

Reduce Aviation Fatalities

June 27, 2018

Goal Leaders:

FAA:

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Overview

Goal Statement

U.S.-Owned Commercial Aviation

- DOT will work to reduce commercial air carrier fatalities per 100 million persons on board to no more than 5.9 by September 30, 2019.

U.S. General Aviation

- DOT will work to reduce general aviation fatal accidents to no more than 0.98 fatal accidents per 100,000 flight hours by September 30, 2019.

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.
- Aviation fatality rates in general aviation are at historic lows and continue to decrease over time. The FAA has an imperative to be smarter about how it assures safety as the aviation industry grows more complex.
- General aviation encompasses a wide variety of aircraft: gliders, single-seat home-built aircraft, helicopters, balloons, as well as sophisticated, extended range turbojets.

Overview (cont.)

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.
- The FAA can leverage lessons learned in commercial aviation to continue to improve the level of general aviation safety by identifying precursors to accidents.



Aviation Safety Leaders

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Goal Structure & Strategies

Reduce U.S.-Owned Commercial Carrier Aviation Fatalities per 100 million Persons On Board (FAA)				
	2017 Baseline	2018 Target	2019 Target	2020 Target
U.S.-owned commercial carrier fatalities per 100 million persons on board	6.4	6.2	5.9	5.7

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

- Work with stakeholders to establish and implement safety management systems to address and reduce risk within their operations and the National Airspace System
- Collaborate with the aviation community to encourage voluntarily investing in safety enhancements that reduce the fatality risk
- Ensure that safety risk is systematically included as part of the equation when decisions are made in the FAA

External factors that could affect goal achievement:

- Factor 1 The FAA promotes the open exchange of safety information to continuously improve aviation safety and enables users to perform integrated queries across multiple databases.
- Factor 2 FAA is working in partnership with the aviation community focused 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.

Mitigations:

- Collaborate with the aviation community to encourage voluntarily investing in safety enhancements that reduce the fatality risk
- Ensure that safety risk is systematically included as part of the equation when decisions are made in the FAA

Goal Structure & Strategies

Reduce U.S. General Aviation Fatal Accidents per 100,000 Flight Miles (FAA)				
	2017 Baseline	2018 Target	2019 Target	2020 Target
U.S. General Aviation fatal accidents per 100,000 flight hours.	1.01	1.00	0.98	0.97

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

- Support the installation of new safety-enhancing technology in general aviation aircraft by streamlining the certification and installation process and encouraging aircraft owners to install such equipment.
- Continue implementation of 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.
- Work in partnership with industry on a data-driven approach to understand fatal accident causes and develop safety enhancements to mitigate the risk.
 - The General Aviation Joint Steering Committee (GAJSC) has developed 40 safety enhancements aimed at addressing the top causes of fatal accidents: loss of control-inflight and engine failure. These include technological improvements to engine performance, improved education and training for both pilots and mechanics, and outreach on a range of topics aimed at preventing loss of control and power plant failure related accidents. The GAJSC has started a new working group to study Controlled Flight Into Terrain (CFIT) which will result in additional safety enhancements. FAA will work with the GAJSC on continued implementation of safety enhancements.
 - The US Helicopter Safety Team (USHST) has drafted 22 Helicopter Safety Enhancements and has prioritized them for implementation. These cover fatal accidents during instrument operations under poor meteorological conditions, Loss of Control-Inflight, and Low Altitude Operations. The USHST Outreach Program will focus on the top industry sectors with the highest percentage of fatal accidents.

Goal Structure & Strategies

External factors that could affect goal achievement:

- Factor 1 - The FAA partners with industry to analyze and develop strategies using a non-regulatory, proactive, and data-driven approach to get results (e.g., the General Aviation Joint Steering Committee (GAJSC) and the United States Helicopter Safety Team (USHST))

Mitigations:

- Support the installation of new safety-enhancing technology in general aviation aircraft by streamlining the certification and installation process and encouraging aircraft owners to install such equipment.
- Continue implementation of 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.
- Work in partnership with industry on a data-driven approach to understand fatal accident causes and develop safety enhancements to mitigate the risk.
- Reduce pilot deviations, including Runway Incursions, caused by a lack of English language proficiency.
- Encourage the general aviation community to educate pilots and other stakeholders on the benefits of sharing (in a protected, non-punitive manner) safety data.
- Leverage FAA Safety Team (FAASTeam) program products and product delivery outreach systems. National FAASTeam Outreach Initiatives include safety articles in the FAA Safety Briefing magazine, FAAS Blast emails, aviation safety courses through the [FAASafety.gov](https://www.faa.gov/safety) website, runway safety educational posters, and live safety seminars on weather, ADS-B, UAS, Loss of Control and aeronautical decision making.

