Forecast Highlights (2022–2042)

The Russian invasion of Ukraine and ensuing war in 2022 occurred after this forecast was prepared and therefore it does not reflect impacts from those events. However, those impacts are already being felt and may worsen significantly depending on the extent, severity and duration of the war. Already, flights that normally traverse Russian and Ukrainian airspace are rerouting, resulting in longer flight times and higher fuel and crew costs. Next, fuel prices spiked as some countries halted imports of oil from Russia, a major global supplier. Higher energy costs for American consumers may combine with higher food costs as other exports such as for wheat and fertilizer from the region are also curtailed. Higher fuel costs can be passed on to consumers in the form of higher ticket prices, thus directly restraining air travel demand, but higher prices for both food and fuel also stretch consumer wallets, leaving less for discretionary travel. Finally, depending on the progression of the war, consumer confidence may weaken, increasing caution and financial conservatism.

Since its deregulation in 1978, the U.S. commercial air carrier industry has been characterized by boom-to-bust cycles. The volatility that was associated with these cycles was thought by many to be a structural feature of an industry that was capital intensive but cash poor. However, the great recession of 2007-09 marked a fundamental change in the operations and finances of U.S Airlines. Since the end of the recession in 2009, U.S. airlines revamped their business models to minimize losses by lowering operating costs, eliminating unprofitable routes, and grounding older, less fuel-efficient aircraft. To increase operating revenues, carriers initiated new services that customers were willing to purchase and started charging separately for services that were historically bundled in the price of a ticket. The industry experienced an unprecedented period of consolidation with three major mergers in five years. The results of these efforts were impressive: 2019 marked the eleventh consecutive year of profitability for the U.S. airline industry.

The outbreak of the COVID-19 pandemic in 2020, however, brought a rapid and cataclysmic end to those boom years. Airline activity and profitability tumbled almost overnight and without the financial and competitive strength built up during the boom, airlines would have faced even greater challenges. As it was, they were able to slash capacity and costs, and then, relying on their balance sheets, credit ratings and value inherent in their brands, to raise capital through borrowing and restructuring fleets allowing them to withstand the period of losses. Although several small regional carriers ceased operations in 2020, no mainline carriers did. Cargo activity was one of few bright spots as it surged, boosted by consumers purchasing goods to enhance time spent at home as necessitated by the pandemic, and by surface transportation disruptions caused by worker shortages due to COVID-19 illnesses.

By the middle of 2021, conditions and the outlook had brightened considerably. With the arrival of spring, the introduction of vaccines, and the lifting of some local restrictions, leisure travel began rebounding. Favored destinations remained concentrated in outdoor recreation spots, whether beach or mountain, and some recorded traffic levels higher than in 2019. The emergence of the

COVID-19 variants in the second half of the year paused the recovery but generally didn't reverse it. Two new low-cost carriers were formed and one regional carrier that ceased operations in 2020 was reborn. By the third quarter, industry profitability was nearing the breakeven point.

The business modifications necessitated by the downturn will shape the industry for years to come, long after the recovery is complete. Primarily, airlines will be smaller having retired aircraft and encouraged voluntary employee separations. Fleets, however, become younger and more fuel-efficient as retirements targeted the oldest and the least efficient aircraft. As airlines carry high levels of debt, capital spending and investment will be restrained which in turn holds back future growth. And even the unbundling of services took a small step backwards as carriers eliminated change fees for all but Basic Economy tickets.

In the medium-term, airlines will be focused on trying to foretell the recovery in demand and position themselves to meet it. To date, that demand recovery has been extremely uneven across markets and population segments, driven by COVID-19 case counts, vaccinations, governmental restrictions and the degree of pent-up demand experienced by consumers and businesses. While domestic leisure traffic has led the recovery, domestic business travel is expected to gain momentum in 2022. International activity generally lags domestic as individual country experience with the pandemic is varying and shifting so widely.

Long-term, the strengths and capabilities developed over the past decade will become evident again. There is confidence that U.S. airlines have finally transformed from a capital intensive, highly cyclical industry to an industry that can generate solid returns on capital and sustained profits.

Fundamentally, over the long-term, aviation demand is driven by economic activity, and a growing U.S. and world economy provides the basis for aviation to grow. The 2022 FAA forecast calls for U.S. carrier domestic passenger growth over the next 20 years to average 4.7 percent per year. This average, however, includes double-digit growth years in 2022 and 2023, as activity climbs out from a very low base. Following the recovery period, trend rates resume with average growth through the end of the forecast of 2.6 percent. Domestic passengers are forecast to return, on an annual basis, to 2019 levels in 2023. Oil prices averaged $55 per barrel over the five years ending in 2021 but are forecast to rise to $75 per barrel in 2022 (again, as forecast prior to the war in Ukraine) before rising steadily to $87 by the end of the forecast period.

