66% of U.S. airports with scheduled passenger air service get their **ONLY** source of air service from regional airlines.

43% of scheduled passenger departures were operated by U.S. regional airlines.
Most States Rely Heavily on Regional Airlines for Service:

Mississippi (94%)
West Virginia (93%)
Vermont (92%)
Alaska (87%)
Maine (87%)
North Dakota (87%)
South Dakota (86%)
Arkansas (85%)
Alabama (81%)
Iowa (81%)
Kansas (80%)
Montana (79%)
Kentucky (76%)
Idaho (74%)
New Hampshire (73%)

Wyoming (68%)
Wisconsin (67%)
Nebraska (65%)
Oregon (62%)
South Carolina (61%)
Michigan (60%)
Indiana (59%)
New Mexico (59%)
Pennsylvania (58%)
Virginia (57%)
North Carolina (56%)
Ohio (56%)
Oklahoma (55%)
Illinois (54%)
Minnesota (51%)
### Small Community Departures Important for U.S. System

Regional airlines typically bring passengers through the hubs and operate more than half the departures at many large hub airports, as well.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Airport</th>
<th>Airport Code</th>
<th>Regional Departures</th>
<th>Total Departures</th>
<th>Regional Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chicago</td>
<td>ORD</td>
<td>173,942</td>
<td>279,645</td>
<td>62%</td>
</tr>
<tr>
<td>2</td>
<td>Dallas</td>
<td>DFW</td>
<td>136,523</td>
<td>289,202</td>
<td>47%</td>
</tr>
<tr>
<td>3</td>
<td>Charlotte</td>
<td>CLT</td>
<td>109,727</td>
<td>194,734</td>
<td>56%</td>
</tr>
<tr>
<td>4</td>
<td>Denver</td>
<td>DEN</td>
<td>71,915</td>
<td>219,912</td>
<td>33%</td>
</tr>
<tr>
<td>5</td>
<td>Houston</td>
<td>IAH</td>
<td>69,074</td>
<td>126,278</td>
<td>55%</td>
</tr>
<tr>
<td>6</td>
<td>Detroit</td>
<td>DTW</td>
<td>63,471</td>
<td>117,745</td>
<td>54%</td>
</tr>
<tr>
<td>7</td>
<td>Seattle</td>
<td>SEA</td>
<td>62,690</td>
<td>155,114</td>
<td>40%</td>
</tr>
<tr>
<td>8</td>
<td>Atlanta</td>
<td>ATL</td>
<td>61,260</td>
<td>273,289</td>
<td>22%</td>
</tr>
<tr>
<td>9</td>
<td>Minneapolis/St Paul</td>
<td>MSP</td>
<td>54,317</td>
<td>114,477</td>
<td>47%</td>
</tr>
<tr>
<td>10</td>
<td>Philadelphia</td>
<td>PHL</td>
<td>49,050</td>
<td>95,167</td>
<td>52%</td>
</tr>
</tbody>
</table>
Headwinds for Small Communities

- An existing pilot shortage, accelerated by pandemic forces, poses an existential threat to small community air service.

- Major airlines are drawing unprecedented numbers of pilots from regional airlines, where shortages preceded the pandemic.

- Regional airlines are turning to a pilot pipeline with far fewer candidates than needed to replace exits let alone allow for the growth needed to meet today’s demand.

- Smaller aircraft have been parked, and smaller markets are exposed to highest risk with fastest consequences. Small communities have lost air service at crisis levels.

- Captain shortages could slow First Officer hiring despite overall pilot shortage, prolonging the crisis.

- As carriers fight for finite talent, increased labor costs increase pressure on lower density markets, worsening the cycle of air service loss.
Pilot Supply: Qualified Pilots

The large pool of Air Transport Pilot (ATP) certificate holders in FAA’s Civil Airmen Database includes pilots who are not eligible, not available, not suitable, or not competent.

