PHL Master Plan Update
Executive Summary – *Aviation Activity Analysis and Forecasts*

Introduction

Growth in aviation activity drives airport capital development needs, and planners need quantitative forecasts of aviation activity to evaluate future airport capacity needs, determine the timing of those needs, and formulate a comprehensive plan for airport development. This chapter presents a detailed assessment of the demographic and economic trends in the Airport's air service area, the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD metropolitan statistical area (Philadelphia MSA), as well as in the Airport's home state of Pennsylvania and in the United States. The FAA approved forecasts of aviation activity are presented for a 20-year period ending in 2040.

COVID-19 Pandemic

The COVID-19 pandemic created an unprecedented crisis in the United States, leading to a declaration of national emergency on March 13, 2020. The United States, like many countries, sought to curtail the spread of the virus by imposing restrictions on domestic and international travel, issuing statewide stay-at-home orders, and promoting social distancing. The pandemic had a significant negative impact on the U.S. economy, and even more so on the air transport industry. Because of travel restrictions and fears about the virus, many businesses temporarily shut down and travel came to a near halt. All in all, five waves of infection hit the United States. The first wave began in March 2020; the second wave, June 2020; and the third wave, October 2020 (Figure 1). New variants of the COVID-19 virus spurred the fourth wave (due to the Delta variant) beginning in July 2021 and the fifth wave (due to the Omicron variant) beginning in November 2021.

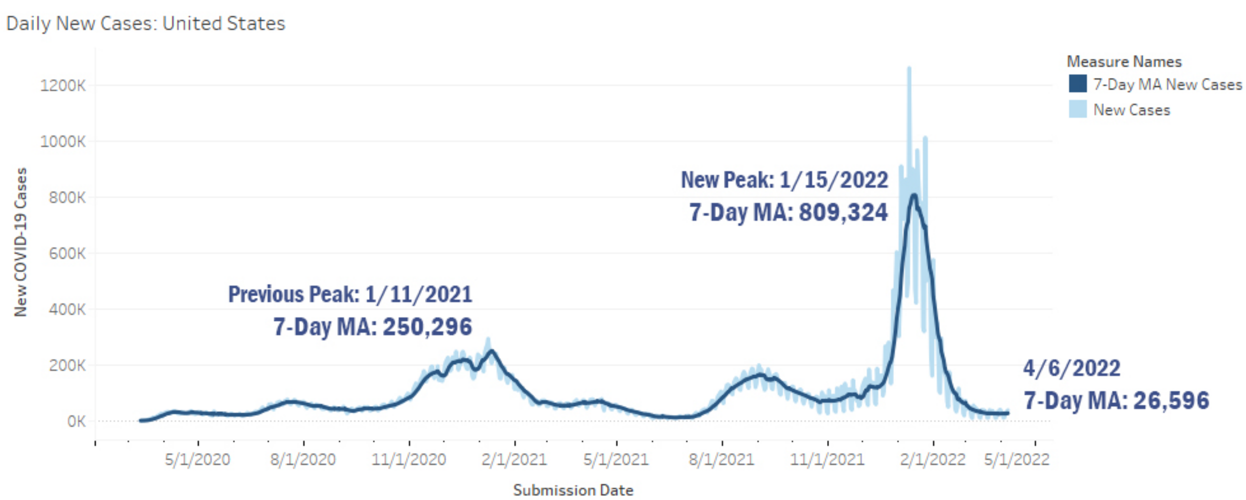

Figure 1 shows the trends in daily new cases and seven-day moving average (MA) of daily new cases.
Source: Centers for Disease Control and Prevention COVID Data Tracker, accessed on April 7, 2022.

Air Service Area

The Airport is the principal commercial passenger service airport serving the City of Philadelphia and surrounding areas of Delaware, Maryland, New Jersey, and Pennsylvania. The primary air service area consists of the Philadelphia MSA, which encompasses four metropolitan divisions and 11 counties. The Philadelphia, PA metropolitan division includes Delaware and Philadelphia Counties.

With 16.38 million enplanements in 2019 and 5.92 million enplanements in 2020 on calendar year basis, the Airport is the second largest commercial service airport within its 150-road-mile radius, or equivalently less than two-hour drive from the Airport.

	Enplanements (Millions)[1]				Distance from PHL[2]	
Airport	**CY2020**	**CY2019**	**City/County**	**State**	**Miles**	**Drive Time**
Philadelphia International[3]	5.92	16.38	Philadelphia	PA	--	--
New Castle/Wilmington	--	--	New Castle	DE	28	31 mins
Trenton-Mercer	0.13	0.46	Trenton	NJ	42	47 mins
Atlantic City International	0.21	0.52	Atlantic City	NJ	59	1 hour 8 mins
Lehigh Valley International	0.19	0.43	Lehigh	PA	74	1 hour 20 mins
Newark Liberty International	7.97	23.15	Newark	NJ	91	1 hour 32 mins
Baltimore/Washington International	5.39	13.24	Baltimore	MD	101	1 hour 41 mins
Harrisburg International	0.31	0.74	Harrisburg	PA	111	1 hour 46 mins

Table 1 Commercial Service Airports Within 150 Road Miles of PHL (Drive times may vary with time-of-day road traffic)
[1] Source: Unless otherwise noted, passenger traffic volumes are based on Bureau of Transportation Statistics Market data.
[2] Source: Google Maps.
[3] Source: Airport records.