Just as U.S. economic activity drives domestic demand for air transport, foreign economic activity affects international travel demand. And as virtually all countries took actions to contain COVID-19, those same actions resulted in economic patterns that are similar to those in the U.S. with sharp declines in 2020 followed by strong rebounds that began in 2021. The variation of economic performance across countries depends on their relative strength as the pandemic began but is also dependent on the severity of their experience with COVID-19 as well as the stringency of their responses. Europe saw sharp economic declines in 2020, consistent with its relatively high level of infections and numerous lockdowns that overwhelmed a tepid level of baseline economic growth. Many Asian countries, on the other hand, saw only mild downturns as they took swift and strong actions to control the virus early in the pandemic but also began the year with relatively strong economic growth. For most countries, economic growth rates settle back to their long-run trends in about 2023.

System traffic in revenue passenger miles (RPMs) is projected to increase by 5.7 percent a year between 2022 and 2042. Domestic RPMs are forecast to grow 4.8 percent a year while International RPMs are forecast to grow significantly faster at 8.8 percent a year, largely due to the steep declines in 2020 and 2021 that brought RPM to just 31 percent of 2019's level – about half that of domestic RPM. Thus, these figures are boosted by several years of high growth rates during the recovery after which the annual rates return to more moderate long-term trends. The strong growth rates return system RPM, on an annual basis, to 2019 levels in 2024, with domestic RPM returning a year earlier and international RPM also recovering in 2024. System capacity as measured by available seat miles (ASMs) is forecast to grow somewhat slower than RPM during the recovery period as airlines seek to restore load factors but, subsequently, ASM grow in line with the increases in demand.

The FAA expects U.S. carrier profitability to remain under pressure for several years due to lower demand and competitive fare pressures. As carriers return to levels of capacity consistent with their fixed costs, shed excess debt, and yields stabilize, consistent profitability should return. Over the long term, we see a competitive and profitable aviation industry characterized by increasing demand for air travel and airfares growing more slowly than overall inflation, reflecting growing U.S. and global economies.

The general aviation (GA) sector was less affected by the COVID-19 crisis than the airlines. Private aviation continues to attract those who can afford while the pandemic continues. At the lower end of the industry, new comers to private flying included student, private and commercial pilots, joining the existing GA pilot population. The long-term outlook for general aviation thus is promising, as growth at the higher-end offsets continuing retirements at the traditional low end, mostly piston-powered part of the sector. The active GA fleet is forecast to increase by just 0.1 percent between 2022 and 2042, after recording a slight increase of 0.1 percent in 2021 from the year before, and is essentially unchanged from its 2019 level. The turbine aircraft fleet, including rotorcraft, did not experience a decline between 2019 and 2020, and is estimated to have increased slightly between 2020 and 2021; while the total of piston fleet (single and multi-engine pistons, light-sport aircraft, and piston rotorcraft) declined by 3.8 percent between 2019 and 2020 and is estimated to have fallen by 0.6 percent in 2021 from the previous year. While steady growth in both GDP and corporate profits results in continued growth of the turbine and rotorcraft fleets, the largest segment of the fleet – fixed wing piston aircraft will continue to shrink over the forecast period, just to be offset by the growing turbine fleet. Despite the marginal growth of the active GA fleet between 2020 and 2042, the number of GA hours flown is projected to increase by 31.4 percent from 2020 to 2042 (an average of 1.2 percent per year), as growth in turbine, rotorcraft, and experimental hours more than offset a decline in fixed wing piston hours. When the period of 2022 to 2042 is compared, the total hours flown by the GA aircraft is forecast to increase by an average of 1.0 percent per year, after declining by 12.0 percent between

2019 and 2020, and recovering partially, with a growth of 4.0 percent in 2021 from the previous year.

With the expected robust air travel demand growth between 2022 and 2026 due to the U.S. economy recovering from the impact of COVID, we expect increased activity growth that has the potential to increase controller workload. Operations at FAA and contract towers are forecast to grow 1.5 percent a year over the forecast period (FY2022-42) with commercial activity growing at approximately five times the rate of non-commercial (general aviation and military) activity. The recovery in U.S. airline activity from the COVID downturn is the primary driver. The U.S. commercial aviation sector has been hit by the pandemic much harder than the non-commercial sector. The pent-up demand is expected to drive the commercial operations back to the pre-COVID level by 2023, hence leading to the stronger growth in the commercial sector. In particular, large and medium hubs will see much faster increases than small and non-hub airports, largely due to the commercial nature of their operations.