

AVIATION SCIENCE & FLIGHT SIMULATION



INTRODUCTION

Mike Stitzer

- 25 years at Garden Spot High School
- Taught Woodworking, Graphic Design, Photography, Broadcasting/Videography, Engineering Problem Solving
- Active in the aviation community
- Life-long model (radio control) airplane enthusiast from designing and building to competition flying
- Professional Drone pilot
- Passionate about learning new things











academic hall of fame award
for applied technology 🖥️



forever grateful for this
guy right here, who has
helped me every step of
the way to find my dream
career. he is the reason
why im doing what im
doing



WHY AVIATION AT PV?

01

WORKFORCE DEMAND

02

STEM INTEGRATION

03

CAREER PIPELINE



WORKFORCE DEMAND

The Boeing Pilot and Technician Outlook 2025-2044 projects that 119,000 pilots are needed in North America over the next 20 years.

Approximately 80,000 retirements from major airlines in the next 20 years due to mandatory age-based retirement.

American Airlines

Personal - Projected Future Retirements - Next 20 Years

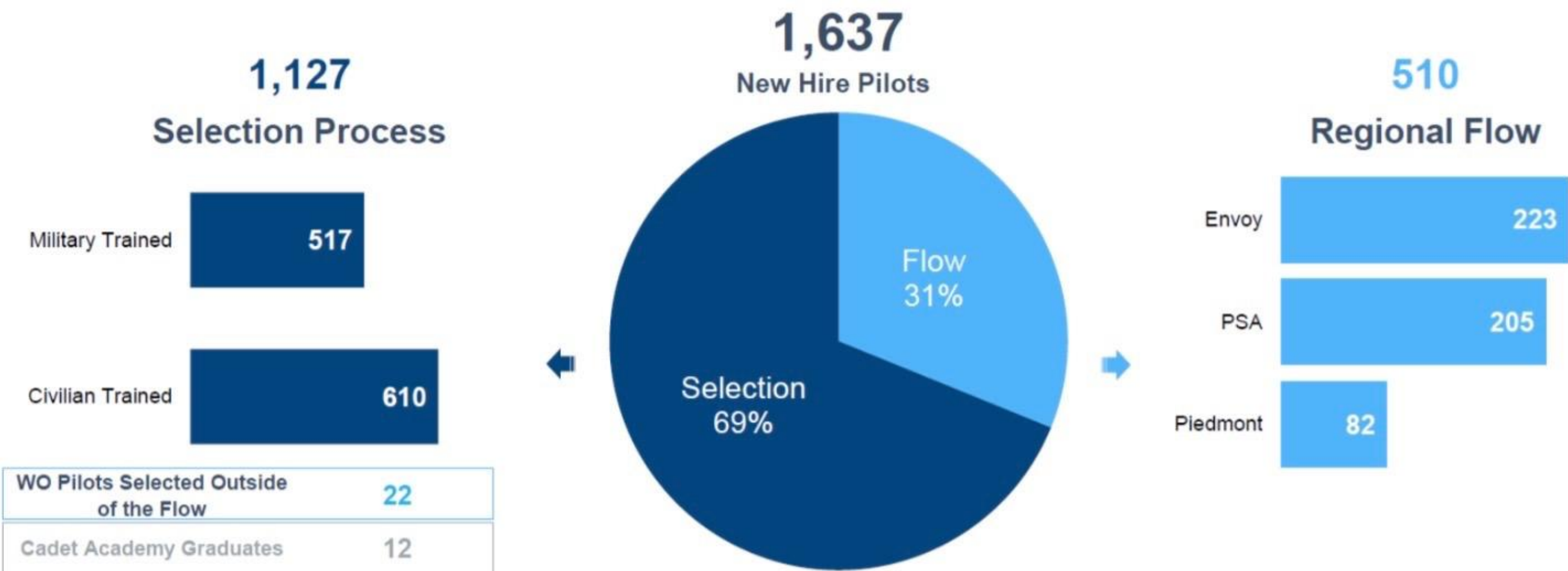
Projected Retirements for 2026 - 2046
(Projections based on active pilots turning 65 in the given year.)
Roster Data Updated on: 2/2/2026