Commercial Passenger Traffic – Historical Trends

Commercial passenger traffic accounted for almost 90 percent of total aircraft operations at the Airport before the pandemic during the City of Philadelphia's fiscal year (FY) 2019[1]. PHL is classified by the FAA as a large hub commercial service airport based on a share of at least 1 percent of total U.S. enplanements. In calendar year (CY) 2020, PHL ranked the 21st largest among U.S. airports in total enplanements, based on data compiled separately by the FAA[2] and the Airports Council International-North America (ACI-NA).

Passenger Carriers

The list includes nine U.S. carriers and five foreign flag carriers. American, Delta, and United utilize both their mainline fleet and regional affiliates to provide service at the Airport. All nine U.S. carriers provide domestic service. Along with the five foreign flag carriers, U.S. carriers American, Frontier, JetBlue, and Spirit provide international service.

U.S. Carriers	Foreign Flag Carriers
Alaska Airlines	Air Canada
American Airlines	British Airways
Delta Air Lines	Lufthansa
Frontier Airlines	Qatar Airways
JetBlue	Aer Lingus
Southwest Airlines	
Spirit Airlines	
Sun Country Airlines	
United Airlines	

Table 2 Scheduled Passenger Carriers at PHL

[1] The fiscal year (FY) for the City of Philadelphia starts in July and ends in June. FY 2019 began on July 1st, 2018 and ended on June 30th, 2019.
[2] Federal Aviation Administration, *CY2020 Passenger Boarding Data*.

Historical Enplanement Trends

Over 29 years through FY2019, the compound annual growth rate was 2.5 percent. In the past two fiscal years since the pandemic, PHL's enplanements decreased by 36.2 percent annually on average. Because of its location in a large metropolitan area and proximity to other business centers, PHL, like other large hub airports, has significant business and international traffic. As a result, it suffered deep declines in passenger traffic during the COVID-19 pandemic when social distancing measures, stay-at-home orders, and travel restrictions were implemented to contain the spread of the disease.

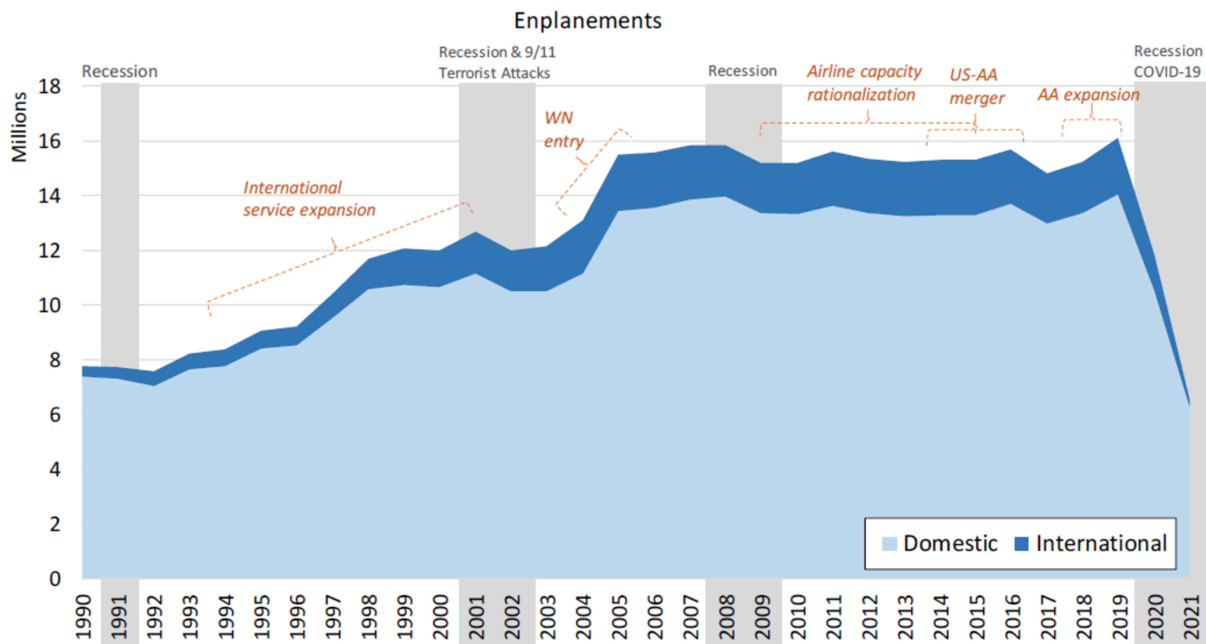

Figure 2. Historical Enplanement Trends at PHL

Passenger Traffic Composition Between Domestic and International Segments

In FY2021, domestic traffic accounted for 96 percent of total enplanements, and international traffic accounted for only 4 percent because of government restrictions on international travel.

