of $26 billion, as fuel prices decreased, demand remained strong, and capacity control allowed average fares and ancillary charges to remain high. Strong industry profitability continued in 2016 through 2019. U.S. passenger airline profits decreased by $31 billion during 2020 and an additional $3 billion in the first quarter of 2021 as a result of the steep reduction in demand related to the COVID-19 pandemic. In the second and third quarters of 2021 (the most recent data available), U.S. airline industry profitability resumed with net income of $2 billion and $4 billion, respectively.

Recent agreements between the major airlines and their unionized employees resulted in increased labor costs prior to the pandemic. According to Airlines for America, U.S. airlines increased wages and benefits per full-time employee by 34% between 2013 and 2019. A shortage of qualified airline pilots resulting from retirements and changed FAA qualification standards and duty and rest rules required the airlines to increase salaries and improve benefits to attract and retain pilots, pre-pandemic. In 2020, wages and benefits per full-time employee decreased by 17%, before increasing 6% in 2021, due to the COVID-19 pandemic.

Consolidation of the U.S. airline industry has resulted in four airlines (American, Delta, Southwest, and United) and their regional affiliates accounting for approximately 75% of domestic seat-mile capacity prior to the onset of COVID-19. The consolidation contributed to pre-pandemic airline industry profitability. However, any resumption of financial losses could cause U.S. airlines to seek bankruptcy protection or liquidate. The liquidation of any of the large network airlines could significantly affect airline service at certain connecting hub airports, present business opportunities for the remaining airlines, and change airline travel patterns nationwide.

Because Logan Airport is predominantly an origin and destination airport, with limited connecting passenger activity, it is expected that if JetBlue or another carrier serving the Airport were to liquidate or were to significantly reduce service at the Airport as a result of a merger with another airline, there would be no material long-term reduction in the number of passengers using the Airport, because other airlines would be expected to increase service to accommodate passengers who would otherwise have traveled on the liquidated carrier. In the event of such an occurrence, however, there could be a material reduction in passenger numbers at the Airport in the short term.

Airline service, competition, routes, and fares. The number of origin and destination passengers traveling through the Airport depends on the propensity of Boston region residents to travel by air and the intrinsic attractiveness of the region as a business and leisure destination. Although passenger demand at an airport depends primarily on the population and economy of the region served, airline service and the number of passengers enplaned also depend on the route networks of the airlines serving that airport. Major network airlines have emphasized the development of hub-and-spoke route networks as a means of increasing their service frequencies, passenger numbers, and profitability. Logan Airport almost exclusively serves origin-destination passengers. Although Logan Airport serves as a hub for Delta, and Boston is JetBlue's second largest focus city, it is not dependent on connecting passengers.

Airline fares have an important effect on passenger demand, particularly for relatively short trips for which the automobile and other travel modes are potential alternatives, and for price-sensitive "discretionary" travel. The price elasticity of demand for airline travel increases in weak economic conditions when the disposable income of potential airline travelers is reduced. Airfares are influenced by airline capacity and yield management; passenger demand; airline market presence; labor, fuel, and other airline operating costs; taxes, fees, and other charges assessed by the airlines themselves as well as governmental and airport agencies; and competitive factors. Future passenger growth – globally, nationwide, and at the Airport – will depend partly on the level of airfares.

Low cost carriers (LCCs), including ultra-low cost carriers (ULCCs), have aggressively expanded their operations throughout the nation. LCCs are carriers that take advantage of an operating cost structure that is significantly lower than the cost structure of the legacy carriers. These advantages can include lower labor costs, greater labor flexibility, a streamlined aircraft fleet (i.e., fewer different types of aircraft in a given airline's fleet), and a generally more efficient operation. ULCCs are carriers that disaggregate the various services and amenities involved in an air trip and charge passengers for them separately on an a la carte basis. The price of a ticket quoted by a ULCC is typically just for the seat on the aircraft. These low costs suggest that the LCCs and ULCCs can offer a low fare structure to the traveling public while still maintaining profitability. In calendar year 2021, LCCs (including ULCCs) provided approximately 33% of the airline seat capacity in the U.S. market, up from 31% in calendar year 2019.

Prior to the COVID-19 pandemic, LCCs (including ULCCs) had significantly increased their service at the Airport, in common with many large hub airports* nationwide. Six domestic LCCs currently operate at the Airport—Allegiant, Frontier, JetBlue, Southwest, Spirit, and Sun Country** (of those, Allegiant, Frontier, Spirit, and Sun Country are considered ULCCs). These airlines collectively lease 33 of the 86 gates currently under lease at the Airport.

In addition, four foreign flag LCCs—Play, Level, Porter, and WestJet, are scheduled to provide international service to six destinations in June 2022. The foreign flag LCCs operate from the common use gates in Terminal E, with the exception of WestJet, which operates from Terminal A. Collectively, the ten LCCs (including ULCCs) are scheduled to provide 189 average daily departures as of June 2022 (compared to 215 daily departures in June 2019). LCCs (including ULCCs) accounted for approximately 47% of Airport-wide passengers during FY 2021, significantly higher than the national average, and up from 27% in FY 2010.

Notwithstanding these trends, to some extent, there is now a blurring of the distinction between the major network airlines and the traditional LCCs. As the LCCs have expanded service at airports in major metropolitan areas (such as JetBlue at Logan Airport and New York-Kennedy; Southwest at Logan Airport and New York-LaGuardia, etc.), and some LCCs have faced increases in labor costs (e.g., unionized labor and maturing crews with increased pay), the cost base of the traditional LCC has trended upwards. At the same time, the network carriers have been striving to adopt some of the practices and operational norms of the LCCs, resulting in a general downward trend for major network airline costs.

Demand for air cargo. Although economic activity is the primary factor affecting world air cargo demand, there are other important factors, some of which are influenced by airline actions. Air cargo development is influenced by such airline actions as the acquisition of new aircraft, increased capacity in certain regions or on specific routes, and expansion of air cargo provider products and services. Factors beyond the control of airlines and the cargo industry as a whole (freight forwarders, warehouse operators, local trucking companies) include changing inventory management techniques, globalization of trade, market liberalization, electronic delivery of documents, increased security screening requirements, continuing introduction of new products that are conducive to shipment by air (e.g., lightweight but high-value electronics, computer equipment, pharmaceuticals), evolving modes of product delivery, and advanced techniques of product manufacturing (e.g., 3D printing).

During calendar year 2019, 324,932 tons of cargo and mail were shipped through Logan Airport. Logan Airport was the 24th busiest cargo airport in North America during that period, according to Airports Council International (ACI). During FY 2020 and FY 2021, cargo and mail volumes at the Airport

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*Large hub airports are defined by the FAA as those that represent at least 1% of total enplanements nationwide.
** Sun Country provides seasonal service at the Airport.

declined 10.3%, and 7.3%, respectively, year-over-year, reflecting the impact of the COVID-19 pandemic and the Airport's slower recovery as compared to national trends. By comparison, cargo and mail volumes handled at all U.S. airports decreased an average of 5.2% during the 12 months ended June 30, 2020, and increased 13.3% during the 12 months ended June 30, 2021, year-over-year. During the first ten months of FY 2022 (July 2021 to April 2022), cargo and mail volumes increased 12.3% year-over-year, and were only 7.3% below the same period in FY 2019. Cargo is considered a significant contributor to operations at the Airport.

Historically, the financial performance of the air cargo and cargo transportation industry has experienced periods of growth and decline, but generally speaking, the financial health and performance has been more stable and consistent than that of the U.S. passenger airline industry. Sustained profitability will depend on, among other factors, economic growth to support air cargo demand, continued growth in online retail sales, continued control over air package pricing, and stable fuel prices. Over the next 20 years, Boeing and Airbus forecast worldwide growth in air cargo tonnage of approximately 4.0% and 2.7% per year on average, respectively, driven primarily by growth in emerging markets and the acceleration of e-commerce.

Availability and price of aviation fuel. The price of aviation fuel is a critical and uncertain factor affecting airline operating economics. Between early 2011 and mid-2014, fuel prices were relatively stable, partly because of increased oil supply from U.S. domestic production made possible by the hydraulic fracturing of oil-bearing shale deposits and other advances in extraction technologies.

Beginning in mid-2014, an imbalance between worldwide supply and demand resulted in a precipitous decline in the price of oil and aviation fuel through the end of 2015. Fuel prices then increased, but the average price of aviation fuel at the end of 2019 was still approximately 30% below the price at mid-2014.

As the pandemic drastically reduced the demand for aviation fuel in early 2020, the price of aviation fuel fell sharply, before rebounding in 2021 as pandemic restrictions were eased, economies recovered, and demand exceeded supply. The economic disruption and sanctions resulting from the Russian invasion of, and war on, Ukraine exacerbated the worldwide imbalance of demand and supply and caused a spike in oil and aviation fuel prices in 2022. Higher fuel prices have a negative effect on airline profitability as well as far-reaching implications for the global economy. Any costs associated with higher fuel prices that are passed on to passengers in the form of higher fares or surcharges could inhibit airline travel demand.

Climate change concerns. There is now widespread acknowledgment of the urgent need for the nations of the world to transition from fossil fuels to cleaner energy sources that will allow the worst effects of global warming and climate change to be avoided. In November 2021, the FAA published the U.S. Aviation Climate Action Plan, which sets a goal to achieve net-zero greenhouse gas (GHG) emissions from the U.S. aviation sector by 2050. The plan includes several key initiatives, including the increased production of sustainable aviation fuels (SAF), the development of new aircraft technologies, increased operations efficiency, and efforts to reduce airport emissions.

Much like the way the pandemic appears to have changed some airline travel behavior and demand patterns, concerns about the contribution of airline travel to the emission of carbon dioxide and other greenhouse gases into the atmosphere may influence future airline travel demand. For example, there may be increased societal pressures to avoid or reduce travel perceived as wasteful, particularly long-haul international travel; to favor or require the use of lower-emission travel modes, e.g., train over airplane, for short trips; and for corporations to limit employee travel to "reduce their carbon footprint" and achieve environmental, social, and governance objectives.

Pre-pandemic, the aviation industry accounted for approximately 10% of anthropogenic GHG emissions from the U.S. transportation sector and 3% of total U.S. emissions. Alternatives to petroleum-derived jet fuel, however, are unlikely to be economically available at large scale for the foreseeable future, so aviation's share of emissions will likely increase and attract more scrutiny. Consequently, it will be imperative for the industry to achieve efficiencies if growth in airline travel is to be sustained.

Achieving those efficiencies and mitigating emissions will require financial investments and changes to the operating economics of the aviation industry. Changes will likely include the early retirement and replacement of inefficient aircraft; implementation of operational changes to airline networks and systems to fly more optimal trajectories for reduced fuel use and contrail impacts; investments in emission reduction projects at airports, including electrification of ground support equipment; the payment of carbon taxes and other regulatory charges designed to penalize or offset emissions; and the development of technologies and incentives to increase the supply and reduce the cost of sustainable aviation fuels derived from biomass and other renewable sources. In the longer term, investments will be required to develop new aircraft propulsion technologies using fuels such as hydrogen or electric power generated from renewable sources.

Increased direct governmental regulation of GHG emissions from aircraft is also possible. In 2020, the U.S. Environmental Protection Agency adopted emission standards that apply to new commercial aircraft and align with standards adopted by the International Civil Aviation Organization. More stringent emission standards may apply in the future.

Inevitably, some of the costs required to reduce GHG emissions and combat climate change will be passed on to passengers in the form of higher fares or surcharges, which may inhibit airline travel demand.

Capacity of the national air traffic control system. Demands on the national air traffic control system have, in the past, caused delays and operational restrictions affecting airline schedules and passenger traffic. The FAA is gradually implementing its Next Generation Air Transportation System (NextGen) air traffic management programs to modernize and automate the guidance and communications equipment of the air traffic control system and enhance the use of airspace and runways through improved air navigation aids and procedures. Since 2007, airline traffic delays nationwide have decreased as a result of reduced numbers of aircraft operations (down approximately 15% between 2007 and 2019), but, as airline travel increases in the future and recovers from the impact of the COVID-19 pandemic, flight delays and restrictions can be expected.

Capacity of Boston-Logan International Airport. In addition to any future constraints that may be imposed by the national air traffic control and national airport systems, future growth in airline traffic at the Airport will depend in part on the capacity of the Airport itself. Authority management believes that current facilities at the Airport (i.e., airfield, terminal, landside, and Airport access facilities), will provide sufficient airside, terminal, and landside capacity to accommodate the assumed level of passenger traffic that underlies the financial projections through FY 2026 (the final year of the projection period described in this report).

FINANCIAL PROJECTIONS UNDER THE FINANCIAL PLANNING SCENARIO

The following sections summarize Airport Properties Revenue, Airport Properties operating expenses, and Airport Properties Net Revenues projections through FY 2026.

Airport Properties Revenues

As shown in Table 2, the Authority's Airport Properties Revenues fell from $755.4 million in FY 2019 to $681.1 million in FY 2020, reflecting the impact of the COVID-19 pandemic during the final four months of FY 2020, and declined further to $538.8 million in FY 2021. During FY 2022, Airport Properties Revenues are projected to recover to $664.9 million, based on nine months of actual data and three months of budgeted data.

In FY 2022 and thereafter, Airport Properties revenues are projected to gradually recover with aviation activity, reaching $895.6 million in FY 2026 – equivalent to a compound annual growth rate (CAGR) of 2.5% from FY 2019 to FY 2026. During the five-year period from FY 2014 to FY 2019, Airport Properties revenues increased at a CAGR of 7.2% per year.

The revenue totals described above and shown in Table 2 exclude COVID-19 relief grants, which can be included in Revenues as Available Funds pursuant to the 1978 Trust Agreement if so designated by the Authority's Board. The Authority designated $57.1 million of COVID-19 relief grant funding as Available Funds in FY 2020, $121.1 million in FY 2021, and expects to allocate $147.1 million as Available Funds over the three year period FY 2022 to FY 2024.

Logan airline revenues. The Authority expects to continue to calculate airline rents and fees generally on the basis of existing rate-making procedures, as documented in the Authority's financial model for calculating annual airlines rates and charges, and the Authority's document titled "Preliminary FY22 Commercial Aviation Rates." Terminal rentals are calculated using a "commercial compensatory" methodology, with the Authority recovering a portion of the allocated operating expenses and capital costs for each terminal through terminal rental revenues. Where applicable, the Authority's lease agreements with air carriers for terminal space at the Airport state that the Authority may revise rental rates periodically, at the Authority's discretion, to recover the actual direct and indirect capital and operating costs for such leased space. The landing fee rate is calculated on a "cost center residual" basis, with the allocated operating and capital costs for the airfield area, net of certain revenues generated from miscellaneous activities on the airfield, divided by the scheduled airlines' landed weights.

Table 2

ACTUAL AND PROJECTED AIRPORT PROPERTIES REVENUES – FINANCIAL PLANNING SCENARIO

Massachusetts Port Authority

(For the 12 months ending June 30, dollars in thousands)

	Actual (a)			Projection				
	FY 2019	FY 2020	FY 2021	FY 2022 (b)	FY 2023	FY 2024	FY 2025	FY 2026
Logan Revenues								
Landing fees	$ 119,847	$ 110,490	$ 122,564	$ 122,835	$ 128,639	$ 139,289	$ 148,740	$ 157,021
Automobile parking fees	181,478	136,436	58,089	127,941	139,229	162,794	177,902	181,260
Utility fees	13,541	11,126	9,263	12,356	11,515	12,111	12,741	15,673
Terminal rentals	203,861	211,136	209,318	213,411	240,150	270,693	278,461	294,887
Non-Terminal building & ground rents								
Hangar/cargo rentals	$ 21,513	$ 21,926	$ 21,771	$ 23,566	$ 23,500	$ 23,970	$ 24,449	$ 24,938
Other building rentals	7,586	7,776	8,489	8,467	7,300	7,446	7,595	7,747
Ground rent	19,622	19,765	15,536	17,137	16,221	16,546	16,877	17,214
Fuel farm	1,635	1,650	1,666	1,807	1,633	1,657	1,682	1,699
Ramp & apron	4,432	4,608	4,815	5,512	5,100	5,202	5,306	5,412
	$ 54,788	$ 55,725	$ 52,277	$ 56,489	$ 53,754	$ 54,821	$ 55,909	$ 57,010
Concessions								
Terminal concessions	$ 67,097	$ 55,616	$ 22,239	$ 46,641	$ 46,745	$ 53,194	$ 57,291	$ 64,859
Rental car	34,858	30,481	23,687	20,666	23,794	27,186	29,701	30,295
Taxi	3,732	2,399	492	1,567	3,111	3,872	4,231	4,315
Ride App companies	10,716	11,909	5,326	13,404	20,039	22,895	25,013	25,513
Other landside concessions (d)	12,954	10,264	5,998	8,565	11,376	13,305	14,536	14,826
	$ 129,356	$ 110,669	$ 57,742	$ 90,843	$ 105,065	$ 120,451	$ 130,772	$ 139,809
Other								
Shuttle bus	$ 21,196	$ 17,013	$ 8,084	$ 12,194	$ 15,500	$ 17,709	$ 19,348	$ 19,735
Tenant aircraft parking	2,824	2,396	1,778	1,863	1,675	1,675	1,675	1,692
Security checkpoint reimbursement	1,842	2,722	1,669	955	1,056	1,056	1,056	1,056
Miscellaneous revenues	8,734	6,871	2,023	6,690	5,342	5,451	5,565	5,621
	$ 34,596	$ 29,001	$ 13,555	$ 21,703	$ 23,573	$ 25,891	$ 27,643	$ 28,103
Subtotal: Logan revenues	$ 737,467	$ 664,583	$ 522,808	$ 645,579	$ 701,925	$ 786,049	$ 832,168	$ 873,762
Hanscom and Worcester revenues	17,931	16,546	16,009	19,347	20,122	20,782	21,371	21,798
Airport Properties Revenues	$ 755,398	$ 681,129	$ 538,817	$ 664,927	$ 722,047	$ 806,831	$ 853,539	$ 895,561
Percentage change		*-9.8%*	*-20.9%*	*23.4%*	*8.6%*	*11.7%*	*5.8%*	*4.9%*
Logan airline revenues (c)	$ 326,532	$ 324,022	$ 333,659	$ 338,109	$ 370,465	$ 411,657	$ 428,877	$ 453,600
Percentage change		*-0.8%*	*3.0%*	*1.3%*	*9.6%*	*11.1%*	*4.2%*	*5.8%*
Airline payments per enplaned passenger	$ 14.63	$ 20.21	$ 50.01	$ 23.71	$ 21.56	$ 20.99	$ 20.01	$ 20.75

(a) Revenue subtotals may differ from Appendix A: Information Statement of the Authority, due to alternate groupings of terminal rentals, other, and concessions subtotals. Revenue totals for FY 2020, FY 2021, and FY 2022 do not reflect COVID-19 relief funds designated by the Authority as Available Funds.

(b) Reflects actual data for nine months ended March 31, 2022, and budgeted data for the remaining three months of FY 2022.

(c) Logan Airline Revenues include Landing Fees, Terminal Rentals, and Tenant Aircraft Parking.

(d) Other landside concessions include bus and limousine, ground service, and customer amenity services.

Source: Massachusetts Port Authority.

Logan airline revenues, including landing fees, terminal rentals, and tenant aircraft parking, accounted for 43.2% of Airport Properties revenues in FY 2019, or $326.5 million, and declined to $324.0 million in FY 2020 before increasing to $333.7 million in FY 2021. Airline revenues are projected to increase to $453.6 million in FY 2026, equivalent to a CAGR of 4.8% between FY 2019 and FY 2026. The projected increase in annual airline revenues through FY 2026 is primarily driven by increases to the airline cost base associated with capital projects, including the Terminal E Modernization project.

The airline cost per enplaned passenger was $14.63 in FY 2019 (the last full Fiscal Year prior to the onset of COVID-19) and increased to $50.01 in FY 2021. Under the Financial Planning Scenario, the airline cost per enplaned passenger is projected to decrease to $23.71 in FY 2022 before gradually declining further to $20.75 in FY 2026 under the Authority's cost recovery airline ratemaking methodology.

Automobile parking fees. Automobile parking fees accounted for 24.0% of Airport Properties Revenues in FY 2019, or $181.5 million, and declined to $58.1 million in FY 2021 due to the impact of the COVID-19 pandemic. Automobile parking fees are projected to increase to $127.9 million in FY 2022, before further increasing with increasing aviation activity, reaching $181.3 million in FY 2026 – almost flat with the FY 2019 level.

An increase of $3 in the daily parking rates for all of Logan Airport's parking facilities went into effect on July 1, 2019 (the start of FY 2020). No parking rate increases are assumed through the projection period. The Authority is currently pilot testing a variable discount pricing system for parking which could potentially better align supply and demand for Airport parking facilities. This pilot program may result in a revision to the Authority's parking pricing structure in the future, but no such potential revisions are incorporated in the parking revenue projections discussed herein.

Parking rates are not expected to be adjusted at the Authority's off-Airport Logan Express lots during the projection period.

