

Workforce Shortages & Small Community Air Service

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Regional Airline Association

October 2023



U.S. Air Service

Regional airlines provide **more than half** of the air service in 29 (of 48 contiguous) U.S. states and **more than 75%** of the air service to 11 (of 48 contiguous) U.S. states



67%

The infographic features two large, stylized circular shapes on a teal background. The left shape is a yellow circle with a white outline, containing the number '67%' and text below it. The right shape is a yellow circle with a white outline, containing the number '41%' and text below it. The background is a solid teal color.

of U.S. airports with scheduled passenger air service get their **ONLY** source of air service from regional airlines.

41%

of scheduled passenger departures were operated by U.S. regional airlines.

2021 U.S. AIR SERVICE NETWORK



Without regional airlines, most U.S. airports fall off the map.

**U.S. AIR SERVICE NETWORK
WITHOUT REGIONAL AIRLINES**

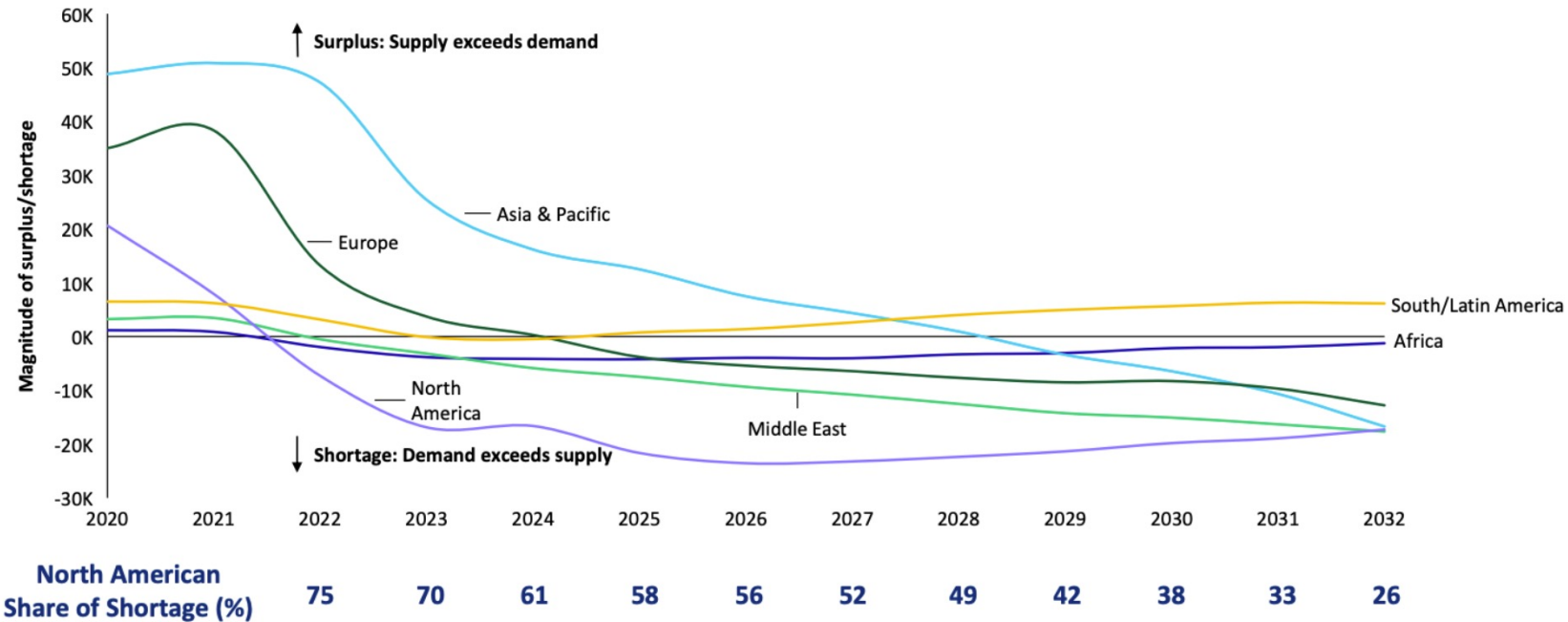


OliverWyman: Global Pilot Shortage

- The pilot shortage is expanding globally, with estimated impact into the 2030s
- Shortage already present in Middle East and North America, Predicted to hit Europe by 2024-2025

GLOBAL PILOT SHORTAGE: ALREADY HERE IN SOME REGIONS

Pilot demand vs. supply, forecast
2020-2032, end of year



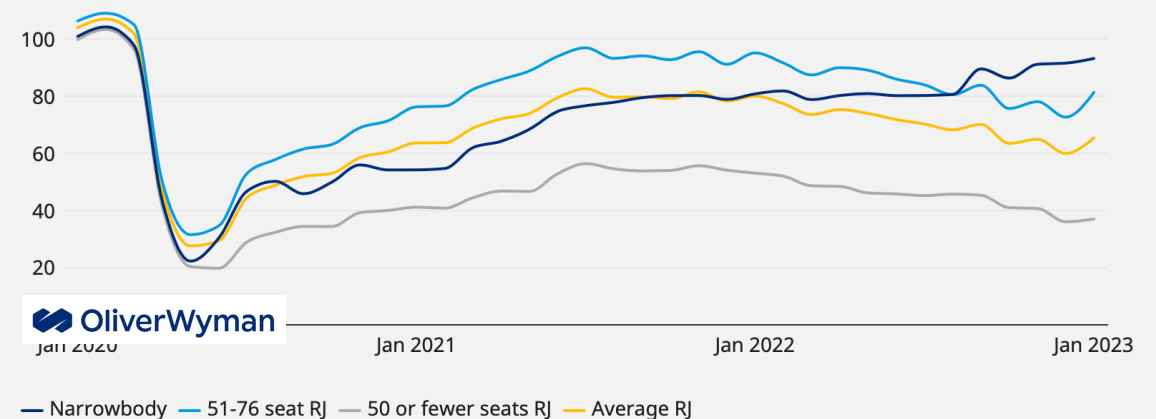
OliverWyman: North American Detail

- U.S. Drives North American Shortage
 - Regional block hours just two-thirds vs. pre-COVID
 - ≤ 50 seats just one-third vs pre-COVID.
- Canada sees “mild” shortage 2023, supply/demand converge in 2024.
- Strong issuance of Canadian air transport pilot certificates (up 65%) — possible surplus through early 2030s.
- ***Canada does not require pilots to earn a minimum of 1,500 flight hours before hire; reducing time and cost of becoming a commercial pilot in Canada.***

“If regional flying were to return to pre-pandemic levels by 2023, an additional 6,000 pilots would be required.”

