

GAJSC SE-33 Safety Culture Working Group (WG) Final Report June 2023

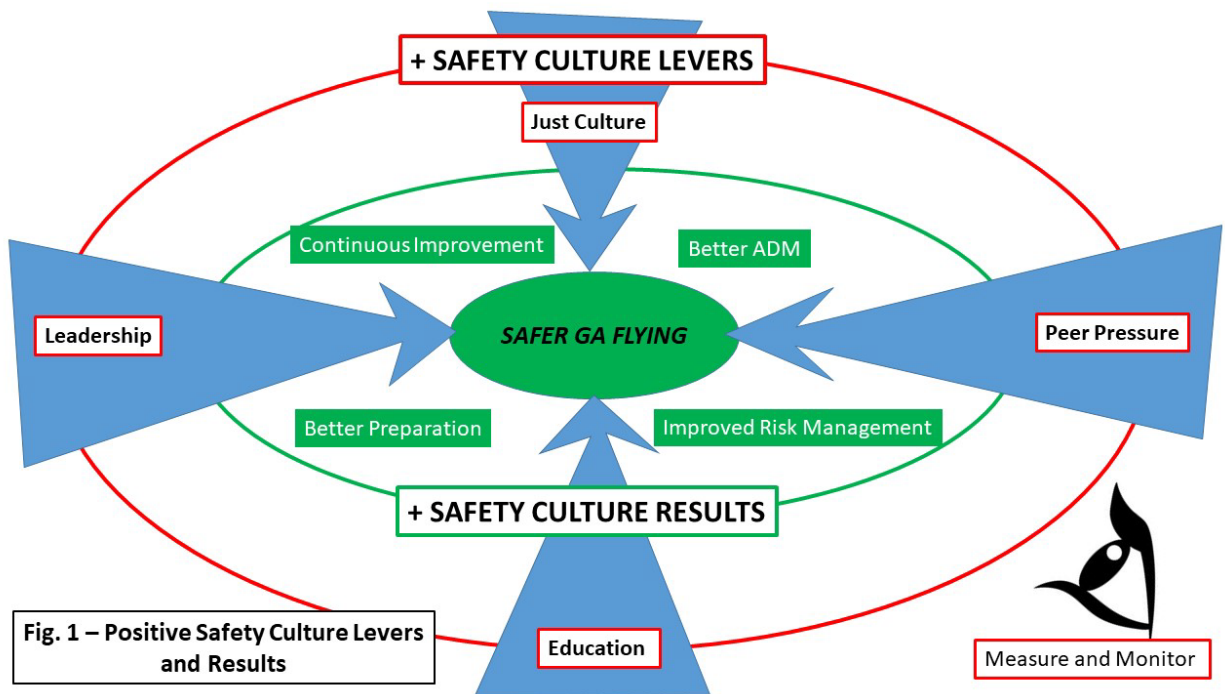
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Corey and Jens;

On behalf of the members of the Safety Culture Working Group (SE-33), we respectfully submit this report with recommendations to the General Aviation Joint Steering Committee (GAJSC) Safety Analysis Team (SAT). These recommendations are meant to help educate and raise awareness of safety culture in the general aviation community and improve the safety record.

The recommendations focus on five areas that we consider to be positive safety culture “levers” for change—Leadership, Education, Peer Pressure, Just Culture, and Measuring and Monitoring. We believe these levers will drive positive safety culture results in the general aviation community. In particular, we believe that the recommendations will produce better preparation, improved risk management, better aeronautical decision-making (ADM) and ignite a desire for continuous improvement in pilots and flight instructors (Fig. 1). These enhancements, over time, will ideally result in a lower accident and fatal accident rate for the sector while improving the image of general aviation in the public eye.



Our recommendations include a request for funding to begin measuring the “state of the state” in safety culture among the general aviation population, starting with a baseline assessment and monitoring periodically to determine the effectiveness of our efforts or the need for additional action.