Summary of Progress – FY 18 Q2

Commercial Air Carrier Fatality Rate

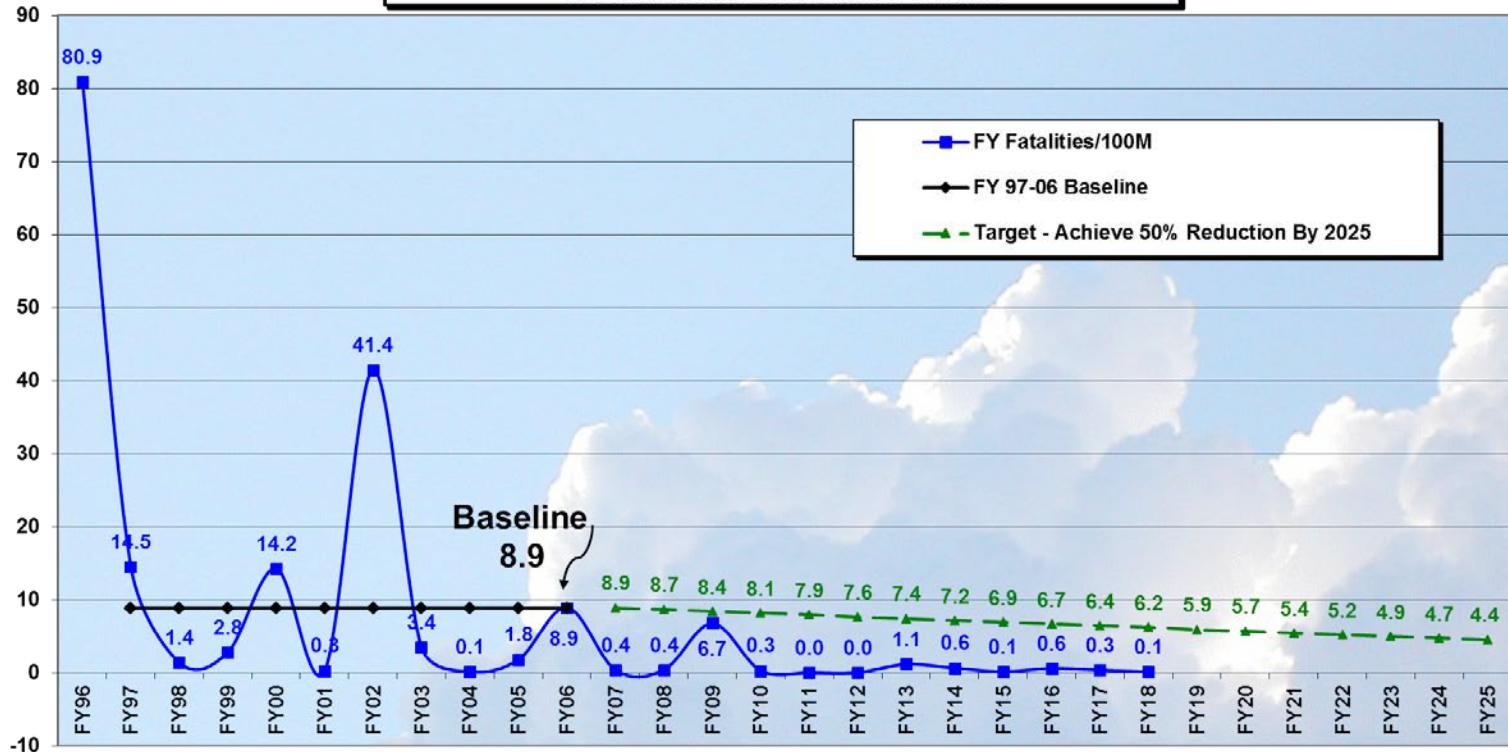
As of **March 31, 2018**, this target is on track. Year to date there **have** been **no** fatal accidents. Therefore, the actual rate is **0.0** vs a not to exceed of **6.2**. This equates to no fatalities against a not to exceed **55** for the year.

