Agency Priority Goal Action Plan

Reduce Aviation Fatalities

Goal Leaders:

Ali Bahrami, Associate Administrator for Aviation Safety, Federal Aviation Administration (FAA)

Jodi Baker, Acting Deputy Associate Administrator for Aviation Safety (FAA)

Steven Gottlieb, Executive Director, Office of Accident Investigation and Prevention (FAA)

Warren Randolph, Deputy Executive Director, Office of Accident Investigation and Prevention (FAA)

Overview

Goal Statement

- Increase aviation safety for the flying public. By September 30, 2021, the Federal Aviation Administration's (FAA) range of programs will contribute to the commercial air carrier fatality rate remaining below the target of 5.4 fatalities per 100 million persons on board and contribute to reducing general aviation fatal accidents to no more than 0.96 fatal accidents per 100,000 flight hours.

Challenges

- While rare, commercial aviation accidents have the potential to result in large loss of life.
- New technologies, such as unmanned aircraft systems (drones), and increased air traffic in popular corridors are emerging areas of focus for FAA.
- General aviation encompasses a wide variety of aircraft: gliders, single-seat home-built aircraft, helicopters, and balloons, as well as sophisticated, extended-range turbojets. Thus, there is a broad range of technology, operations, and individual capabilities that must be addressed in an equally broad range of contexts.
- Aviation fatality rates in general aviation are at historic lows and continue to decrease over time. FAA has an imperative to be smarter about how it ensures safety as the aviation industry grows more complex. FAA's impact on general aviation is also accomplished through education and communication with individual participants and organizations. Therefore, safety promotion and individualized approaches are important where there are less structured channels for communication.

Overview

Opportunities

- FAA has successfully addressed the majority of known system hazards and continues to work with aviation industry stakeholders to establish and implement safety management systems to reduce risk.

- FAA can leverage lessons learned in commercial aviation to continually improve general aviation safety by identifying precursors to accidents, developing a greater understanding of human factors, and effectively implementing agreed-upon safety risk mitigations.

Leadership & Implementation Team

Goal Structures & Strategies

This FY 2020-2021 Agency Priority Goal (APG) aligns with the Safety strategic goal in the FY 2018-2022 DOT Strategic Plan and the Department's strategic objective, *Systemic Safety Approach,* under that goal. The Aviation Safety APG is split into U.S. commercial aviation safety and U.S. general aviation safety. It is measured through the following performance goals and indicators:

Goal: Reduce U.S.-Owned Commercial Carrier Aviation Fatalities

- Indicator: U.S.-Owned Commercial Carrier Aviation Fatalities per 100 Million Persons on Board
- Indicator: Total U.S.-Owned Commercial Carrier Aviation Fatalities

Goal: Reduce U.S.-Owned General Aviation (GA) Fatal Accidents

- Indicator: U.S. GA Fatal Accidents per 100,000 Flight Hours
- Indicator: Total U.S.-Owned GA Fatal Accidents

Goal Structures & Strategies

Goal: Reduce U.S.-Owned Commercial Carrier Aviation Fatalities

Reduce U.S.-Owned Commercial Carrier Aviation Fatalities per 100 Million Persons on Board							
		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Indicator: U.S.-owned commercial carrier fatalities per 100 million persons on board	**Targets**	6.7	6.4	6.2	5.9	5.7	5.4
	Actuals	0.6	0.3	0.1	0.6	0.7*	N/A

**Actual as of June 30, 2020. FY 2020 data will be finalized in FY 2021 Q1.*

FAA's strategies to accomplish the APG include the following:

- Working with stakeholders to establish and implement safety management systems to address and reduce risk within their operations and the National Airspace System;
- Collaborating with the aviation community to encourage voluntarily investing in safety enhancements that reduce the fatality risk;
- Developing and promoting risk-based decision-making and safety management principles that target individual pilots and technicians in both commercial and general aviation; and
- Ensuring that safety risk is systematically included as part of the equation when decisions are made in FAA.