A Brief History of SE-33 WG Efforts

Before presenting the recommendations, we would like to review the evolution of the SE-33 WG. The idea for a dedicated safety culture Safety Enhancement (SE) Working Group emerged from the GAJSC Loss of Control Working Groups (LOCWGs) in 2014.

“...Both the first and second (Loss of Control) working groups analyzed several accidents in which the pilot exercised poor aeronautical decision-making, weak safety culture, and/or poor judgment in managing risks. Additionally, several accidents involved a pilot exhibiting intentional non-compliance to the rules and regulations established to ensure a safe aviation system. It is the goal of this safety enhancement, once fully implemented, will establish an improved safety culture for general aviation.”

Specifically, the LOCWGs requested that SE-33 provide input to the SAT in three areas or outputs:

1. Identifying and conveying the safety culture message to “hard to reach” pilots (Output 1);
2. Establishing and/or improving mentoring programs in the aviation community (Output 2);
and,
3. Communicating the safety culture message to the general aviation community (Output 3)

SE-33 began its work in earnest in August 2016. An obvious starting point for the above efforts was to choose a definition for safety culture as it applies to general aviation, a task easier said than done. After much work, a definition emerged, although there was never 100% consensus within the WG. During the most recent iteration of the WG (January 2022—present), we decided a pragmatic definition was in order for general aviation:

The individual and collective mindset of the general aviation community as it pertains to the preparation, risk management, aeronautical decision-making, and continuous improvement in personal aviation.

In hindsight, defining a safety culture was not necessary in 2016 for beginning the critical work for Output 1—Identifying and conveying the safety culture message to “hard to reach” pilots—and Output 3—Communicating the safety culture message to the general aviation community.

Before 2020, the SE-33 WG delivered several products that answered basic questions about the GA community's safety culture (per Output 1). Through our collaboration with the GAJSC Outreach and Communications WG, we also spurred publishing a series of safety culture educational materials to the general aviation community that continues today (per Output 3).

This report's recommendations address and advance the intent of the LOCWG's original three Outputs.

Status of Output 1: Identifying and conveying the safety culture message to “hard to reach” pilots

As a precursor to identifying and conveying the safety culture message to “hard to reach” pilots, the WG first decided to measure the prevailing safety culture within the community, particularly with hard-to-reach pilots. In Phase 1 of a research program that started in 2017, the SE-33 WG worked with a team of Embry-Riddle Aeronautical University College of Aviation and College of Arts and Sciences researchers to develop and validate an initial safety culture measurement instrument and prototyped the tool with a group of Embry-Riddle students.

Participants, holding a Private Pilot’s certificate as a minimum, answered a questionnaire with 33 items. Of the 379 questionnaires returned, 344 were usable. The questions centered on five components: Safety attitudes, Risk perception, Safety citizenship, Safety reporting, and Safety practice.

Based on the survey results, the researchers determined that the tool as designed would be valid for measuring these five components within the broader GA pilot community.

Phase 1, completed in mid-2018, was meant to be followed by Phase 2, where researchers planned to expand the data collection to a broader group of pilots, including those not associated with formal flying organizations like Embry-Riddle.

The new data would have further validated the instrument for use in the broader general aviation community, particularly with hard-to-reach pilots. Unfortunately, Phase 2 required financial resources unavailable to the GAJSC at the time. **The continuation of this work is fundamental to the recommendations in this report.**

Following the Phase 1 safety culture instrument effort, a group of members within the SE-33 WG continued the Output 1 work by conducting a scientific (ethnographic) survey of web sources and social media to sample safety culture attitudes in the online GA community.

Their analysis of the data revealed positive and negative areas of interest.

The Negatives:

- The research team found several distinct behaviors indicative of positive and negative safety cultures. Pilots of all backgrounds and certificates, from students to professional pilots, displayed evidence of poor safety cultures.
- Many social media aviation groups included pilots expressing disdain for regulatory compliance, operating limitations, and operating best practices.
- Overall poor levels of aeronautical knowledge displayed by many, including CFIs.
- Social media, in particular, makes quite evident the gaps between FAA Practical Test Standards/Airman Certification Standards and the considerations of flying in challenging environments, engine management, planning strategies for long-range flights, aviation weather, and other real-world aspects of flying airplanes.