General Aviation Fatal Accident Rate

As of **March 31, 2018**, the General Aviation Fatal Accident Performance Measure is on track. The actual rate is **0.77** vs a not to exceed of **0.90**. This equates to **89** fatal accidents vs. a not to exceed of **105**, prorated for the end of **March (249** for the year). Additionally, **there were 157** fatalities for the year. There **were 17** fatal experimental fatal accidents to date, which **was 19.1%** of the total number of GA fatal accidents.

Baseline/Trends

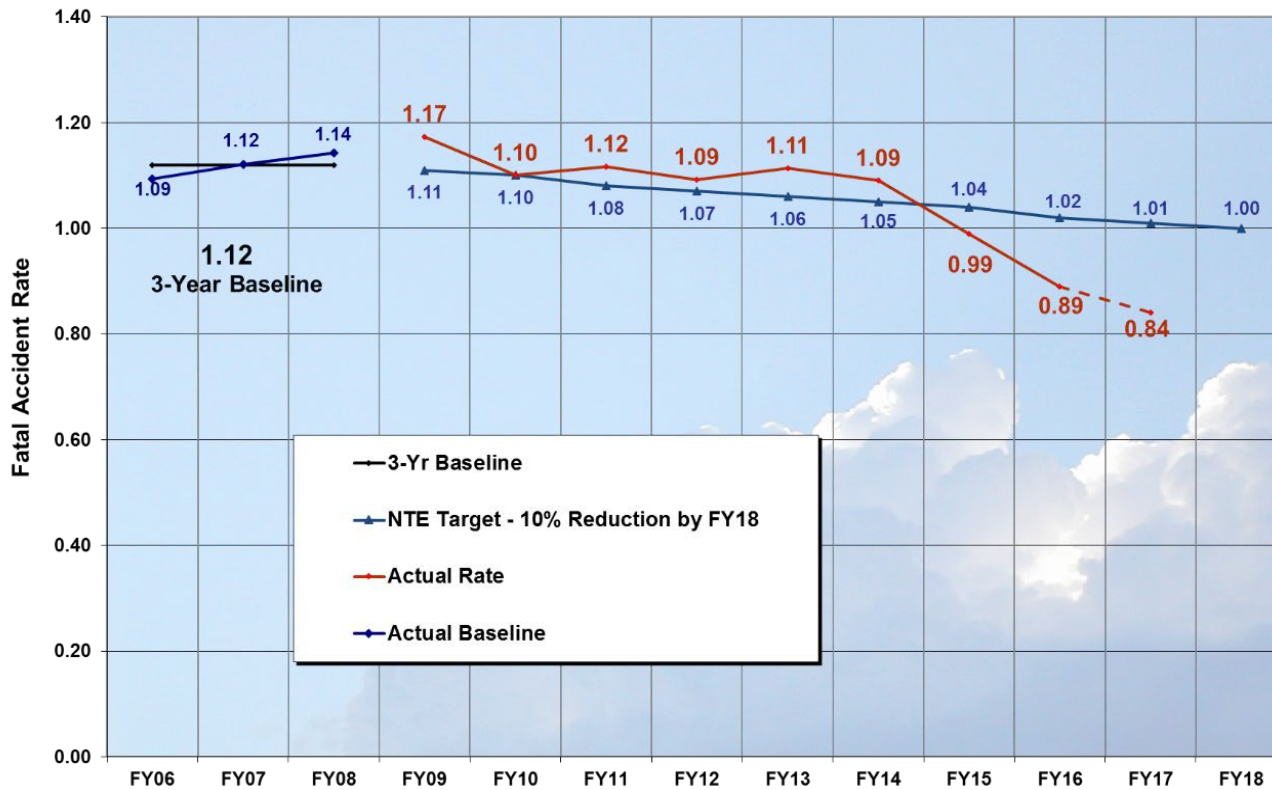
Air Carrier Fatality Rates/Targets
Fatalities per 100 Million Persons on Board
 FY18 Year-to-Date Fatalities - 1
 Fatality Threshold - 55
 FY18 Rate Assumes No Additional Fatalities