United States regional and narrowbody jet block hours

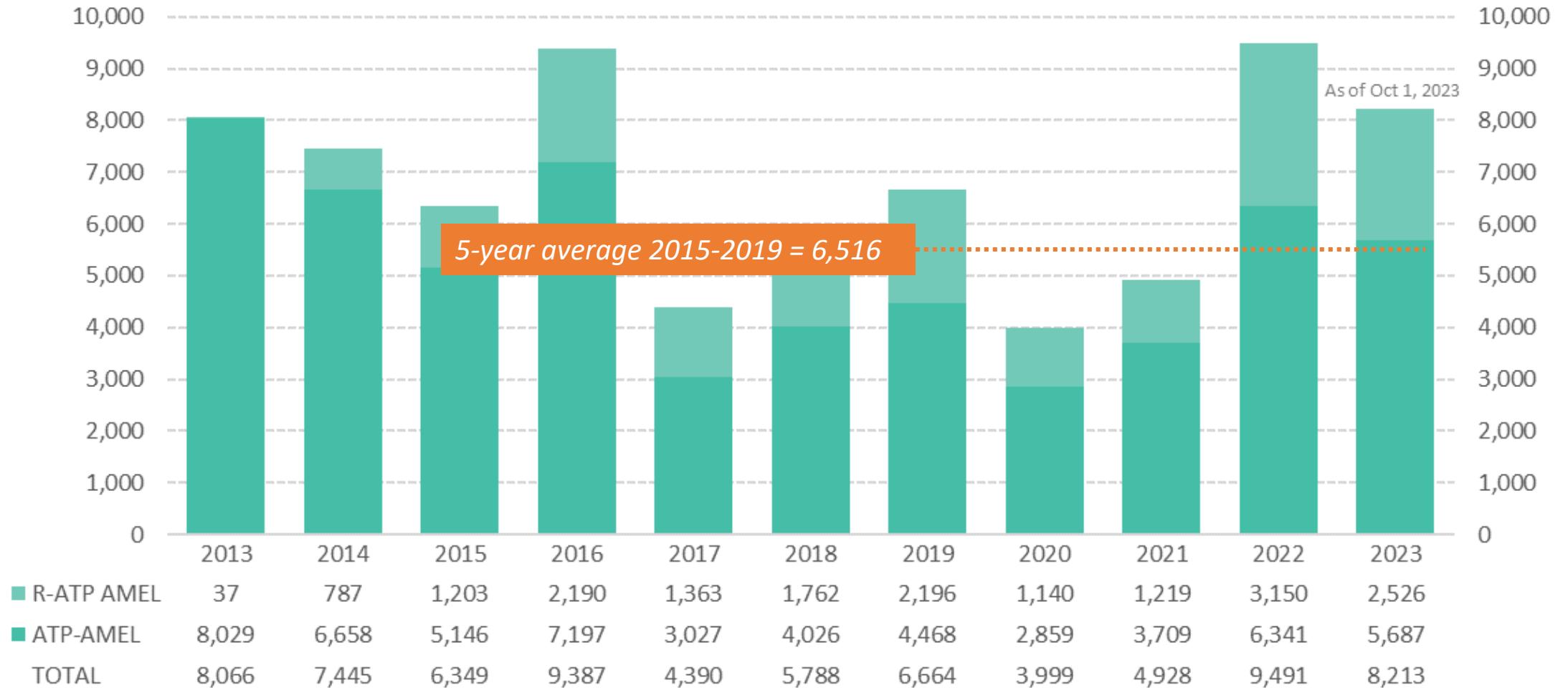
To compensate for seasonality, figures indexed to same month in 2019



If regional flying were to return to pre-pandemic levels by 2023, an additional 6,000 pilots would be required

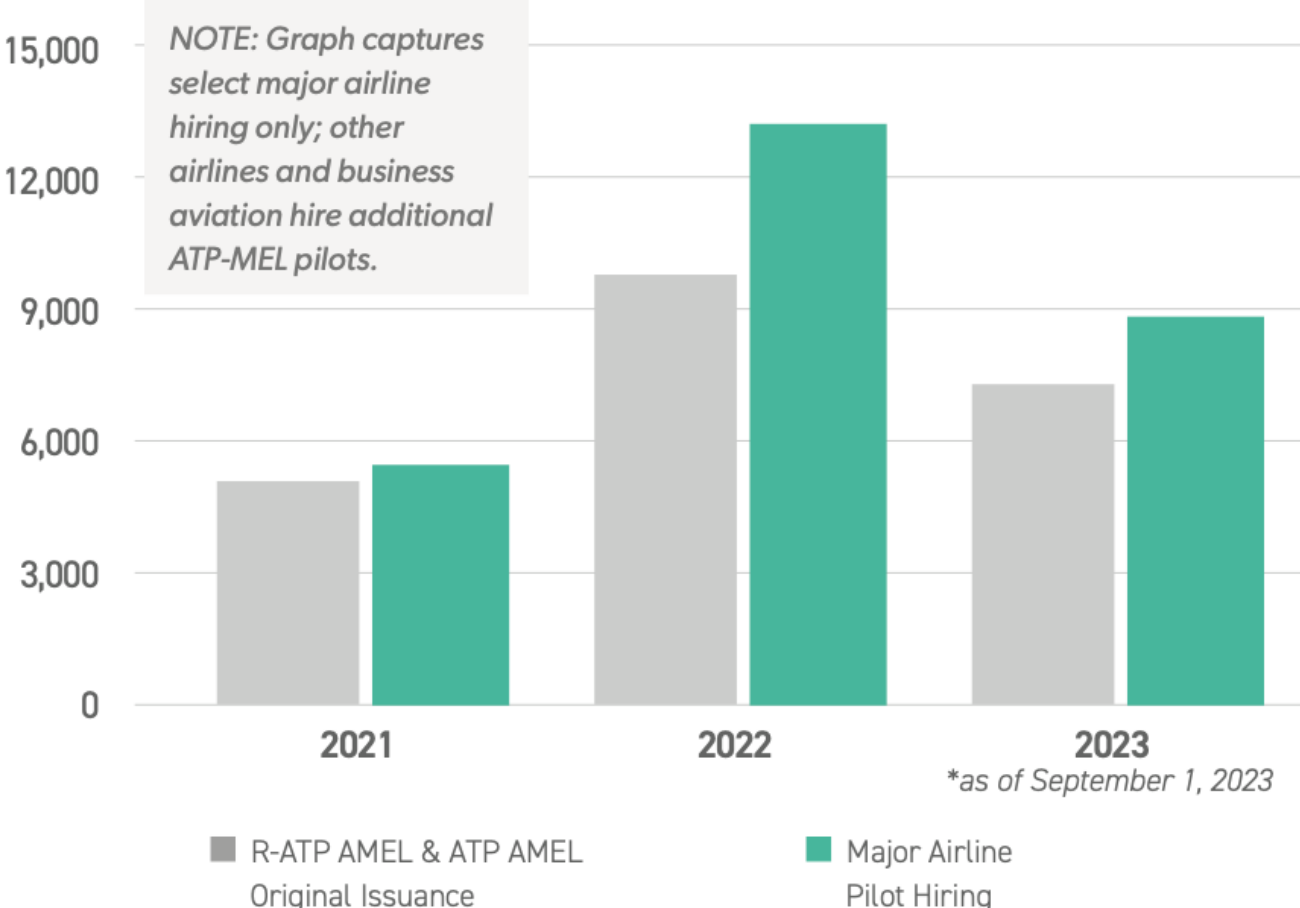
FAA New Issuance ATP Certificates

Using a 12 -month rolling average (Oct-22 through Sep-23), 2023 forecast to produce 10,299 ME ATPs.
 FAA continues to note that the Agency is “clearing a backlog.”