- The pervasive cultural attitude of wanting a quick answer instead of a thoughtful one, or one that sends the questioner to an authoritative source, sets the tone of most social media discussions.
- Participants revered and protected the opinion of perceived experts of “internet heroes” and were especially quick to embrace their advice when it was contrary to authoritative sources. There was an attitude that official rules, limitations, and best practices were uninformed and driven primarily out of concern for liability.

The Positives:

- Research suggested that type clubs generally, although not always, have better safety cultures—supporting and encouraging aspects of safe flying.
- Most participants revealed a true passion for flying and an unquenched thirst for learning and improving their flying skills.
- This presents aviation educators with a tremendous opportunity to become “internet heroes” of aviation social media sites, basing and supporting our opinions with authoritative sources that, whenever possible, are less oriented toward “no, you can’t do that” but instead presented as “yes, you can, if you take this into account....”

These findings were fundamental to constructing the recommendations in this report. **The continuation of social media sentiment analysis is included in the proposed recommendations.**

Status of Output 2: Establishing and/or improving mentoring programs in the aviation community

Output 2 actions are included in the recommendations in this report.

Status of Output 3: Communicating the Safety Culture message

The FAA and our industry partners at AOPA, EAA, National Association of Flight Instructors, Soaring Safety Foundation, and others have been publishing educational material about Safety Culture (and/or its requisite components) in response to the GAJSC’s focus on the topic. The FAA’s July/August 2019 Safety Briefing magazine focused exclusively on safety culture, including the many FAA and industry tools available to help pilots establish and improve their own safety culture. The upcoming Jan/Feb 2023 issue will be dedicated to safety culture in terms of Professionalism and Mentoring in general aviation. Although not typically labeled as such, safety culture is a thread that runs through a great deal of written and online material published in the sector.

SE-33 Today

The most recent reboot of SE-33 launched in January 2022, with members representing a wide swath of the industry and embodying a wide range of experience (See Appendix 1). As with our definition

of safety culture, we were also pragmatic in our approach to solutions—we focused primarily on what we knew from our own experiences to be problematic and solutions that we believe will help.

That approach guided our work and resulted in the positive safety culture levers—Leadership, Education, Peer Pressure, and Just Culture—that are the foundation of our near-term recommendations below.

As we learn more about the safety culture in this community, in part through the suggested activities in this report, we must continually update and adjust our approach to improving the state of safety culture and, by association, the state of safety.

We want to thank the members of SE-33 for their hard work and dedication over the past year. If fully implemented, we are confident that these recommendations can improve the accident and fatal accident rate for general aviation.

We look forward to the acceptance and, ideally, the implementation and continued tracking of these recommendations, and SE-33 stands ready to participate in any future efforts.

Sincerely,

John Croft – Government co-chair
Jeff Edwards – Industry co-chair

RECOMMENDATIONS



SE33-R1 – Measuring and Monitoring the State of Safety Culture

Description: Complete and update the safety culture measurement instrument. Distribute the questionnaire to the target general aviation pilot population, and potentially other sectors of the community, including maintainers. Collect and analyze the data. Continue to monitor social media through sentiment analysis at regular intervals.

+Safety Culture Lever: Measure and Monitor

+Safety Culture Result: Continuous Improvement

Addressee: FAA, Industry, Academia

Background/Discussion: We suggest funding and restarting Phase 2 and beyond of the Safety Culture survey instrument developed by Embry-Riddle. Before distribution, the tool should be reassessed and updated for the latest trends and findings. Once complete, government, industry, and academia volunteers will distribute and collect the surveys. Experts will analyze the data and report the results. We suggest building several versions of the tool, for example, a “long form” and a “short form,” for maximum flexibility in distributing and collecting from different segments of the pilot population. We also recommend conducting regular ethnographic surveys and sentiment analyses of

social media sites to spot-check the state of safety culture on an ongoing basis. Feedback from these surveys will be used to update and enhance our approach to improving safety culture through SE-33 or other venues in the future.