Concessions. Concessions accounted for 17.1% of Airport Properties revenues in FY 2019, or $129.4 million, and declined to $57.7 million in FY 2021. Concessions revenues are projected to recover to $90.8 million in FY 2022, before further increasing to $139.8 million by FY 2026, representing a CAGR of 1.1% between FY 2019 and FY 2026. Concessions include retail, duty free and food and beverage concessions in the terminals, rental car privilege fees and certain ground transportation fees and charges (including Ride App company revenues).

Terminal concession revenues totaled $67.1 million in FY 2019 and $22.2 million in FY 2021, and are projected to total $46.6 million in FY 2022. Thereafter, terminal concession revenues are projected to increase to $64.9 million in FY 2026, reflecting the projected recovery in aviation activity under the Financial Planning Scenario. This represents a CAGR of negative 0.5% between FY 2019 and FY 2026.

Starting in December 2019, the Authority charged a fee of $3.25 per passenger pick-up and $3.25 per drop-off to Ride App companies operating on the Airport (an increase from the prior fee structure of $3.25 per pick-up with no drop-off charge). Ride App company revenues totaled $10.7 million in FY

2019 and $5.3 million in FY 2021, reflecting the impact of the pandemic (in spite of the new $3.25 drop-off charge that was instituted during FY 2020), and are projected to increase to $13.4 million in FY 2022, before further increasing to $25.5 million in FY 2026. This represents a CAGR of 13.2% between FY 2019 and FY 2026.

Non-terminal building and ground rents. Non-terminal building and ground rents accounted for 7.3% of Airport Properties Revenues in FY 2019, or $54.8 million, and decreased to $52.3 million in FY 2021. This revenue source has been largely unaffected by the COVID-19 pandemic, and is projected to increase to $57.0 million by FY 2026, reflecting primarily an increase in rental revenues associated with certain land use agreements and facility leases. Non-terminal building and ground rents are comprised of hangar/cargo rentals, other building rentals, ground rent, fuel farm, and ramp and apron revenues. Overall, non-terminal building and ground rent revenue is projected to increase at a CAGR of 0.6% from FY 2019 and FY 2026.

Utility fees. Utility fees accounted for 1.8% of Airport Properties revenues in FY 2019, or $13.5 million, declining to $9.3 million in FY 2021. Utility revenues are projected to be $12.4 million in FY 2022 before rising gradually to $15.7 million in FY 2026. These trends reflect the Authority's outlook for changing energy prices over time, and this source has been relatively unaffected by the COVID-19 pandemic.

Other. Other revenues accounted for 4.6% of Airport Properties revenues in FY 2019, or $34.6 million (including $2.8 million of tenant aircraft parking revenues), falling to $13.6 million in FY 2021. Other revenues include shuttle bus fees, security checkpoint reimbursement, and other miscellaneous revenues. When tenant aircraft parking (which is part of Logan airline revenues) is excluded, this revenue category is projected to increase from $11.8 million in FY 2021 to $19.8 million in FY 2022, before further increasing to $26.4 million in FY 2026.

Airport Properties Operating Expenses

The Authority incurs operating expenses when maintaining, repairing, and operating the Airport Properties. Such expenses generally include salaries and benefits, materials and supplies, repair, maintenance, services, professional fees, utilities, insurance, and other miscellaneous expenses, as well as administrative expenses allocated to the Airport Properties. Operating expenses are allocated to each cost center, including airfield and terminal cost centers, for cost recovery purposes through, in the case of airfield and terminal expenses, the airline rentals and fees.

As shown in Table 3, Airport Properties operating expenses totaled $390.0 million in FY 2019, $384.2 million in FY 2020, and $326.3 million in FY 2021. The decrease between FY 2019 and FY 2021 is primarily a result of operating expense reductions related to the Authority's response to the COVID-19 pandemic, which were reflected in the Authority's FY 2021 budget. Airport Properties operating expenses are projected to increase to $349.3 million in FY 2022 (based on nine months of actual data), before further increasing to $470.2 million in FY 2026, representing a CAGR of 2.7% between FY 2019 and FY 2026. During the five-year period from FY 2014 to FY 2019, Airport Properties operating expenses increased at a CAGR of 4.8% per year.

Table 3
ACTUAL AND PROJECTED AIRPORT PROPERTIES OPERATING EXPENSES – FINANCIAL PLANNING SCENARIO
Massachusetts Port Authority
(For the 12 months ending June 30, dollars in thousands)

	Actual			Projection				
	FY 2019	FY 2020	FY 2021	FY 2022 (a)	FY 2023	FY 2024	FY 2025	FY 2026
Logan Expenses								
Personnel Expenses	$ 150,249	$ 155,752	$ 141,336	$ 137,874	$ 148,414	$ 155,975	$ 162,184	$ 171,512
Repair & Materials	21,397	16,617	9,137	13,554	14,714	15,009	15,309	15,921
Services	45,525	46,202	40,410	44,502	50,414	51,926	53,484	56,158
Professional Fees	50,889	47,643	30,379	41,363	51,644	53,193	54,789	57,528
Utilities	30,349	25,413	21,905	29,094	32,866	34,569	36,365	44,733
Other	18,664	18,397	18,797	18,927	23,735	24,953	26,269	28,218
Authority-wide allocations to Logan Airport	44,104	42,366	40,114	37,570	48,843	54,471	58,026	61,825
Subtotal: Logan Expenses	$ 361,177	$ 352,390	$ 302,078	$ 322,884	$ 370,630	$ 390,095	$ 406,425	$ 435,896
Hanscom and Worcester Expenses	28,815	31,855	24,187	26,458	30,287	31,411	32,465	34,306
Airport Properties Operating Expenses	$ 389,992	$ 384,245	$ 326,265	$ 349,342	$ 400,918	$ 421,506	$ 438,890	$ 470,202
Percentage change		*-1.5%*	*-15.1%*	*7.1%*	*14.8%*	*5.1%*	*4.1%*	*7.1%*
Logan Expenses by Cost Center								
Landing Field	$ 78,912	$ 79,042	$ 79,405	$ 84,768	$ 79,955	$ 84,002	$ 88,851	$ 95,375
Terminal Buildings	145,969	141,925	134,085	126,508	146,440	157,710	163,796	178,820
Automobile Parking	60,392	63,571	58,971	55,244	60,900	63,947	66,329	71,424
Non-aeronautical (b)	49,265	40,192	3,587	27,042	54,538	54,330	56,155	55,843
Bag Screening Facilities	13,635	14,672	11,365	11,445	13,811	14,463	15,021	16,392
Rental Car Center	5,172	5,487	6,925	7,498	5,536	5,783	6,014	6,640
Airline Support	6,062	5,738	6,111	7,506	7,162	7,458	7,767	8,705
Regional Carrier & General Aviation Facilitie	1,770	1,764	1,630	2,874	2,289	2,401	2,492	2,696
Logan Expenses by Cost Center	$ 361,177	$ 352,390	$ 302,078	$ 322,884	$ 370,630	$ 390,095	$ 406,425	$ 435,896

(a) Reflects actual data for the nine months ended March 31, 2022, and budgeted data for the remaining three months of FY 2022.
(b) Including expenses for other unrecoverable items such as budget contingency. The FY 2022 and future years figures reflect a full year of budget contingency and allowances for potential increases in certain operating expense items.

Source: Massachusetts Port Authority.

Logan Airport expenses. In FY 2019, the primary expense allocations for Logan operating expenses were Terminal Building (40.4%), Landing Field (21.8%), Automobile Parking (16.7%), and Non-aeronautical (13.6%). Logan Airport operating expenses were $361.2 million in FY 2019, $352.4 million in FY 2020, and $302.1 million in FY 2021, and are projected to increase to $322.9 million in FY 2022 before further increasing to $435.9 million in FY 2026. This represents a CAGR of 2.7% between FY 2019 and FY 2026. The projected increases reflect increases in baseline expenses, as well as incremental operating expenses for new capital facilities, including the Terminal E Modernization project.

Hanscom Field and Worcester Airport. Hanscom Field and Worcester Airport expenses accounted for 7.4% of total Airport Properties operating expenses in FY 2019, or $28.8 million, and decreased to $24.2 million in FY 2021. Operating expenses for Hanscom Field and Worcester Airport are projected to increase to $34.3 million in FY 2026, reflecting a CAGR of 2.5% between FY 2019 and FY 2026.

Airport Properties Net Revenues

As shown in Table 4, Airport Properties Net Revenues were $365.4 million in FY 2019, before falling to $212.6 million in FY 2021, as a result of the pandemic. Airport Properties Net Revenues are projected to be $315.6 million in FY 2022 and thereafter to gradually climb to $425.4 million in FY 2026, which is equivalent to a CAGR of 2.2% between FY 2019 and FY 2026.

Table 4
ACTUAL AND PROJECTED AIRPORT PROPERTIES NET REVENUES – FINANCIAL PLANNING SCENARIO
Massachusetts Port Authority
(For the 12 months ending June 30, dollars in thousands)

	Actual			Projection				
	FY 2019	FY 2020	FY 2021	FY 2022 (a)	FY 2023	FY 2024	FY 2025	FY 2026
AIRPORT PROPERTIES REVENUES								
Logan Airport								
Airline fees and charges	$ 326,532	$ 324,022	$ 333,659	$ 338,109	$ 370,465	$ 411,657	$ 428,877	$ 453,600
Automobile parking fees	181,478	136,436	58,089	127,941	139,229	162,794	177,902	181,260
Utility fees	13,541	11,126	9,263	12,356	11,515	12,111	12,741	15,673
Non-Terminal building & ground rents	54,788	55,725	52,277	56,489	53,754	54,821	55,909	57,010
Concessions	129,356	110,669	57,742	90,843	105,065	120,451	130,772	139,809
Other	31,772	26,605	11,777	19,840	21,897	24,215	25,968	26,411
Subtotal - Logan Airport Revenues	$ 737,467	$ 664,583	$ 522,808	$ 645,579	$ 701,925	$ 786,049	$ 832,168	$ 873,762
Hanscom and Worcester	17,931	16,546	16,009	19,347	20,122	20,782	21,371	21,798
Total - Airport Properties Revenues	**$ 755,398**	**$ 681,129**	**$ 538,817**	**$ 664,927**	**$ 722,047**	**$ 806,831**	**$ 853,539**	**$ 895,561**
Operating Expenses								
Logan Airport	$ 361,177	$ 352,390	$ 302,078	$ 322,884	$ 370,630	$ 390,095	$ 406,425	$ 435,896
Hanscom and Worcester	28,815	31,855	24,187	26,458	30,287	31,411	32,465	34,306
Total - Airport Properties Operating Expenses	**$ 389,992**	**$ 384,245**	**$ 326,265**	**$ 349,342**	**$ 400,918**	**$ 421,506**	**$ 438,890**	**$ 470,202**
Airport Properties Net Revenues	**$ 365,406**	**$ 296,884**	**$ 212,553**	**$ 315,584**	**$ 321,130**	**$ 385,325**	**$ 414,649**	**$ 425,359**
Percentage change		*-18.8%*	*-28.4%*	*48.5%*	*1.8%*	*20.0%*	*7.6%*	*2.6%*

(a) Reflects actual data for the nine months ended March 31, 2022, and budgeted data for the remaining three months of FY 2022.
Source: Massachusetts Port Authority.

THE FY 2022-FY 2026 CAPITAL PROGRAM

On April 14, 2022, the Authority's Board approved a three-year capital program covering capital expenditures during the period FY 2022 to FY 2024. For financial planning purposes, Authority management prepared a five-year capital program covering the period FY 2022 to FY 2026. The three-year capital program approved by the Authority's Board is a subset of Authority management's five year capital program. This report reflects the full five year capital program covering the years FY 2022 to FY 2026 (defined herein as the FY 2022-FY 2026 Capital Program).

The FY 2022-FY 2026 Capital Program reflects approximately $1.8 billion of spending on Airport Properties, including $193.4 million of private and third party financed facilities.

The projection of Airport Properties Net Revenues described in the report reflects the Authority's FY 2022-FY 2026 Capital Program and incorporates the impact on revenues and operating expenses of projects intended to be developed at the Authority's Airport Properties (including the Terminal E Modernization project). Other funding sources for capital projects include federal grants, PFCs, CFCs, the Authority's internally generated capital, and tenant and third-party financing. The FY 2022-FY 2026 Capital Program for its Airport Properties is summarized in Table 5. This table reflects spending only during the period FY 2022 to FY 2026. (The Authority's overall program, which includes non-Airport Properties, includes a total of $2.8 billion of projects during the period FY 2022 to FY 2026, $732 million of which are associated with private and third party funded projects.)

In the event that some projects in the FY 2022-FY 2026 Capital Program are not implemented, certain associated revenues and operating expenses would not be realized. See the section of Appendix A to the Official Statement titled "CAPITAL PROGRAM" for a detailed discussion of the FY 2022-FY 2026 Capital Program costs and funding sources.

Leigh|Fisher

Ms. Lisa S. Wieland
June 27, 2022

Table 5

SUMMARY OF THE FY 2022-FY 2026 CAPITAL PROGRAM FOR AIRPORT PROPERTIES

Massachusetts Port Authority

(dollars in thousands)

	Funding Sources								
	Prior Bonds	**2022 Bonds (a)**	**PFC Pay-Go**	**Grants (b)**	**Authority Capital & Other (c)**	**CFCs**	**Subtotal excluding Private**	**Private capital**	**Total**
Logan Airport									
Logan Airside									
Large airfield vehicle drive	$ -	$ -	$ -	$ -	$ 48,741	$ -	$ 48,741	$ -	$ 48,741
Taxiway M rehabilitation	-	-	-	5,900	32,100	-	38,000	-	38,000
Airfield & terminal fueling improvements	-	-	-	-	30,192	-	30,192	-	30,192
Runway 9-27 safety area	-	-	17,919	53,756	-	-	71,675	-	71,675
Airfield electical infrastructure	-	-	-	5,900	19,100	-	25,000	-	25,000
Rehabilitate Runway 15R-33L	-	-	18,900	5,900	15,200	-	40,000	-	40,000
Other airside projects	2,921	-	6,780	49,376	105,752	-	164,830	-	164,830
Subtotal - Logan Airside	$ 2,921	$ -	$ 43,599	$ 120,832	$ 251,086	$ -	$ 418,438	$ -	$ 418,438
Logan Landside									
Terminal E modernization	$ 161,459	$ 116,412	$ -	$ -	$ 81,039	$ -	$ 358,909	$ -	$ 358,909
Vendor delivery inspection station	-	-	-	-	-	-	-	20,000	20,000
Terminal B to C roadway improvements	46,703	-	-	-	52,933	-	99,636	-	99,636
Terminal C optimization and B to C Connector	13,368	-	-	-	60,524	-	73,892	-	73,892
Marketplace Logan concessions development	-	-	-	-	-	-	-	99,650	99,650
Air Traffic Control Tower improvements	-	-	-	-	25,092	-	25,092	-	25,092
Terminal B roadway rehabilitation	-	-	-	75,000	25,000	-	100,000	-	100,000
Signature FBO	-	-	-	-	-	-	-	40,000	40,000
Facilities admin, support & fleet maint. bldg	-	-	-	-	47,000	-	47,000	-	47,000
Other landside projects	17,933	-	-	-	237,908	7	255,847	4,000	259,847
Subtotal - Logan Landside	$ 239,463	$ 116,412	$ -	$ 75,000	$ 529,496	$ 7	$ 960,377	$ 163,650	$ 1,124,027
Logan Intermodal									
Midlife rebuilds - buses	$ -	$ -	$ -	$ -	$ 12,763	$ 12,890	$ 25,653	$ -	$ 25,653
New suburban Logan Express	-	-	-	-	30,000	-	30,000	-	30,000
Other intermodal projects	-	-	-	-	20,675	-	20,675	-	20,675
Subtotal - Logan Intermodal	$ -	$ -	$ -	$ -	$ 63,438	$ 12,890	$ 76,328	$ -	$ 76,328
Logan Mitigation	$ 986	$ -	$ -	$ 133	$ 26,788	$ -	$ 27,907	$ -	$ 27,907
Total - Logan Airport	**$ 243,370**	**$ 116,412**	**$ 43,599**	**$ 195,965**	**$ 870,808**	**$ 12,897**	**$ 1,483,050**	**$ 163,650**	**$ 1,646,700**
Hanscom	-	-	-	3,890	51,944	-	55,834	-	55,834
Worcester	-	-	-	1,172	30,189	-	31,361	29,700	61,061
Total - Airport Properties	**$ 243,370**	**$ 116,412**	**$ 43,599**	**$ 201,027**	**$ 952,941**	**$ 12,897**	**$ 1,570,245**	**$ 193,350**	**$ 1,763,595**

(a) Bonds to be issued under the 1978 Trust Agreement as part of the 2022 Bonds transaction, including bonds the debt service on which would be paid from PFC revenues. For purposes of the Authority's Financial Planning Scenario it was assumed that 36.1% of the debt service on the 2022 Bonds (equivalent to $42.1 million of the total $116.4 million amount of Terminal E Modernization project costs funded with 2022 Bond proceeds) would be paid with PFC revenues.

(b) Including AIP entitlement and discretionary grants, and Bipartisan Infrastructure Law (BIL) grants.

(c) Funding from the Authority's Improvement & Extension Fund and Maintenance Reserve Fund, and other miscellaneous sources.

Source: Massachusetts Port Authority.

PASSENGER FACILITY CHARGES

PFC revenues of the Authority consist of PFCs paid by certain passengers enplaned at the Airport (and include interest income earned thereon). PFC revenues are not Revenues of the Authority as defined in the Authority's 1978 Trust Agreement, and thus, PFCs are not pledged to the payment of debt service on the 2022 Bonds or any of the Authority's other currently outstanding Bonds issued under the 1978 Trust Agreement, but may be used as Available Funds to pay debt service.

If PFCs or other revenues of the Authority that do not constitute Revenues pledged under the 1978 Trust Agreement (collectively, Available Funds) are pledged or irrevocably committed to or are held by a fiduciary and are to be set aside exclusively for the payment of principal of, interest or premium, if any, on specified Bonds pursuant to a resolution of the Authority (and are not otherwise required for payment of another Series of Bonds), then the principal, interest and/or premium to be paid from such Available Funds or from earnings thereon shall be disregarded and not included in calculating debt service coverage requirements under the 1978 Trust Agreement.

As of the date of this report, the Authority expects that each fiscal year, by resolution of the Authority's Board, it will irrevocably commit PFCs to pay for a portion of the principal of and interest on the 2019-A Bonds, the 2019-C Bonds, the 2021-C Bonds, the 2021-E Bonds, and the 2022 Bonds expected to be issued as part of this transaction, and this projection includes such an assumption. However, there can be no assurance that the Authority will in fact realize sufficient PFC revenues or irrevocably commit PFCs in such amounts in each such year to the payment of such debt service.

PFC revenues at Logan Airport totaled $86.1 million in FY 2019, $61.0 million in FY 2020, and $28.2 million in FY 2021, reflecting the impact of the COVID-19 pandemic. PFC revenues are projected to be $55.3 million (including associated restricted interest income) for FY 2022. The Authority is projecting PFC revenues of $85.7 million in FY 2026, reflecting the recovery in aviation activity under the Financial Planning Scenario, as shown in Table 6.

The Authority has received approval from the FAA to levy a PFC at the $4.50 level per PFC-eligible enplaned passenger at the Airport. The Authority currently has approvals to collect and spend a total of $2.46 billion in PFC revenue under the terms of 12 separate FAA-approved PFC applications (as amended), with a projected PFC charge expiration date of January 1, 2036. PFC revenues are used to fund capital project costs on a pay-as-you-go basis, to pay debt service on a portion of certain of the Authority's Bonds, and to pay interest and repay principal on commercial paper issued to fund PFC-eligible project costs. The Authority's twelfth PFC application included a request for PFC funding of certain elements of the Terminal E Modernization project. From inception of the Authority's PFC program in 1993 through March 31, 2022, a total of $1.43 billion in PFC revenue has been collected by the Authority, including interest income.

Table 6
ACTUAL AND PROJECTED PASSENGER FACILITY CHARGE REVENUES –FINANCIAL PLANNING SCENARIO
Boston-Logan International Airport
(For the 12 months ending June 30, in thousands except percentages and net PFC collection level)

	Actual			Projection				
	FY 2019	**FY 2020**	**FY 2021**	**FY 2022 (b)**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
PFC Revenues								
Enplaned passengers (a)	20,833	15,097	6,102	13,923	16,805	19,200	20,977	21,396
Percent of passengers paying a PFC	92.7%	90.3%	104.3%	90.0%	90.0%	90.0%	90.0%	90.0%
Net PFC collection level	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39	$ 4.39
Annual PFC collections from airlines	$ 84,824	$ 59,875	$ 27,948	$ 55,009	$ 66,397	$ 75,859	$ 82,879	$ 84,536
PFC-restricted interest income	1,246	1,101	240	327	441	681	925	1,206
PFC revenues plus interest income	$ 86,070	$ 60,976	$ 28,188	$ 55,336	$ 66,838	$ 76,540	$ 83,804	$ 85,743
Percentage change		*-29.2%*	*-53.8%*	*96.3%*	*20.8%*	*14.5%*	*9.5%*	*2.3%*

(a) Excludes general aviation passengers.
(b) Enplanement data reflects actual data for nine months ended March 31, 2022, and budgeted data for the remaining three months of FY 2022.

Source: Massachusetts Port Authority.