Passenger Traffic Composition Between Origin & Destination (O&D) and Connecting Segments

O&D traffic accounts for the majority share of PHL's annual enplanements, which increased from 60 percent in FY2010 to 67 percent in FY2019, due in part to the expansion of service by non-hub carriers.

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PHL as a Major Connecting Hub for American Airlines

The significant connecting traffic at PHL is due largely to American Airlines. PHL is one of the major U.S. connecting hubs in American Airlines' route network. Before the pandemic in CY2019, PHL ranked fifth among U.S. airports by total scheduled seats offered by American, also fifth by domestic seats only, and fourth when counting only international seats. On November 8, 2021, the U.S. government lifted restrictions on travel from most countries in Europe (along with Mexico and Canada), and American Airlines has been steadily restoring its trans-Atlantic flight schedules at PHL.

Commercial Passenger Traffic – Forecasts

Forecast development considers the pandemic impacts, the demand and supply changes in the aviation industry, and the changes in the business environment. The forecast horizon is divided into three phases: near-term recovery phase, medium-term recovery phase, and post-COVID recovery long-term growth phase. Forecast development also acknowledges the elevated uncertainty in the development of the pandemic and the implications for the outlook for the aviation industry and the overall economy.

Over the long-term, passenger traffic is forecast to grow with economic growth, with airlines providing flights and seat capacity to accommodate rising demand. U.S. airlines have taken steps to recruit and train more pilots and crew, and place new aircraft orders to renew and expand their fleets.

The resulting forecast trends for annual commercial passenger enplanements from FY2022 through FY2040 are presented in Figure 3 and consider two scenarios. Under Scenario 1 (fast recovery, high), domestic enplanements return to FY2019 level in FY2024 and grow to 15.7 million in 2030, International enplanements return to FY2019 level in FY2025 and total enplanements return to FY2019 level in FY2024. Under Scenario 2 (slow recovery, low), domestic enplanements return to FY2019 level in FY2026, International enplanements approach FY2019 level in FY2028 and total enplanements begin to exceed FY2019 level in FY2027. The results reflect slower pace of recovery to pre-pandemic traffic levels and slower pace of post-recovery long-term growth based upon the following assumptions:

- The pandemic would take longer to contain. New variants would result in new waves of infection that trigger periodic reinstatement of social distancing mandates and travel restrictions, slowing passenger traffic recovery.

- Supply-side issues—labor supply shortage and delays in aircraft deliveries—would take longer to be resolved. These would continue to constrain airlines' ability to restore capacity as quickly as needed to accommodate returning demand.

- Over the long term, Scenario 2 reflects the possibility of a more permanent slowdown in the growth of business travel resulting from the widespread adoption of virtual conferencing and hybrid work arrangements. This effect is projected to be stronger—and the corresponding downward adjustment to post-recovery growth rates is larger—for domestic travel than for international travel.