Goal Structures & Strategies

FAA promotes the open exchange of safety information to continuously improve aviation safety and enable users to perform integrated queries across multiple databases. However, the broad range of operation types and scenarios in both commercial and general aviation necessitates a variety of expertise, media, reporting channels, and outreach methods.

In order to mitigate these external factors, FAA is working in partnership with the aviation community to use a data-driven, proactive approach to aid in identifying systemic risks, developing mitigation strategies, and monitoring the effectiveness of implemented actions. FAA will collaborate with the aviation community to encourage voluntarily investing in safety enhancements that reduce the fatality risk. It will also ensure that safety risk is systematically considered as a factor in decision-making.

Goal Structures & Strategies

Goal: Reduce U.S.-Owned General Aviation Fatal Accidents

Reduce U.S. General Aviation Fatal Accidents per 100,000 Flight Hours (FAA)							
		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Indicator: U.S. General Aviation fatal accidents per 100,000 flight hours	**Targets**	1.02	1.01	1.00	0.98	0.97	0.96
	Actuals	0.89	0.83	0.89	0.94*	0.81*	N/A

**Actual as of June 30, 2020. FY 2019 data will be finalized in late 2020. FY 2020 data will be finalized in FY 2022 Q1.*

FAA's strategies to accomplish the APG include the following:

- Supporting the installation of new safety-enhancing technology in GA aircraft by streamlining the certification and installation process and encouraging aircraft owners to install such equipment.
- Addressing human factors related to technology integration. FAA needs to continue to focus on non-technical areas, such as risk management and pilot/technician professionalism, that affect safety, regardless of the level of technology being employed.
- Continuing to implement new Airman Testing and Training Standards to improve airman training and testing by establishing an integrated, holistic airman certification system that clearly aligns testing with certification standards, guidance, and reference materials.
- Working in partnership with industry on a data-driven approach to understand fatal accident causes and develop safety enhancements to mitigate the risk.
- Working with the General Aviation Joint Steering Committee (GAJSC) to implement safety enhancements. The GAJSC has developed 45 safety enhancements designed to address loss of control inflight and engine failure, the top causes of fatal accidents. These enhancements include technology, education and training, best practices, and outreach on a range of topics aimed at preventing loss of control and power plant failure-related accidents. The GAJSC's new working group

formed to study Controlled Flight into Terrain (CFIT) accidents has completed its analysis and will present new safety enhancements to the GAJSC for review.

- Implement the U.S. Helicopter Safety Team's (USHST) outreach program, which will focus on the top industry sectors with the highest percentage of fatal accidents. The USHST approved 22 Helicopter Safety Enhancements (H-SE), and as of June 1, 2018, all 22 H-SEs have been initiated. These cover fatal accidents during Unintended Flight in Instrument Meteorological Conditions, Loss of Control-Inflight, and Low Altitude Operations.

FAA partners with industry to analyze and develop strategies using a non-regulatory, proactive, and data-driven approach to get results (e.g., the GAJSC and the USHST). Continuing and expanding these partnerships provides new opportunities to develop innovative methods to increase general aviation safety. This collaborative approach is supported through the following strategies:

- Supporting the installation of new safety-enhancing technology in GA aircraft by streamlining the certification and installation process and encouraging aircraft owners to install such equipment.
- Continuing to implement the new Airman Certification Standards (ACS) to improve airman training and testing by establishing an integrated, holistic airman certification system that clearly aligns testing with certification standards, guidance, testing, and change management.
- Working in partnership with industry on a data-driven approach to understand fatal accident causes and develop safety enhancements to mitigate the risks.
- Reducing pilot deviations, including Runway Incursions, caused by a lack of English language proficiency.
- Encouraging the GA community to educate pilots and other stakeholders on the benefits of sharing safety data in a protected, non-punitive manner.