As noted above, the Authority intends to continue to leverage its PFC revenue stream, subject to FAA approval, and currently expects future leveraging of the PFC revenue stream to be partially or wholly undertaken under the terms of the 1978 Trust Agreement, as described in Appendix A to the Official Statement for the 2022 Bonds, to which this review is attached as Appendix D.

TENANT AND THIRD PARTY FUNDED PROJECTS

The Authority intends to fund certain capital projects using funds from tenants or third parties, or from revenue sources that are not included in Revenues, as defined in the 1978 Trust Agreement. There are eleven such projects in the FY 2022-FY 2026 Capital Program related to the Airport Properties; including projects at Logan Airport related to FBO development ($40.0 million), a Marketplace Logan concessions development program ($99.7 million), and a vendor delivery inspection station by a third party concessionaire ($20.0 million); and projects totaling $29.7 million at Worcester Airport. There are also third party funded projects in the Authority's non-aviation properties. Generally, the Authority would not undertake tenant and third-party projects if funding from those sources was not available.

THE AUTHORITY'S STRATEGIC PLAN

The Authority completed a unified Strategic Plan for all of its facilities, which was adopted by the Board in November 2014. With respect to its Airport Properties, the key goal of the Strategic Plan was to identify the necessary improvements to its airside, landside, and ground access facilities that would allow Logan Airport to serve the needs of what was then expected to be the rapidly growing passenger base. Given the robust increase in aviation activity at the Airport in the years immediately after the Strategic Plan was completed and extending through calendar year 2019 (i.e., prior to the onset of the COVID-19 pandemic), there was a need to embark on a second phase of the Strategic Plan, leading to the implementation of certain of the strategic initiatives identified as part of the planning process on an expedited basis. Several of these initiatives are included in the FY 2022-FY 2026 Capital Program. With respect to Logan Airport, key initiatives include, among others, the implementation of terminal improvements (including additional gates and other improvements to accommodate international activity in Terminal E, and the provision of post-security connectivity for passengers among all Airport terminals), and ground access and curbside improvements at the Airport to accommodate the significant passenger growth.

The completion of the Terminal C Optimization, the Terminal B to C Roadway Improvements, and the Terminal E Modernization projects, reflect the completion of the capital projects supporting the second phase of the Airport components of the Authority's Strategic Plan.

Authority management and staff will continue to work to develop specific business plans designed to address and implement strategic initiatives across all of its properties. As detailed business plans for such strategic initiatives are developed, refined, and approved in the context of the then-current operating environment and aviation activity levels, those projects will become part of future capital programs to be approved by the Authority's Board.

WORCESTER AIRPORT AND HANSCOM FIELD

The Authority owns and operates Worcester Airport, a commercial service airport located in Worcester, Massachusetts. This airport is used for operations ranging from small single-engine aircraft to large corporate business jets, and the Authority actively engages in developing commercial airline service to and from the airport. While scheduled commercial airline service was temporarily discontinued subsequent to the onset of the COVID-19 pandemic, JetBlue, American, and Delta have now all restored scheduled service at Worcester Airport.

Hanscom Field, located principally in the Town of Bedford, Massachusetts, is a general aviation reliever airport for Logan Airport.

Taken together, Worcester Airport and Hanscom Field accounted for approximately 2.9% of the Authority's Airport Properties revenues and 7.4% of its Airport Properties operating expenses in FY 2021.

SUMMARY OF PROJECTIONS

Exhibit A presents projected total Logan Airport passengers, Airport Properties Revenues and operating expenses, the resultant projection of Airport Properties Net Revenues for FY 2022 through FY 2026 under the Authority's Financial Planning Scenario, and the key assumptions that are significant to the projections, as prepared by Authority management. The projections shown in Exhibit A are consistent with the sections of the table entitled "Projected Operating Results and Debt Service Coverage Under the 1978 Trust Agreement" (as included in the "Selected Financial Data" section of Appendix A to the Official Statement), which relate to Airport Properties Revenues and operating expenses. The information presented in Exhibit A is at a greater level of detail than that presented in the Official Statement and separately presents information for the Airport, Hanscom Field, and Worcester Airport. Additionally, Exhibit A relates only to the Authority's Airport Properties, while the table in the Official Statement encompasses all of the Authority's properties. To the extent that line items differ between Exhibit A and the Authority's table in Appendix A with respect to the Airport Properties, such variance is due to differences in the methods used to aggregate revenues and operating expenses.

The Authority prepared these financial projections on the basis of information and assumptions that were assembled by the Authority. As discussed earlier, LeighFisher assisted the Authority in formulating certain assumptions and developing the projections of Airport Properties Net Revenues under the Financial Planning Scenario. The projections reflect the Authority's expected course of action during the projection period and, in the Authority's judgment, based upon the assumptions described herein, present fairly the Authority's projected financial results of the Airport Properties under the Financial Planning Scenario; however, there can be no assurance that such projections will be realized. In particular, given the continued uncertainty related to future aviation activity levels at Logan Airport due to the pandemic, future financial results may materially differ from the projections.

In addition to the payment of debt service on the Authority's Bonds issued under the terms of the 1978 Trust Agreement, the Authority is required to make deposits to the Payments In Lieu of Taxes (PILOT) Fund and the Maintenance Reserve Fund and to pay subordinate debt service on private placement debt issued to fund the acquisition of certain parcels of land, as well as make principal and interest payments on the Authority's outstanding commercial paper notes. These amounts must be paid from the Net Revenues of the Airport Properties and other facilities. Our review does not address the amount of such payments nor assess the adequacy of the Authority's projected Net Revenues to make such payments, as they are subordinate to the payment of debt service on the 2022 Bonds and the Authority's other Bonds issued under the terms of the 1978 Trust Agreement.

Leigh|Fisher

Ms. Lisa S. Wieland
June 27, 2022

ASSUMPTIONS UNDERLYING THE PROJECTIONS

The financial projections documented in this report were prepared by Authority management. The projections reflect Authority management's expected course of action during the projection period through FY 2026 and, in Authority management's judgment, present fairly the expected financial results of the Airport associated with the respective hypothetical levels of aviation activity during the projection period.

In our opinion, the assumptions underlying the Authority's financial projections provide a reasonable basis for the projections of Airport Properties Net Revenues and we believe that such projections appropriately reflect such assumptions. To the best of our knowledge, we believe that the Authority has taken into account all relevant factors material to the Airport Properties Net Revenues projections. We offer no opinion with regard to the projections of non-Airport Properties Net Revenues.

Any projection is subject to uncertainties. Inevitably, some assumptions will not be realized and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the projected and actual results, and those differences may be material. Neither LeighFisher nor any person acting on our behalf makes any warranty, expressed or implied, with respect to the information, assumptions, projections, opinions, or conclusions disclosed in this report. We have no responsibility to update this report for events and circumstances occurring after the date of our review.

* * * * *

We appreciate the opportunity to serve the Authority as the Airport Properties financial consultant on this financing.

Respectfully submitted,

LeighFisher

LEIGHFISHER

KEY ASSUMPTIONS AND FACTORS UNDERLYING
PROJECTIONS OF AIRPORT PROPERTIES NET REVENUES
FINANCIAL PLANNING SCENARIO
Massachusetts Port Authority

Passenger Traffic and Airline Operations

1. The total number of passengers at Boston-Logan International Airport (the Airport) was 41.8 million in FY 2019 (excluding general aviation passengers) and declined to 12.2 million passengers in FY 2021. Passenger totals are projected to total 27.8 million in FY 2022, and to gradually recover to 42.8 million in FY 2026, the last year of the projection period.

2. The airlines currently providing significant levels of service at the Airport (including American, Delta, JetBlue, Southwest, and United) will continue to provide significant service at the Airport. The sudden, significant reduction in passenger levels at the Airport due to the COVID-19 pandemic will be reversed over a period of approximately six years, by FY 2025.

Bond Issuance and Debt Service

3. The Authority's 2022 Bonds are assumed to be issued in the aggregate principal amount of approximately $125.2 million (yielding $116.4 million of net proceeds available to fund project costs).

4. Approximately 36% of the annual debt service for the 2022 Bonds is expected to be paid with PFC revenues, related to PFC-approved costs associated with the Terminal E Modernization project.

5. The projections described in this report, and as documented in the table titled "Projected Operating Results and Debt Service Coverage Under the 1979 Trust Agreement" in the "Selected Financial Data" section of Appendix A, assume that the Authority will undertake additional bond issuances totaling approximately $300 million of principal amount during the projection period through FY 2026. These additional bond issues are not linked to specific projects in the FY 2022-FY 2026 Capital Program, and are not reflected in the Airport Properties Net Revenues projection described in this report. However, associated projected debt service is incorporated in the Net Debt Service and Annual Debt Service Coverage lines in the table in Appendix A. The Authority expects that future debt issuance will be undertaken as part of its Net Zero initiative. Specific projects associated with this initiative, and the timing of their implementation, have not yet been identified.

The PFC Program

6. The PFC Program will continue to be implemented in accordance with the Authority's twelve approved PFC applications.

7. PFC revenues generated during the projection period will be sufficient to pay: (1) interest on, and principal of, outstanding commercial paper notes issued to finance certain PFC projects, (2) certain PFC project costs on a pay-as-you-go basis, (3) a portion of the debt service on the Authority's 2019-A Bonds, 2019-C Bonds, 2021-C Bonds, 2021-E Bonds, and the 2022 Bonds expected to be issued as part of this transaction, as described above.

8. PFC revenues are not pledged to the payment of debt service on any of the Authority's Bonds issued under the 1978 Trust Agreement, including those Bonds to be issued as part of this transaction. Such Bonds are secured by a pledge of the Authority's general Revenues (which exclude PFC revenues). However, the Authority anticipates, and this projection assumes, that the Authority will apply PFCs to pay a portion of the debt service on the 2019-A Bonds, the 2019-C Bonds, the 2021-C Bonds, the 2021-E Bonds, and the 2022 Bonds expected to be issued as part of this transaction, subject to Authority Board designation.

Grants

9. The Authority currently expects to receive approximately $6.6 million in Airport Improvement Program (AIP) passenger and cargo entitlement grants annually for Logan Airport, and approximately $1.3 million per year in AIP entitlement grants for Worcester Airport, and $1.0 million in AIP entitlement grants for Hanscom Field.

10. The Authority received $327.2 million in COVID-19 relief funding (including $22.2 million earmarked for concessionaire relief). The Authority designated $57.1 million of that amount as Available Funds in FY 2020, $121.1 million in FY 2021, and expects to designate $147.1 million as Available Funds during FY 2022 to FY 2024. In accordance with the 1978 Trust Agreement these amounts can be designated as Available Funds and added to Revenues.

11. The Authority expects to receive approximately $39 million per year in federal grant funding under the terms of the Bipartisan Infrastructure Law (BIL) between FY 2022 and FY 2026. These amounts are reflected in the funding plan for the FY 2022-FY 2026 Capital Program described earlier in this report. The Authority may also receive additional grant funding for terminal development purposes on a competitive basis with other airports under the BIL. These potential additional grant funds are not reflected in the funding plan.

Operating Expenses

12. Operating expenses at the Airport Properties are projected to increase from $390.0 million in FY 2019 to $470.0 million in FY 2026. This incorporates a reduction in operating expenses to $326.3 million in FY 2021, reflecting reductions taken in response to the COVID-19 pandemic, followed by increases beginning in FY 2022. The operating expense projections account for the impact of projects included in the FY 2022-FY 2026 Capital Program that enter service prior to the end of FY 2026, and also reflect the Authority's expectations with respect to inflation.

Airline Revenues

13. The fees and charges paid by the airlines are primarily calculated on a cost recovery basis, reflecting both allocated capital and operating costs to facilities used by the airlines. The calculation of the landing fee, terminal rental rates for all four terminals, and the checked bag screening fee, would continue to reflect current rate-making practices.

14. The Authority would include allocable asset amortization related to projects in the FY 2022-FY 2026 Capital Program in the airline cost base for computing airline terminal rentals and landing fees.

Nonairline Revenues

15. No parking rate increases at Logan Airport or at the Authority's off-Airport Logan Express parking lots are assumed throughout the projection period.

16. The rental car privilege fee would remain at 10% of annual gross rental car revenues and minimum annual guaranteed payments would remain unchanged.

17. The current fee structure for Ride App companies operating at the Airport (i.e., $3.25 per pick-up and $3.25 per drop-off) would remain in effect through the projection period.

18. Terminal concession revenues are assumed to generally change in line with the change in passenger enplanements and as a result of price increases.

Rental Car Center and the CFC Program

19. The Authority incurs operating and routine maintenance expenses associated with the day-to-day operation of the Rental Car Center. Pursuant to its lease agreements with the rental car companies associated with the development of the Rental Car Center, the Authority collects building and ground rental revenues from the rental car companies operating in the Rental Car Center. The rental car companies also pay Common Airport Transit System (CATS) fees associated with their allocated share of the Authority's terminal-area busing system. The building and ground rental revenues, CATS fees, and the Authority's operating expenses for the Rental Car Center are all Revenues and operating expenses, as the case may be, under the terms of the 1978 Trust Agreement.

20. CFC revenues are not pledged to the payment of debt service on the 2022 Bonds or any other of the Authority's Bonds issued under the 1978 Trust Agreement. Such Bonds are payable from and secured by a pledge of the Authority's general Revenues (which exclude CFC revenues). Conversely, general Revenues of the Authority are not pledged to the payment of debt service on the Authority's bonds issued under the terms of its CFC Trust Agreement.

Exhibit A

ACTUAL AND PROJECTED AIRPORT PROPERTIES NET REVENUES

FINANCIAL PLANNING SCENARIO

Massachusetts Port Authority Airport Properties

(for the 12 months ending June 30, passengers and dollars in thousands)

The projections presented in this exhibit were prepared by Authority management using information from the sources indicated and assumptions described in the accompanying text. Inevitably, some of the assumptions used to develop the Authority's projections will not be realized and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the projected and actual results, and those differences may be material.

	Actual			Projection				
	FY 2019	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**
Logan Airport Total Passengers (a)	41,752	30,290	12,193	27,846	33,610	38,400	41,953	42,792
Percentage change		*-27.5%*	*-59.7%*	*128.4%*	*20.7%*	*14.3%*	*9.3%*	*2.0%*
Revenues								
Landing Fees	$ 119,847	$ 110,490	$ 122,564	$ 122,835	$ 128,639	$ 139,289	$ 148,740	$ 157,021
Automobile Parking Fees	181,478	136,436	58,089	127,941	139,229	162,794	177,902	181,260
Utility Fees	13,541	11,126	9,263	12,356	11,515	12,111	12,741	15,673
Terminal Rentals (b)	203,861	211,136	209,318	213,411	240,150	270,693	278,461	294,887
Non-Terminal Building & Ground Rents	54,788	55,725	52,277	56,489	53,754	54,821	55,909	57,010
Concessions								
Terminal concessions	$ 67,097	$ 55,616	$ 22,239	$ 46,641	$ 46,745	$ 53,194	$ 57,291	$ 64,859
Ground transportation	49,306	44,789	29,505	35,637	46,944	53,952	58,945	60,124
Other landside concessions	12,954	10,264	5,998	8,565	11,376	13,305	14,536	14,826
	$ 129,356	$ 110,669	$ 57,742	$ 90,843	$ 105,065	$ 120,451	$ 130,772	$ 139,809
Other	34,596	29,001	13,555	21,703	23,573	25,891	27,643	28,103
Subtotal: Logan Revenues	$ 737,467	$ 664,583	$ 522,808	$ 645,579	$ 701,925	$ 786,049	$ 832,168	$ 873,762
Percentage change								
Hanscom and Worcester Revenues	17,931	16,546	16,009	19,347	20,122	20,782	21,371	21,798
Total Airport Properties Revenues	$ 755,398	$ 681,129	$ 538,817	$ 664,927	$ 722,047	$ 806,831	$ 853,539	$ 895,561
Percentage change		*-9.8%*	*-20.9%*	*23.4%*	*8.6%*	*11.7%*	*5.8%*	*4.9%*
Operating Expenses								
Logan Expenses (c)	$ 361,177	$ 352,390	$ 302,078	$ 322,884	$ 370,630	$ 390,095	$ 406,425	$ 435,896
Percentage change		*-2.4%*	*-14.3%*	*6.9%*	*14.8%*	*5.3%*	*4.2%*	*7.3%*
Hanscom and Worcester Expenses	28,815	31,855	24,187	26,458	30,287	31,411	32,465	34,306
Airport Properties Operating Expenses	$ 389,992	$ 384,245	$ 326,265	$ 349,342	$ 400,918	$ 421,506	$ 438,890	$ 470,202
Percentage change		*-1.5%*	*-15.1%*	*7.1%*	*14.8%*	*5.1%*	*4.1%*	*7.1%*
AIRPORT PROPERTIES NET REVENUES	$ 365,406	$ 296,884	$ 212,553	$ 315,584	$ 321,130	$ 385,325	$ 414,649	$ 425,359
Percentage change		*-18.8%*	*-28.4%*	*48.5%*	*1.8%*	*20.0%*	*7.6%*	*2.6%*

Note: Projections for FY 2022 reflect actual data for the nine months ending March 31, 2022, and budgeted data for the remaining three months of FY 2022.

(a) Excludes general aviation passengers.

(b) Includes charges for baggage screening facilities.

(c) Including expenses for other unrecoverable items, such as budget contingency.

Source: Massachusetts Port Authority.

APPENDIX E

SUMMARY OF CERTAIN PROVISIONS OF THE 1978 TRUST AGREEMENT

The following summary does not purport to be complete and is subject to all of the terms and conditions of the 1978 Trust Agreement, to which reference is hereby made, the form of which is available for examination at the offices of the Authority and the Trustee. The summary makes use of terms defined in the 1978 Trust Agreement, certain of which are also defined below.

Pledge Effected by the 1978 Trust Agreement (Sections 701, 601, 507 and 507A)

Payment of the principal, interest and redemption premium on the Bonds is secured by a pledge of the Revenues, in the manner and to the extent set forth in the 1978 Trust Agreement. See "SECURITY FOR THE 2022 BONDS -- General". The Enabling Act provides that the Authority is authorized in the 1978 Trust Agreement to pledge its tolls and other revenues, over and above the amounts necessary to pay current expenses and to provide reserves therefor, to the payment of the interest on and principal of its Bonds. The Enabling Act further provides that such pledge is valid and binding when made, and that the revenues so pledged shall immediately be subject to the lien of such pledge without physical delivery thereof or further act, and such lien shall be valid and binding as against all parties having claims of any kind irrespective of whether such parties have notice thereof. The Bonds issued under the 1978 Trust Agreement are not a debt or obligation of the Commonwealth or of any political subdivision thereof but are payable solely from the Revenues pledged for their payment and certain Funds and Accounts created by the 1978 Trust Agreement.

The 1978 Trust Agreement provides that the moneys in all Funds and Accounts which are held by the Authority shall be subject to a lien and charge in favor of the Trustee and the holders of the Bonds to the same extent as provided with respect to moneys deposited with the Trustee. All moneys deposited with the Trustee as required by the 1978 Trust Agreement shall be held by the Trustee in trust and applied as provided in the 1978 Trust Agreement and, pending such application, shall be subject to a lien and charge in favor of the Trustee and the holders of the outstanding Bonds on the terms and conditions set forth therein until disbursed.

The 1978 Trust Agreement provides that amounts, if any, deposited in a separate account of the Operating Fund created under the 1978 Trust Agreement which represent payments in respect of pension obligations of the Authority will, upon the occurrence of an event of default under the 1978 Trust Agreement, first be applied to present and accrued pension benefits of the Authority's employees. The 1978 Trust Agreement further provides for the payment of the Authority's obligations in respect of post-retirement health benefits to a separate trustee or into a separate account of the Operating Fund. Amounts, if any, deposited in such separate account will, upon the occurrence of an event of default under the 1978 Trust Agreement, first be applied to present and accrued post-retirement health benefits of the Authority's employees.

Establishment of Funds and Accounts (Sections 503, 209 and 401)

The 1978 Trust Agreement creates a Revenue Fund, an Operating Fund (which includes a separate Self-Insurance Account, a separate pension account and a separate post-retirement health benefits account), an Interest and Sinking Fund (which includes three separate accounts, namely, a Bond Service Account, a Redemption Account and a Reserve Account (which includes a Pooled Reserve Subaccount and may include one or more additional subaccounts established by resolution of the Authority), and may also include one or more Term Bond Investment Accounts established by resolution of the Authority for a subsequent Series of Bonds), a Maintenance Reserve Fund, a Payment in Lieu of Taxes Fund, a Capital Budget Fund and an Improvement and Extension Fund (which includes separate Rebate Funds pertaining to each Series of Bonds, separate principal, interest and escrow accounts relating to a subordinated debt financing of the Authority, payment and rebate accounts relating to the tax-exempt commercial paper program of the Authority, and such other accounts as the Authority may from time to time establish). The 1978 Trust Agreement also provides for a Construction Fund and for separate Project Accounts within such Fund.

The Authority holds and administers in trust the Revenue Fund, the Operating Fund (except the Self-Insurance Account, the pension account and the post-retirement health benefits account) and the Improvement and Extension Fund. All of the other Funds and Accounts are held and administered by the Trustee.

Application of Revenues

Under the 1978 Trust Agreement all Revenues are to be deposited, daily as far as practicable, into the Revenue Fund held by the Authority.