Major Airlines Hiring More Pilots than U.S. Produces

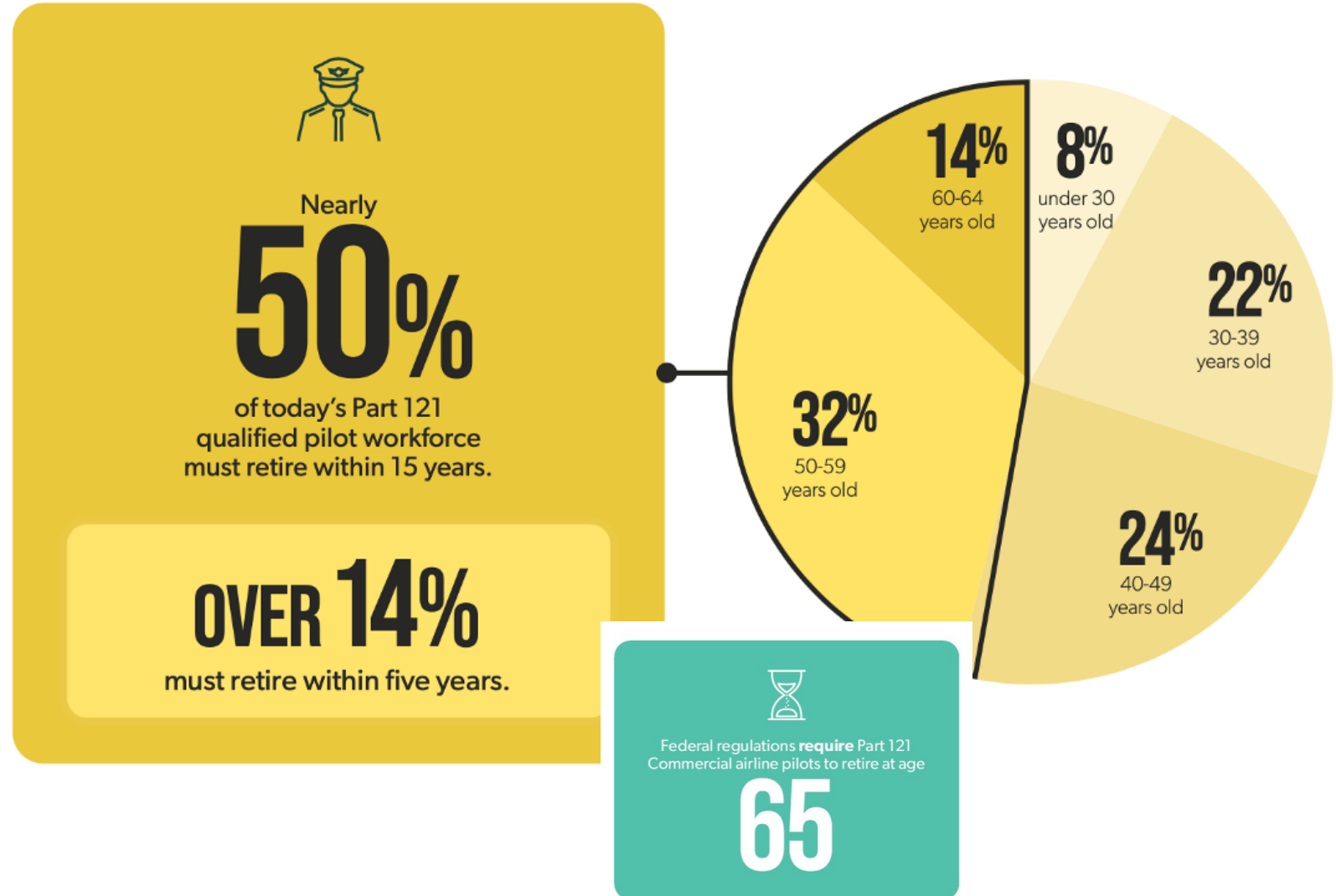
MAJOR CARRIER HIRING EXCEEDS PRODUCTION OF PILOTS⁴



Historically, 25-35% of new ATP pilots work for general / business aviation, not airlines. This significant hiring is not captured by these figures.

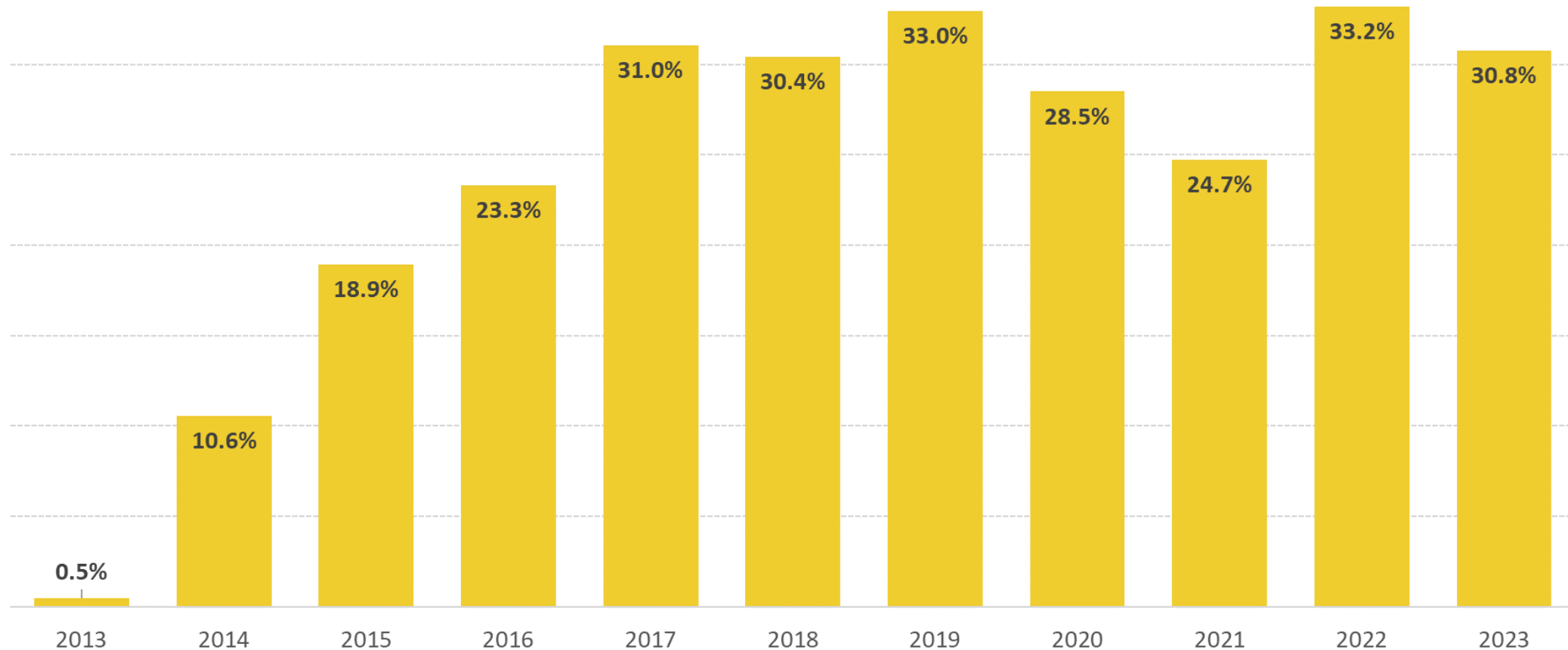
Aging Pilot Workforce Nears Mandated Retirement

- The average pilot is 51 years old.
- 14% of pilots must retire within 5 years.
- Half of the workforce must retire within 15 years.
- On average, 4,300 pilots *per year* reach mandatory retirement age through 2042.



Inadequate Structured Training (R-ATP) Qualification Pathways

Structured training pathways were approved by Congress and intended to emphasize high quality training while opening the career path for more pilots by shifting training costs to airlines. Despite their proven safety advantages, unions seek to block their expansion. Fewer than 1/3 of pilots qualify through these training-based pathways today.



The Cost of Inaction

The shortage of airline pilots has caused a wholesale collapse in small community air service—and it's only getting worse.

THE PILOT SHORTAGE IS RESULTING IN AN AIR SERVICE COLLAPSE

500

aircraft are parked and remaining aircraft are under utilized.