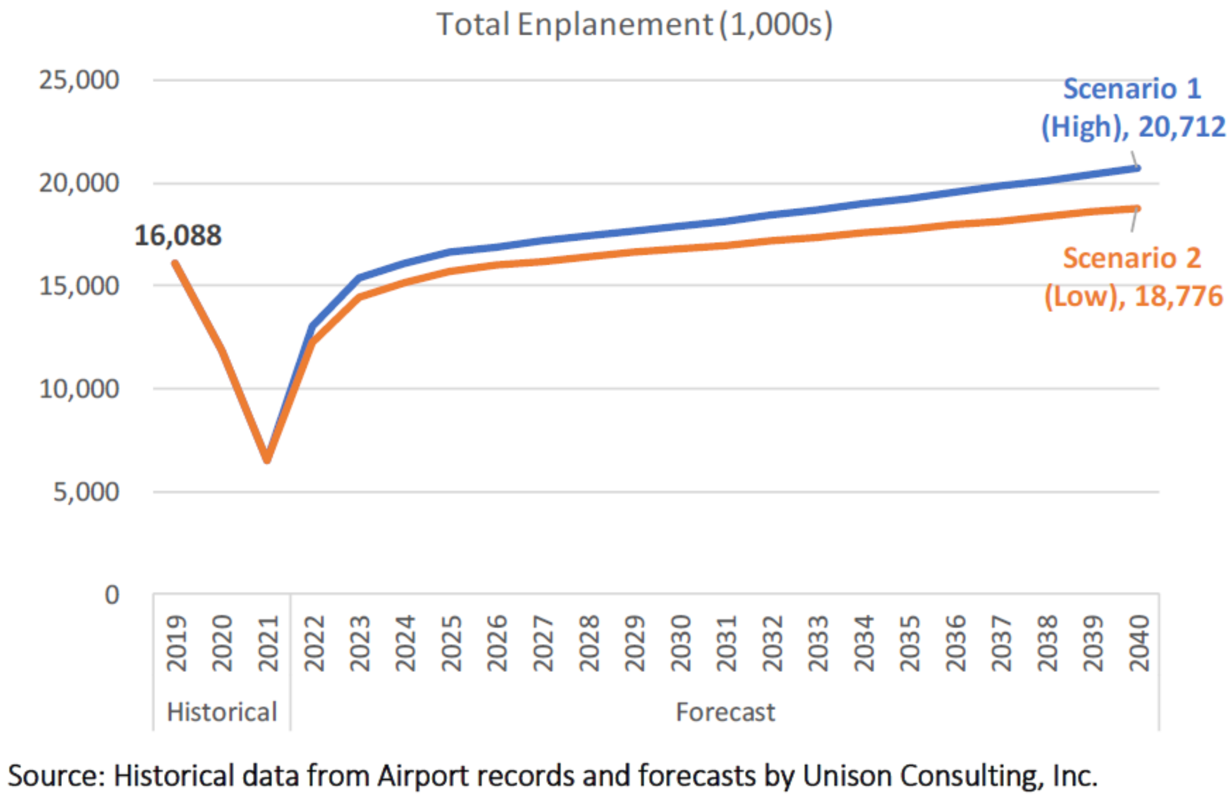

Figure 3. Forecast Total Enplanements by Fiscal Year

Aircraft Operations

The forecast trends for annual commercial passenger aircraft operations (departures and arrivals) were analyzed and 20-year projections developed. Aircraft operations grow slower than enplanements due to increases in average seats per flight (aircraft up-gauging) and improvements in load factors (filling more seats). Compared with domestic service, international service is projected to achieve much smaller improvements from up-gauging and slower recovery in international boarding load factors.

Noncommercial aviation activity, which consists of air taxi, general aviation (GA), and military operations, accounts for a small share of total aircraft operations at PHL. This share, however, is estimated to have increased from approximately 6 percent in FY2019 before the pandemic to approximately 11 percent in FY2021 due to an increase in air taxi operations during the pandemic. Table 3-31 summarized the aircraft operations forecast that FAA approved.

Scenario 1 (High)	Historical			Forecast				Compound Annual Growth Rate			Ratio to FY2019 Level		
	2019	2020	2021	2025	2030	2035	2040	2019-2021	2021-2030	2030-2040	2021	2030	2040
Commercial Passenger Service													
Enplaned passengers (1,000)	16,088	11,847	6,543	16,599	17,887	19,243	20,712	-36.2%	11.8%	1.5%	0.41	1.11	1.29
Commercial passenger aircraft operations	345,324	285,332	171,400	308,790	314,728	334,566	357,964	-29.5%	7.0%	1.3%	0.50	0.91	1.04
Commercial Air Cargo Service													
Air cargo throughput (1,000 short tons), enplaned and deplaned	576	614	645	791	867	954	1,070	5.8%	3.3%	2.1%	1.12	1.50	1.86
Commercial all-cargo aircraft operations	17,212	19,724	21,818	23,009	25,690	27,995	30,251	12.6%	1.8%	1.6%	1.27	1.49	1.76
Noncommercial Aircraft Operations													
Air taxi	7,989	6,472	11,581	9,105	9,292	9,280	9,279	20.4%	-2.4%	0.0%	1.45	1.16	1.16
General aviation	14,642	11,683	10,941	10,746	10,746	10,746	10,746	-13.6%	-0.2%	0.0%	0.75	0.73	0.73
Military	455	521	334	546	546	546	546	-14.3%	5.6%	0.0%	0.73	1.20	1.20
Total	**23,086**	**18,676**	**22,856**	**20,397**	**20,584**	**20,572**	**20,571**	**-0.5%**	**-1.2%**	**0.0%**	**0.99**	**0.89**	**0.89**
Based aircraft	24	24	26	26	26	26	26						

Table 3. Summary of AMPU Forecast Aviation Activity by Fiscal Year ending June 30 – Scenario 1 (High)

Based Aircraft

The number of based aircrafts has declined from 1990 to 2021, with the most recent filing, through the Airport Data and Information Portal, indicating that there are 26 GA based aircraft. This includes 24 jet aircraft, a single-engine aircraft and a multi-engine aircraft. It is assumed based aircraft will remain flat at 26 through the planning period.