<u>Operating Fund (Section 506)</u> -- As often as practicable the Authority shall transfer from the Revenue Fund to the Operating Fund all Revenues on deposit therein. The Authority will pay when due all Operating Expenses from the Operating Fund.

On the seventh business day of each month the Authority is required to make transfers from the moneys on deposit in the Operating Fund as of the seventh business day of such month as follows:

to the trustee of the Authority's pension plan, one-twelfth (1/12) of the Authority's actuarially determined annual pension expense;

to a separate trustee or to a special separate post-retirement health benefit account, one-twelfth (1/12) of the Authority's actuarially determined annual post-retirement health expense; and

to the Trustee for deposit in the Self-Insurance Account, amounts substantially as recommended by the Authority's Risk Management Consultant.

After (x) paying Operating Expenses, (y) making any required transfers to the trustee of the Authority's pension fund, to the trustee for the Authority's post-retirement health benefit account and to the Trustee for deposit in the Self-Insurance Account, and (z) retaining in the Operating Fund such amount as the Authority may deem necessary (provided that the balance retained therein does not exceed 15% of annual Operating Expenses established in the Annual Budget of the Authority), the Authority is required on the seventh business day of each month to transfer the balance in the Operating Fund to the Trustee for deposit in the following Funds and

Accounts in the following order (no transfer to be made into any Fund or Account until there shall have been deposited in the next preceding Fund or Account the full amount required):

(1) Interest and Sinking Fund (Sections 510 and 522) -- Amounts in this Fund will be applied to the payment of the Bonds and any additional Bonds which may be issued in the future. Such Bonds which may be issued in the future are hereinafter referred to as "Additional Bonds".

Bond Service Account: There shall be deposited in this Account the amount needed to make the sum therein, together with any amounts transferred from the Construction Fund or Available Funds deposited for the payment of a Series of Bonds pursuant to the 1978 Trust Agreement, equal to (a) interest accrued and to accrue until the first day of the next month on all outstanding Bonds and any Additional Bonds, plus (b) principal accrued and to accrue until the first day of the next month on all serial Bonds and any serial Additional Bonds, which will become payable within the next year.

Redemption Account: There shall be deposited in this Account the amount needed to make the amount deposited therein equal to the Amortization Requirements, if any, for such fiscal year on all outstanding term Bonds and any term Additional Bonds accrued and to accrue until the first day of the next month, plus an amount equal to any premium which would be payable on any date commencing with July 2 in such fiscal year and ending with July 1 in the following fiscal year, both inclusive, accrued or to accrue until the first day of the next month less the amount of Available Funds deposited in the Redemption Account for the payment of a Series of Bonds pursuant to the 1978 Trust Agreement. If the balance remaining after making the deposit to the Bond Service Account shall not be sufficient to make the deposits into the Redemption Account and the Term Bond Investment Account, described below, the amount to be deposited in each Account shall be pro-rated in accordance with the respective amounts required.

Term Bond Investment Account: The 1978 Trust Agreement allows the Authority to provide for the payment of the principal of Additional Bonds issued as term Bonds through establishment of a Term Bond Investment Account. If a Term Bond Investment Account is established, monthly amounts would be deposited therein and invested in Government Obligations in accordance with the resolution authorizing such term Additional Bonds. No Term Bond Investment Account was established for any Series of outstanding Bonds, and none will be established for the 2022 Bonds.

Reserve Account: Within the Reserve Account there has been established the "Pooled Reserve Subaccount" and one or more additional subaccounts may also be established by resolution of the Authority. All of the Authority's outstanding Bonds, except for the Revenue Refunding Bonds, Series 2020-A (AMT) and Revenue Refunding Bonds, Series 2020-B (Taxable) (collectively, the "2020 Bonds") are secured by the Pooled Reserve Subaccount and, upon issuance, the 2022 Bonds will also be secured by the Pooled Reserve Subaccount. Upon issuance of any Bonds there shall be deposited in the Pooled Reserve Subaccount an amount at least equal to one-half of the difference between (a) the increase in the maximum annual Principal and Interest Requirements on such Bonds secured by the Pooled Reserve Subaccount and all then-outstanding Bonds secured by such subaccount, and (b) the amount, if any, in the Pooled Reserve Subaccount in excess of the maximum annual Principal and Interest

Requirements on all then-outstanding Bonds. The Authority shall deposit into the Pooled Reserve Subaccount from the proceeds of any Series of additional Bonds secured by such subaccount, or from such other moneys of the Authority as may be available and which the Authority elects to apply for such purpose, an amount at least equal to one-half the amount equal to (a) the increase in the maximum annual Principal and Interest Requirements on such Bonds and all then-outstanding Bonds secured by such subaccount, and (b) the amount, if any, in the Pooled Reserve Subaccount in excess of the maximum annual Principal and Interest Requirements on all then-outstanding Bonds secured by such subaccount. In addition, there shall be deposited in this subaccount each month a sum equal to one-sixtieth of the difference between (a) the maximum annual Principal and Interest Requirements for any fiscal year thereafter on account of all Bonds then outstanding, less (b) the sum of (x) the amount so deposited into the Pooled Reserve Subaccount upon the issuance of such Bonds, and (y) any amount in the Pooled Reserve Subaccount in excess of the maximum annual Principal and Interest Requirements on all then-outstanding Bonds prior to the issuance of such Bonds. If the amounts held on deposit in the Pooled Reserve Subaccount exceed the maximum Principal and Interest Requirements for any fiscal year on account of all Bonds then outstanding then secured by such subaccount, the excess shall be transferred to the Improvement and Extension Fund.

Prior to the authentication and delivery of any Series of Bonds, the Authority shall adopt a resolution which shall specify or shall delegate, within specified parameters to an authorized officer of the Authority, the ability to determine the Reserve Requirement, if any, with respect to such Series of Bonds to be deposited in or credited to a subaccount in the Reserve Account with respect to such Series of Bonds designated by such resolution and any other terms with respect to the funding of such Reserve Requirement.

> There may be created within the Reserve Account by the resolution of the Authority authorizing a Series of Bonds a separate subaccount for such Series of Bonds; provided that (i) the Authority may elect in such resolution that any then-existing subaccount within the Reserve Account (including without limitation the Pooled Reserve Subaccount) shall secure such additional Series of Bonds on a parity basis (if permitted by the resolution of the Authority which established such subaccount), and (ii) with respect to any Series of Bonds, the Authority may elect in the resolution that such Series of Bonds shall not be secured by any subaccount in the Reserve Account and, accordingly, not to establish any subaccount in the Reserve Account to secure such Series of Bonds. Any resolution of the Authority providing for the issuance of a Series of Bonds which establishes a separate subaccount within the Reserve Account shall specify (a) whether such subaccount shall secure only such Series of Bonds or may secure additional Series of Bonds and (b) the Reserve Requirement applicable to such subaccount.

The Authority shall not be required to fully fund a subaccount in the Reserve Account at the time of issuance of a Series of Bonds, if it elects, by the resolution of the Authority authorizing issuance of such Series of Bonds, to fully fund the applicable subaccount in the Reserve Account over a period specified in such resolution, not to exceed sixty (60) months, commencing with the next succeeding fiscal year of the Authority, during which it shall make substantially equal monthly installments in order that the amounts on deposit therein at the end of such period shall equal the Reserve Requirement for such Series of Bonds.

In lieu of making deposits to the Reserve Account as and at the times required by the 1978 Trust Agreement, the Authority, at its option, may satisfy all or any portion of such deposit requirement by providing to the Trustee (a) an irrevocable, unconditional letter of credit issued by a bank, savings and loan association or other provider of such letters of credit whose long-term obligations are rated in one of the two highest rating categories by Moody's Investors Service and Standard & Poor's, or (b) an insurance policy providing substantially equivalent liquidity as an irrevocable, unconditional letter of credit and issued by a municipal bond or other insurance company that is of sufficient credit quality to entitle debt backed by its insurance policy or surety bond to be rated in one of the two highest rating categories by Moody's Investors Service and Standard & Poor's.

(2) Maintenance Reserve Fund (Section 510) -- There shall be deposited each month in this Fund an amount equal to one-twelfth of 1% of the Replacement Cost of all Projects of the Authority as determined by the Consulting Engineer for the then-current fiscal year, or such greater amount as may have been specified in the Annual Budget for such fiscal year; provided that the amount on deposit in the Maintenance Reserve Fund and not theretofore obligated shall not exceed 5% of the Replacement Cost of all Projects of the Authority.

(3) Payment in Lieu of Taxes Fund (Section 510) -- There shall be deposited in this Fund the amount required to make the balance in this Fund equal to the cumulative amount which should then be on deposit therein assuming the amounts payable in lieu of taxes on the next following payment dates were paid in equal monthly installments from the preceding payment dates under any agreements entered into pursuant to authorizing legislation.

(4) Capital Budget Fund (Section 510) -- There shall be deposited in this Fund amounts necessary to provide for the Capital Budget in each fiscal year as determined by the Authority less amounts thereof already expended plus all amounts in the Capital Budget Fund obligated with respect to prior fiscal years but not yet expended, subject to increase or reduction by resolution of the Authority. Amounts may be withdrawn from the Capital Budget Fund for expenditure in accordance with the Capital Budget or as otherwise determined by the Authority.

(5) Improvement and Extension Fund (Section 510) -- Any balance of moneys in the Operating Fund after making required transfers to the Trustee for the above Funds and Accounts will be transferred to the Improvement and Extension Fund. Amounts may be withdrawn from the Improvement and Extension Fund for any lawful purpose of the Authority.

Application of Funds and Accounts

Operating Fund (Section 506) -- Operating Expenses, as determined in the Authority's Annual Budget, are paid from this Fund. Amounts deposited in the Self-Insurance Account in the Operating Fund are to be used to pay uninsured or self-insured losses.

Interest and Sinking Fund (Sections 511, 512, 514 and 519) -- Moneys in the Bond Service Account shall be applied to the payment of interest on the Bonds and any Additional Bonds and the principal amount of any Bonds and any Additional Bonds as the same become due.

Moneys in the Redemption Account shall be applied to the purchase (at not more than the current redemption price unless another price is set by the Authority) or redemption of the Bonds and any Additional Bonds. Unless previously applied to purchase Bonds and any Additional Bonds, the Trustee shall apply moneys in such Account to meeting Amortization Requirements of the Bonds or any Additional Bonds on each July 1 when due. Moneys deposited in the Redemption Account shall be applied, first, to the purchase or redemption of term Bonds and any term Additional Bonds of each Series outstanding to the extent of their respective Amortization Requirements for the then-current fiscal year plus the applicable premium, if any, and thereafter, at the option of the Authority, to the purchase or redemption of Bonds and any Additional Bonds.

Moneys in the Term Bond Investment Account, if such an account shall be created, shall be applied in the retirement of any applicable Series of term Additional Bonds required to be redeemed by either redemption or, at the direction of the Authority, by purchase at a price not exceeding the next applicable redemption price, or to the purchase of Government Obligations to be applied on the maturity date to payment of such Additional Bonds.

Moneys in each subaccount within the Reserve Account shall be used by the Trustee to pay interest, principal of any serial Bonds, and Amortization Requirements with respect to term Bonds, or to make deposits to a Term Bond Investment Account, to the extent Bonds are secured by such subaccount, whenever and to the extent that the Bond Service Account and the Redemption Account or the Term Bond Investment Account are insufficient for such purposes.

If at any time after so applying the applicable subaccount within the Reserve Account, moneys held in the Bond Service Account or the Redemption Account of the Interest and Sinking Fund shall be insufficient for the payment of the principal or premium of, or interest or Amortization Requirements on, the Bonds and any Additional Bonds as the same become due, such insufficiency shall be made up by transfers from the Improvement and Extension Fund, the Capital Budget Fund, the Payment in Lieu of Taxes Fund and the Maintenance Reserve Fund, in that order.

<u>Maintenance Reserve Fund (Section 516)</u> -- Moneys in this Fund are to be applied to pay for (i) renewals, reconstruction and replacement of any facilities of the Authority, (ii) acquiring and installing or replacing equipment, (iii) unusual or extraordinary maintenance or repairs, (iv) repairs or replacements for which the proceeds of insurance are inadequate, and (v) transfers to the Bond Service Account and Redemption Account when these Accounts are insufficient to pay the principal or premium of, or interest or Amortization Requirements on, the Bonds and any Additional Bonds, or for making required deposits to any Term Bond Investment Account, as they become due.

<u>Payment in Lieu of Taxes Fund (Section 517)</u> -- Moneys in this Fund will be used to make payments in lieu of taxes pursuant to agreements entered into by the Authority pursuant to statute or, as provided in the 1978 Trust Agreement, payment of a shortfall in debt service on the Bonds.

<u>Capital Budget Fund (Section 517A)</u> -- Moneys in this Fund are to be disbursed in accordance with any Capital Budget adopted by the Authority. Amounts in this Fund may be

withdrawn to the extent not previously obligated. The Authority may transfer amounts from the Improvement and Extension Fund to this Fund as it sees fit.

Improvement and Extension Fund (Section 518) -- Moneys in this Fund may be used by the Authority for any lawful purpose, including, without limitation, transfer to any other Fund or Account. The resolutions of the Authority pertaining to each outstanding Series of Bonds created within the Improvement and Extension Fund as segregated accounts separate Rebate Funds for such Bonds, each to be held for the sole benefit of the United States of America. Excess Earnings (as defined in such resolutions) will be deposited in Rebate Funds and used exclusively to make rebate payments to the United States of America. To the extent of any deficiency in any Rebate Fund, such payments will be made out of the Operating Fund and other available moneys of the Authority.

If then permitted by law, moneys held for the credit of the Improvement and Extension Fund may be pledged to the payment of principal of and interest on notes or other obligations issued for any purpose for which moneys in such Fund may be disbursed. The Improvement and Extension Fund or portions thereof have been and may be pledged to secure certain obligations of the Authority. See "APPENDIX A– OTHER OBLIGATIONS—Subordinated Indebtedness" and "– Commercial Paper".

Covenants as to Fees and Charges (Section 501)

In the 1978 Trust Agreement the Authority covenants:

To charge such tolls, rates, fees, rentals and other charges as from time to time may be necessary so that the Revenues in each fiscal year will at least equal in such fiscal year the greater of (a) an amount sufficient to provide funds for Operating Expenses for such fiscal year plus an amount equal to 125% of Principal and Interest Requirements on all outstanding Bonds during such fiscal year (excluding capitalized interest payable from the Construction Fund), or (b) an amount sufficient to provide funds for Operating Expenses for such fiscal year, to pay principal of, interest on and redemption price, if any, on all outstanding Bonds as required by the 1978 Trust Agreement (less capitalized interest paid from the Construction Fund and Available Funds deposited as provided in the 1978 Trust Agreement), to make required deposits to the Maintenance Reserve Fund, the Payment in Lieu of Taxes Fund and the Capital Budget Fund, and to provide amounts required to be deposited to the Improvement and Extension Fund pursuant to any supplement to the 1978 Trust Agreement which may be entered into by the Trustee and the Authority providing for the issuance of separately secured obligations.

If in any year the Revenues shall be less than the amounts required by the preceding paragraphs, the Authority, before the first day of October of the following fiscal year, will cause recognized experts, other than the Consulting Engineers, in the field of estimating revenues of a facility or element of a facility to which the recommendations relate, to recommend revised schedules of tolls, rates, fees, rentals and other charges; and if the Authority shall comply with all such recommendations, the failure of Revenues to equal the amounts specified in the preceding paragraph will not of itself constitute an event of default under the 1978 Trust Agreement.

Before placing in operation any Additional Facilities financed by a Series of Bonds, to fix and place in effect tolls, rates, fees, rentals and other charges in substantial conformity with those anticipated by the recognized experts in estimating the Revenues of such Additional Facilities in connection with the issuance of such Series of Bonds.

Before placing in operation any Additional Improvements financed by a Series of Bonds for the use of which a charge would ordinarily be made, to place in effect with respect thereto tolls, rates, fees, rentals and other charges in substantial conformity with those anticipated by the recognized experts in estimating the Revenues of the Project to which such Additional Improvements relate in connection with the issuance of such Series of Bonds.

To place in effect on the date or dates specified any increase in rates and charges that have been adopted by the Authority and taken into account by the recognized experts who estimated Revenues in connection with the issuance of an additional Series of Bonds, provided that such increase need not be imposed in the event that the Secretary-Treasurer certifies in writing, confirmed by certificates of such recognized experts, that such additional Series of Bonds could then be issued under the provision of the 1978 Trust Agreement that permitted the issuance of such additional Series of Bonds.

Issuance of Additional Bonds (Sections 209 and 210)

The 1978 Trust Agreement permits the issuance of Additional Bonds for the purpose of financing costs incident to any Additional Improvements or Additional Facilities and of refunding outstanding Bonds and subordinated obligations of the Authority. Such Additional Bonds may be issued only if, at the time of such issuance, there is no existing default under the 1978 Trust Agreement and certain projected or historical earnings tests are met. Such tests are to be based on information with respect to the Additional Improvements or Additional Facilities provided by recognized experts (as to estimated future Revenues), by the Consulting Engineers or a Consultant (as to cost and estimates of funds available to pay such cost, completion date, date on which such Additional Facilities or Additional Improvements will be placed in operation, and estimated future Operating Expenses), and by the Authority (as to historical financial information, estimated investment earnings and the Principal and Interest Requirements on the Additional Bonds). Certificates must be filed with the Trustee showing compliance with the following requirements:

A. If the Additional Bonds are issued to finance all or the first portion of the estimated cost of Additional Improvements, (i) Net Revenues in any twelve consecutive months of the last 18 months were at least 125% of the Principal and Interest Requirements on all Bonds outstanding during such twelve months, and (ii) the estimated average annual Net Revenues for the three fiscal years commencing immediately following the latest estimated date of placing in operation any Additional Improvements or Additional Facilities for which any Series of Bonds has been or is then being issued will be at least 130% of the estimated maximum Principal and Interest Requirements in any year thereafter on account of all Bonds to be outstanding, including the estimated amount of Bonds to be issued in the future to complete such Additional Improvements or Additional Facilities.

B. If the Bonds issued under Paragraph A were issued to finance only the first portion of the estimated cost of Additional Improvements, subsequent Bonds may be issued to finance the cost of such Additional Improvements upon compliance with a test comparable to that set forth in clause (ii) of Paragraph A modified by changing the percentage contained therein to 125%.

C. If the Bonds are issued to finance all or the first portion of the estimated cost of Additional Facilities, the applicable test is comparable to that set forth in Paragraph A modified by changing the percentage in clause (ii) of Paragraph A to 140%.

D. If the Bonds issued under Paragraph C are issued to finance only the first portion of the estimated cost of Additional Facilities, subsequent Bonds may be issued to finance the cost of such Additional Facilities upon compliance with a test comparable to that set forth in clause (ii) of Paragraph A modified by changing the percentage contained therein to 135%.

E. Notwithstanding Paragraphs A, B, C and D, if the Additional Bonds are being issued to finance all or any portion of the estimated cost of Additional Improvements or Additional Facilities, they may be issued if Net Revenues in any twelve consecutive months of the last 18 months were at least 125% of the maximum annual Principal and Interest Requirements on all outstanding Bonds, the Bonds then being issued and any subsequent Additional Bonds estimated to be issued to complete Additional Improvements or Additional Facilities for which a Series of Additional Bonds has been issued under Paragraph A or C. In addition to the statement by the Consulting Engineers or a Consultant described above, the Authority is required to file the certificate of the Consulting Engineers or a Consultant described below under "Restrictions on Certain Additional Facilities".

F. If Bonds are issued under Paragraph A or C to finance all of the then estimated cost of Additional Improvements or Additional Facilities, an additional Series of Bonds to complete such Additional Improvements or Additional Facilities may be issued without compliance with any of the tests in the paragraphs above.

With respect to any Additional Bonds which bear interest at a variable rate or a rate which is otherwise not subject to definite determination over the period of any calculation required by the 1978 Trust Agreement, all provisions of the 1978 Trust Agreement which require use of a definite interest rate for purposes of any calculation shall be applied as if the interest rate for such Additional Bonds were the rate estimated by a nationally known investment banking firm, selected by the Authority (which firm may be an owner or underwriter of any Bonds), to be the rate at which such Additional Bonds would bear interest if they were issued at par and bore a fixed rate for the entirety of their term. The provisions of the 1978 Trust Agreement requiring any calculation shall be applied to Additional Bonds which accrue and compound interest for all or any portion of the term thereof as if interest accrued during such period in the manner provided in such Additional Bonds. Any Additional Bonds may accrue interest at such rate or rates as are determined in accordance with the resolution of the Authority providing for their issuance and such interest may be payable on such date or dates, which may be other than January 1 and July 1, as are set forth in such resolution.

Issuance of Refunding Bonds (Sections 209 and 212)

Under the 1978 Trust Agreement the Authority may issue Additional Bonds for the purpose of refunding all or any part of the outstanding Bonds of any one or more issues or series then outstanding and paying issuance costs.