Year	Total
2/2/2026 - 12/31/2026	745
01/01/2027 - 12/31/2027	726
01/01/2028 - 12/31/2028	673
01/01/2029 - 12/31/2029	642
01/01/2030 - 12/31/2030	582
01/01/2031 - 12/31/2031	626
01/01/2032 - 12/31/2032	560
01/01/2033 - 12/31/2033	549
01/01/2034 - 12/31/2034	498
01/01/2035 - 12/31/2035	507
01/01/2036 - 12/31/2036	399
01/01/2037 - 12/31/2037	352
01/01/2038 - 12/31/2038	402
01/01/2039 - 12/31/2039	392
01/01/2040 - 12/31/2040	376
01/01/2041 - 12/31/2041	373
01/01/2042 - 12/31/2042	416
01/01/2043 - 12/31/2043	395
01/01/2044 - 12/31/2044	459
01/01/2045 - 12/31/2045	482
01/01/2046 - 12/31/2046	507

American Airlines

2025

Jan 01 - Dec 17



CAREER PATHWAY

PROFESSIONAL PILOT

From corporate to
commercial airline



FLIGHT INSTRUCTOR

Continue with aviation
while getting paid.

AIR TRAFFIC CONTROL

Tower, ground, airport ops



AEROSPACE ENGINEERING

College prep foundation

STEM INTEGRATION

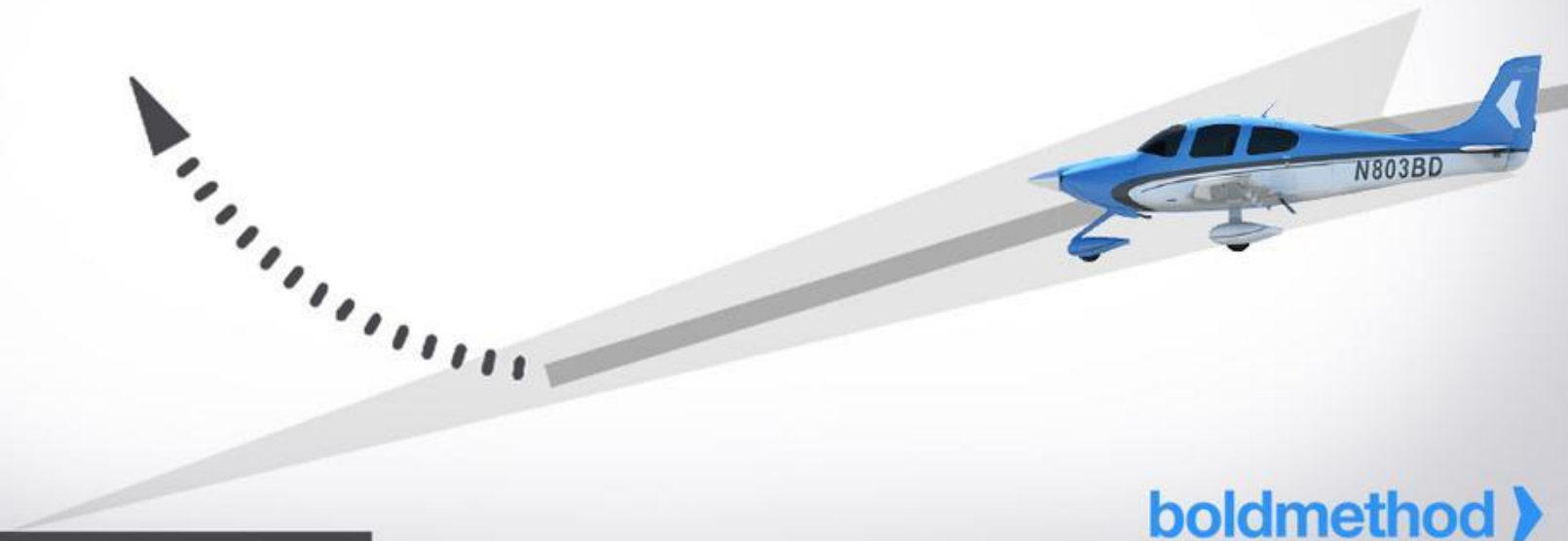
Math and Science concepts applied in real time