39/50

states have **less** air service than pre-pandemic.¹

310 (72%)

airports in the continuous United States have less service than pre pandemic and the average loss is 26% of their flights. 14 airports have lost all service.¹

Carriers have exited 131 markets.
**Carriers that partner with regional airlines
have exited from 77 markets.¹**

¹ OAG published schedules October 2019 vs. October 2023

Air Service Crisis

October 2023 vs. October 2019:

- 7% fewer departures across all airports
- 14 airports (3%) lost all service
- 310 airports (72%) saw reduction or loss of flight
average loss was 26% of flights
- 41 airports (10%) saw a reduction of 50% or more
- 127 airports (29%) saw a reduction of 25% or more

Regional aircraft
in service in **2023**



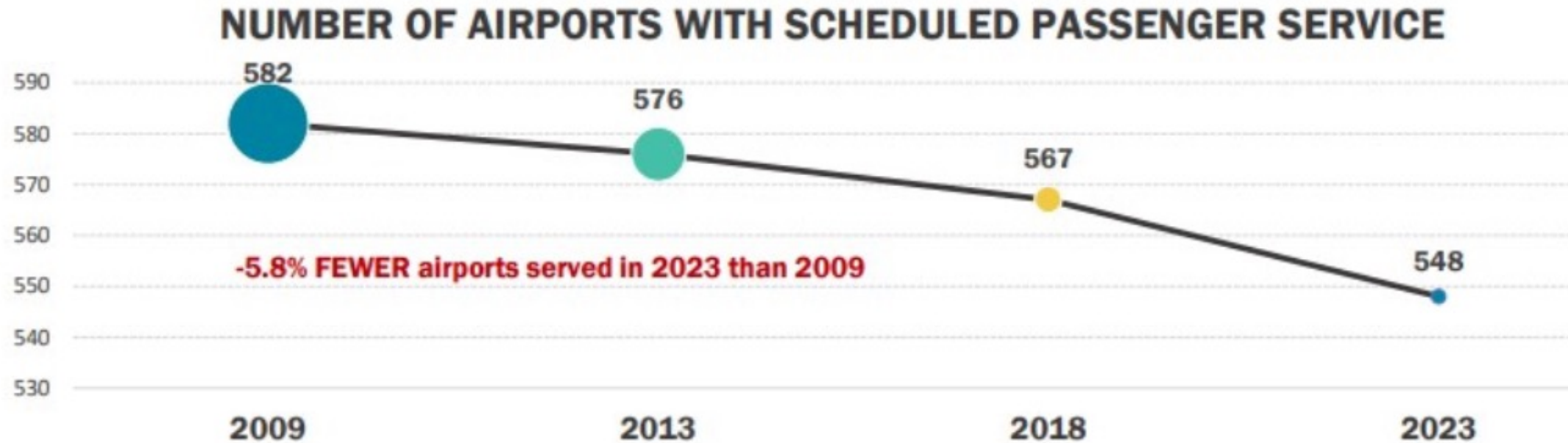
1,701

Regional aircraft
in service in **2019**



2,018

Airports are Losing Service



Other Markets Upgauged at Expense of Departures and Destinations



Source: July Schedules – OAG Schedule Analyser, comparison of July schedules

Airports that have Lost *All* Scheduled Flights:

- San Carlos, CA (SQL)
- Truckee, CA (TKF)
- Danbury, CT (DXR)
- Seattle, WA (LKE)
- Williamsport, PA (IPT)
- Del Rio, TX (DRT)
- Atlanta, GA (PDK)
- Cleveland, OH (BKL)
- Destin/Ft. Walton Beach, FL (DSI)
- Ogden, UT (OGD)
- Norwood, MA (OWD)
- East Hampton, NY (HTO)
- Cincinnati, OH (LUK)
- Williamsport, PA (IPT)
- Franklin, PA (FKL)

Airports that have lost between 30-50% of Scheduled Flights:

- Montgomery, AL (MGM) -35.0%
- Mobile, AL (MOB) -37.9%
- Dothan, AL (DHN) -46.6%
- Grand Canyon, AZ (FLG) -33.2%
- Page, AZ (PGA) -47.0%
- Merced, CA (MCE) -40.4%
- Santa Maria, CA (SMX) -47.1%
- Montrose, CO (MTJ) -30.7%
- Cortez, CO (CEZ) -43.0%
- Albany, GA (ABY) -29.5%
- Brunswick, GA (BQK) -29.5%
- Valdosta, GA (VLD) -30.3%
- Cedar Rapids, IA (CID) -31.5%
- Sioux City, IA (SUX) -47.9%
- Twin Fall, ID (TWF) -30.3%
- Pocatello, ID (PIH) -33.3%
- Moline, IL (MLI) -38.1%
- Champaign/Urbana, IL (CMI) -46.5%
- Decatur, IL (DEC) -48.8%
- Evansville, IN (EVV) -41.9%
- Dodge City, KS (DDC) -41.9%
- Hays, KS (HYS) -42.6%
- Owensboro, KY (OWB) -47.6%
- Monroe, LA (MLU) -39.4%
- Alexandria, LA (AEX) -48.1%
- Worcester, MA (ORH) -33.8%
- Nantucket, MA (ACK) -46.0%
- New Bedford/Fall Rive, MA (EWB) -49.4%
- Saginaw/Midland/Bay C, M (MBS) -30.1%
- Pellston, MI (PLN) -33.8%
- Flint, MI (FNT) -38.3%
- Ironwood, MI (IWD) -39.3%
- Lansing, MI (LAN) -41.3%
- Thief River Falls, MN (TVF) -43.0%
- Columbia, MO (COU) -36.5%
- Cape Girardeau, MO (CGI) -37.6%
- Kirksville, MO (IRK) -43.0%
- Columbus, MS (GTR) -44.6%
- Greenville, NC (PGV) -40.7%
- Concord, NC (USA) -43.1%
- Jamestown, ND (JMS) -31.0%
- Grand Forks, ND (GFK) -41.5%
- Lincoln, NE (LNK) -34.0%
- Manchester, NH (MHT) -39.0%
- Clovis, NM (CVN) -41.9%
- Roswell, NM (ROW) -49.6%
- Elko, NV (EKO) -46.6%
- Dayton, OH (DAY) -38.7%
- Akron/Canton, OH (CAK) -40.0%
- Alntwn/Bthlhm/Estn, PA (ABE) -30.8%
- State College, PA (SCE) -44.8%
- Florence, SC (FLO) -47.9%
- Rapid City, SD (RAP) -36.0%
- Abilene, TX (ABI) -31.3%
- Beaumont/Port Arthur, TX (BPT) -32.6%
- Waco, TX (ACT) -40.0%
- Killeen/Fort Hood, TX (GRK) -41.6%
- Wichita Falls, TX (SPS) -43.5%
- Tyler, TX (TYR) -43.8%
- San Angelo, TX (SJT) -49.7%
- Charlottesville, VA (CHO) -32.2%
- Wenatchee, WA (EAT) -31.9%
- Everett, WA (PAE) -46.8%
- Charleston, WV (CRW) -32.3%
- Gillette, WY (GCC) -29.9%
- Cody, WY (COD) -31.1%
- Rock Springs, WY (RKS) -37.1%

Airports that have Lost *More than 50%* of Scheduled Flights:

- Duluth, MN (DLH) -51.1%
- Kalamazoo/Btl Crk, MI (AZO) -51.6%
- Rochester, MN (RST) -52.4%
- Wausau, WI (CWA) -52.6%
- Wilkes-Barre/Scrtn, PA (AVP) -52.7%
- Victoria, TX (VCT) -53.4%
- Paducah, KY (PAH) -54.3%
- Altoona, PA (AOO) -54.3%
- Ithaca, NY (ITH) -54.9%
- Fort Smith, AR (FSM) -56.3%
- College Station, TX (CLL) -56.7%
- Sacramento, CA (SCK) -56.9%
- Fort Dodge, IA (FOD) -58.8%
- Mobile, AL (BFM) -59.1%
- Grand Canyon, AZ (GCN) -59.3%
- Johnstown, PA (JST) -60.0%
- Hyannis, MA (HYA) -60.3%
- Niagara Falls, NY (IAG) -60.7%
- Alamosa, CO (ALS) -61.6%
- Riverton, WY (RIW) -61.8%
- Joplin, MO (JLN) -63.0%
- Springfield, IL (SPI) -63.1%
- Eau Claire, WI (EAU) -64.5%
- Mason City, IA (MCW) -64.9%
- Elmira/Corning, NY (ELM) -65.0%
- Newport News/Williamsburg, VA (PHF) -65.9%
- Yakima, WA (YKM) -66.3%
- Greenville, MS (GLH) -66.7%
- Marion, IL (MWA) -67.3%
- La Crosse, WI (LSE) -67.6%
- Seattle, WA (BFI) -70.8%
- Telluride, CO (TEX) -71.2%
- Erie, PA (ERI) -73.7%
- Branson, MO (BKG) -74.3%
- Muscle Shoals/Florence, AL (MSL) -75.0%
- Kapalua, HI (JHM) -78.4%
- Toledo, OH (TOL) -81.3%
- Dubuque, IA (DBQ) -82.6%
- Mammoth Lakes, CA (MMH) -83.9%
- New York, NY (SWF) -89.9%
- Hagerstown, MD (HGR) -91.2%

Safety Impact of Lost Air Service

- Without reliable and reasonably frequent air service, displaced airline passengers become highway drivers.
- The National Highway Traffic Safety Administration (NHTSA) released Federal Highway Administration data projecting that 42,795 people died in vehicle crashes in 2022.
- Just 19% of Americans live in rural areas, yet 43% of highway fatalities occur on rural roads.
- The fatality rate per 100 million vehicle miles is 1.7 times greater in rural areas compared with urban areas.

Sources: <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813428>
and <https://www.nhtsa.gov/rural>

Economic Importance of Air Service

- According to a U.S. Government Accountability Office (GAO) report on small community air service development released on March 26, 2020: “Communities of all sizes seek access to air service as a driver for attracting investment, generating employment, and providing mobility for citizens. Small communities obtain economic benefits from connection to the global air transportation network. Direct service to a mainline airline’s hub provides one-stop access to hundreds of additional destinations around the globe.”
- According to the Federal Aviation Administration, aviation is important to economic performance because it supports economic output, attracts business and tourism, supports local economic development, and helps retain jobs that might otherwise be relocated elsewhere.

Sources: <https://www.gao.gov/assets/700/698730.pdf>

and https://www.faa.gov/about/plans_reports/media/2020_jan_economic_impact_report.pdf

Air Service Loss Puts Communities out of Business

- **Caterpillar** CEO Jim Umpleby: “Locating our headquarters [closer to a global transportation hub](#) means we can meet with global customers, dealers and employees more easily and frequently.”
- **Krystal** CEO Doug Pendergast said moving the headquarters to Atlanta will [improve air service](#) to its units.
- “**Albemarle** has been in Baton Rouge for seven years and has decided to move its headquarters to Charlotte. One big draw was [better airline service](#) at Charlotte Douglas International Airport.”
- **Charter** spokeswoman Anita Lamont: “New York's air service [makes it easier to travel](#) to the 25 states where Charter operates, and not have two transfers on the flight.”
- Nonstop, global connections were a big reason **ConAgra** decided to move from Omaha to Chicago in 2015: “Omaha’s relatively slim pickings for [direct flights to major cities](#) can be a big detriment when it comes to selling the city.”
- Agriculture giant **Archer Daniels Midland** [cited air service](#) as one of the benefits of moving its headquarters last year to Chicago from Decatur, Illinois.

The image shows a screenshot of a news article from the Times Free Press. The main headline is "Caterpillar Moving Corporate HQ From Peoria To Chicago". Below the headline, there is a video player showing a man in a suit speaking. To the right of the video player, there is a sub-headline "Krystal offices moving to Atlanta" and a photograph of a large, modern office building. The article text is partially visible, mentioning "CLT, lithium-processing operations factors in bringing chemical HQ". The Times Free Press logo is visible at the top right of the article.

Small Towns in Crisis

[It's what] people in the Midwest think of when they say Washington doesn't think of them.

– Dubuque, IA Mayor Brad Cavanagh

POLITICO



Repercussions may extend beyond financial losses. Dubuque Mayor Brad Cavanagh, a Democrat, believes that nothing else will have a greater impact on politics in the decade ahead than further isolating cities like his.

“In rural communities like ours there’s no way we’re going to survive long-term without air service,” Cavanagh said in an interview. “We’re going to die a slow, agonizing death.”

Feeling connected to the rest of the country is “a huge part of our identity and if we don’t feel like that’s being supported, that’s going to have huge implications politically,” he said. It’s what “people in the Midwest think of when they say Washington doesn’t think of them.”

U.S. Pilot Shortage: Why Can't We Fix It?

- The U.S. regional airline industry has contracted and continues to be restricted by the continued drain of pilots to mainline carriers; with the pipeline behind them insufficient to restore positions.
- The shortage has led to a material decrease in regional capacity, a trend that is expected to continue.
- New ATP issuances are not keeping pace with attrition.
- Barriers to entry make the career path expensive and time-consuming to enter, burdens that significantly constrain entry by those without wealth or access to private capital.
- Airlines are doing more to support pilots at every stage of the career, but ab-initio type sponsorship for training remains elusive due to regulatory constraints and union resistance.
- Regional airlines have endured unsustainable attrition and parked hundreds of regional aircraft. Major airlines have had to retract regional capacity, and small community air service has collapsed across the nation.
- The pilot shortage has received inadequate attention from U.S. policymakers; and some continue to debate its existence, in part because...

U.S. Airline Unions Like it that way



EMPTY COCKPITS
Less Can Mean More
At the
Bargaining Table

By Susan Burke, Contributing Writer

While not yet as scarce as DC-3s, airline pilots are becoming a hot commodity in North America and worldwide. The shortage of qualified pilots is serious, is increasing, and, along with other positive changes in the bargaining environment, will add emphasis and support to ALPA's campaign to make the piloting profession whole again.

A Pay Shortage?

Jason Ambrosi, president of the Air Line Pilots Association, has cited inadequate pay as one factor for staffing shortages. Filling labor shortages has been complicated by the certification process for pilots. Regulations mandate that pilots must satisfy at least 1,500 hours in the air prior to being certified. Sep 18, 2023



Skift

<https://skift.com> › 2023/09/18 › ask-skift-why-is-there-a-.

Ask Skift: Why Is There a Pilot Shortage in the U.S.?

Dramatic Salary Increases at Top of Scale

Top captain scales at major airlines now exceed \$800,000 / year

Delta pilots are getting a massive raise as airlines battle a persistent labor shortage

Bianca Giacobone Mar 2, 2023, 11:43 AM CST



The Dallas Morning News My Account

BUSINESS > AIRLINES

Contract would bring \$8 billion to American Airlines pilots, says CEO

American is also in contract talks with flight attendants, who plan to picket Tuesday at DFW International and other airports nationwide.



Pay to Rise as Much as 40% in Deal Reached by United and Pilots

The proposed four-year agreement would be worth \$10 billion over the life of the contract.