Such refunding Bonds may be issued only if one of the following conditions is met: (i) the Principal and Interest Requirements on account of all Bonds for each fiscal year until the year following the fiscal year in which any non-refunded Bonds mature are not increased by reason of the refunding, (ii) the Net Revenues of the Authority during any twelve consecutive months out of the most recent 18-month period were not less than 125% of the maximum annual Principal and Interest Requirements for any fiscal year thereafter (giving effect to the refunding and any Bonds to be issued for the completion of Additional Improvements and Additional Facilities); or (iii) (a) the Net Revenues during any twelve consecutive months out of the most recent 18-month period were at least 125% of the Principal and Interest Requirements on all outstanding Bonds during such twelve months, and (b) the estimated average annual Net Revenues for the three fiscal years commencing immediately following the latest estimated date of placing in operation any Additional Improvements or Additional Facilities for which any series of Bonds has been issued will be at least 135% of the estimated maximum Principal and Interest Requirements for any year (giving effect to the refunding and any Bonds to be issued for the completion of Additional Improvements and Additional Facilities).

Issuance of Other Obligations (Section 216)

The 1978 Trust Agreement permits the Authority to issue obligations for any lawful purpose which are not secured by any pledge on, nor payable from, the Revenues or any of the Funds and Accounts created by the 1978 Trust Agreement.

The 1978 Trust Agreement permits the Authority, if permitted by law, to issue notes or other obligations for any purposes (as described above) for which Additional Bonds may be issued and to pledge moneys held for the credit of the Improvement and Extension Fund to the payment of principal and interest of such notes or other obligations which have been issued for any purpose for which the moneys held for the credit of such Fund may be disbursed. The Authority may also issue notes payable solely from the proceeds of the issuance of Additional Bonds or other permitted borrowing. The 1978 Trust Agreement also provides that the Authority may issue obligations the principal of and redemption premium, if any, and interest on which is payable from and secured by a pledge of and lien on the Revenues junior and subordinate to those created by the 1978 Trust Agreement for the benefit of the Bondholders, provided that such obligations shall be payable solely from moneys in the Improvement and Extension Fund, from additional issues of such subordinate obligations, or, if such obligations were issued for purposes for which Additional Bonds could have been issued, from the proceeds of Additional Bonds thereafter issued.

Construction Fund (Article IV)

Under the 1978 Trust Agreement, the proceeds of all Additional Bonds or Notes issued to provide funds to pay the cost of Additional Improvements or Additional Facilities are to be deposited in separate Project Accounts within the Construction Fund. The Construction Fund is held by the Trustee. There may also be deposited in the appropriate Project Accounts other moneys received from any other source for the construction of Additional Improvements or Additional Facilities. Except for payments to cover interest on any Additional Bonds through the second interest payment date after completion of construction of the last of the Additional Improvements or Additional Facilities financed therewith (to the extent such interest payments are called for by the resolution of the Authority authorizing the issuance of such Additional Bonds), payments may be made only upon filing with the Trustee a requisition properly executed on behalf of the Authority and accompanied by an approving certificate of the Consulting Engineers or a Consultant and a certificate of the Authority to the effect that the obligations which are the subject of the requisition are due and payable. Any balance remaining in the appropriate Project Account in the Construction Fund upon completion of the Additional Improvements or Additional Facilities funded with a particular Series of Bonds not reserved by the Authority with the approval of the Consulting Engineers or a Consultant for the payment of any remaining cost thereof shall be transferred to the Improvement and Extension Fund.

Completion of Projects (Section 702)

The Authority covenants that forthwith after the issuance of any Series of Additional Bonds to finance Additional Improvements or Additional Facilities it will proceed with the construction or acquisition of such Additional Improvements or Additional Facilities. Such construction will be in accordance with plans approved by the Consulting Engineers or a Consultant. If the Authority determines not to construct or acquire, or to reduce the scope of, any such Additional Improvements or Additional Facilities, it may construct other improvements or facilities or broaden the scope of such improvements or facilities if the recognized experts certify that there will be no overall cost increase and that the changes will not impair the operating efficiency of the Project or materially adversely affect estimated Net Revenues. However, in the case of the improvements or facilities financed with Bonds issued pursuant to Paragraph E under "Issuance of Additional Bonds" above, construction or acquisition may be suspended or abandoned without compliance with the preceding sentence and any unexpended Bond proceeds will be transferred to another Project Account in the Construction Fund or to the Redemption Account. In any event, if the Authority determines that changes in financial, economic or other conditions since the issuance of any Additional Bonds make it imprudent to continue construction or acquisition of the Additional Improvements or Additional Facilities financed therewith, then construction or acquisition may be suspended or abandoned and any unexpended Bond proceeds may be transferred to another Project Account in the Construction Fund or the Redemption Account, as the Authority may determine.

No Liens (Section 704)

The Authority covenants not to create or suffer to be created any lien upon any Project or any of the Revenues except the lien created by the 1978 Trust Agreement and the liens described under "Issuance of Other Obligations" above. The Authority is required to pay or cause to be discharged all claims and demands which if unpaid might become such a lien, but is not required to provide for the payment and discharge of liens which are being contested in good faith and by appropriate legal proceedings.

Accountants, Consultants and Engineers (Section 706)

The 1978 Trust Agreement provides that the Authority (i) will, for the purpose of performing and carrying out the duties imposed on the Accountants by the 1978 Trust Agreement, employ a firm of independent certified public accountants of recognized ability and standing nationwide, (ii) will, for the purpose of performing and carrying out the duties imposed upon the Consulting Engineers, the Airport Consultants and the Traffic Engineers by the 1978 Trust Agreement, employ independent engineers or engineering firms having a nationwide and favorable repute for skill and experience in such work, and (iii) for the purpose of determining its annual pension expense and its annual post-retirement health benefit expense, may employ as Pension Consultants an independent actuarial consulting organization having a nationwide and favorable repute for skill and experience in such work. Other experts must be independent experts or firms of recognized ability and standing in their fields. The Consulting Engineers must prepare an annual report regarding maintenance of each Project and recommendations, including estimated costs, for maintenance and repair. Such reports are furnished to the Trustee and each Bondholder of Record. The Pension Consultants must submit annual reports setting forth the amount required to be transferred to the trustee for the Authority's pension plan in the next succeeding fiscal year.

Insurance (Sections 706 and 707)

The Authority covenants in the 1978 Trust Agreement that it will employ a Risk Management Consultant of recognized ability and standing nationwide to make recommendations with respect to insurance against direct physical damage and hazards, including the amounts thereof, with deductibles and exclusions and a program of self-insurance. The Risk Management Consultant will submit an annual report setting forth the insurance recommended to be carried or the program of self-insurance recommended to be undertaken. The Authority covenants that it will substantially comply with the recommendations of the Risk Management Consultant or with additional recommendations with respect to a reduced program of self-insurance if the Authority requests the Risk Management Consultant to make such additional recommendations. The Authority also covenants to carry insurance against loss of revenues due to physical loss or damage to its facilities and excess liability insurance substantially as recommended by the Risk Management Consultant. The 1978 Trust Agreement also provides that the Authority will provide such workers' compensation benefits or such employer's liability protection as may be required by law but may provide the same through self-insurance.

No Impairment of Tax Exemption (Section 709)

The Authority covenants that it will not take any action adversely affecting the federal income tax exemption of interest on the Bonds (except Bonds issued as taxable Bonds the interest on which is subject to federal income taxation) and will seek to preserve the exemption of interest on the Bonds from state income taxation. The Authority also will take or require to be taken such acts as may be reasonably within its ability and as may be required under applicable law to preserve the exemption from federal income taxation of interest on the Bonds (except any Bonds issued as taxable Bonds the interest on which is subject to federal income taxation).

Restrictions on Certain Additional Facilities (Section 710)

The Authority covenants that it will not construct, acquire, or operate any building, structure or other facility, other than facilities financed by Additional Bonds issued under Paragraphs A through D under "Issuance of Additional Bonds" above, unless the Consulting Engineers or a Consultant file a statement to the effect that in their opinion the operation of such facility will not materially adversely affect the Net Revenues or impair the operating efficiency of the Projects taken as a whole.

Restrictions on Disposition of Property (Section 714)

The Authority covenants that it will not dispose of or encumber any Project or part thereof except that it may sell or otherwise dispose of machinery, fixtures and other movable property if they are no longer needed or useful and the proceeds are applied to replacement or are deposited in the appropriate Project Account in the Construction Fund or in the Maintenance Reserve Fund, the Improvement and Extension Fund or the Redemption Account, as the Authority may determine. Subject to the provisions of the Authority's Enabling Act, real estate which the Authority, with the approval of the Consulting Engineers or a Consultant, determines is no longer needed or useful may be sold or may be exchanged for real estate if the Authority and Consulting Engineers or a Consultant declare such exchange advantageous. No approval of the Consulting Engineers or a Consultant is required for the sale or exchange of real estate where the aggregate value of the real estate and contiguous parcels sold or exchanged within two years is no more than $500,000.

Notwithstanding the preceding paragraph, the Authority may, if permitted by law, sell or exchange all or any part of a Project other than any property necessary for the efficient operation of the Airport, provided that certificates are filed with the Trustee showing compliance with the following requirements:

(A) no event of default is then existing under the 1978 Trust Agreement;

(B) the amount on deposit in each subaccount within the Reserve Account is at least equal to the Reserve Requirement *for* all Bonds then outstanding; and

(C) pro forma estimates confirmed by recognized experts show that the average annual Net Revenues for the two preceding fiscal years after giving effect to such sale or exchange would be at least 140% of the maximum annual Principal and Interest Requirements in any fiscal year thereafter on all Bonds then outstanding.

The proceeds of any such sale are not Revenues. See "Certain Definitions" below. Such proceeds may be deposited in the Improvement and Extension Fund or the Redemption Account as the Authority may direct. The Authority may also lease and grant licenses to use all or parts of its Projects. The Enabling Act requires the approval of the Governor of the Commonwealth for the sale of any Airport Properties or Port Properties originally acquired from the Commonwealth and provides that any proceeds of such sale be paid to the Commonwealth.

Annual Budget (Section 505)

Under the 1978 Trust Agreement, the Authority agrees to adopt an Annual Budget prior to each fiscal year, setting forth expected Operating Expenses and Revenues of the Authority and deposits in the various Funds and Accounts described above, and to furnish copies thereof to the Trustee, Consulting Engineer and each Bondholder of Record. The Authority may at any time adopt an amended Annual Budget for the remainder of the then-current fiscal year which shall be treated as the Annual Budget. The Authority agrees that except for amounts payable from the Maintenance Reserve Fund it will not expend any amount or incur any obligations for maintenance, repair and operation in excess of the amounts provided for Operating Expenses in the Annual Budget, unless the excess is derived from a source other than Revenues. The Authority is also required to adopt a capital budget annually.

Investments in Funds and Accounts (Section 602)

Moneys that are held in the various Funds and Accounts but are not currently needed for the purposes of such Funds and Accounts will be invested by the Authority, or the Trustee upon direction of the Authority, in Investment Securities, except that moneys held in a Term Bond Investment Account may be invested only in Government Obligations. See "Certain Definitions -- Investment Securities" and "-- Government Obligations" below. Securities purchased as an investment of moneys in any Fund or Account created under the 1978 Trust Agreement shall be valued at their amortized cost. The income received from such investment shall, in the case of the Construction Fund and the Self-Insurance Account, be applied as provided in the resolution creating such Account.

Events of Default and Remedies of Bondholders (Article VIII)

The 1978 Trust Agreement, in Section 802, defines events of default to include, among others, failure to pay principal or redemption price when due or any installment of interest within 30 days after due, failure to make a required deposit in a Term Bond Investment Account relating to Additional Bonds as will permit the purchase of Government Obligations in accordance with the resolution authorizing such Additional Bonds, failure to carry on with reasonable dispatch the construction of any Additional Improvements or Additional Facilities (except as described above under "Completion of Projects"), a determination of receivership or insolvency, and failure to perform the covenants contained in the 1978 Trust Agreement after notice. Certain grace periods, not exceeding 60 days in any case, are permitted for remedying certain defaults.

Upon the occurrence and continuance of an event of default the Trustee may, on its own initiative, and shall, upon the request of the holders of not less than 25% in principal amount of the Bonds then outstanding, declare the entire principal amount of all outstanding Bonds to be immediately due and payable. The Trustee may, and upon the request of the holders of not less than 25% in principal amount of all Bonds not then due by their terms shall, annul such declaration at any time before final judgment or decree in any suit instituted on account of the default or before completion of any other remedy, if all amounts then due on all outstanding Bonds by their terms and all other charges and liabilities of the Trustee and amounts payable by the Authority under the 1978 Trust Agreement have been paid or deposited with the Trustee and every other known default shall have been remedied.

Upon the happening and continuance of an event of default the Trustee may, on its own initiative, and shall, upon the request of the holders of not less than 25% in principal amount of the Bonds then outstanding and upon being indemnified to its satisfaction, proceed either at law or in equity to protect and enforce its rights and the rights of bondholders under the Enabling Act or the 1978 Trust Agreement. No holder of any Bonds shall have any right to institute any suit, action or other proceeding for the enforcement of any right under the 1978 Trust Agreement unless such holder shall give to the Trustee written notice of the event of default on account of which such suit, action or proceeding is to be instituted, and unless the holders of 25% in principal amount of the Bonds then outstanding shall have made written request of the Trustee and shall have afforded the Trustee a reasonable opportunity to institute such suit, action or proceeding and unless there shall have been offered to the Trustee reasonable security and indemnity against the costs, expenses and liabilities to be incurred, and the Trustee shall have refused or failed to comply with such request within a reasonable time. However, these provisions shall not limit or impair the right of any bondholder to take any action to enforce the payment of the principal of, premium, if any, and interest on its Bond.

The Trustee shall mail to all registered owners of Bonds then outstanding at their addresses as they appear on the registration books, and all other Bondholders of Record, written notice of the occurrence of any event of default set forth in Section 802 within 30 days after the Trustee shall have notice pursuant to the 1978 Trust Agreement that any such event of default has occurred.

Concerning the Trustee (Article IX)

Under the 1978 Trust Agreement, the Trustee is not obliged to institute any suit or proceeding or to defend any suit until indemnified against liabilities and expenses. Under the 1978 Trust Agreement, the Trustee is indemnified by the Authority from Revenues for any liabilities incurred in acting under the 1978 Trust Agreement. The Trustee is entitled to reasonable compensation for acting under the 1978 Trust Agreement and to reimbursement for any litigation expenses and other reasonable expenses by the Authority. If the Authority fails to make payment pursuant to such provisions for indemnity by the Authority or payment of compensation or expenses, the Trustee may obtain such payment from moneys held under the 1978 Trust Agreement and is entitled to a preference therefor over any of the Bonds. The 1978 Trust Agreement provides that the Trustee and its directors, officers, employees or agents, either for its or their own accounts or fiduciary accounts, may buy and sell and hold Bonds.

The Trustee may at any time resign upon at least 60 days' written notice to be given to the Authority and filed with EMMA. The Trustee may be removed at any time (a) by the holders of not less than a majority in principal amount of the outstanding Bonds, or (b) for breach of trust or failure to act in accordance with the 1978 Trust Agreement by a court upon application of the Authority or the holders of not less than 25% in principal amount of the outstanding Bonds. Any removal of the Trustee shall take effect upon the appointment of a new Trustee. If the position of Trustee shall become vacant for any reason, the Authority shall appoint a successor trustee, subject to the right of the holders of a majority in aggregate principal amount of the Bonds then outstanding to appoint a successor Trustee which shall supersede the appointee of the Authority. Any trustee must be a bank or trust company with at least $50,000,000 in aggregate capital and surplus.

The 1978 Trust Agreement also authorizes the Authority to replace the Trustee acting under the 1978 Trust Agreement, but only at five-year intervals and so long as no event of default exists under the 1978 Trust Agreement, upon 120 days written notice to the Trustee by filing with the Trustee an instrument signed on behalf of the Authority by its Secretary-Treasurer or other authorized officer.

Certain Rights of Bond Insurers (Section 1002)

With respect to any Series of Bonds or any maturity within a Series of Bonds all of the principal of and interest on which is insured by a bond insurance policy, if so provided in the resolution of the Authority authorizing the issuance of such Series, the terms "holder" and "owner" of Bonds and the term "bondholder", each as used in the 1978 Trust Agreement, for purposes of all consents, directions and notices provided for in the 1978 Trust Agreement shall mean, with respect to the Bonds of such Series or maturity, as the case may be, the issuer of such bond insurance policy as long as such policy issuer has not defaulted under such policy; provided, however, that unless it actually is the beneficial owner of the Bonds in respect of which a consent is requested, the policy issuer shall not have the power to act on behalf of the registered owners of any Bonds to consent to amendments, supplements or waivers that would (a) extend the stated maturity of or time for paying the interest on such Bonds, (b) reduce the principal amount of, purchase price for or redemption premium or rate of interest payable on such Bonds or (c) result in a privilege or priority of any Bond over any other Bond.

Modifications of the 1978 Trust Agreement (Article XI)

Under the terms of the 1978 Trust Agreement, the Authority and the Trustee, without consent of the holders of the Bonds, are authorized to enter into a supplemental agreement or agreements to cure any ambiguity or formal defect or omission or to correct any inconsistent provisions or obvious mistake in the 1978 Trust Agreement, to grant to the Trustee for the benefit of the holders of the Bonds any additional lawful rights to security, to add to the conditions, limitations and restrictions on the issuance of Bonds, to add to the covenants of the Authority, to provide for the issuance of subordinated obligations or to provide for the issuance of obligations under a supplemental agreement which are not payable from Revenues. In addition, the 1978 Trust Agreement may be modified, altered, amended, added to or rescinded with the consent of the holders of not less than 51% in aggregate principal amount of the Bonds then outstanding or, if less than all Series of Bonds then outstanding are affected, the consent of the holders of not less than 51% in aggregate principal amount of each affected Series of Bonds. Notwithstanding the foregoing, without the consent of the holders of not less than 100% in aggregate principal amount of the Bonds then outstanding or, in case less than all of the several Series of Bonds then outstanding are affected thereby, the holders of not less than 100% in aggregate principal amount outstanding of each Series so affected, no such modification or amendment shall permit (a) an extension of the maturity of the principal of or the interest on any Bond issued thereunder, or (b) a reduction in the principal amount or redemption premium of any Bond or the rate of interest thereon, or (c) the creation of a lien upon or pledge of Revenues ranking prior to or on a parity with the lien or pledge created by the 1978 Trust Agreement, or (d) a preference or priority of any Bond or Bonds except as permitted by the 1978 Trust Agreement, or (e) a reduction in the aggregate principal amount of the Bonds required for consent to such modification or amendment.

Defeasance (Article XII)

If the Authority shall pay or cause to be paid the principal, premium, if applicable, and interest to the holders of all outstanding Bonds, then the pledge of any Revenues and other moneys pledged under the 1978 Trust Agreement and all covenants, agreements and other obligations to the holders of Bonds shall terminate and be discharged and satisfied.

Bonds for the payment or redemption of which sufficient moneys, or sufficient Government Obligations the principal of and interest on which when due will provide moneys, to pay when due the principal, Amortization Requirements and interest on such Bonds have been irrevocably deposited with the Trustee for the sole purpose of paying or redeeming such Bonds will be deemed to have been paid within the meaning of the foregoing paragraph, provided that if any of such Bonds are to be redeemed prior to maturity, notice of such redemption must be duly given or irrevocable instructions to publish a notice to the bondholders, the form, content and substance of which are specified in the 1978 Trust Agreement, must have been given in form satisfactory to the Trustee.

Capital Appreciation Bonds (Section 1311)

Bonds of any Series may be issued with interest payable (i) only at their stated maturity date (or upon earlier redemption, purchase or acceleration) or (ii) in part at their stated maturity date (or upon earlier redemption, purchase or acceleration) and in part on stated interest payment dates, as set forth in the resolution authorizing the issuance of the Bonds.

Certain Definitions

Certain terms used in this Official Statement have the following meanings:

<u>Additional Facilities</u> -- Any revenue-producing facility which serves a public purpose and the acquisition or construction and the financing of which by the Authority may hereafter be authorized by the legislature of the Commonwealth, excluding, however, any extension, enlargement or improvement of a project then under the control of the Authority and any building, structure or other facility financed or refinanced by the Authority by obligations not issued under the provisions of the 1978 Trust Agreement.

<u>Additional Improvements</u> -- Any extension, enlargement or improvement of a Project, other than the extension, enlargement or improvement of any building, structure or other facility financed or refinanced by the Authority by obligations not issued under the provisions of the 1978 Trust Agreement.

<u>Amortization Requirements</u> -- The amounts for the respective fiscal years as determined by the Authority for the retirement of term Bonds of a Series.

Available Funds -- For any period of time, (i) the amount of PFC Revenues and/or CFCs to be received by the Authority during such period and not previously pledged or irrevocably committed to payment of principal of, interest on or premium, if any, on a Series of Bonds, and (ii) the amount of any other future income or revenue source not then included in the definition of "Revenues" that the Authority designates as "Available Funds" in a future resolution duly adopted by the Members of the Authority supplementing the 1978 Trust Agreement; provided, however, that any such resolution shall also establish a corresponding account and the functional provisions for the receipt, deposit and application of such source of income or revenue.