- Of 171,380 ATP certificates, 11,733 are foreign nationality/non-U.S. citizenship (7% of ATPs).
- Of remaining ATP pilots, 63,911 lack the requisite 1st class medicals required for hire.
- That leaves just 107,469 ATP pilots potentially eligible for hire.

Source: FAA Civil Airmen Database
Pilot Supply: Available Pilots

• Of 107,469 ATP pilots potentially eligible, more than 95,000 are already working for the largest commercial carriers.
  • Many ATPs are employed by other sectors like business aviation, making this almost certainly an undercount.
• That leaves fewer than 10,000 pilots potentially eligible and available.
• Additional disqualifications—in a profession where safety is paramount—are not quantifiable:
  • Check-ride failures
  • Poor piloting ability
  • Instrument proficiency
  • Criminal record
  • Recency and type of experience

| RAA Members | 19,125 |
| American    | 15,176 |
| Delta       | 13,520 |
| United      | 13,023 |
| Southwest   | 9,122  |
| FedEx       | 5,037  |
| JetBlue     | 4,300  |
| UPS         | 2,927  |
| Alaska      | 3,113  |
| Spirit      | 3,018  |
| Atlas       | 2,500  |
| Frontier    | 1,684  |
| Allegiant   | 1,057  |
| Hawaiian    | 847    |
| Sun Country | 462    |
| Avelo       | 88     |
| Breeze      | 85     |

| Total Count | 95,084 |
Pilot Retirements Continue to Outpace New Entrants

45.7% of qualified pilots will reach mandatory retirement age within 15 years (51,037).
13.4% of qualified pilots will reach mandatory retirement age within 5 years (14,990).

**ATP AMEL Pilots with Valid 1st Class Medicals by Age**

- **<30 years**: 8%
- **30-39 years**: 23%
- **40-49 years**: 24%
- **50-59 years**: 32%
- **60-64 years**: 13%

Source: data files distributed monthly by Registry Services and Information Management Branch, AFB-730, Federal Aviation Administration
U.S. BLS Data Shows Pilot Workforce is Shrinking (Despite Pay Increases)

The US Bureau of Labor Statistics (BLS) shows Airline and commercial pilots have the second-highest median pay, behind only medicine. (Median wage for all occupations is $58,260). BLS projects 18,100 openings for airline and commercial each year over the next decade.

Too Few New Pilots Qualifying Each Year (ATP/R-ATP)

- Average of 6,335 ATP/RATP certifications per year since 2013.
- Acute drop in 2020 (3,999) and 2021 (4,928), due to Covid shutdown and training disruptions.
- 2022 forecast (~9,627) uptick is due to catch up of pandemic training backlogs.

Source: data files distributed monthly by Registry Services and Information Management Branch, AFB-730, Federal Aviation Administration
ATP Qualifications Declined Since 1Q22

Early 2022 Uptick Reflected Clearing of Covid Backlog, Q3-4 show the rate is moderating.
Nearly 1 in 5 Commercial Pilots are non-U.S. Citizens

- 11% of all certificates are held by non-U.S. citizens.
- Nearly 1 in 5 commercial pilot certificates is held by a non-U.S. citizen.
- Commercial certificates are a poor indicator of future supply, since an ATP is not required for First Officers abroad.

Source: data files distributed monthly by Registry Services and Information Management Branch, AFB-730, Federal Aviation Administration
2022 Multi-Engine Commercial Ratings Lag Prior Years

- 2022 uptick in ME ATP ratings (includes Covid backlog) is not matched by other categories, which must also grow if there are to be more ME ATPs in the future.
- Multi-engine commercial ratings issued (ME COM) are a strong indicator for future supply and are on track to produce just half of a typical years’ output, even less than Covid-constrained 2021.

Source: data files distributed monthly by Registry Services and Information Management Branch, AFB-730, Federal Aviation Administration
Pilot Shortage is Parking Regional Aircraft

BLS Projected Yearly Commercial / Airline Pilot Openings thru 2030 = 18,100

Expected 2022* ATP/R-ATP new certificates = 9,627

18,100 – 9,627 = 9,873 potential pilot shortfall

At 12 pilots per aircraft, a shortfall of 9,873 pilots could park 822 aircraft.