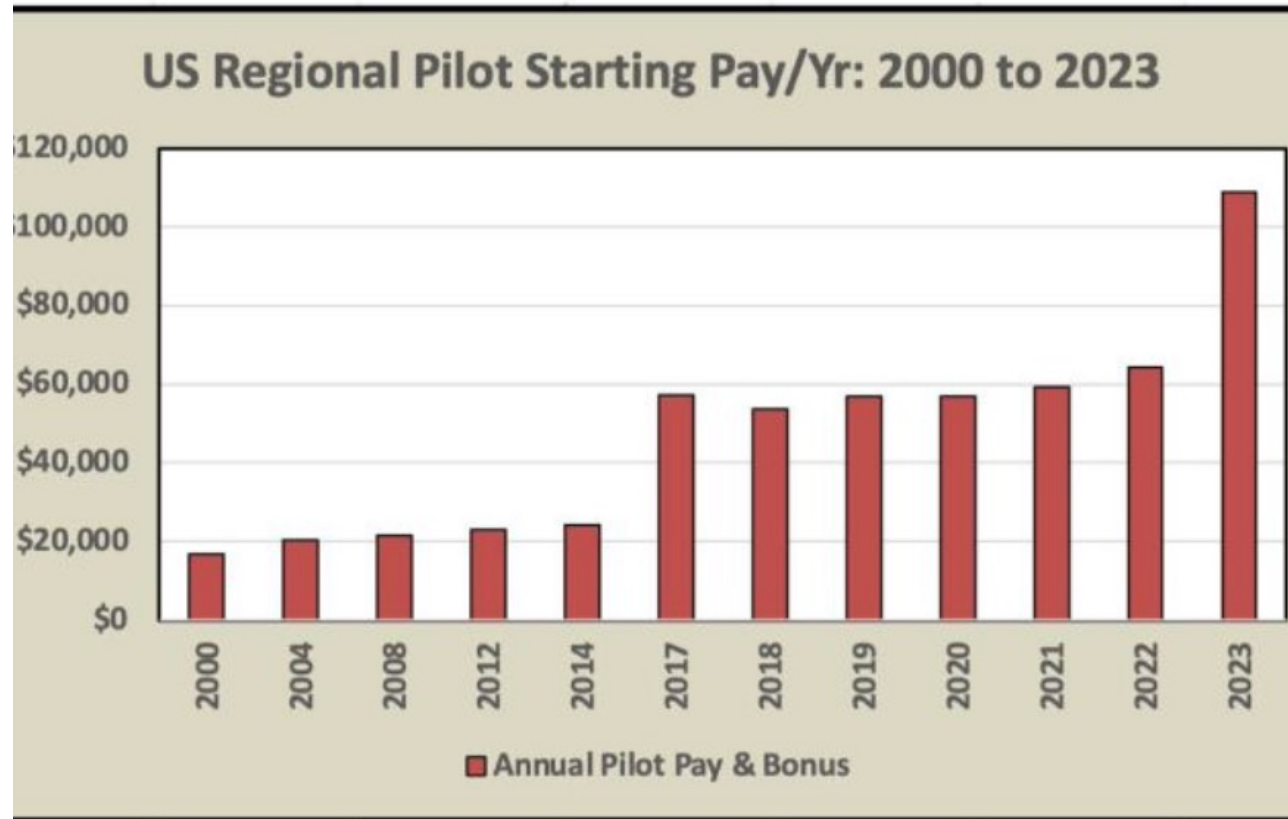
Share full article



Pilots from United Airlines walked an informational picket line at Newark Liberty International Airport in May. Eduardo Munoz/Reuters

United, Delta and American have exited 77 markets since April 2020.

Even Higher Regional Pay Hikes



- Recently-implemented regional pilot contracts show 546 percent jump in starting pay for regional airline pilot starting pay over the last 23 years; now \$108,000/year in 2023.
- With nearly all regionals offer signing and continuation bonuses, first year first officer total pilot compensation at a regional airline is often higher than mainline / ULCCs.
- **These incentives are unlikely to fix the pilot shortage at the regional level because of the natural pay and career progression available at the top of the scales on widebody mainline aircraft.**

It's time for a fact-based conversation.

Many of the solutions to enhance aviation safety also improve career access among those facing financial and other barriers of entry today. As long-term solutions are implemented, short-term solutions are needed.



RAA to Congress: Better Career Access is Needed

- Wages are high; career interest is high; airline supports are high, but barriers to career entry are *higher*.
- Policymakers must tackle inequitable access to pilot careers.
- Flight education costs exceed U.S. student loan caps by \$80,000 or more; wealth (or access to credit) is needed for access. RAA backs legislation to close the gap, improving pilot supply while strengthening diversity, equity and inclusion in pilot careers.
- The same training-based qualification pathways that produce **safer** pilots can also increase career access for pilots by allowing airlines to shoulder more cost. FAA must approve training pathways that enhance safety, based on facts and data, not political pressure.
- FAA must also keep pace with the technological advantages offered by modern flight simulators, allowing appropriate credit for these important tools.
- Increasing mandatory retirement age to 67 with robust medical screening can provide immediate relief while longer-term solutions take shape.

Raise the Age – a Near-Term Solution

- Today's pilot pipeline features discrimination for older pilots and inequitable access for younger pilots.
- Raising the Retirement Age from 65 to 67 is the right thing to do.
- No data supports age 65; pilots are subject to more screening than any other high-stakes work group.
- Canada and nine other countries have no mandatory retirement age. Japan has a retirement age of 68.
- Pilots must maintain a first-class medical certification, **which must be renewed every six months for pilots in this age range**. Such pilots who meet FAA's stringent health standards can continue to fly safely.
- It is also the only solution with an immediate impact on the captain shortages impacting airlines of all sizes.
- Although ICAO has not yet raised the age, international waters are exempt from any restrictions. Individual countries with pilots over age 65 simply form bilateral agreements to fly into the other's airspace. ICAO recommends filing a differences notification in these instances.



Flight Education Access Act – A Long Term Solution

- Flight training typically adds approximately \$80,000 in costs to the tuition and fees associated with a four-year degree.
- Current federal loan limits and other financial aid do not cover the full cost of pilot training, limiting access to pilot school for students who cannot afford to pay out of pocket or are unable to take out high-cost, private loans.
- The Flight Education Access Act (FEAA) would fix this problem by expanding access to scholarships and loans to offset the cost of FAA-regulated Part 141 pilot training.
- RAA is working on a strategy where FEAA may ride on the FAA Reauthorization bill.
- This fix is critical for improving diversity among pilot ranks by making pilot career training access more equitable.

Pilot Training Paths – A Safety Solution that Improves Career Access

- After a 2009 accident, the U.S. Congress mandated a new FAA rule requiring first officers to hold Air Transport Pilot certificates and 1,500 flight hours. No financial support was offered to help pilots offset the cost/time burden of gathering flight hours. Both accident pilots exceeded 1,500 hours.
- FAA noted it was “...unable to find a quantifiable relationship between the 1,500-hour requirement and airplane accidents and hence no benefit from the requirement.”
- U.S. pilots now spend 18 months on average, collecting flight hours with minimal quality control. Even time in a hot air balloon counts. This erodes training recency without offering *quality* experience.
- A shift in focus from experience to hours has followed. **Regional airline training departments now retrain pilots with 1,250 hours of bad habits and no real experience.**
- FAA has leeway to credit training toward hours when doing so increases safety **but has not updated pathways since 2013.**
- The issue is highly political. The FAA Reauthorization bill, which authorizes and sets funding for the Agency, is currently stalled in the U.S. Senate over the matter.