Implementation/Timeline:

Measurement Tool: Our efforts to develop an updated survey tool can begin immediately, followed by the distribution and collection of surveys by government, industry, and academia volunteers. Administration, analysis, and reporting of results are contingent on funding.

Ethnographic Survey: We suggest a government and industry collaboration to monitor social media sentiment and report at fixed intervals on safety culture trends. This work would start by the latter half of FY23.

Relationship to Original LOCWG Request: Output 1



SE33-R2: Improving Safety by Optimizing FAASTeam

Description: Optimize continuous improvement opportunities through the FAA Safety Team and WINGS program

+**Safety Culture Lever:** Leadership

+**Safety Culture Result:** All

Addressee: FAA

Background/Discussion: The SE-33 Working Group firmly believes that the work of the FAA Safety Team (FAASTeam) and the FAA WINGS program are vital components for improving general aviation safety culture. The FAASTeam is a large and diverse group of FAA employees dedicated to helping pilots fly safer. The team is comprised of more than 100 FAA employees, called FAASTeam Program Managers (FPMs), who come from airworthiness or operations backgrounds. FPMs direct the work of nearly 4,000 volunteers, including FAASTeam Lead Representatives, FAASTeam Representatives and FAASTeam Service Providers. The SE-33 WG recommends that the FAA study the effectiveness of the FAASTeam and WINGS in its current structure from the perspective of optimum continuous improvement for GA pilots. SE-33 is prepared to assist the agency by providing input or feedback. The SE-33 WG is aware that the FAA Flight Standards organization is continuously analyzing the effectiveness of these programs and may be working on changes independent of this recommendation.

Implementation: The SE-33 WG will support the FAA Flight Standards Organization with the recommended study, or with any requested input or feedback to FAA-internal studies on the matter.

Timeline: TBD

Relationship to Original LOCWG Request: Output 1, Output 3

SE33-R3: Improving Safety Culture through Education

Education is obviously a vital bridge in improving safety culture in the general aviation community. We suggest several recommendations.

SE33-R3A – Improving Safety Culture through Video Outreach

Description: Create a new video series illustrating how a positive safety culture can make flying safer.

+**Safety Culture Lever:** Education

+**Safety Culture Result:** All

Addressee: FAA, Industry, Academia

Background/Discussion: Short, captivating instructional videos are effective teaching tools, particularly when coupled with social media platforms. The FAA, as well as the industry, has been putting a high priority on video as a safety education medium. For example, the FAA Safety Team’s (FAAST) “57 Seconds to Safer Flying” series emphasizes items in the FAAST #FlySafe topics every month to help mitigate the most common causes of general aviation accidents. These videos are featured on the FAA’s YouTube site and promoted using the various FAA social media channels. The AOPA’s Air Safety Institute offers similar instructional videos, as do other safety advocacy groups.

Implementation: Create a new Public Service Announcement (PSA) series dedicated to improving Safety Culture, starting with quarterly video messages. These videos will focus on helping pilots and others in the aviation community to build and maintain a safety culture mindset across all operations, from preparation for flight to debriefing after a flight and developing processes for continuous improvement. Topics, content, and production for the series would be generated (together or taking turns) by the government, industry, and academia. All would share the resulting videos with their membership/viewers/followers via the web, social media, and emails to registered pilots. Topics would focus on methods to better prepare pilots, improve risk management, aeronautical decision making, and promote continuous improvement. A prototype PSA for a series of videos linked to phases of flight is attached in Appendix 2.