About 500 Regional Jets were already parked by mid 2022.

Capacity also extracted by lower utilization of remaining fleet.

*2022 output is higher than usual, due to catch up certifications paused during training – FAA’s average R-ATP/ATP certification rate over the past decade was 6,335 certificates per year.
# Pilot Shortage is Reducing Regional Aircraft Utilization

**Scheduled Network Carrier Block Hour Changes by Equipment by Month, JUL 2022 - DEC 2022**

<table>
<thead>
<tr>
<th></th>
<th>July</th>
<th>October</th>
<th>December</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mainline</td>
<td>Dual Class RJ</td>
<td>50-Seat RJ</td>
<td>Total</td>
</tr>
<tr>
<td>AA</td>
<td>209,57</td>
<td>112,653</td>
<td>22,257</td>
<td>334,267</td>
</tr>
<tr>
<td></td>
<td>61%</td>
<td>33%</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>206,579</td>
<td>101,341</td>
<td>16,660</td>
<td>324,580</td>
</tr>
<tr>
<td></td>
<td>64%</td>
<td>31%</td>
<td>5%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>206,367</td>
<td>95,962</td>
<td>12,552</td>
<td>314,881</td>
</tr>
<tr>
<td></td>
<td>66%</td>
<td>31%</td>
<td>4%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>-1%</td>
<td>-15%</td>
<td>-44%</td>
<td></td>
</tr>
<tr>
<td>DL</td>
<td>205,007</td>
<td>70,882</td>
<td>11,427</td>
<td>287,316</td>
</tr>
<tr>
<td></td>
<td>71%</td>
<td>25%</td>
<td>4%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>194,773</td>
<td>67,701</td>
<td>7,782</td>
<td>270,256</td>
</tr>
<tr>
<td></td>
<td>72%</td>
<td>25%</td>
<td>3%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>202,774</td>
<td>69,224</td>
<td>8,096</td>
<td>280,064</td>
</tr>
<tr>
<td></td>
<td>72%</td>
<td>25%</td>
<td>3%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>-1%</td>
<td>-2%</td>
<td>-29%</td>
<td></td>
</tr>
<tr>
<td>UA</td>
<td>176,790</td>
<td>57,962</td>
<td>39,223</td>
<td>273,975</td>
</tr>
<tr>
<td></td>
<td>65%</td>
<td>21%</td>
<td>14%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>168,519</td>
<td>53,232</td>
<td>37,334</td>
<td>258,085</td>
</tr>
<tr>
<td></td>
<td>65%</td>
<td>20%</td>
<td>15%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>179,172</td>
<td>45,828</td>
<td>34,071</td>
<td>259,071</td>
</tr>
<tr>
<td></td>
<td>69%</td>
<td>18%</td>
<td>13%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>-1%</td>
<td>-30%</td>
<td>-13%</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>591,154</td>
<td>241,154</td>
<td>72,907</td>
<td>905,558</td>
</tr>
<tr>
<td></td>
<td>65%</td>
<td>27%</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>569,871</td>
<td>221,274</td>
<td>61,776</td>
<td>852,921</td>
</tr>
<tr>
<td></td>
<td>67%</td>
<td>26%</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>588,283</td>
<td>211,014</td>
<td>54,719</td>
<td>854,016</td>
</tr>
<tr>
<td></td>
<td>69%</td>
<td>25%</td>
<td>6%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>-1%</td>
<td>-13%</td>
<td>-25%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Volaire Aviation Consulting Analysis of Scheduled Block Hours by Equipment Type by Month July – December 2022
Communities Lose Service When Regional Airlines Shrink

REGIONAL FLEET COUNT

- Total Regional Fleet
- Change since 2010

NUMBER OF AIRPORTS WITH SCHEDULED PASSENGER SERVICE

-4.5% FEWER airports served in 2022 than 2009

Sources: FAA Aerospace Forecast Fiscal Years 2020-2042, Table 27 and OAG Schedule Analyser, July Schedules, US Operations
Major Airlines Have Not and Cannot Replace Most Regional Flights

Regional airlines use aircraft rightsized for smaller markets. When larger aircraft with more seats are used, all but the very largest airports lose both destination options and frequency. All airport sizes lose frequency. Many airports cannot support larger aircraft service at all.