Goal Structures & Strategies

Leveraging FAA Safety Team (FAASTeam) program products and product delivery outreach systems. National FAASTeam Outreach Initiatives include safety articles in the FAA Safety Briefing magazine, FAASafety.gov safety notice emails, aviation safety courses through the FAASafety.gov website, and live-recorded safety seminars and webinars. These outreach efforts cover promotion of the GAJSC and USHST safety enhancements, encourage aircraft owners to install safety-enhancing technology (i.e., ADS-B), introduce people to the Airman Certification Standards (ACS), and promote runway safety. They also cover the typical topics of weather, unmanned aircraft systems (UAS), Loss of Control, and Aeronautical Decision-Making.

Summary of Progress – FY 2020 Q1-Q3

Commercial Air Carrier Fatality Rate

As of June 30, 2020, this target is on track. Year-to-date, there have been six fatalities. Therefore, the actual rate is 0.7 versus a not-to-exceed of 5.7. This equates to six fatalities against a not-to-exceed 51 for the year.

Goal: Reduce U.S.-Owned Commercial Aviation Fatalities								
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Total U.S.-Owned Commercial Carrier Aviation Fatalities	5	1	5	3	1	5	6	N/A

**Actual as of June 30, 2020. FY 2019 data will be finalized in late 2020. FY 2020 data will be finalized in FY 2022 Q1.*

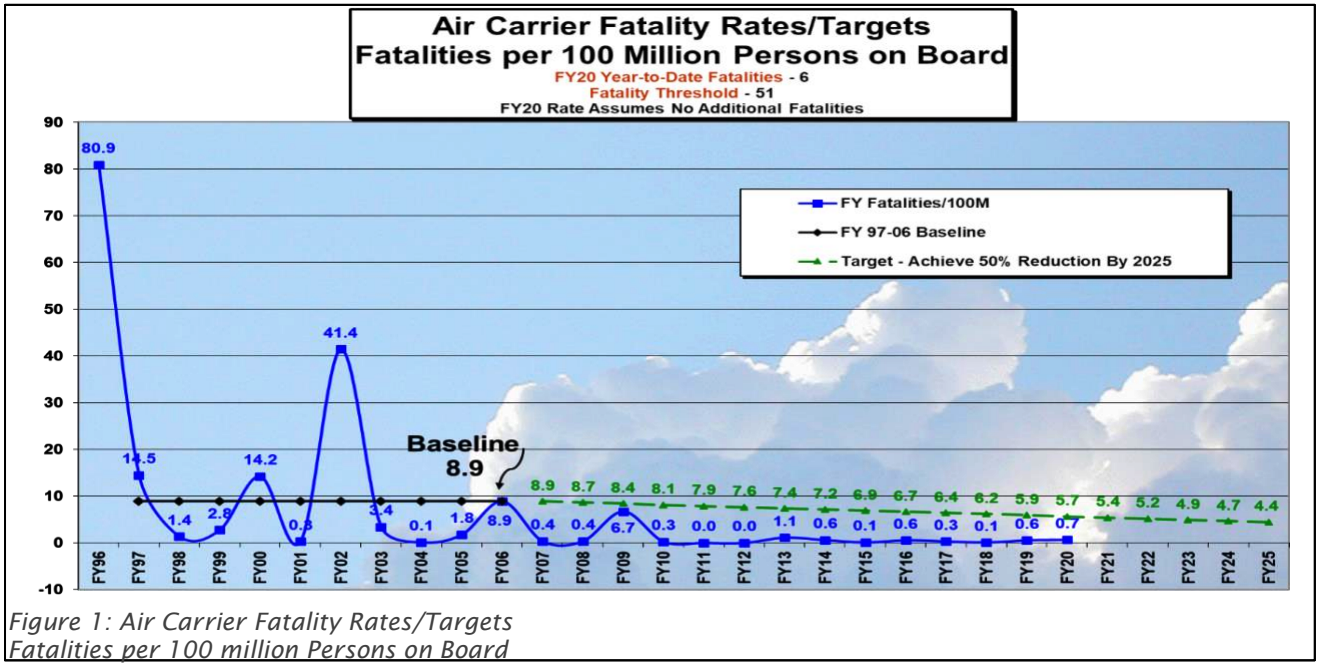

Figure 1: Air Carrier Fatality Rates/Targets
Fatalities per 100 million Persons on Board