Timeline: Q4 FY 2023 for producing the first video

Relationship to Original LOCWG Request: Output 3

SE33-R3B – Improving Safety by Promoting Continuous Improvement

Description: Incorporate references to WINGS Pilot Proficiency Program and aviation safety reporting programs (including the NASA Aviation Safety Reporting System) in pilot training

and educational materials, taking advantage of the Law of Primacy to impress on students the importance of continuing education. Key to continuous improvement are programs like WINGS, as well as the various initiatives by advocacy organizations including the Experimental Aircraft Association, Aircraft Owners and Pilots Association/Air Safety Foundation, National Association of Flight Instructors, Society of Aviation and Flight Educators, Soaring Safety Foundation, type clubs and many others. Also critical for a pilot's continuous improvement is the need for honest and practical debriefing and analysis of pilot performance and methods to improve through feedback to processes, procedures and learning. References to, and encouragement to participate in these types of programs and initiatives, including mentoring, should be integral to pilot training in order to instill habits for continuous improvement.

+Safety Culture Lever: Education

+Safety Culture Result: Continuous Improvement

Addressee: FAA

Background/Discussion: Continuous improvement through initiatives like the FAA WINGS program is critical for developing and maintaining a positive Safety Culture in pilots. In a study of GA accidents between 2008 and 2011, the FAA found that fewer than 1 percent of pilots who had previously completed a phase of the WINGS program, or were currently engaged in a phase of the WINGS program, had been involved in a non-fatal or fatal accident.

Currently, a continuous improvement process such as WINGS is not defined in—or called for—in the Airman Certification Standards or Practical Test Standards, nor is it highlighted in supporting documentation (e.g., Pilot's Handbook of Aeronautical Knowledge, Airplane Flying Handbook, Risk Management Handbook, various Advisory Circulars, etc.). Additionally, the ACs and training handbooks should underscore the importance of the FAA WINGS and similar industry programs, yet these training documents are currently silent about these initiatives. This recommendation is also an excellent opportunity to shine a light on the WINGS program or other industry or academia continuing education programs as good sources for continuous improvement and mentoring.

Implementation: Provide a position paper outlining which educational materials and outreach should be modified to include continuous improvement, and providing the necessary draft language.

Timeline: Deliver the position paper by September 30, 2023.

Relationship to Original LOCWG Request: Output 2, Output 3



SE33-R3C – Ethics Training for GA Pilots

Description: Develop an Ethics course for general aviation pilots.

+Safety Culture Lever: Education

+Safety Culture Result: Continuous Improvement

Addressee: FAA

Background/Discussion: Positive ethics are essential ingredients for a positive safety culture. An ethical pilot is a better aviation citizen and will exhibit better preparation, enhanced Aeronautical Decision-making (ADM), and a heightened sense of risk management, all of which put the pilot on a path to continuous improvement. We propose creating an ethics course for pilots through the FAASafety.gov website, similar to the course that has already been created for Aviation Maintenance Technicians. The course would include content and promotion by recipients of the Charles Taylor Master Mechanic and the Wright Brothers Master Pilot award honorees. They are excellent candidates to mentor the general aviation community.

Implementation: This course would be created by government and industry teams and posted on FAASafety.gov.

Timeline: FY2024

Relationship to Original LOCWG Request: Output 2



SE33-R4: Improving Safety Culture through moderated “Community Chat” channels

Description: Create Community Chat channels for knowledgeable discussions and mentoring on the FAA’s General Aviation Safety Facebook Group page.

+Safety Culture Lever: Peer Pressure

+Safety Culture Result: All

Addressee: FAA, Industry, Academia

Background/Discussion: Peer pressure is a powerful tool for promoting positive safety culture in the pilot community, and Facebook is an excellent platform to host the discussions. Pilots can openly share knowledge and best practices within and across type-club model lines on Facebook. We suggest creating a series of “community chat” channels under the auspices of the FAA General Aviation Safety Facebook group, where members can participate in a knowledgeable and authoritative discussion about various topics, from avionics to maintenance to medical. The conversations will be spawned, monitored, and guided by FAA Safety Team monitors from the FAA, industry, and academia.

Implementation: SE-33 will suggest a baseline set of Community Chat channels within the FAA General Aviation Safety group, which will be implemented by AFS-850. We will expand and contract the channels as per demand. The Community Chat channels will be moderated by FAAST Program Managers, FAAST volunteer team leads, and other subject matter experts (potentially including SE-33 WG members) as necessary.

