

RUNWAY SAFETY

Call to Action

# Summary Report 2015 (Phase 2)



**Federal Aviation  
Administration**

# Call to Action Summary Report 2015 (Phase 2)

The mitigations and timelines contained in this report will be presented to all Call to Action participants from industry, labor, and government. Each responsible Line of Business (LOB) or Industry Organization has identified a point-of-contact (POC) to develop a corresponding Action and Implementation Plan to include a timeline to completion. This Phase 2 report is presented for approval by the respective LOBs. Approved plans will be published, and the recommendations will be tracked by the Runway Safety Group within Safety and Technical Training (AJI-14).



11/30/15



**James Fee**  
*Runway Safety Program Group Manager (A)*  
*ATO Safety and Technical Training*

**Date**



**RUNWAY SAFETY**  
Call to Action

**SUMMARY REPORT PHASE 2**

# OVERVIEW

The Runway Safety Call to Action (C2A) convened on June 24, 2015, with 108 representatives from industry, labor, and government. The “Call” was summoned by the Federal Aviation Administration (FAA) Administrator, Michael Huerta, and was a follow-up to the 2007 Call to Action Safety Summit. Here, the Summit established a five-point, short-term Call to Action Plan that was completed, while the mid- and long-term Call to Action Plans involving technology improvements are either complete or are now in their final stages of deployment.

The campaign, which steadily achieved its goal of reducing every type of runway incursion, focused on pilot training, technology, airport signage, and communications to meet its outlined objectives.

Since this time, Category A and B runway incursions, events that represent the highest risk of a collision, have dropped by 44 percent since the last C2A. Seven years have passed since the last runway collision at a major airport and nine years since the last fatal runway collision. Despite this long-standing trend, A and B events have recently begun to increase.

In the months following the 2015 C2A meeting, points-of-contact were identified and assigned a corrective action recommendation by their line of business. The points of contact developed a corresponding implementation plan for each of the corrective actions. In some cases, corrective actions were combined where there was significant overlap of purpose.





**RUNWAY SAFETY**  
Call to Action

## SUMMARY REPORT PHASE 2

# STRATEGY

The 2015 C2A attendees were organized into three breakout sessions and charged to devise short-, mid-, and long-term corrective action recommendations.

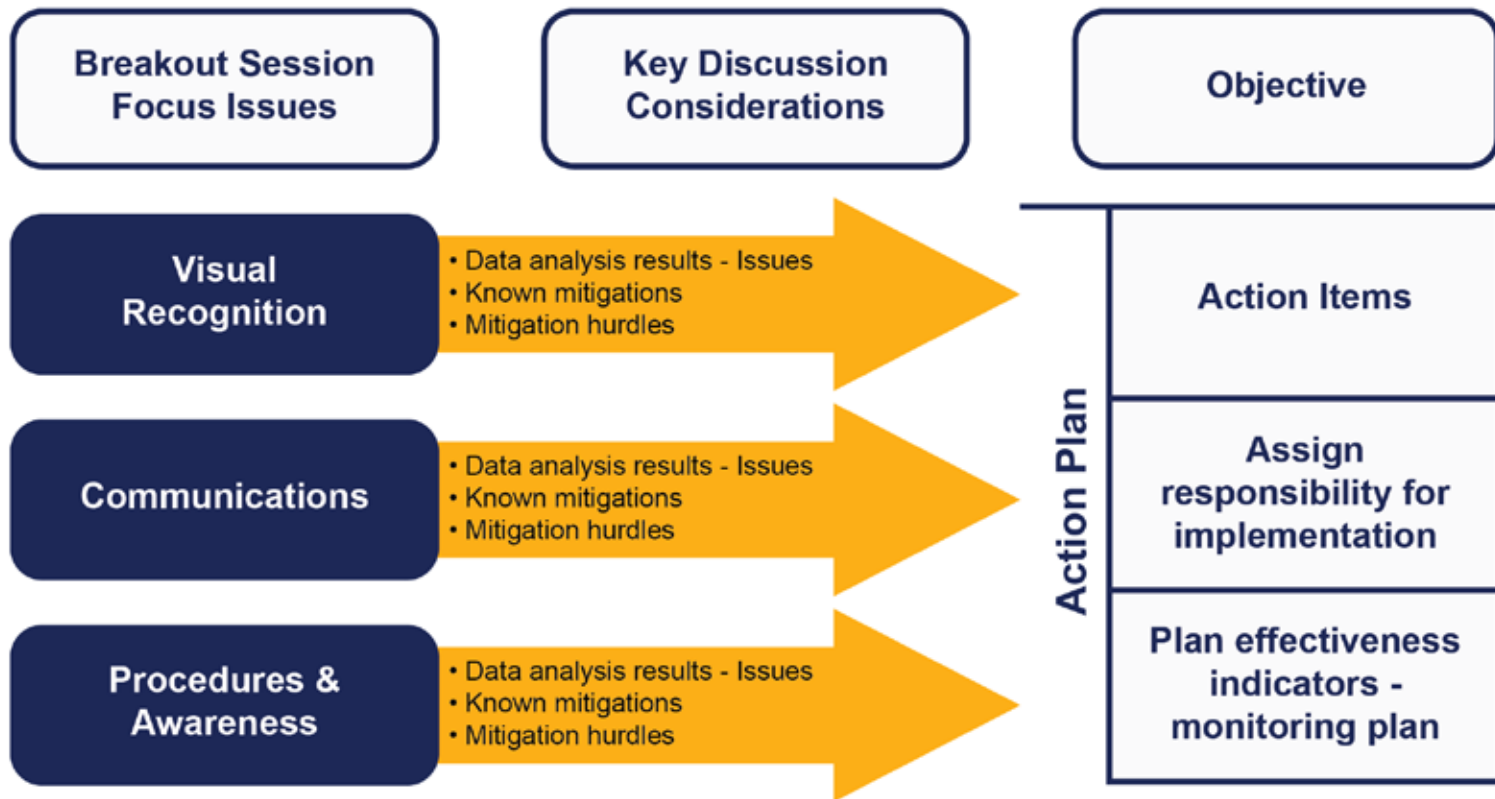
Each team (Visual, Communication, and Procedures & Awareness) followed the same basic premise: to review all relevant runway safety data available and reach a group consensus on the best corrective actions.