Bondholder of Record -- The registered owner of outstanding fully registered Bonds or Bonds registered as to principal alone (in either case in an aggregate principal amount of at least $500,000) or any holder of outstanding Bonds who shall have filed with the Secretary-Treasurer of the Authority a request in writing setting forth his or her name and address and the particular reports, notices or other documents which he or she desires to receive and which are required to be mailed to bondholders of record under the provisions of the 1978 Trust Agreement. So long as the 2022 Bonds are in book-entry only form, the Bondholder of Record thereof for the purposes of the 1978 Trust Agreement shall be DTC or DTC's partnership nominee (or a successor securities depository). See "BOOK-ENTRY SYSTEM".

Bullet Maturities -- With respect to any Series of Bonds 25% or more of the principal of which matures on the same date or within a fiscal year, that portion of such Series which matures on such date or within such fiscal year; provided, however that the principal amount maturing on any date shall be reduced by the amount of such Bonds scheduled to be amortized by prepayment or redemption prior to their stated maturity date. Notes shall be deemed to be Bullet Maturities for purposes of the 1978 Trust Agreement.

Consultant -- Any Independent consultant, consulting firm (including the Airport Consultants), engineer (including the Consulting Engineers), architect, engineering firm, architectural firm, accountant or accounting firm (including the Accountants), financial advisory or investment banking firm, or other expert recognized to be well-qualified for work of the character required and retained by the Authority to perform acts and carry out the duties provided for such consultant in the 1978 Trust Agreement.

Customer Facility Charges or CFCs -- All amounts received by the Authority from the charges imposed by car rental companies upon car rental customers arriving at Boston Logan International Airport and renting a vehicle from a car rental company serving such Airport, which charges are established by the Authority by resolution.

Designated Debt -- Any Series of Bonds, or portion thereof, with respect to which there shall be in effect a Qualified Hedge Facility.

EMMA-- The Electronic Municipal Market Access system operated by the Municipal Securities Rulemaking Board, or any successor thereto designated as a nationally recognized municipal securities information repository by the United States Securities and Exchange Commission.

Government Obligations -- The securities referred to in the first clause of the definition of Investment Securities. See below.

Independent -- When used with respect to any specified firm or individual, such a firm or individual that (a) does not have any direct financial interest or any material indirect financial interest in the operations of the Authority, other than the payment to be received under a contract for services to be performed, and (b) is not connected with the Authority as an official, officer or employee.

Investment Securities -- Any of the following which at the time of investment are legal investments under the laws of the Commonwealth for the moneys proposed to be invested therein:

Direct obligations of, or obligations the principal of and interest on which are unconditionally guaranteed by, the United States of America;

Bonds, indentures or notes or other evidences of indebtedness issued or guaranteed by any of the following agencies: Bank for Cooperatives; Federal Intermediate Credit Banks; Federal Home Loan Mortgage Corporation; Federal Home Loan Banks; the Federal National Mortgage Association; the United States Postal Service; the Government National Mortgage Association; the Federal Financing Bank; or any other agency or instrumentality of the United States of America now existing or hereafter created;

New Housing Authority Bonds or project notes issued by public agencies or municipalities and fully secured as to the payment of both principal and interest by, respectively, a pledge of annual contributions under an annual contributions contract or contracts or requisition or payment agreements with the United States of America;

Negotiable or non-negotiable bank time deposits evidenced by certificates of deposit issued by banks, trust companies, national banking associations or savings and loan associations (which may include the Trustee) provided that such time deposits are fully insured by the Federal Deposit Insurance Corporation or secured by obligations described in clauses (i), (ii) or (iii) of this definition or by full faith and credit obligations of (a) the Commonwealth or (b) any state of the United States rated in the three highest grades by a nationally recognized rating agency, provided such obligations at all times have a market value at least equal to the maturity value of the deposits so secured, including accrued interest on such deposits;

Repurchase agreements with banks described in clause (iv) of this definition (which may include the Trustee) or government bond dealers reporting to, trading with, and recognized as primary dealers by, a Federal Reserve Bank, the underlying securities of which are obligations described in clauses (i) and (ii) of this definition, provided that the underlying securities are required to be continuously maintained at a market value not less than the amount so invested;

Any bonds or other obligations of any state of the United States of America or of any local government unit of any such state which (1) are rated in the highest rating category by Moody's Investors Service and Standard & Poor's, without regard to gradations within categories, (2) are not callable unless irrevocable instructions have been given to the trustee for such bonds to give due notice of redemption and to call such bonds for redemption on the date(s) specified in such instruments, and (3) are secured by cash and Government Obligations;

Direct and general obligations of any state of the United States of America, to the payment of the principal of and interest on which the full faith and credit of such state is pledged, provided such obligations are rated in either of the two highest rating categories without regard to gradations within categories by Moody's Investors Service and Standard & Poor's;

Obligations of any state of the United States of America or any political subdivision thereof which shall be rated in one of the two highest rating categories by Moody's Investors Service and Standard & Poor's without regard to gradations within categories;

Certificates that evidence ownership of the right to payments of principal of or interest on Government Obligations, provided that (1) such obligations shall be held in trust by a bank or trust company or a national banking association meeting the requirements for a successor Trustee under the 1978 Trust Agreement, (2) the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor of the underlying Government Obligations, and (3) the underlying Government Obligations are held in a special account separate from the custodian's general assets, and are not available to satisfy any claim of the custodian, any person claiming through the custodian, or any person to whom the custodian may be obligated;

Commercial paper rated at the time of purchase in the highest rating category, without regard to gradations within such category, by Moody's Investors Service and Standard & Poor's;

Investments or deposits in the Massachusetts Municipal Depository Trust;

Money market funds rated in the highest rating category, without regard to gradations within such category, by Moody's Investors Service and Standard & Poor's;

Investment contracts with banks (which may include the Trustee) or other financial institutions whose long-term unsecured debt or claims-paying ability is rated in one of the two highest rating categories by Moody's Investors Service and Standard & Poor's;

Banker's acceptances rated at the time of purchase in the highest short-term rating category, without regard to gradations within such category, by Moody's Investors Service and Standard & Poor's;

Advance-refunded municipal bonds rated in the highest rating category, without regard to gradations within such category, by Moody's Investors Service and Standard & Poor's;

U.S. dollar denominated debt offerings of a multilateral organization of governments rated in the highest rating category, without regard to gradations within such category, by Moody's Investors Service and Standard & Poor's;

U.S. dollar denominated corporate bonds, notes or other debt obligations issued or guaranteed by a domestic or foreign corporation, financial institution, non-profit or other entity rated in one of the three highest rating categories, without regard to gradations within such categories, by Moody's Investors Service and Standard & Poor's;

Negotiable bank certificates of deposit, deposit notes or other deposit obligations issued by a nationally or state-chartered bank, credit union or savings association, or by a federally or state-licensed branch of a foreign bank or financial institution, in each case rated in one of the three highest rating categories, without regard to gradations within such categories, by Moody's Investors Service or Standard & Poor's; and

Any other investment authorized pursuant to an amendment or supplement to the 1978 Trust Agreement pursuant to Section 1101(g) of the 1978 Trust Agreement.

Section 1101(g) of the 1978 Trust Agreement authorizes modification of the definition of Investment Securities as directed by the Authority, provided that the Authority shall have provided evidence to the Trustee that the details of such modification have been provided in writing to each of Moody's Investors Service (if Moody's Investors Service is then assigning a rating to any outstanding Bonds), Standard & Poor's (if Standard & Poor's is then assigning a rating to any outstanding Bonds) and each other nationally recognized rating agency, if any, then assigning a rating to any outstanding Bonds and that each such rating agency has either (i) confirmed in writing that such modification will not adversely affect the rating it assigns to outstanding Bonds or (ii) issued a rating on a Series of Bonds to be issued which is not lower than the rating assigned by such rating agency to outstanding Bonds prior to such modification, or any other evidence satisfactory to the Trustee that such modification will not adversely affect the then-current ratings, if any, assigned to the Bonds by any nationally recognized rating agency.

<u>Operating Expenses</u> -- The Authority's reasonable and necessary current expenses of maintaining, repairing and operating the Projects, including administrative expenses, insurance premiums and payments into the Self-Insurance Account, fees and expenses of the Trustee, engineering expenses relating to operation and maintenance, legal expenses, charges of Paying Agents, payments of annual pension expense and post-retirement health benefits expense, any taxes of general applicability which may be lawfully imposed on the Authority or its income or operations or the property under its control and reserves for such taxes, ordinary and usual expenditures for maintenance and repair, which may include expenses not annually recurring, including such expenditures necessary to maintain the then-useful life and operational status of any Project or to keep any Project in its present operational status and all such other costs of maintenance and repair as the Authority may determine to include in Operating Expenses in accordance with sound business practice applied on a consistent basis and any other expenses required to be paid by the Authority under the provisions of the 1978 Trust Agreement or by law on account of the operation or ownership of the Projects, but excluding reserves for operation, maintenance or repair, depreciation allowances or any deposits or transfers to the credit of any of the Funds or Accounts created under the 1978 Trust Agreement except the Self-Insurance Account, pension account and post-retirement health benefits account.

<u>Passenger Facility Charges</u> or <u>PFCs</u> -- The passenger facility charges authorized to be charged by the Authority pursuant to the Aviation Safety and Capacity Expansion Act of 1990, as amended (now codified in Section 40117 of Title 49 of the United States Code).

PFC Revenues -- Amounts derived by the Authority from the imposition of PFCs, exclusive of the amounts retained by the air carriers collecting the PFCs pursuant to Federal Aviation Regulations.

Pooled Reserve Subaccount -- The subaccount within the Reserve Account securing all Bonds outstanding prior to the effective date of the Twenty-First Supplemental Agreement (July 17, 2019) and, on and after such effective date, securing those Bonds designated as secured by the Pooled Reserve Subaccount pursuant to a resolution adopted by the Authority.

Principal and Interest Requirements -- With respect to any Series of Bonds, the sum during any fiscal year of (a) interest payable on all Bonds of such Series outstanding which accrues in such fiscal year (less capitalized interest and interest paid or to be paid for such period from moneys in the Construction Fund), (b) principal payable on serial Bonds of such Series on any date commencing with July 2 in such fiscal year and ending with July 1 of the next fiscal year, both inclusive, (c) the Amortization Requirements of term Bonds of such Series, if any, for such fiscal year, plus an amount equal to the premium, if any, which would be payable on any date referred to in subparagraph (b) of this definition on a like principal amount of Bonds if such principal amount of Bonds should be redeemed on such date from moneys in the Interest and Sinking Fund, and (d) the amount required to be deposited in the Term Bond Investment Account (if such an Account is established for such Series of Bonds), if any, for such fiscal year; less income to be accrued during the year on investments in such a Term Bond Investment Account to the extent such income is required to be retained in such Account or deposited in the Bond Service Account or into the Redemption Account.

Regarding the calculation of Principal and Interest Requirements on variable-rate debt, see "SECURITY FOR THE 2022 BONDS -- Additional Bonds". In computing the Principal and Interest Requirements, Designated Debt which bears interest at a variable rate and with respect to which there exists a Qualified Hedge Facility obligating the Authority to pay a fixed interest rate or a different variable interest rate shall be deemed (for the period during which such Qualified Hedge Facility is reasonably expected to remain in effect) to bear interest at the fixed interest rate or different variable rate payable by the Authority pursuant to the Qualified Hedge Facility relating thereto. In computing Principal and Interest Requirements, Designated Debt which bears interest at a fixed rate and with respect to which there exists a Qualified Hedge Facility obligating the Authority to pay a floating rate shall be deemed (for the period during which such Qualified Hedge Facility is reasonably expected to remain in effect) to bear interest equal to the interest payable on the Designated Debt, minus the fixed amounts received or to be received by the Authority under the Qualified Hedge Facility, plus the amount of the floating payments made or to be made by the Authority under the Qualified Hedge Facility (such floating payments not yet made to be determined as provided for variable rate Bonds).

In computing the Principal and Interest Requirements, if all or any portion or portions of any outstanding Series of Bonds constitute Bullet Maturities, then each maturity which constitutes Bullet Maturities shall, unless a shorter term was otherwise provided in the resolution of the Authority pursuant to which such Bullet Maturities were issued or unless the next succeeding paragraph then applies to such maturity, be treated as if it were to be amortized over a term of not more than thirty (30) years and with substantially level annual debt service funding payments commencing not later than the year following the year in which such Bullet Maturities were issued, and extending not later than thirty (30) years from the date such Bullet Maturities were originally issued. The interest rate used for such computation shall be that rate determined by a Consultant selected by the Authority to be a reasonable market rate for fixed-rate Bonds of a corresponding term and tenor issued under the 1978 Trust Agreement on the date of such calculation, with no credit enhancement. With respect to any Series of Bonds only a portion of which constitutes Bullet Maturities, the remaining portion shall be treated as described in such other provision of this definition as shall be applicable and, with respect to any such Series of Bonds, or that portion of a Series thereof which constitutes Bullet Maturities, all funding requirements of principal and interest becoming due prior to the year of the stated maturity of the Bullet Maturities shall be treated as described in such other provision of this definition as shall be applicable.

In computing the Principal and Interest Requirements, if any maturity of Bonds which constitutes Bullet Maturities as described in the immediately preceding paragraph of this definition and for which the stated maturity date occurs within twelve (12) months from the date such calculation of Principal and Interest Requirements is made, such maturity shall be assumed to become due and payable on the stated maturity date and the immediately preceding paragraph shall not apply thereto unless there is delivered to an officer of the Authority or Consultant making the calculation of Principal and Interest Requirements a certificate of an authorized officer of the Authority stating that the Authority intends to refinance such maturity and stating the probable terms of such refinancing and that the debt capacity of the Authority is sufficient to successfully complete such refinancing; and upon the receipt of such certificate, such Bullet Maturities shall be assumed to be refinanced in accordance with the probable terms set out in such certificate and such terms shall be used for purposes of calculating Principal and Interest Requirements, provided that such assumption shall not result in an interest rate lower than that which would be assumed under the immediately preceding paragraph and shall be amortized over a term of not more than thirty (30) years from the date of refinancing.

If Available Funds (including state and/or federal grants) have been irrevocably committed or are held by the Trustee or another fiduciary and are to be set aside exclusively to be used to pay principal of, interest or premium, if any, on specified Bonds pursuant to a resolution of the Authority (and are not otherwise required for payment of another Series of Bonds), then the principal, interest and/or premium to be paid from such Available Funds or from earnings thereon shall be disregarded and not included in calculating Principal and Interest Requirements.

Project -- Any of the Airport Properties, the Port Properties or any Additional Facility financed in whole or in part under the provisions of the 1978 Trust Agreement, either from the proceeds of Bonds or other available funds, including in the case of each such Project all equipment, appurtenances, extensions, enlargements, improvements, renewals and replacements thereof, but shall not include any land, building, structure or other facility financed or refinanced by the Authority by obligations not issued under the provisions of the 1978 Trust Agreement.

Qualified Hedge Facility -- Any interest rate exchange, interest rate cap or other transaction which is intended to convert or limit the interest rate payable with respect to all or part of a particular Series of Bonds and which (a) is with a Qualified Hedge Provider and (b) has been designated in writing to the Trustee by the Authority as a Qualified Hedge Facility with respect to all or part of a particular Series of Bonds;

Qualified Hedge Provider -- A financial institution (a) whose senior long-term obligations are rated not lower than "A1" or the equivalent by Moody's Investors Service and not lower than "A+" or the equivalent by Standard & Poor's or (b) whose obligations under each Qualified Hedge Facility (i) are guaranteed by a financial institution, or subsidiary of a financial institution, whose senior long-term debt obligations are rated not lower than "A1" or its equivalent by Moody's Investors Service and not lower than "A+" or its equivalent by Standard & Poor's or (ii) are fully secured by investments described in clause (i) or (ii) of the definition of "Investment Securities" which (A) are valued not less frequently than monthly and have a fair market value, exclusive of accrued interest, at all times at least equal to 100% of the Authority's exposure in respect of such Qualified Hedge Facility, (B) are held by the Trustee or a custodian other than the Qualified Hedge Provider and (C) are subject to a perfected lien in favor of the Authority or the Trustee free and clear of all third-party liens.

Replacement Cost -- As of any date of calculation the then present-day cost to replace or reconstruct all or any of the physical facilities of the Authority to their current use or operational status with materials then used in accordance with sound construction practice but shall exclude (a) the cost to reconstruct or replace all below-ground or below-water foundations and utility improvements and the cost of land, landfill and site improvements and (b) if and to the extent that the Authority shall have so notified the Trustee in writing, the cost to reconstruct or replace any facility financed with the proceeds of obligations other than Bonds, which obligations are not secured by any pledge, lien or charge on, nor payable from, the Revenues or any of the Funds and Accounts created by the 1978 Trust Agreement.

Reserve Requirement -- (a) With respect to the Pooled Reserve Subaccount, the maximum annual Principal and Interest Requirements on all of the outstanding Bonds secured by the Pooled Reserve Subaccount, and (b) with respect to each Series of Bonds issued on and after July 17, 2019 and not secured by the Pooled Reserve Subaccount, as of any date of calculation for a particular subaccount within the Reserve Account other than the Pooled Reserve Subaccount, the amount of money, if any, required by the resolution adopted by the Authority authorizing the issuance of such Series of Bonds to be maintained in a subaccount in the Reserve Account with respect to such Series of Bonds, which amount shall be available for use only with respect to such Series of Bonds. Any Series of Bonds may be secured by the Pooled Reserve Subaccount, or another specified subaccount within the Reserve Account pursuant to the resolution authorizing such Bonds, if the resolution adopted by the Authority that initially established such account provided for securing more than one Series of Bonds with such subaccount, or the Authority may elect not to establish a subaccount within the Reserve Account to secure such Series of Bonds.

Revenues -- All moneys derived or to be derived by the Authority in payment of tolls, rates, fees, rentals and other charges for the use of, and for the services and facilities furnished by, the Projects, any proceeds of use and occupancy and liability insurance (but not casualty insurance proceeds or awards for damages), the proceeds of leases, licenses, permits and concessions, and other income from the ownership or operation of the Projects, including income from investments except those in the Construction Fund, the Self-Insurance Account, any pension or post-retirement health benefit account in the Operating Fund, and the Term Bond Investment Account; but excluding (i) moneys derived from facilities financed with the proceeds of obligations not secured by or payable from Revenues to the extent such moneys are pledged to the payment of such obligations, (ii) proceeds of casualty insurance or awards for damages, (iii) proceeds of sales of Bonds, (iv) proceeds of the sale or other disposition of property pursuant to the 1978 Trust Agreement and (v) except to the extent from time to time provided by the Authority by resolution, the proceeds of any passenger facility charge or similar tax levied by or on behalf of the Authority pursuant to the Federal Aviation Safety and Capacity Act of 1990 as from time to time amended, and any successor thereto, and the proceeds of any other charge or tax from time to time levied by or on behalf of the Authority pursuant to any federal statute or regulation enacted or promulgated after May 15, 2003 which restricts the use of such proceeds to purposes identified in or pursuant to such statute or regulation. The Authority has excluded from Revenues the proceeds of PFCs and CFCs. Notwithstanding the foregoing to the contrary, Revenues shall also include Available Funds in the amount, for the period and subject to such conditions as may be provided by a resolution of the Authority. See "SECURITY FOR THE 2022 BONDS – Use of Available Funds to Pay Debt Service" and "-- Other Revenues of the Authority Not Pledged as Security for the Bonds – *Passenger Facility Charges*" and "— *Customer Facility Charges*."

Term Bond Investment Account -- For a Series of Bonds shall mean each Account so designated which is established in the Interest and Sinking Fund for the term Bonds of such Series pursuant to the resolution of the Authority authorizing the issuance of such Series of Bonds. (No such Account will be established for any of the 2022 Bonds.)

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FORM OF CONTINUING DISCLOSURE CERTIFICATE

This Continuing Disclosure Certificate (the "Disclosure Certificate") is executed and delivered by the Massachusetts Port Authority (the "Issuer") in connection with the issuance of one or more series of bonds by or on behalf of the Issuer and designated by duly adopted resolution of the Issuer as subject to and having the benefits of this Disclosure Certificate (such bonds referred to herein collectively as the "Bonds"). The Issuer covenants and agrees as follows:

SECTION 1. Purpose of the Disclosure Certificate. This Disclosure Certificate is being executed and delivered by the Issuer for the benefit of the owners of Bonds and in order to assist Participating Underwriters in complying with the Rule (as defined below).

SECTION 2. Definitions. In addition to terms defined elsewhere in this Disclosure Certificate, the following capitalized terms shall have the following meanings:

"Annual Filing" shall mean any Annual Filing provided by the Issuer pursuant to, and as described in, Sections 3 and 4 of this Disclosure Certificate.

"Dissemination Agent" shall mean Digital Assurance Certification, L.L.C., acting in its capacity as dissemination agent for the Issuer pursuant to the Disclosure Dissemination Agent Agreement dated as of January 8, 2010, between the Issuer and Digital Assurance Certification, L.L.C., or any successor thereto designated in writing by the Issuer as its agent for purposes of satisfying the filing and notice requirements assumed by the Issuer under this Disclosure Certificate, and which successor has filed with the Issuer a written acceptance of such designation.

"Listed Events" shall mean any of the events listed in Section 5(a) of this Disclosure Certificate.