Timeline: Launch the first general Community Chat channels by October 2023

Relationship to Original LOCWG Request: Output 3



SE33-R5: Improving Safety and Accountability through Just Culture Principles

Description: Promote the benefits and responsibilities of Just Culture for improving safety by making pilots familiar with the FAA’s Compliance Program and reinforcing the potential penalties for those who flagrantly violate the rules.

+**Safety Culture Lever:** Just Culture

+**Safety Culture Result:** Improved Risk Management

Addressee: FAA

Background/Discussion: During initial training, pilots should be exposed to the FAA's modern methods to enforce rules and regulations. Under the Compliance Program, formerly the Compliance Philosophy, the FAA works with pilots who have unintentionally violated FARs through education and awareness rather than penalties. The idea is to forge an understanding of the rules and regulations intention and encourage compliance through understanding, but also to make sure pilots know there are consequences for those who willingly violate the rules.

This recommendation aims to encourage pilots to view the FAA as a proactive safety agency that will utilize a Just Culture philosophy as often as possible, but will use enforcement actions when necessary. An indirect benefit to discussing the FAA’s Compliance Program in the context of larger proactive safety policies (such as ASRS) will be to discuss how regulations are guided by safety, ADM skills (“pilot’s discretion”), and pilot professionalism.

We also want to ensure that the entire pilot community, including student pilots, must be aware of the consequences of repeatedly or purposefully breaking the rules and regulations. The WG has some concerns in this area. Evidence suggests, and FAA Air Safety Investigators confirm that enforcement of regulations is almost nonexistent. For example, in Q4 2021, FAA Legal reported closing approximately 35 enforcement actions; the vast majority were for noncompliance with drug testing policies followed by improper record keeping. Our concern is that with a lack of perceived risk from breaking the rules, the general aviation pilot community will move toward riskier behavior over time.

Implementation:

Compliance Program:

- Revise the Pilots Handbook of Aeronautical Knowledge (PHAK) and pilot curriculum materials to include a discussion of the Compliance Program under the larger heading of Aeronautical Decision-Making (ADM), the Aviation Safety and Reporting System (ASRS), and professionalism.
- Disseminate changes to certified flight instructors during their recurrent training and could be included in the Airman Certification Standards’ Aeronautical Knowledge requirement.

- For greater reach, initial outreach by the FAA Safety Team and the FAA Safety Briefing publication could provide specific foundational talking points and promotional materials covering professionalism, Just Culture, ADM, and a proactive safety mindset.

Enforcement:

- AFS 800, AGC 300, Regional Counsels, and FAAST and industry (SAFE, NAFI, AOPA, EAA, etc.) should examine the impact of a lack of enforcement within the general aviation community over the past ten years.
- AFS 800, AGC 300, Regional Counsels, and FAAST and industry (SAFE, NAFI, AOPA, EAA, etc.) should meet monthly or, at a minimum, quarterly to discuss how enforcement of civil aviation regulations via Just Safety Culture can promote a positive safety culture leading to safe and responsible aircraft operations.

Timeline:

Compliance Program: Following GAJSC approval, this recommendation would be put in the queue for scheduling PHAK etc. updates.

Enforcement:

Enforcement analysis: Second half of FY2023

Begin regular enforcement evaluation meetings: FY2024

Relationship to Original LOCWG Request: Output 3

APPENDICES

APPENDIX 1: Members of SE-33 Working Group (alphabetical order)

Chairs:

John Croft (Co-chair SE-33, FAA)

Jeff Edwards, Ph.D. (Co-chair SE-33, President AvSafe LLC; Founder—Lancair Owners and Builders Organization (LOBO))

Members:

Douglas Boyd, Ph.D. (ERAU)

Tom Charpentier (EAA)

Erin DeYoung, Ph.D. (FAA)

Phil Dixon (FAA)

Robert Geske (AOPA)

Rus Howard (Soaring Safety Foundation)