Project based learning

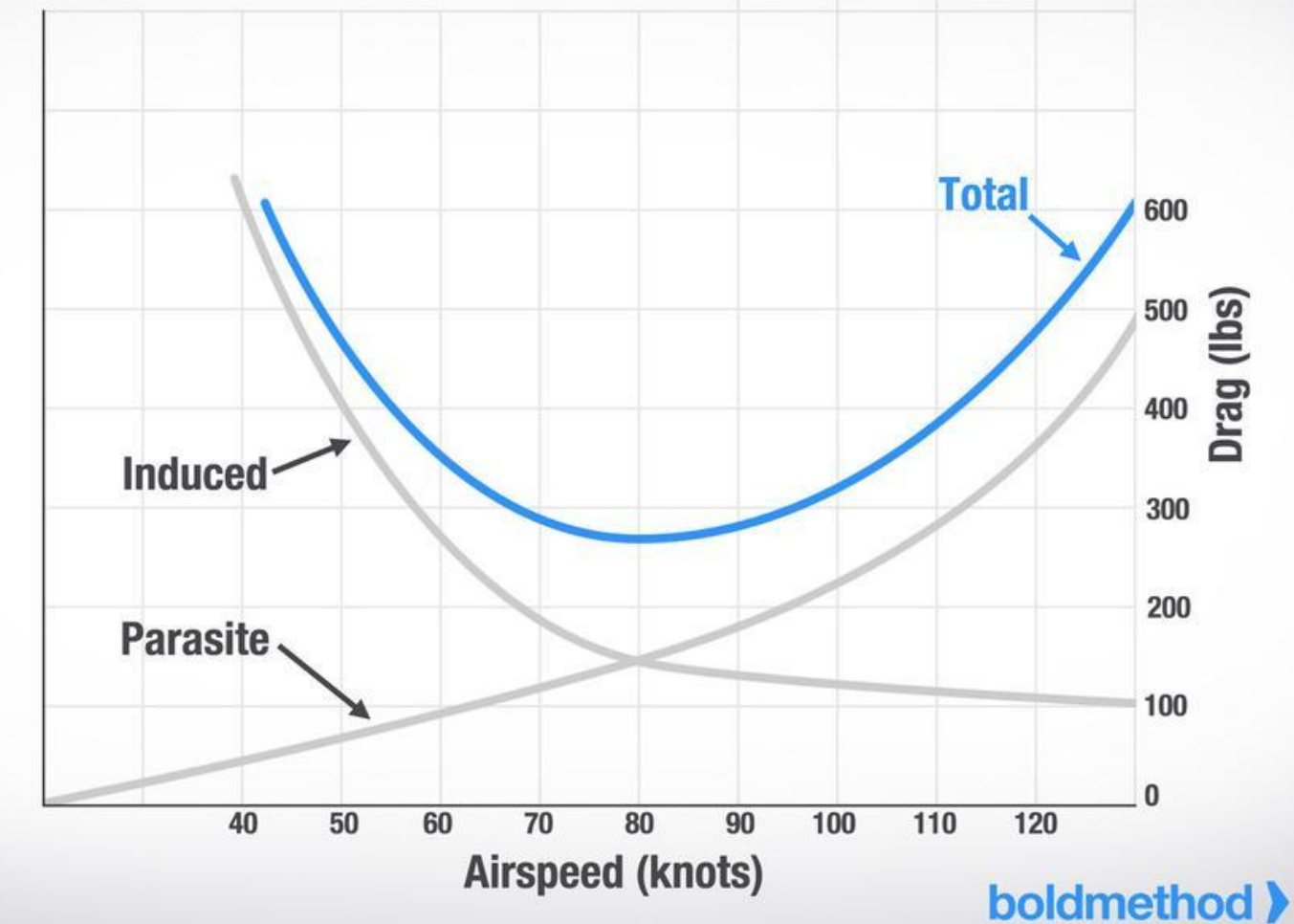
Calculating A 3 Degree Glideslope

Divide groundspeed by 2, then add a 0 to the end.

For example, at 100 knots groundspeed:
 $100/2 = 50$. $50+0 = 500$ FPM descent rate for 3 degree glide.



Drag Curve



WHAT WILL LEARNERS DO?

F

FLIGHT SIMULATION

Fly aircraft using MS Flight Simulator or X-Plane, practicing navigation, physics, weather, charts, radio communication.

M

MODELING

Research, design, and test a freeflight or micro R/C airplane to reinforce aerodynamic theory and problem solving. Drone Operation.

FLIGHT SIMULATION

Build experience applying theory to the real world physics of flying through simulation.



MODELING & PROBLEM SOLVING



Build, fly, refine a free flight or R/C airplane.
TSA club Flight Endurance Competition



CURRICULUM

Aircraft Owners and Pilot's Association (AOPA)
Foundation High School Aviation STEM Curriculum.
If using AOPA curriculum, scholarship eligibility from
\$250 - \$14,000 for Flight Instruction Private Pilot
Aligned with FAA Private Pilot Knowledge areas.
Prepares for FAA Written Exam

CURRICULUM

[Home](#) > [High Schools](#) > High School Aviation STEM Curriculum



AOPA FOUNDATION HIGH SCHOOL AVIATION STEM CURRICULUM

[APPLY NOW](#)[RENEW NOW](#)

Already registered? Access the curriculum here:

[CURRICULUM ACCESS](#)

UNLOCKING CAREER PATHWAYS FOR STUDENTS

According to Boeing's Pilot and Technician Outlook, the world will need over 600,000 new pilots and nearly 700,000 new technicians in the next 20 years. Schools and districts nationwide must prepare students for these high-paying, rewarding careers in aviation and aerospace.