	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Total U.S.-owned commercial carrier aviation fatalities	9	5	1	5	3

Baseline/Trends

**AVS Safety Performance
GA Fatal Accident Rate
(Fatal Accidents/100,000 Hours)**



	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Total U.S. general aviation fatalities	267	259	252	238	219

Key Milestones (Potentially One Slide for Each Strategy)

Milestone Summary					
Key Milestone	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Comments
	<i>[e.g., Q1 and Q2, FY 2018]</i>	<i>[e.g., Complete, On-Track, Missed]</i>	<i>[optional column]</i>	<i>[optional column]</i>	<i>[Provide discussion of Progress, changes from last update, Anticipated Barriers or other Issues Related to Milestone Completion]</i>
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 2018	On-Track		AVP	Work is on-track and 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 fatality risk	Q4 FY 2018	On-Track		AVP	Work is on-track and community remains highly involved

Data Accuracy and Reliability

Commercial Aviation

Source of the Data

The data on commercial fatalities come from NTSB's Aviation Accident Database. All but a small share of the data for persons on board comes from the air carriers, who submit information for all passengers on board to the Office of Airline Information (OAI) within 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, having 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 rep, or two deadheading passengers. Part 135 data also comes from BTS and Air Claims databases, but is 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 overwhelmed by the passenger census. Importantly, the fatality rate is low and could significantly fluctuate from year to year due to a single accident.

Data Accuracy and Reliability (cont.)

Commercial Aviation

Completeness

The FAA does comparison checking of the departure data collected by BTS. This data 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 of Transportation 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 period is considered preliminary for up to 18 months after the close of the reporting period. This is due to amended reports 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. The 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. This lack of complete historical data on a monthly basis and independent sources of verification increases the risk of error in the activity data. 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 2015 results will therefore be final after the 2017 press release. In general, however, the number of fatalities are not likely to change significantly between the end of the fiscal year and the date they are finalized.

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. The FAA uses performance data extensively for program management, personnel evaluation, and accountability.

Data Accuracy and Reliability

General Aviation

Source of the Data

The data for general aviation fatal accidents comes from the National Transportation Safety Board's (NTSB) Aviation Accident Database. Aviation accident investigators, under the auspices of the NTSB, develop the data. Annual flight hours are derived from the FAA's annual General Aviation and Part 135 Activity Survey. The 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 this 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 GA Survey and data collection methodologies have been developed. As a result of these efforts, FAA, working with the General Aviation Manufacturers Association, the NTSB, and other aviation industry associations, has made many improvements to the survey. An improved survey was initiated in FY 2004.

These annual surveys created, for the first time, 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 has been 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 being 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.

Data Accuracy and Reliability (cont.)

General Aviation

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. FY2017 results will therefore be final after the 2019 press release. In general, however, the numbers of fatalities are not likely to change significantly between the end of the fiscal year and the date they are finalized. GA Survey calendar hours are finalized by December 31 of the following year. Hence, the fatal accident rate for FY 2017 will not be considered final/complete until December 15, 2018.

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. The FAA uses performance data extensively for program management, and personnel evaluation and accountability.

Additional Information

Contributing Programs

Program Activities:

The FAA and the aviation industry have partnered 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. These partnerships are the General Aviation Joint Steering Committee (GAJSC), U.S. Helicopter Safety Team (USHST), and the Commercial Aviation Safety Team (CAST).

Stakeholder / Congressional Consultations

1. 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.
2. The FAA and Aviation Safety receives feedback and input from aviation rulemaking committees and from aviation rulemaking advisory committees (ARCs and ARACs) to have meaningful input to policy and rule changes. In fact, these committees are a valuable tool to collaborating with industry to have complete implementation of a change and obtain compliance in the long term.