"MSRB" means the Municipal Securities Rulemaking Board established pursuant to Section 15B(b)(1) of the Securities Exchange Act of 1934, or any successor thereto or to the functions of the MSRB contemplated by this Disclosure Certificate. Until otherwise designated by the MSRB or the Securities and Exchange Commission, filings with the MSRB are to be made through the Electronic Municipal Market Access (EMMA) website of the MSRB, currently located at http://emma.msrb.org.

"Owners of the Bonds" or "Owners" shall mean the registered owners, including beneficial owners, of the Bonds.

"Participating Underwriters" shall mean the original underwriters of any Bonds required to comply with the Rule in connection with the offering of such Bonds.

"Rule" shall mean Rule 15c2-12 adopted by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as the same may be amended from time to time.

"Trust Agreement" shall mean the Trust Agreement dated as of August 1, 1978, as amended and supplemented, between the Issuer and U.S. Bank National Association (as successor in interest to State Street Bank and Trust Company), as Trustee.

SECTION 3. Provision of Annual Filings.

(a) The Issuer shall, or shall cause the Dissemination Agent to, not later than January 1 of each year, commencing January 1, 2020, provide to the MSRB an Annual Filing that is consistent with the requirements of Section 4 of this Disclosure Certificate. The Annual Filing 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 Issuer may be submitted, when available, separately from the balance of the Annual Filing.

(b) If the Issuer is unable to provide the Annual Filing to the MSRB by the date required in subsection (a), the Issuer shall send, or cause the Dissemination Agent to send, a notice in a timely manner to the MSRB in substantially the form attached as Exhibit A.

SECTION 4. Content of Annual Filings. The Issuer's Annual Filing shall contain or incorporate by reference the following:

(a) operating data for, or as of the end of, the preceding fiscal year of the type presented in the Issuer's most recent official statement, including data relating to (i) the market shares of total Airport passenger traffic, (ii) the percentage of passengers traveling on U.S. air carrier airlines between the Airport and other final domestic destinations, (iii) general Airport traffic statistics and (iv) cargo and passenger activity relating to the Port Properties;

(b) financial information for, or as of the end of, the preceding fiscal year of the type presented in the Issuer's most recent official statement, including a summary of operating results and debt service coverage; and

(c) the most recently available audited financial statements of the Issuer, prepared in accordance with generally accepted accounting principles. (If audited financial statements for the preceding fiscal year are not available when the Annual Filing is submitted, the Annual Filing will include unaudited financial statements for the preceding fiscal year.)

Any or all of the items listed above may be incorporated by reference from other documents, including official statements of debt issues of the Issuer or related public entities, which (i) are available to the public on the MSRB's Internet Web site or (ii) have been filed with the Securities and Exchange Commission. The Issuer shall clearly identify each such other document so incorporated by reference.

SECTION 5. Reporting of Significant Events.

(a) The Issuer shall give notice, or shall cause the Dissemination Agent to give notice, in accordance with subsection 5(b) below, of the occurrence of any of the following events with respect to any 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 determination of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the Bonds, or other material events affecting the tax status of the Bonds.

(vii) Modifications to rights of any Owners of the Bonds, if material.

(viii) Optional, contingent or unscheduled calls of Bonds, if material, and tender offers.

(ix) Defeasance of any Bonds or any portion thereof.

(x) Release, substitution or sale of property securing repayment of any Bonds, if material.

(xi) Rating changes.

(xii) Bankruptcy, insolvency, receivership or similar event of the Issuer.*

(xiii) The consummation of a merger, consolidation, or acquisition involving the Issuer or the sale of all or substantially all of the assets of the Issuer, 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 the Trustee, if material.

(xv) Incurrence of a financial obligation of the Issuer, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of the Issuer, any of which affect Owners of the Bonds, if material.**

(xvi) Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a financial obligation of the Issuer, any of which reflect financial difficulties.**

(b) Upon the occurrence of a Listed Event, the Issuer shall, in a timely manner not in excess of ten (10) business days after the occurrence of the event, file, or cause the Dissemination Agent to file, a notice of such occurrence with the MSRB.

(c) Anything in this Section 5 to the contrary notwithstanding, the Issuer shall have no obligation to give notice of or otherwise report any Listed Event with respect to any series of Bonds as to which another obligated person (as such term is defined in the Rule) has entered into an undertaking to provide such notice in accordance with the Rule.

SECTION 6. Transmission of Information and Notices. Unless otherwise required by law, all notices, documents and information provided to the MSRB shall be provided in electronic format as prescribed by the MSRB and shall be accompanied by identifying information as prescribed by the MSRB.

SECTION 7. Termination of Reporting Obligation. The Issuer's obligations under this Disclosure Certificate shall terminate upon the defeasance, prior redemption or payment in full of all of the Bonds.

SECTION 8. Amendment; Waiver. Notwithstanding any other provision of this Disclosure Certificate, the Issuer may amend this Disclosure Certificate and any provision of this Disclosure Certificate may be waived, if such amendment or waiver is permitted by the Rule, as evidenced by an opinion of counsel expert in federal securities laws to the effect that such amendment or waiver would not, in and of itself, cause the undertakings herein to violate the Rule if such amendment or waiver had been effective on the date hereof but taking into account any subsequent change in or official interpretation of the Rule.

If the amendment provides for a change in the accounting principles to be followed in preparing financial statements, the Annual Filing for the year in which the change is made shall present a comparison between the financial statements or information prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles. The comparison shall include a qualitative discussion of the differences in the accounting

* As noted in the Rule, this event is considered to occur when any of the following occur: (i) the appointment of a receiver, fiscal agent or similar officer for the Issuer in a proceeding under the U.S. Bankruptcy Code or in any 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 Issuer, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or (ii) the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the Issuer.

** For purposes of event numbers (xv) and (xvi) in Section 5(a) of this Disclosure Certificate, the term "financial obligation" means a (i) debt obligation; (ii) derivative instrument entered into in connection with, or pledged as security or a source of payment for, an existing or planned debt obligation; or (iii) guarantee of (i) or (ii). The term "financial obligation" excludes municipal securities for which a final official statement has been provided to the MSRB consistent with the Rule.

principles and the impact of the change in the accounting principles on the presentation of the financial information in order to provide information to investors to enable them to evaluate the ability of the Issuer to meet its obligations. To the extent reasonably feasible, the comparison shall also be quantitative. A notice of the change in the accounting principles shall be sent to the MSRB.

SECTION 9. Default. In the event of a failure of the Issuer to comply with any provision of this Disclosure Certificate, any Owner of any Bonds may seek a court order for specific performance by the Issuer of its obligations under this Disclosure Certificate. A default under this Disclosure Certificate shall not be deemed an event of default under the Trust Agreement, and the sole remedy under this Disclosure Certificate in the event of any failure of the Issuer to comply with this Disclosure Certificate shall be an action to compel performance of the Issuer's obligations hereunder and not for money damages in any amount.

SECTION 10. Beneficiaries. This Disclosure Certificate shall inure solely to the benefit of the Issuer, Participating Underwriters and Owners from time to time of the Bonds, and shall create no rights in any other person or entity.

SECTION 11. Governing Law. This instrument shall be governed by the laws of The Commonwealth of Massachusetts.

[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, the Issuer has caused this Disclosure Certificate to be duly executed under seal as of the date hereof.

Date: July 17, 2019

MASSACHUSETTS PORT AUTHORITY

By__________________________________
Title: Acting Director of Administration & Finance/
Secretary-Treasurer

APPENDIX F

EXHIBIT A

NOTICE OF FAILURE TO FILE ANNUAL FILING

Name of Issuer: Massachusetts Port Authority

NOTICE IS HEREBY GIVEN that the Issuer has not provided an Annual Filing as required by the Continuing Disclosure Certificate of the Issuer dated as of July 17, 2019. The Issuer anticipates that the Annual Filing will be filed by ___________________.

Dated: ________________

[DISSEMINATION AGENT],
on behalf of the Issuer

By_________________________________

cc: Massachusetts Port Authority

KAPLAN KIRSCH ROCKWELL

BOSTON
DENVER
NEW YORK
SAN FRANCISCO
WASHINGTON, DC

APPENDIX G-1
FORM OF BOND COUNSEL OPINION

July 20, 2022

Massachusetts Port Authority
One Harborside Drive, Suite 200S
East Boston, Massachusetts 02128-2909

Re: Massachusetts Port Authority $120,925,000 Revenue Bonds, Series 2022-A (AMT) (Green Bonds)

Ladies and Gentlemen:

We have served as bond counsel to the Massachusetts Port Authority (the "***Authority***") in connection with the issuance by the Authority of its $120,925,000 Revenue Bonds, Series 2022-A (AMT) (the "***2022 Bonds***"). The 2022 Bonds are issued pursuant to Chapter 465 of the Massachusetts Acts of 1956, as amended to the date hereof (as so amended, the "***Act***"), the Trust Agreement dated as of August 1, 1978, as supplemented and amended to the date hereof (as so supplemented and amended, the "***Trust Agreement***"), by and between the Authority and U.S. Bank Trust Company, National Association, as successor-in-interest to State Street Bank and Trust Company, as trustee (the "***Trustee***"), and the Resolution adopted by the Members of the Authority on June 16, 2022 (the "***Resolution***"). All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Resolution.

We have examined the Act, a certified copy of the proceedings relating to the issuance of the 2022 Bonds, the Trust Agreement and the Resolution, the by-laws of the Authority, and certifications of Authorized Officers of the Authority (as defined in the Resolution) and other public officials and others, and such other laws and regulations as we have determined to be necessary in order to deliver this opinion. As to questions of fact material to our opinion, we relied upon those certified proceedings and certifications, without independently undertaking to verify them. With respect to the opinion regarding federal tax matters, with your permission, we refer you to the legal opinion of even date of Kutak Rock LLP, special tax counsel.

Neither the Commonwealth of Massachusetts (the "***Commonwealth***") nor any political subdivision thereof, other than the Authority, is obligated to pay any of the 2022 Bonds or the interest thereon, and neither the faith and credit nor the taxing power of the Commonwealth or any political subdivision thereof is pledged to the payment of the principal of and interest on the 2022 Bonds. The 2022 Bonds are secured on a parity with other Bonds heretofore and hereafter issued pursuant to the Trust Agreement and are secured by and payable solely from Revenues available therefor under the Trust Agreement and Available Funds that have been irrevocably committed or are held by the Trustee or another fiduciary and are set aside exclusively to be used to pay principal of, interest on, or premium, if any, on the 2022 Bonds pursuant to a resolution of the Authority. The Authority has no taxing power.

Based upon the foregoing, we are of the opinion that, under existing law:

1. The Authority is a body politic and corporate and public instrumentality of the Commonwealth duly created by the Act, with all necessary power and authority to adopt the Resolution, perform its obligations under the Resolution and issue the 2022 Bonds.

2. The 2022 Bonds have been duly authorized, executed, and delivered by the Authority and, assuming that the 2022 Bonds have been authenticated as provided in the Act and the Trust Agreement, the 2022 Bonds constitute legal, valid and binding obligations of the Authority, enforceable in accordance with their terms and entitled to the benefits and security of the Resolution and the Trust Agreement.

3. The Resolution and the Trust Agreement are authorized by the Act, the Trust Agreement has been duly authorized, executed and delivered by the Authority, and the Resolution and the Trust Agreement constitute legal, valid and binding obligations of the Authority, enforceable in accordance with their respective terms.

4. Under the Act, the 2022 Bonds, their transfer and the income therefrom (including any profit made on the sale thereof) are exempt from taxation within the Commonwealth. We express no opinion as to whether the 2022 Bonds or the interest thereon are included in the measure of Massachusetts estate and inheritance taxes and certain Massachusetts corporation excise and franchise taxes. We express no opinion regarding other Massachusetts tax consequences arising with respect to the 2022 Bonds, or regarding the tax consequences of states other than the Commonwealth.

The rights of the owners of the 2022 Bonds and the enforceability of the 2022 Bonds, the Trust Agreement and the Resolution may be limited by bankruptcy, insolvency, reorganization, moratorium and similar laws of general application affecting the rights and remedies of creditors and secured parties, and the availability of the remedy of specific enforcement, injunctive relief or other equitable relief is subject to the discretion of the court before which any proceeding therefore may be brought. We express no opinion as to the availability of any particular form of judicial relief.

Except as set forth in our supplemental opinion of even date, we have not been engaged or undertaken to review the accuracy, completeness, or sufficiency of the Official Statement dated July 12, 2022 or other offering materials relating to the 2022 Bonds (except to the extent, if any, stated in the Official Statement), and we express no opinion as to those matters. We have not passed on any matters relating to the business, affairs, or condition (financial or otherwise) of the Authority and no inference should be drawn that we have expressed any opinion on matters relating to the ability of the Authority to perform its obligations under the Resolution or the Trust Agreement.

This opinion letter speaks as of its date. We assume no duty to change this opinion letter to reflect any facts or circumstances that later come to our attention or any changes in law. We express no opinion as to laws other than the laws of the Commonwealth and the federal laws of the United States of America. In acting as bond counsel, we have established an attorney-client relationship solely with the Authority.

Very truly yours,

Kaplan Kirsch & Rockwell LLP

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KUTAKROCK

Kutak Rock LLP
1801 California Street, Suite 3000
Denver, Colorado 80202
office 303.297.2400

July 20, 2022

Massachusetts Port Authority
East Boston, Massachusetts

Re: $120,925,000 Massachusetts Port Authority Revenue Bonds, Series 2022-A (AMT) (Green Bonds)

Ladies and Gentlemen:

We have served as special tax counsel to the Massachusetts Port Authority (the ***"Authority"***) in connection with the issuance by the Authority of its referenced Revenue Bonds, Series 2022-A (AMT) (the ***"2022 Bonds"***). The 2022 Bonds are issued pursuant to Chapter 465 of the Massachusetts Acts of 1956, as amended to the date hereof (as so amended, the ***"Act"***), the Trust Agreement, dated as of August 1, 1978, as supplemented and amended to the date hereof (as so supplemented and amended, the ***"Trust Agreement"***), by and between the Authority and U.S. Bank Trust Company, National Association, as successor-in-interest to State Street Bank and Trust Company, as trustee, and the Resolution adopted by the Members of the Authority on June 16, 2022 (the ***"Resolution"***). All capitalized terms used in this letter and not otherwise defined in this letter have the meanings set forth in the Resolution.

In connection with delivering this letter, we have examined and relied on originals or copies, certified or otherwise identified to our satisfaction, of the Resolution, the Trust Agreement, the Tax Certificate and Agreement delivered by the Authority on the date of this letter (the ***"Tax Agreement"***), the remaining proceedings relating to the issuance of the 2022 Bonds and such other instruments, certificates and documents as we have deemed necessary or appropriate for the purpose of the opinions rendered below in this letter.

As to questions of fact material to our opinions, we have relied, without independent investigation, on covenants and representations of the Authority contained in the Resolution, the Trust Agreement and the Tax Agreement, and on the certified proceedings and other certifications of public officials and other parties involved in the issuance of the 2022 Bonds furnished to us.

We have also relied on the opinion letter, dated this date, of Kaplan Kirsch & Rockwell LLP, as bond counsel (***"Bond Counsel"***), with respect to (a) the creation and status of the Authority as a body politic and corporate and public instrumentality of the Commonwealth of Massachusetts (the ***"Commonwealth"***) with the necessary power and authority to adopt the Resolution, perform its obligations under the Resolution and issue the 2022 Bonds, (b) the due authorization, execution and delivery of certain documents, instruments and certificates executed and delivered by the Authority in connection with the issuance of the 2022 Bonds and (c) the conclusion of Bond Counsel that the 2022 Bonds constitute legal, valid and binding obligations of the Authority under the laws of the Commonwealth.

We have assumed (a) the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified or photostatic copies and the authenticity of the originals of such documents, (b) the accuracy of the statements of fact contained in such documents, instruments and certificates, and (c) the correctness of the opinions of Bond Counsel, without undertaking to verify the same by independent investigation.

Based on and subject to the foregoing, we are of the opinion that, under existing law, the interest on the 2022 Bonds is excluded from gross income for federal income tax purposes, except for interest on any 2022 Bonds for any period during which such 2022 Bonds are held by a person who is a "substantial user" of the facilities financed with proceeds of the 2022 Bonds or a "related person" of such a substantial user within the meaning of Section 147(a) of the Internal Revenue Code of 1986, as amended (the ***"Code"***). Interest on the 2022 Bonds is a specific preference item for purposes of the federal alternative minimum tax. The opinions set forth in this paragraph are subject to the condition that the Authority comply with various requirements imposed by the Code that must be complied with after the 2022 Bonds are issued for interest on the 2022 Bonds to be, or continue to be, excluded from gross income for federal income tax purposes. The Authority has covenanted in the Resolution, the Trust Agreement and the Tax Agreement that it will not take or permit to be taken on its behalf any action that would adversely affect the exemption from federal income taxation of the interest on the 2022 Bonds and that it will take or require to be taken such actions as may be reasonably within its ability and as may be required under applicable law to continue the exemption from federal income taxation of the interest on the 2022 Bonds. The Authority's failure to comply with such covenants may result in the inclusion of interest on the 2022 Bonds in gross income for federal income tax purpose, in some cases retroactively to the date the 2022 Bonds were issued. We have not undertaken to determine (or to inform any person) whether any actions taken (or not taken) or events occurring (or not occurring) after the date of issuance of the 2022 Bonds may adversely affect the tax status of interest on the 2022 Bonds.

We express no legal opinions other than as set forth in the preceding paragraph. In particular, but without limitation, we express no opinion as to any state or local tax consequences of the purchase, ownership, accrual or receipt of interest on, or disposition of the 2022 Bonds. In addition, we call attention to the fact that we have not been requested to, and accordingly we do not, render any opinion relating in any manner to the validity of the proceedings taken in connection with the issuance and sale of the 2022 Bonds under the laws of the Commonwealth.

Except to the extent set forth in our supplemental opinion dated the date hereof relating to certain matters set forth in the Official Statement, dated July 12, 2022, pursuant to which the 2022 Bonds were sold, we have not been engaged to prepare or review and have not assumed or undertaken responsibility for the preparation or review of any offering document relating to the 2022 Bonds. We have not assumed responsibility for any description in any offering document or other document relating to the 2022 Bonds of the revenues or other sources of security for or other matters relating to any evaluation of the likelihood of payment of, or creditworthiness of, the 2022 Bonds, or the adequacy of the security provided to owners of the 2022 Bonds. We also have not been engaged to review, and we did not review, the financial condition of the Authority or the revenues or other sources of security for or other matters relating to an evaluation of the likelihood of payment of, or creditworthiness of, the 2022 Bonds or the security provided to owners of the 2022 Bonds.

Our services as special tax counsel have not extended beyond the examinations and expressions of the conclusions referred to in the opinions set forth in this letter. The opinions expressed in this letter are based on existing law as of the date hereof and we express no opinion herein as of any subsequent date. Furthermore, we assume no obligation to review or supplement this letter subsequent to its date, whether by reason of a change in the current laws, legislative or regulatory action taken subsequent to the date hereof, judicial decisions issued subsequent to the date hereof, or for any other reason.

Respectfully submitted,

KESTREL VERIFIERS™

Second Party Opinion

EXECUTIVE SUMMARY

ISSUER

Massachusetts Port Authority

OPINION ON

Revenue Bonds, Series 2022-A (AMT) (Green Bonds)

GREEN STANDARD AND CATEGORY

The Green Bond Principles

- Green Buildings

KEYWORDS

Green buildings, LEED, airport, Massachusetts, Envision Sustainable Infrastructure

EVALUATION DATE

June 23, 2022

SUMMARY

Kestrel Verifiers is of the opinion that the Massachusetts Port Authority's ("Authority") Revenue Bonds, Series 2022-A (AMT) (Green Bonds) ("2022 Bonds") conform with the four core components of the Green Bond Principles 2021 as follows:

- **Use of Proceeds**
  The 2022 Bonds will be used to finance the Terminal E Modernization Project ("Project"), fund the reserve requirement applicable to the 2022 Bonds, and pay costs of issuance. The Terminal E building, designed to meet LEED Silver standards and expected to achieve LEED Gold certification upon completion in 2022, is an eligible project as defined by the Green Bond Principles in the project category of *Green Buildings*. The Project incorporates resilient design features in anticipation of increased flooding and sea level rise as a result of climate change. The Project is expected to achieve Envision Sustainable Infrastructure certification, further demonstrating the Authority's holistic approach and commitment to sustainability.

- **Process for Project Evaluation and Selection**
  The Authority's five-year capital program and sustainability goals guide the Terminal E Modernization Project. The Project aligns with the Authority's comprehensive view of sustainability that includes both environmental impact and social responsibility. It meets the Authority's *Sustainability and Resiliency Design Standards,* which require a minimum of LEED Silver certification, and includes features to improve resilience as required in the Authority's *Floodproofing Design Guidelines*.

- **Management of Proceeds**
  Proceeds will be deposited into a restricted project account and monitored by the Massachusetts Port Authority Administration and Finance Department. Funds will be held in temporary investments prior to spending.

- **Reporting**
  Proceeds will be tracked by the Authority on a monthly basis until full allocation. Following Project completion and once all proceeds have been expended, the Authority expects to provide an update report on the Electronic Municipal Market Access ("EMMA") system including confirmation of LEED certification and environmental performance metrics. Construction updates and reports are expected to be available on the Authority's website: https://www.massport.com/logan-airport/about-logan/environmental-reports/.