FY 2020 Year-to-Date Fatalities: 1. Fatality Threshold: 51.
FY 2020 Rate Assumes No Additional Fatalities

Summary of Progress – FY 2020 Q1-Q3

General Aviation Fatal Accident Rate

As of June 30, 2020, the target is on track. Year-to-date, there have been 143 fatal accidents, making the rate 0.81 versus a not-to-exceed rate of 0.97. These 143 fatal accidents compare against a not-to-exceed of 171. Those 143 fatal accidents resulted in a total of 256 fatalities. Of the total number of general aviation fatal accidents through the June 30, 20.3 percent were fatal experimental accidents.

Goal: Reduce U.S.-Owned General Aviation (GA) Fatal Accidents								
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Total U.S. General Aviation Fatal Accidents	252	238	219	209	226	243	143	N/A

**Actual as of June 30, 2020. FY 2019 data will be finalized in late 2020. FY 2020 data will be finalized in FY 2022 Q1.*

Summary of Progress – FY 2020 Q1-Q3

General Aviation Fatal Accident Rate

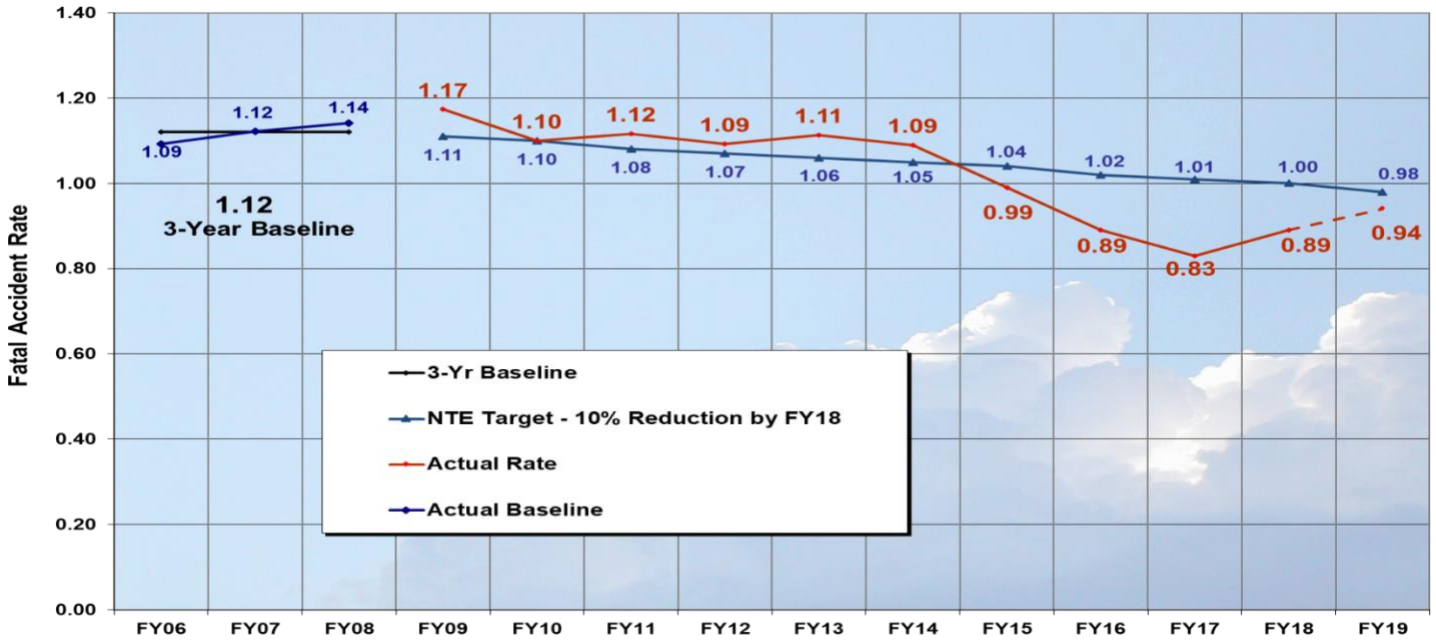

Figure 2: GA Fatal Accident Rate (Fatal Accidents/100,000 Hours)