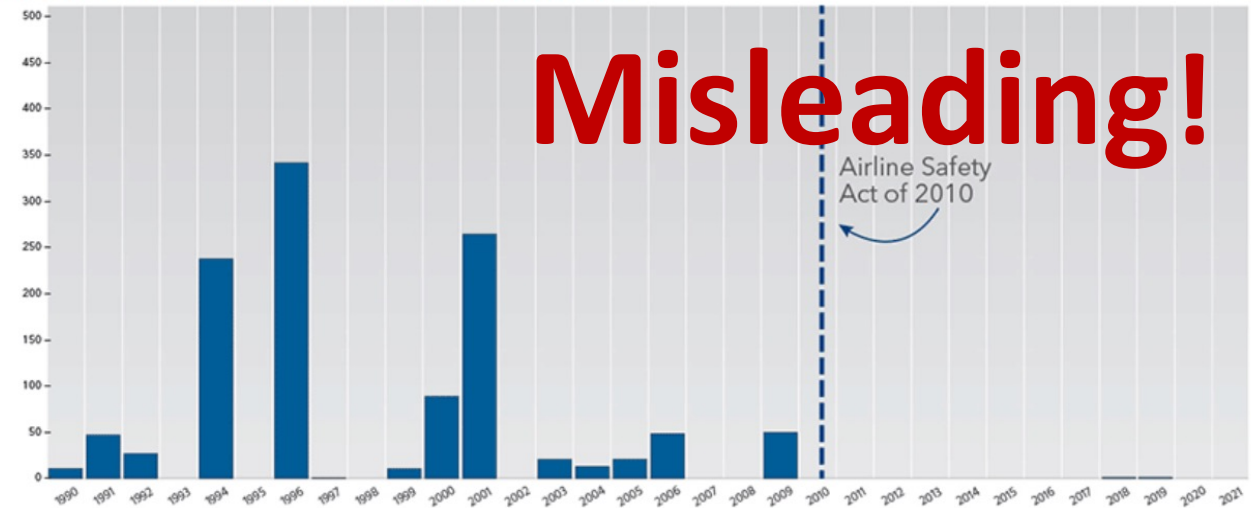


Flight Time, Flight Training and The Mischaracterization of a Rule

- The world's largest pilot union is using bogus safety claims to strengthen collective bargaining position.
- ALPA compares all fatalities from 1990–2010 to the total from 2011–2021, falsely claiming 1,500 hour rule led to 99.8% reduction. They include crashes with mechanical or other causes and even where pilot error caused accidents, NTSB/FAA showed the 1,500-hour rule would have made no difference.
- ALPA omits other, simultaneous and more meaningful safety enhancements taking place, like expansion of Safety Management Systems (non-punitive data sharing, pilot screening, crew resource management, and rest rules).
- Aircraft and training technology has further enhanced safety.
- Airlines propose to add training, not reduce it.

AIRLINE PILOT TRAINING MATTERS Part 121 Passenger Airline Accident Fatalities

#MoreThanReady



Since the 2010 law was enacted, the United States has seen a 99.8% reduction in airline fatalities.

Source: National Transportation Safety Board

NTSB has refuted any connection between flight time and accidents.

FAA: Safety Oversight, Culture, Programs Reduced Fatalities; “No Benefit” from 1,500 hours

- “During the past 20 years, commercial aviation fatalities in the U.S. have decreased by 95 percent as measured by fatalities per 100 million passengers. We achieved this safety record because the FAA continually evolved in how it approaches safety oversight – both in detecting risks and in responding to the risks identified. Key to this approach is a longstanding commitment to sharing data through an open and collaborative safety culture to detect risks and address problems before accidents occur.”
- “The FAA was unable to find a quantifiable relationship between the 1,500-hour requirement and airplane accidents and hence no benefit from the requirement. For most accidents reviewed by the FAA, both pilots had more than 1,500 hours of flight time and for those SICs that did not, there were other causal factors identified by the NTSB.”

Sources: “Out Front on Airline Safety: Two Decades of Continuous Evolution, FAA. Thursday, August 2, 2018 See: <https://www.faa.gov/newsroom/out-front-airline-safety-two-decades-continuous-evolution>

and FAA OFFICE OF AVIATION POLICY AND PLANS ECONOMIC ANALYSIS DIVISION (APO-300) FINAL REGULATORY EVALUATION PILOT CERTIFICATION AND QUALIFICATION REQUIREMENTS FOR AIR CARRIER OPERATIONS, June 2013. See: <https://www.regulations.gov/document/FAA-2010-0100-1925>

NTSB: No Correlation between Flight Time and Accidents; “no data” supporting the number of hours for a certificate

Senator Byron Dorgan: “Ms. Hersman, do you want to comment on the issue of ATP license and the practice of requiring only a commercial license for the right seat? Has that played a role, in your judgment, in anything that you have investigated?”

The Honorable Deborah A.P. Hersman, NTSB Chair: “We've investigated accidents where we've seen very high-time pilots, and we've also investigated accidents where we've seen low-time pilots. We don't have any recommendations about the appropriate number of hours for different categories... we don't have any data supporting the number of hours for a certificate, or its correlation with being involved in an accident”

Empirical Data Shows Advantage of Training vs. Hours-Based Qualification

- The Pilot Source Studies (PSS) are independent, academic studies of a pilot's training and qualification background relative to success in initial airline training. FAA used PSS2010 to inform development of the Congressionally-mandated First Officer Qualifications Rule (the Rule), including the Rule's structured training pathways. Later studies examined the effects of the rule.
- PSS2015: Pilots hired after the Rule performed **worse** than before. "The congressionally mandated gap between earning pilot certificates and beginning airline training reduced the positive effects of pilots' educational and experience backgrounds."
- PSS2015 and PSS2018: Successful training completions decreased from 93% before the law to 84% after the law and Post-Law pilots required significantly more extra (remedial) training and extra Initial Operating Experience (IOE) to complete training. Post-law pilots needed more than twice as much extra training than Pre-Law Pilots. By 2018, nearly half (45%) of all new-hire pilots required extra training.
- Each of the studies found pilots with more than 1,500 hours *required more extra training and failed to complete training more than all other groups*. Pilots with fewer than 1,500 hours, had more recent training graduations, or followed structured training pathways required less extra training and completed training more often.

For references, including studies, FAA and NTSB presentations, Congressional testimonies and peer-reviewed academic publications, see:

<https://www.pilotsourcestudy.org>

Population studies show “1,500 hour” rule reduced pilot proficiency

“Contrary to intent, PL 111-216 did not create highly successful regional airline pilots; instead, it eliminated a group of pilots from the pilot pool who had performed well in the earlier Pilot Source Studies 2010 and 2012. The Pilot Source Study 2015 supports the earlier results—pilots with fewer than 1,500 total flight hours were more successful than their counterparts with more total flight hours.”