Tom Johnson (Soaring Safety Foundation)

Drew Kendra (Volpe)

Seamus McGovern, Ph.D. (DOT Volpe/Army Aviator)

Bob Meder (former chairman of the National Association of Flight Instructors)

Guy Minor (FAA)

Mark Sletten (LOBO founding board member/ retired Air Force KC-135 boom operator)

Tom Turner (American Bonanza Society)

Scott Winter, Ph.D. (ERAU)

Observers:

Kylie Key, Ph.D. (FAA)

Public Service Announcements (PSAs) campaign for GA Safety Culture Awareness



Federal Aviation
Administration

12/1/2022

Goal

This General Aviation (GA) Public Service Announcement (PSA) campaign aims to introduce/reintroduce the GA pilot community to the safety benefits of developing and continuously practicing a safety culture mindset in all aspects of aviation. The PSA campaign will consist of a series of short videos in plain language featuring prominent pilot icons and/or hosted by a safety or aviation personality. We will “film” each in a cockpit (or in proximity to an aircraft), ideally with a B-roll of the person at the controls during a flight.

We are designing this campaign to reach GA pilots who may be unfamiliar with safety culture concepts or familiar with the concept but, for various reasons, may need to be using it more effectively throughout their operation. Ideally, this strategy will benefit our stakeholders by decreasing GA accident and fatality rates.

Strategy

We will focus on five broad areas in the flight process. Each PSA video is designed to enlighten GA about the benefits of integrating safety culture into that particular phase of their flight activities.

Topic 1: Preparing for a flight at home or work

- Proposed title: **Safety Culture—Don’t Leave Home Without It**
- Proposed Message: Safety culture starts at home. Keeping abreast of developments, rules and regulations, hazards, and threats in flight planning. Using PAVE or other tools before leaving the house.

Topic 2: Preflight

- Proposed title: **Safety Culture and the Preflight—Look Before You Leap**
- Proposed Message: Get your head in the game before you get into the air.

Topic 3: Airborne

- Proposed title: **Safety Culture Enroute—Knowing the Outer Limits**
- Proposed Message: With a safety culture foundation, you have the tools to be mindful of your capabilities, the aircraft’s capabilities, what is legal, and what is sensible.

Topic 4: Arrival, Landing, and Taxiing

- Proposed title: **Safety Culture and the Landing—The Merry Go-Around**
- Proposed Message: Safety Culture helps you develop a mindset that will give you the best chance for predictable and repeatable safe landings and taxi.

Topic 5: Post-Flight

- Proposed title: **Safety Culture and the Post-flight debrief—Tools for Life**
- Proposed Message: Ways to debrief and incorporate lessons learned to make you a better pilot (and live longer). We will highlight Continuous Improvement.

Audiences

- GA Pilots (and all pilots)
- The public
- Congress
- Safety Advocacy Groups: FAA, AOPA, EAA, NBAA, NAFI, etc.
- GA media via social media feeds and potential articles:
 - AOPA
 - EAA
 - Flying Mag
 - AIN
 - Aviation Week
 - Rotor&Wing
 - GAMA, NBAA, etc.
- Aerospace Businesses
- Global
 - IAOPA
 - COPA, etc.
 - CAAs
 - Foreign media

AOC Media Relations and Digital Strategy

Under the direction of SE-33 co-chair, John Croft, the FAA will:

- Provide script writing and video and production support for creating and producing videos per FAA standards
- Post content on the FAA's six digital platforms when the final product is approved per a media campaign schedule (TBD):

 Twitter  Facebook  Instagram  LinkedIn  YouTube  Medium

Under the direction of SE-33 co-chair Jeff Edwards, industry participants will:

- Provide script writing video support for video clips of industry SMEs.
- Post content on the industry digital platforms when the final product is approved per a media campaign schedule (TBD).

Measurements of Success

- Digital metrics
- Social media commentary
- Changes in GA pilot behavior based on pre- and post-questionnaire results
- Accident/Fatal Accident rates