Source: OAG Schedule Analyser
324 (76%) of U.S. airports lost service – average loss was 31% of their flights

257 airports lost more than 10%

161 airports lost more than one-quarter

112 airports lost more than one-third

60 airports lost half or more

20 airports lost three-quarters or more

14 airports lost all scheduled, commercial passenger air service

2019 vs. 2022 Air Service Collapse

Source: OAG Published Schedules October Q2019 vs. October 2022 (Analysis excludes Alaska)
Smaller Airports Hurt Worst

Comparing October 2019 with October 2022:

- 25 **large hub** airports lost flights, and the average loss was 16%.
- 23 **medium hub** airports lost flights, and the average loss was 16%.
- 51 **small hub** airports lost flights, and the average loss was 19%.
- 171 **non-hub** airports lost flights, and the average loss was 35%.
- 54 **nonprimary** airports lost flights, and the average loss was 44%.
Economic Importance of Air Service

• According to a U.S. General Accountability Office (GAO) report on small community air service development released on March 26: “Communities of all sizes seek access to air service as a driver for attracting investment, generating employment, and providing mobility for citizens.

• Small communities in particular can obtain economic benefits from connection to the global air transportation network. For instance, direct service to a mainline airline’s hub can provide 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.

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.
Safety Impact of Air Service Loss

• Without reliable and reasonably frequent air service, displaced airline passengers become highway drivers.

• The National Highway Traffic Safety Agency projects that an estimated 42,915 people died in motor vehicle traffic crashes in 2021, a 16 year high.

• Congress and the Administration must take a multi-modal approach to transportation safety.

Solutions Require Better Pilot Career Access

Career Interest is High; Barriers to Entry are Higher.

The high cost of becoming a pilot puts the career out of reach for most. **Solutions** like equitable education financing, expanded training access and other supports are needed to improve career access, increase pilot supply, and improve diversity within pilot ranks.
Safety-First Solutions

• Airline outreach, tuition reimbursement, pilot career support, workforce investments and other strategies will continue.

• High pay has not solved lack of flight education access and financing. Policymakers must tackle inequitable access to pilot careers.

• Flight education costs exceed student loan caps by $80,000 or more; those without wealth or credit have inequitable career access. RAA backs legislation to close the gap, improving pilot supply while strengthening diversity, equity and inclusion in pilot careers.

• Training-based qualification pathways produce safer pilots vs. hours-based qualifications, yet access to these proven pathways is limited. The Airline Safety Act allows FAA to approve training pathways that enhance safety. FAA must also keep pace with the technological advantages offered by modern flight simulators. FAA’s decisions must be based on facts and data, not political pressure.

• Measures like increasing mandatory retirement age to 67 with robust medical screening and Visa streamlining for qualified pilots, can provide immediate relief while longer-term solutions take shape.

• All solutions must put safety first and follow the law.
Training-Based Pathways Enhance Safety

Through the *Airline Safety Act of 2010*, which mandated the FAA’s First Officer Qualifications (FOQ) Rule, Congress authorized Alternate (R-ATP) Pathways where a portion of a pilots’ unsupervised flight hours are replaced by intensive structured training as credit toward qualification.

Military and Academic Institutions are already approved for these R-ATP Pathways, but FAA’s authority is not limited to existing programs.