COMMUNITY AND INDUSTRY CONNECTION

Airport visits

Guest speakers from aviation careers

Career exploration opportunities.

BENEFITS TO PV

Extends Technology Ed. and STEM
course offerings.

Hands-on student engagement

Supports career and college readiness.

COST ANALYSIS

Flight Simulator Cost Overview (Per Station)

Basic Classroom Setup (Instructional Use)

- PC capable of MSFS 2020: \$1,500 – \$2,500
- 27–34" widescreen monitor: \$250 – \$500 x 3 (optional for realism)
- Yoke + throttle quadrant: \$300 – \$1,000
- Rudder pedals: \$100 – \$300
- Desk / mounting hardware: \$50 – \$150
- Software (if needed): \$60 – \$120

Estimated Total per Station: \$2200 – \$3,000

Estimated Cost for 6 workstations: \$13,200 - \$18,000

WISH LIST

If this program ever attracted grants, donors, or industry partners, a premium simulator could be an enhancement, not an expectation.

Premium / Wishlist Option (Long-Term Vision)

- Desktop Pilot Full Flight Simulator
- (Cessna-style full cockpit training rig): $\approx$ \$15,000
- Optional enhancements (multi-monitor display, professional PC, seating):
 - +\$3,000 – \$8,000

Estimated Premium Total:

➡ \$15,000 – \$23,000+

WISH LIST SIMULATOR

Full Cessna simulator with modern Garmin GPS and exact controls as the real aircraft.

Depending on the model, loggable “flight” hours accumulated.



ABOUT

SERVICE

CONTACT

THANK YOU

✉ michael_stitzer@pequeavalley.org