Key Milestones

Milestone Summary					
Milestone	**Deadline**	**Status**	**Change from Previous Quarter**	**Owner**	**Notes**
Commercial Aviation Safety Team (CAST): Continue to have meetings every two months with the aviation community and encourage voluntarily investing in safety enhancements that reduce the fatality risk	Q4 FY 2020	In Progress	Milestone Met to Date	AVP*	The commercial community remains highly involved.
General Aviation Joint Steering Committee (GAJSC): Continue to have meetings quarterly with the aviation community and encourage voluntarily investing in safety enhancements that reduce the fatal accident rate.	Q4 FY 2020	In Progress	Milestone Met to Date	AVP	The general aviation community remains highly involved.

** Office of Accident Investigation and Prevention*

Data Accuracy & Reliability

Commercial Aviation

Source

The data on commercial fatalities come from the National Transportation Safety Board's (NTSB) Aviation Accident Database. All but a small share of the data for persons on board come from the air carriers, who submit information for all passengers on board to the Office of Airline Information (OAI) within the Bureau of Transportation Statistics (BTS). In addition, FAA estimates crew on board based on the distribution of aircraft departures by make and model, plus an average of 3.5 persons on board per Part 121 cargo flight.

Statistical Issues

Both accidents and passengers on board are censuses, meaning there is no sampling error. Crew on board is an estimate with a small range of variation for any given make and model of aircraft. Departure data and enplanements for Part 121 are from the BTS. The crew estimate is based on fleet makeup and crew requirements per number of seats. For the current fleet, the number of crew is equal to about seven percent of all Part 121 enplanements. The average number of cargo crew on board is 3.5 per departure, based on data from subscription services such as Air Claims (Ascend), a proprietary database used by insurers to obtain information such as fleet mix, accidents, and claims.

Cargo crews typically include two flight crew members, and occasionally another pilot or company representative or two deadheading passengers. Part 135 data also come from BTS and Air Claims databases, but are not as complete. The Office of Aviation Policy and Plans (APO) verifies with the operators when it identifies gaps in the data. Based on previous accident and incident reports, the average Part 135 enplanement is five per departure. Crew estimates for Part 135 are based on previous accident and incident data. Any error that might be introduced by estimating crew will be very small and will be corrected by the passenger census. Importantly, the fatality rate is low and could significantly fluctuate from year to year due to a single accident.

Completeness

FAA does comparison checking of the departure data collected by BTS. This information is needed for crew estimates. However, FAA has no independent data sources against which to validate the numbers submitted to BTS. FAA compares its list of carriers to the Department list to validate completeness and places the carriers in the appropriate category (i.e., Part 121 or Part 135). The number of actual persons on board for any given

Data Accuracy & Reliability

period is considered preliminary for up to 18 months after the close of the reporting period, as a result of amended reports that are subsequently filed by the air carriers. Preliminary estimates are based on projections of the growth in departures developed by APL.

However, changes to the number of persons on board should rarely affect the annual fatality rate. To overcome reporting delays of 60 to 90 days, FAA must rely on historical data, partial internal data sources, and Official Airline Guide (OAG) scheduling information to project at least part of the fiscal year activity data. FAA uses OAG data until official BTS data are available. The final result for the air carrier fatality rate is not considered reliable until BTS provides preliminary numbers. Due to reporting procedures in place, it is unlikely that calculation of future fiscal year departure data will be markedly improved. NTSB and the Office of Accident Investigation and Prevention confer periodically to validate information on the number of fatalities. Accident data are considered preliminary. NTSB usually completes investigations and issues reports on accidents that occur during any fiscal year by the end of the next fiscal year. Results are considered final when all those accidents have been reported in the NTSB press release published early in the following year. FY 2020 results will therefore be final after the 2022 press release. In general, the number of fatalities is not likely to change significantly between the end of the fiscal year and the finalization date.