- **Impact and Alignment with United Nations Sustainable Development Goals**
  By financing construction of the Terminal E Project with energy efficiency features and incorporating climate risk mitigation planning, the 2022 Bonds support and advance multiple UN SDGs, including Goals 7: *Affordable and Clean Energy*, 11: *Sustainable Cities and Communities,* and 13: *Climate Action*.

Second Party Opinion

Issuer:	**Massachusetts Port Authority**
Issue Description:	Revenue Bonds, Series 2022-A (AMT) (Green Bonds)
Project:	Terminal E Modernization Project
Green Standard:	Green Bond Principles
Green Category:	Green Buildings
Keywords:	Green buildings, LEED, airport, Massachusetts, Envision Sustainable Infrastructure
Par:	$120,925,000
Evaluation Date:	June 23, 2022

GREEN BONDS DESIGNATION

Kestrel Verifiers, an Approved Verifier accredited by the Climate Bonds Initiative, conducted an independent external review of the Massachusetts Port Authority Revenue Bonds, Series 2022-A (AMT) (Green Bonds) ("2022 Bonds") to evaluate conformance with the Green Bond Principles (June 2021) established by the International Capital Market Association.

This Second Party Opinion reflects our review of the uses and allocation of proceeds and oversight and conformance of the 2022 Bonds with the Green Bond Principles. In our opinion, the 2022 Bonds are aligned with the four core components of the Green Bond Principles and qualify for Green Bonds designation.

ABOUT THE ISSUER

The Massachusetts Port Authority ("Authority") was established in 1956 as an independent public authority in The Commonwealth of Massachusetts ("Commonwealth"). The Authority, governed by a seven-member Board, oversees three airports (Boston-Logan International Airport, Laurence G. Hanscom Field and Worcester Regional Airport) and a variety of port properties throughout South Boston, East Boston and Charlestown, Massachusetts.

The Authority's ambitious goal to reach net zero greenhouse gas emissions by 2031 demonstrates a significant commitment to sustainability. The Authority has implemented several initiatives to reach this goal, including minimizing greenhouse gas emissions in transportation, optimizing energy efficiency in new and existing facilities, and mitigating harmful environmental impacts on surrounding communities. These initiatives advance *Sustainable Massport 2.0*, an effort launched by the Authority in 2019 that identified key targets and strategies to reach various sustainability, resiliency and environmental stewardship goals. Since 2004, the Authority has reduced greenhouse gas emissions per passenger by 46%, water consumption by 37%, and recycled or reused nearly 100% of construction and demolition waste.[1]

[1] "Annual Sustainability and Resiliency Report," Massachusetts Port Authority, 2019, https://www.massport.com/media/3928/2019-sustainability-report-final_full-reduced.pdf.

Additionally, the Authority has implemented sustainable and resilient building design standards and has achieved LEED certifications for five facilities including Terminal A at the Boston-Logan International Airport—the first international airport in the US to receive LEED certification on a terminal. Ongoing initiatives include stewardship of open space, electrification of ground support equipment, installation of bioswales to reduce stormwater runoff and water pollution, and improved access to low carbon ground transportation for travelers. Facilities that support an electrified transportation sector and climate resilient infrastructure are central to the Authority's long-term sustainability goals.

Boston-Logan International Airport

The Boston-Logan International Airport ("Airport"), located in East Boston and adjacent to the Boston Harbor, is the 15th busiest commercial airport in the US by operations and 16th busiest by number of passengers.[2] In 2019, the Airport served over 41 million passengers and operated more than 420,000 flights.

The Authority has established sustainability objectives that are unique to the Airport, yet also complement the *Sustainable Massport 2.0* goals. For example, the Authority has made a commitment to replace all gas- and diesel-powered vehicles with fully electrified cars, trucks and buses by 2027, to optimize ground transportation efficiencies for both passengers and employees.

ALIGNMENT TO GREEN STANDARDS[3]

Use of Proceeds

Green Standard
The Green Bond Principles
Eligible Project Category: ▪ Green Buildings

The 2022 Bonds will be used to finance the Terminal E Modernization Project ("Project"), pay costs of issuance, capitalize interest on the 2022 Bonds until the corresponding placed-in-service date of the Project, and make the appropriate deposit to the debt service reserve funding required by the Authority's 1978 Trust Agreement. The Terminal E building, designed to meet LEED Silver standards and expected to achieve LEED Gold certification upon completion in 2023, is an eligible project as defined by the Green Bond Principles in the project category of *Green Buildings*.

The Terminal E Modernization Project includes construction of four gates, additional passenger holding rooms, concourse circulation areas, concessions, passenger processing including Customs and Border Protection facilities, and expanded bag screening facilities within the terminal. To achieve a minimum LEED Silver certification, the Authority has incorporated sustainable design elements, including:

- Water conservation measures, such as low flow faucets and toilets
- LED lighting
- Sustainable waste management
- Energy efficient displacement ventilation systems
- Photovoltaic glass and dynamic glazing for windows
- Floodproofing
- Backup power and energy control systems

As of June 2022, the Terminal E building structure and envelope are almost complete, and interior work including carpeting, interior framing, metal paneling, electrical, plumbing and mechanical systems is underway. The Authority is pursuing 16 additional LEED credits to surpass the LEED Silver requirement and achieve LEED Gold certification. The Terminal E building also exceeds minimum Massachusetts Energy Code efficiency requirements by at least 20%. The efficient mechanical, plumbing, electrical systems and LED lighting will contribute to an expected 30% reduction in operational carbon emissions.[4]

Direct emissions from fossil fuel combustion associated with heating, cooling and operating residential and commercial buildings account for approximately 29% of total US greenhouse gas emissions, and

[2] "Environmental Status and Planning Report," Boston-Logan International Airport, 2017, https://www.massport.com/media/3354/2017-espr-part-1.pdf.

[3] Green Bonds are any type of bond instrument where the proceeds will be exclusively applied to finance or refinance eligible Green Projects that are aligned with the four core components of ICMA's Green Bond Principles.

[4] Based on energy models evaluating the design relative to a base case without incorporation of sustainable design elements.

approximately 27% of statewide greenhouse gas emissions in the Commonwealth.[5] The building sector in the Commonwealth must achieve near-zero emissions by 2050 to meet the net zero goal established in a statewide climate policy.[6] The Project aligns with this policy, as well as the Authority's own net zero goal.

While aviation is a significant source of global greenhouse gas emissions, Kestrel views construction of airport facilities that meet green building standards as eligible for financing with Green Bond proceeds. In Kestrel's opinion, the mechanisms for reducing the carbon footprint of airline travel may be viewed distinctly from the emissions associated with constructing and operating the supporting facilities.

Envision Framework and Sustainable Design

In addition to the anticipated LEED certification, the Project is expected to pursue Envision certification. Envision is a holistic sustainability framework and rating system for physical infrastructure developed in partnership between Harvard University Graduate School of Design and the Institute for Sustainable Infrastructure. The Institute was founded by the American Public Works Association, the American Council of Engineering Companies, and the American Society of Civil Engineers.[7] The Envision framework is widely accepted and promoted by the American Society of Civil Engineers as a best practice for sustainable design. Just as LEED is a recognizable standard for green building design, Envision is a recognizable standard for sustainable infrastructure of all types. The Envision framework includes 64 sustainability and resilience indicators (credits) organized around five categories: *Quality of Life, Leadership, Resource Allocation, Natural World,* and *Climate and Resilience*. The framework seeks to collectively address components of community development, human health and well-being, mobility and emissions, wildlife conservation, life cycles of materials, and more.

Climate Risk and Transition Alignment[8]

Mitigation of transition risk requires planning for the necessary structural changes to address climate change and the transition to a low-carbon economy, with recognition of the risks associated with inaction. The bond-financed Project addresses climate transition risks by incorporating energy efficiency and green building features to directly reduce greenhouse gas emissions and advance decarbonization goals. Additionally, the Project follows the Authority's *Floodproofing Design Guidelines*, which incorporate climate risk assessments and forecast physical risks related to extreme weather events, coastal storm surges and sea level rise.[9] Moreover, the Airport conducted comprehensive climate risk assessments and developed climate risk mitigation strategies specific to the Project.

The 2022 Bonds also finance activities that align with the *just transition,* characterized by the equitable inclusion and accommodation of all individuals, with a special focus on disadvantaged groups who may be directly or indirectly affected by the structural changes necessary for the transition to a low-carbon economy. The 2022 Bonds align with the just transition by incorporating stakeholder input and adapting to local community needs. For example, Terminal E is designed to improve noise abatement goals for adjacent communities. The expected Envision Sustainable Infrastructure certification requires effective collaboration among project teams and communities, and consideration of social equity in project design, planning and operations.

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[5] "Sources of Greenhouse Gas Emissions," US Environmental Protection Agency, 2019, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions; and "Buildings Sector Report A Technical Report of the Massachusetts 2050 Decarbonization Roadmap Study," Executive Office of Energy and Environmental Affairs, 2020, https://www.mass.gov/doc/building-sector-technical-report/download.

[6] "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy," Massachusetts Session Law 2021 Chapter 8, Approved by the Governor March 26, 2021, https://malegislature.gov/Laws/SessionLaws/Acts/2021/Chapter8.

[7] The Institute for Sustainable Infrastructure is a nonprofit education and research organization.

[8] Climate change poses significant systemic risks to US financial systems and municipal issuers. These risks may broadly be divided into physical risk, transition risk and societal risk. Physical risk includes effects of climate change on physical assets, such as extreme weather events and sea level rise. Transition risk includes market and technology risks, reputational risks, policy risks and legal risks. Societal risk includes risk to stable democracies, risk to civil liberties and human rights, risk to labor supply, and risk to public health. Mitigation of transition risk requires planning for the necessary structural changes to address climate change and societal inequity with recognition of the risks associated with inaction. We refer to this as the just transition to a decarbonized economy, or the just transition.

[9] "Massachusetts Port Authority Flood Proofing Design Guidelines," revised April 2015, https://www.massport.com/media/1149/massport-floodproofing-design-guide-revised-april-2015.pdf.

Process for Project Evaluation and Selection

The Authority's five-year capital program and sustainability goals guide the Terminal E Modernization Project.

The capital planning program directs facility improvements. A comprehensive list of projects to be completed over a five-year period is included in the *5 Year Capital Programs Plan*, which is approved by the Authority's Board. Evaluation criteria for capital projects include: safety and security, operational efficiency, sustainability, asset management and financial feasibility. The Project was reviewed as part of the capital program and prioritized based on projected growth in passenger levels and the need for expanded operational capacity.

The Project aligns with the Authority's comprehensive view of sustainability, which includes both environmental impact and social responsibility. It meets the Authority's *Sustainability and Resiliency Design Standards*, which require a minimum of LEED Silver certification. The Project also has features to improve resilience as required in the Authority's *Floodproofing Design Guidelines*. Pursuit of the Envision Sustainable Infrastructure certification advances the Authority's commitments to stakeholder input, community well-being, and comprehensive considerations of facility impacts. The green building certification and resilient design features also advance (1) goals in the *Logan International Airport Sustainability Management Plan* related to energy efficiency, greenhouse gas emissions, water conservation, waste management, and climate resiliency and (2) the Authority's target to reach net zero by 2031.

Management of Proceeds

Proceeds will be deposited directly into a restricted project account and spent as eligible costs are incurred over the course of the Project. All expenditures will be overseen by the Authority's Administration and Finance Department and will be subject to terms of the 1978 Trust Agreement. Proceeds will be held in temporary investments prior to spending and in accordance with the Authority's Investment Policy.

Reporting

The Authority will submit continuing disclosures to the Municipal Securities Rulemaking Board ("MSRB") as long as the 2022 Bonds are outstanding. The Authority will also provide reports in the event of material developments. This reporting will be done annually on the Electronic Municipal Market Access ("EMMA") system operated by the MSRB.

Proceeds will be tracked by the Authority on a monthly basis until full allocation. Upon completion of the Project and once all proceeds have been expended, the Authority expects to provide an update report on EMMA that will include confirmation of LEED certification and impact metrics such as building energy performance or reductions in operational carbon emissions. Construction updates and reports are expected to be available on the Authority's website: https://www.massport.com/logan-airport/about-logan/environmental-reports/.

The Authority has a comprehensive approach to monitoring and reporting on environmental impacts and sustainability goals. The periodic *Sustainability and Resiliency Report* provides progress updates on key performance indicators established in the *Logan International Airport Sustainability Management Plan*. The Authority also periodically prepares *Environmental Data Report* or *Environmental Status and Planning Reports* which are submitted to the Commonwealth's Executive Office of Energy and Environmental Affairs. These reports provide comprehensive updates on Logan Airport operations and passenger data, mitigation commitments, and greenhouse gas emissions inventories. The Project is expected to be included in these reports.

IMPACT AND ALIGNMENT WITH UN SDGS

The Authority's Terminal E Modernization Project is helping to address UN SDGs 7, 11, and 13. By financing construction of an energy efficient terminal building expected to achieve LEED certification, the Project advances Target 7.3. Addressing climate resilience in the design of the Project supports Target 13.2. Pursuit of the Envision certification and mitigation of negative impacts on surrounding communities support Target 11.6.

Full text of the Targets for Goals 7, 11, and 13 is available in Appendix A to this Opinion, with additional information available on the United Nations website: www.un.org/sustainabledevelopment

Affordable and Clean Energy (Target 7.3)

Possible Indicators

- Reduced greenhouse gas emissions as a result of energy efficient building design

Sustainable Cities and Communities (Target 11.6)

Possible Indicators

- Amount of waste diverted from landfills during construction
- Envision certification

Climate Action (Target 13.2)

Possible Indicators

- Adoption of and continued implementation of long-term climate action targets
- Ongoing expansion of infrastructure to facilitate emissions reductions

CONCLUSION

Based on our independent external review, the Massachusetts Port Authority Revenue Bonds, Series 2022-A (AMT) (Green Bonds) conform, in all material respects, with the Green Bond Principles (2021) and are in complete alignment with the *Green Buildings* eligible project category. The Terminal E Modernization Project directly advances the Authority's "net zero by 2031" initiative and other clear sustainability goals.

ABOUT KESTREL VERIFIERS

For over 20 years Kestrel has been a trusted consultant in sustainable finance. Kestrel Verifiers, a division of Kestrel 360, Inc. is a Climate Bonds Initiative Approved Verifier qualified to verify transactions in all asset classes worldwide. Kestrel is a US-based certified Women's Business Enterprise. For more information, visit kestrelverifiers.com.

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Verification Team

- Monica Reid, CEO
- April Strid, Lead ESG Analyst
- Melissa Audrey, Senior ESG Analyst
- Jordynn Paz, ESG Analyst

DISCLAIMER

This Opinion aims to explain how and why the discussed financing meets the ICMA Green Bond Principles based on the information which was available to us during the time of this engagement (May – June 2022) only. By providing this Opinion, Kestrel Verifiers is not certifying the materiality of the Project financed by the Green Bonds. It was beyond Kestrel Verifiers' scope of work to review for regulatory compliance and no surveys or site visits were conducted. Furthermore, we are not responsible for surveillance on the Project or use of proceeds. Kestrel Verifiers relied on information provided by the Authority and publicly available information. The Opinion delivered by Kestrel Verifiers does not address financial performance of the Green Bonds or the effectiveness of allocation of its proceeds. This Opinion does not make any assessment of the creditworthiness of the Authority, or its ability to pay principal and interest when due. This is not a recommendation to buy, sell or hold the 2022 Bonds. Kestrel Verifiers is not liable for consequences when third parties use this Opinion either to make investment decisions or to undertake any other business transactions. This Opinion may not be altered without the written consent of Kestrel Verifiers. Kestrel Verifiers reserves the right to revoke or withdraw this Opinion at any time. Kestrel Verifiers certifies that there is no affiliation, involvement, financial or non-financial interest in the Authority or the projects discussed. We are 100% independent. Language in the offering disclosure supersedes any language included in this Second Party Opinion.

Use of the United Nations Sustainable Development Goal (SDG) logo and icons does not imply United Nations endorsement of the products, services or bond-financed activities. The logo and icons are not being used for promotion or financial gain. Rather, use of the logo and icons is primarily illustrative, to communicate SDG-related activities.

Appendix A.
UN SDG TARGET DEFINITIONS

Target 7.3
By 2030, double the global rate of improvement in energy efficiency

Target 11.6
By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

Target 13.2
Integrate climate change measures into national policies, strategies and planning

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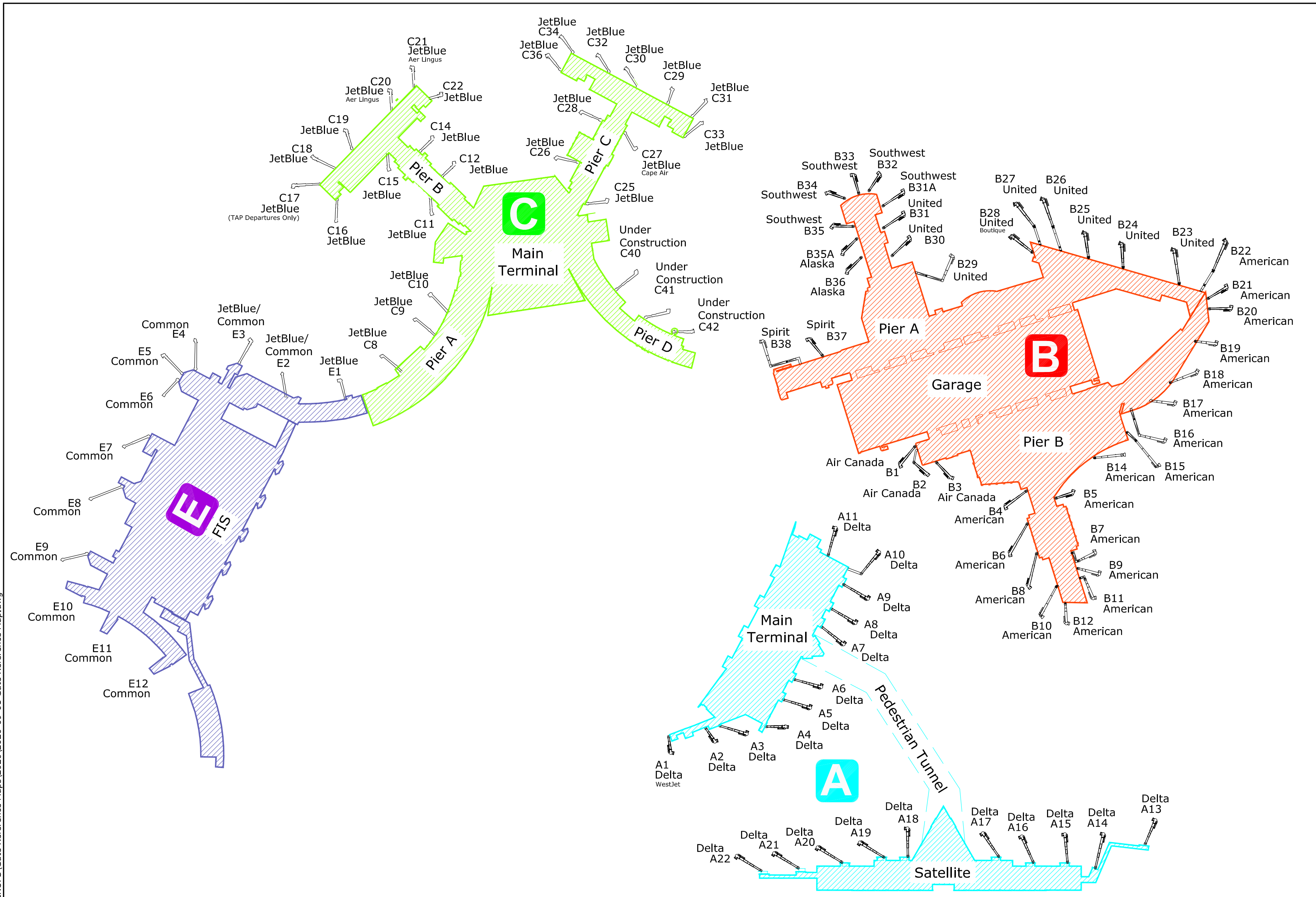

J:\ABO\Drawings\AIROPS\Gate Reference Maps\2020\2020-09-01 Gate Reference Map.dwg

Disclaimer: Information presented on this drawing is subject to continuous modification and updating. Therefore ***NO WARRANTY OF ANY KIND EITHER EXPRESSED OR IMPLIED*** is offered to the user. The information is planning oriented and may not reflect *"As-Built"* conditions. All square footage numbers are subject to Field Survey Verification.

Airport Business Office
Leasing
Concessions
Property Management
Massport

Terminal Layout
Logan International Airport

Drawn By:	KJG
Requested By:	
Date:	09/22/2020
Scale:	Not to Scale
Agrmt #:	

Airline Gate Locations
As of 09/01/2020

Exhibit A

Sheet 1 of 1

Logan International Airport - Massachusetts Port Authority - One Harborside Drive Suite 200S - East Boston, MA 02128-2909 - www.massport.com

MASSACHUSETTS PORT AUTHORITY • REVENUE BONDS, SERIES 2022-A (AMT) (GREEN BONDS)

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