Unbiased, empirical data consistently shows newly-hired pilots following structured training-based pathways perform better than hours-based pathways.
• Pilots following hours-based pathways complete training then must fly hundreds of hours in small, single-engine aircraft with little resemblance to commercial airliners, before hire. *No training is given during this time.*

• Pilots fly alone or with students, often in uncontrolled airspace. Insurance prohibits flying in weather or other challenging conditions commercial pilots routinely encounter. Pilots rarely, if ever, encounter engine outs, wind sheer, unusual altitude/upsets, icing, or other key skills relevant to commercial flying.

• Training *recency* is a key component of pilot proficiency. Data shows the longer the time between training and hire, the worse pilots performed when hired. Skills soften as training recency fades.

• Structured training pathways give credit for *additional* training towards a portion of this unstructured flying. Use of simulators and other modern training technologies ensure pilots gain relevant experience alongside superior training. Pilots with these training credits perform better than pilots with higher flight time when hired.

• Airline-based foundational training pathways improve career access by shifting costs from aspiring pilots to the airlines who will hire them, extending career access to those without wealth.
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
PSS2015, on the effect of PL 111-216 and the FOQ Rule on pilot hiring and pilot training in US regional airlines:

“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
Too Few Pilots Follow R-ATP (Training-Based) Pathways Today

Just one-third of recent pilots used enhanced training pathways in lieu of hours-based pathways. Access to these pathways is limited by financial, geographical and access barriers. Airlines and premier flight training institutions have asked FAA to approve more of these proven pathways when they enhance safety.

Source: data files distributed monthly by Registry Services and Information Management Branch, AFB-730, Federal Aviation Administration
Structured Training Pathway Proposals have Been Mischaracterized.

Some stakeholders – who perceive a benefit from a labor shortage – deny a pilot shortage and have sought to discredit airline solutions, even when solutions improve career access and training and enhance safety. The claims used to further this agenda are readily disproven.
Flight Time, Flight Training and The Mischaracterization of a Rule

• The chart at right mischaracterizes the 1,500 flight-hour pathway of the FOQ Rule as “training,” when no training is provided during hours-building and no reduction to training has ever been proposed. Airline proposals would add more training.

• The chart credits the 2010 Safety Act for airline fatality reductions since 2009, but the FOQ/“1,500-hour” rule did not start until August 2013.

• The FAA credits fatality reductions to “continuous evolution of safety oversight, risk detection and response, and collaborative information sharing,” not flight time requirements. In fact, FAA has said there was no accident value benefit to increasing flight time.

• Hundreds of voluntary and mandated safety improvements took place since 2010, including improved pilot training and screening and updated fatigue rules. Aircraft and training technology advances have further enhanced safety.

NTSB Source: https://www.govinfo.gov/content/pkg/CHRG-111shrg56412/html/CHRG-111shrg56412.htm
“The commercial aviation system in the United States operates at an unprecedented level of safety. 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.

Our comprehensive, risk-based safety oversight process consists of several key elements: the Commercial Aviation Safety Team; the Aviation Safety Information and Sharing program; voluntary reporting programs; Aviation Safety InfoShare; the FAA’s Safety Assurance System; airline Safety Management Systems; and the FAA’s approach to ensuring compliance.”

Source: “Out Front on Airline Safety: Two Decades of Continuous Evolution, FAA. Thursday, August 2, 2018
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: “The Safety Board investigated events in which things went wrong, and so, we don't always have a control group about what went right. 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 see that they do have different standards. As Ms. Gilligan referenced, some might use 250, some may have higher standards, require 600 hours, 800, 1,000. We do know that there is a correlation, from our accident investigations and some studies we've done, between individuals who fail practical flight tests, and their potential likelihood to be involved in an accident later, but we don't have any data supporting the number of hours for a certificate, or its correlation with being involved in an accident.”

FAA: “No Quantifiable Benefit” from 1,500 Flight Hours

“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.”

Structured training proposals deserve consideration based on their safety value alone. Many of the solutions to enhance aviation safety also improve career access among those facing financial and other barriers of entry today.

It’s time for a fact-based conversation.

For more information or questions, please contact media@raa.org.