Source: Smith, MaryJo O.; Smith, Guy M.; Bjerke, Elizabeth; Christensen, Cody; Carney, Thomas Q.; Craig, Paul A.; and Niemczyk, Mary (2017) "Pilot Source Study 2015: A Comparison of Performance at Part 121 Regional Airlines Between Pilots Hired Before the U.S. Congress Passed Public Law 111-216 and Pilots Hired After the Law's Effective Date," *Journal of Aviation Technology and Engineering*: Vol. 6: Iss. 2, Article 4.
see: <https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1151&context=jate>

Other Challenges

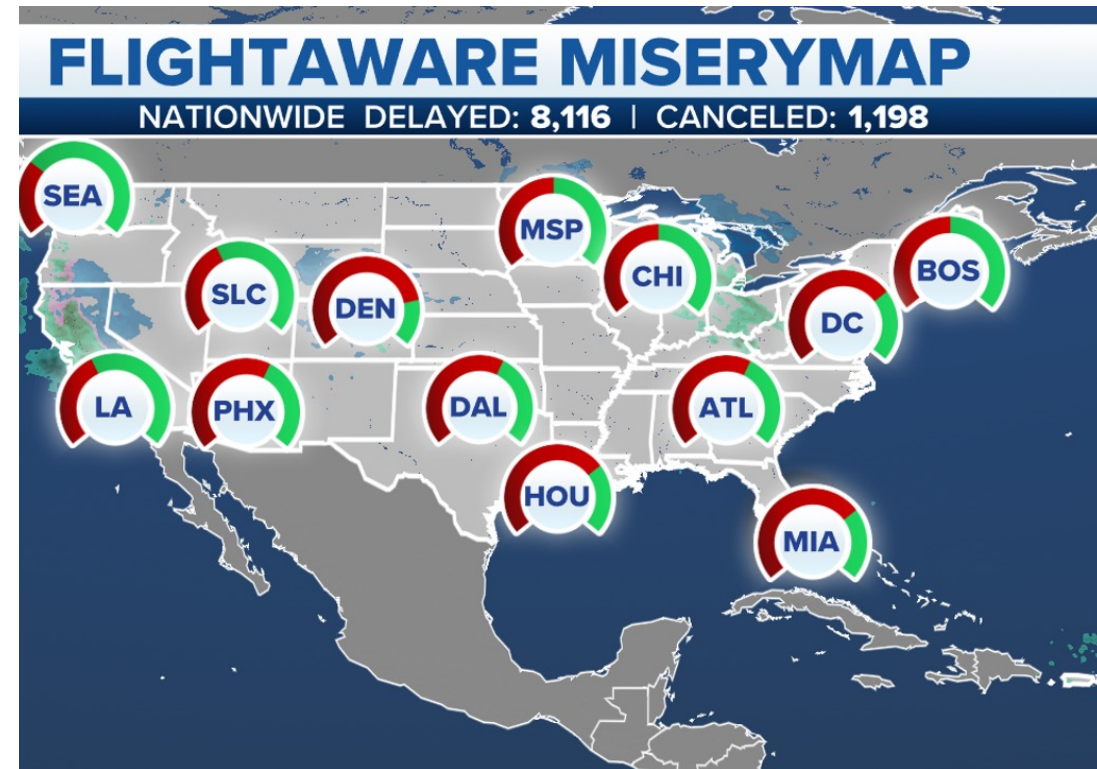
U.S. Air Traffic Controller Shortage

- U.S. Short **3,000+** Air Traffic Controllers
- The lone U.S. ATC certification Academy will take seven years to staff up.
 - FAA Pledges to open second academy.
 - Government shutdowns would halt training.
- U.S. Federal Aviation Administration (FAA) extended airlines' flexibility on slot usage through 2024.
 - FAA asked airlines to retract capacity.
 - Slots are "use or lose."
 - This was pushing carriers to set schedules ATC could not support.
 - Waivers mean carriers upgauge.
 - Small communities lose.



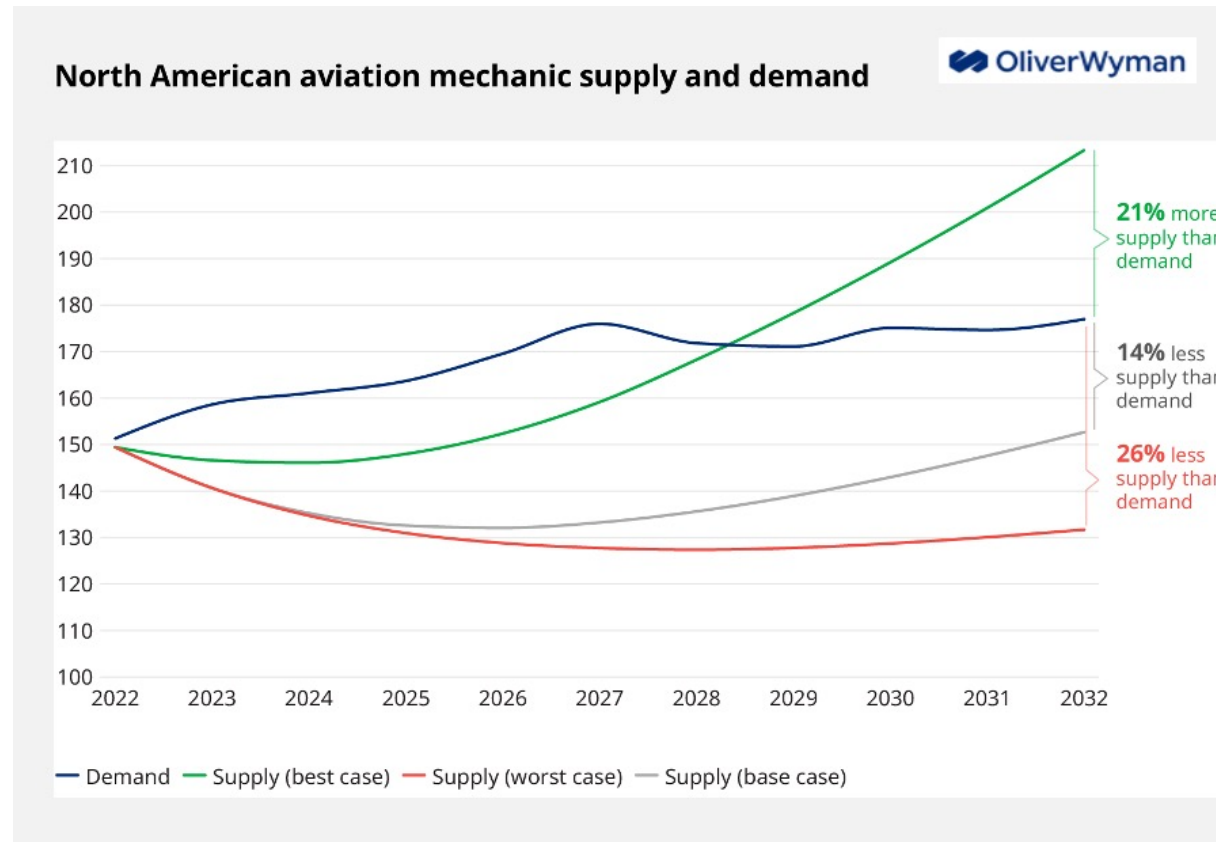
Enter the Weather

- After two years of reduced schedules during period of remarkably pristine weather...
- 2023 was “classic summer” with lots of convective activity
- Understaffed to handle weather, ATC is pulling more ground stops than usual.
- Impacts on small communities with fewer flights over which to recover crew and aircraft, are compounded.



U.S. Aviation Technician Outlook

- Aviation Technician Education Council (ATEC) Pipeline Report 2023: By 2031, two out of five U.S. mechanics will reach retirement age.
- Oliver Wyman best case shortage persists through 2028; worst case shortage of 26% vs. demand.
- Shortage for regionals is already here; offset by parked and spare aircraft
 - 400-500 regional aircraft parked will require heavy maintenance to come back online.



U.S. Aviation Technician Shortage: Solutions

- Awareness: Pay starts at ~\$70,000 with fast growth.
- Outreach: Industry is predominantly white and male. Fewer than 3% of technicians are female. Better, younger outreach to women and underrepresented populations is key.
- Supports: Apprentice programs (LIFT Academy, others) that allow apprentices to “earn while they learn”; Airlines subsidizing AMT education costs in exchange for signing commitments.
- Appeal: Younger workers learn differently. Incorporating Artificial Intelligence, virtual reality, high tech, can maximize human capabilities while appealing to next generation of workers.
- Training: Improved FAA regulations (Part 147) now allow harmonization of AMT curricula with current environment and advanced avionics, incorporating new innovations and technologies.



RAA

Regional Airline Association