Reliability

Results are considered preliminary based on projected activity data. Most accident investigations are a joint undertaking. NTSB has the statutory responsibility to determine probable cause, while FAA has separate statutory authority to investigate accidents and incidents in order to ensure that FAA meets its broader responsibilities. The FAA's own accident investigators and other FAA employees participate in all accident investigations led by NTSB investigators. FAA uses performance data extensively for program management, personnel evaluation, and accountability.

Data Accuracy & Reliability

General Aviation

Source

The data for general aviation fatal accidents come from the NTSB's Aviation Accident Database. Aviation accident investigators, under the auspices of the NTSB, develop the data. Annual flight hours are derived from FAA's annual General Aviation and Part 135 Activity Survey. FAA's Forecast and Performance Analysis Division provides current year estimates.

Statistical Issues

The NTSB finalizes the actual number of general aviation fatal accidents. Since this is a simple count of accidents, there are no statistical issues relevant to these data. The general aviation community and the GAJSC, as part of the Safer Skies initiative, recommended development of a data collection program that will yield more accurate and relevant data on general aviation demographics and utilization. Improved General Aviation Survey and data collection methodologies have been developed. As a result of these efforts, FAA has made many improvements to the survey, working in conjunction with the General Aviation Manufacturers Association, the NTSB, and other aviation industry associations. An improved survey was initiated in FY 2004.

For the first time, these annual surveys created a statistically valid report of activity on which the general aviation community could agree. First, the sample size has significantly increased. Second, a reporting form was created to make it much easier for organizations with large fleets to report. Third, the agency worked with the Aircraft Registry to improve the accuracy of contact information. Each year, significant improvements are made to substantially improve the accuracy of the data. The GAJSC General Aviation Data Improvement Team worked closely with the general aviation community and industry to develop this performance metric and target. There was unanimous support and consensus for the metric and target.

Completeness

The number of general aviation fatal accidents, even when reported as preliminary, is very accurate. NTSB and the Office of Accident Investigation and Prevention confer periodically to validate information on the number of fatalities. Initial accident data are considered preliminary. NTSB usually completes investigations and issues reports on accidents that occur during any fiscal year by the end of the next fiscal year. Results are considered final when all those accidents have been reported in the NTSB press release published early in the following year. FY 2020 results will therefore be final after the 2022 press release. In general, the numbers of fatalities

Data Accuracy & Reliability

are not likely to change significantly between the end of the fiscal year and the finalization date. GA Survey calendar hours are finalized by December 31 of the following year. Hence, the fatal accident rate for FY 2019 will not be considered final until December 15, 2020.

Reliability
Results are considered preliminary based on projected activity data. Most accident investigations are a joint undertaking. NTSB has the statutory responsibility to determine probable cause, while FAA has separate statutory authority to investigate accidents and incidents in order to ensure that FAA meets its broader responsibilities. FAA's own accident investigators and other FAA employees participate in all accident investigations led by NTSB investigators. FAA uses performance data extensively for program management as well as personnel evaluation and accountability.

Additional Information

Contributing Programs

FAA and the aviation industry partner to focus on a data-driven, proactive approach to aid in the identification of systemic risks, the development of mitigation strategies, and the monitoring of the effectiveness of implemented actions. Partnerships have been formed with the GAJSC, the U.S. Helicopter Safety Team (USHST), and the Commercial Aviation Safety Team (CAST).

Stakeholder / Congressional Consultations

The FAA Administrator meets regularly with aviation industry stakeholders, as do executives and managers in Aviation Safety. There are numerous meetings throughout the year with industry associations, unions representing aviation professionals, and individual certificate holders.

FAA and Aviation Safety receive feedback and input from aviation rulemaking committees and aviation rulemaking advisory committees (ARCs and ARACs) to have meaningful input to policy and rule changes. These committees are valuable tools for collaborating with industry to ensure complete implementation of change and obtain compliance in the long term.