The MITRE Corporation analyzed 1,782 records from the FAA Runway Safety Database. In addition to characteristics identified in Mandatory Occurrence Reports (MORs), investigator remarks from Flight Standards Service and Airports often provide insights into the cause of an incident or the sequence of events that led to the incursion. Further, all participants were asked to review the issues identified in the data analysis and be prepared to discuss and develop:

- Known mitigations, best practices, and new innovations
- Recommended corrective actions
- Mitigations and any hurdles to implementation
- Responsible points-of-contact (POCs)
- A monitoring plan that can quantify the effectiveness of each action

Implementation plans have been developed and actions will be taken to initiate actions to reduce the number and severity of surface events.

Figure 1. Call to Action Workflow





**RUNWAYSAFETY**  
.....Call to Action.....

**SUMMARY REPORT PHASE 2**

# THE PATH TO ACTION

**TEAM LEADER: MICHAEL O'DONNELL**  
DIRECTOR OF AIRPORTS SAFETY AND STANDARDS

## Visual

**TEAM LEADER: JOHN BARBAGALLO**  
DEPUTY DIRECTOR FLIGHT STANDARDS

## Communication

**TEAM LEADER: JONATHAN GRAY**  
DIRECTOR FOR SAFETY (A)

## Procedures & Awareness



# Visual

**Michael O'Donnell** | Director of Airports Safety and Standards

The Visual Markings breakout team focused on one problem that continues to exist within the general aviation (GA) community: pilots who ignore or miss runway signage and markings. Data analysis indicated that pilots with 1,500 hours of flight time or more are primarily involved in these runway incursions. Most of these incidents involved inadequate or missing signage, recent airfield modifications or construction, and confusing geometry.

In nearly every incident, pilots reported having received training in lighting and signage. Non-home-base airport events account for many of the identified incursions. And in nearly 90 percent of incidents, the crew was not using a moving map with own-ship position at the time of the incident. In 25 percent of cases, pilots reported they did not review the airfield diagram prior to taxi.

The group's recommendations centered on education, technology, and human factors research. Participants in the session suggested the FAA and the Aircraft Owners and Pilots Association (AOPA) work together to educate AOPA's members about situational awareness and share information and lessons learned with the GA community in the same way that the FAA and commercial airlines share information through the InfoShare program. Biennial pilot training on runway markings and signage should continue to be emphasized, as well as remedial training to strengthen plot skills.



# Visual Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>1. CONDUCT STUDIES, FATIGUE – CONTROLLERS/PILOTS</b></p> <p><b>MITIGATION</b> Conduct Human Factors studies (also refer to previous studies and research) to include location of signs, line of sight, familiarity with airport environment, and possible distractions.</p> <p>Using data from previous and newly conducted research, the ATO Runway Safety Group, and ATSAP/ASAP, determine the extent to which human factors and fatigue represent hazards that were contributory or causal to runway safety events, and recommend corrective actions as appropriate to reduce, control and/or mitigate associated elevated safety risk.</p> <p>Conduct an assessment for factors associated with fatigue and Human Factors and its relationship to runway incursions. Recommend corrective actions, as necessary.</p> <p><b>INTENDED OUTCOMES</b> Corrective action recommendations developed and forwarded to appropriate parties (ATO, Airports, Industry) intended to reduce, control and/or mitigate elevated safety risk associated with human factors and fatigue hazards identified as contributory or causal in runway safety events.</p>	<p><b>DELIVERY DATE</b> 9/28/2018</p> <p><b>POINT OF CONTACT</b> <b>Jason Demagalski</b> ATO AJI-155 Human Performance Program, Manager</p>



# Visual Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>2. PERIODIC/BI-ANNUAL MANDATED GA PILOT TRAINING ON SIGNS AND MARKINGS/AND SURFACE SITUATIONAL AWARENESS.</b> Establish remedial training for pilots who had a runway safety event.</p> <p><b>MITIGATION</b> Explore amending the 14 Code of Federal Regulations (CFR) Section 61.56 Flight Review to include a training matrix to address Runway Safety elements as 14 CFR Section 61.57, and 61.58 include a training matrix relative to Instrument Proficiency, and Pilot-In-Command Proficiency respectfully.</p> <p>Proceed to develop an awareness campaign directed at CFIs to advise CFIs to use AC-61-98, Currency Requirements and Guidance for the Flight Review and Instrument Proficiency Check, review current edition of “Conducting an Effective Flight Review” for a runway safety element and include link in Appendix 10 to the Runway Safety, and review FAA order 8900.1 to include CFI look back program, previously included in the National Work Program Order 1800.56H, Appendix A Certificated Flight Instructors, in the assessment of occurrences reported to Flight Standards to review if the CFI of the individual involved in the occurrence utilized the recommended documents to conduct an effective 14 CFR required check.</p> <p>Remedial training for Runway Incursions implemented October 2015.</p> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>1. Explore the feasibility of amending 14 CFR Section 61.56 Flight Review to include a training matrix to address runway safety elements.</li> <li>2. Develop an awareness campaign directed at CFIs to use appropriate guidance and practices in conducting an effective flight review.</li> <li>3. Remedial training for Runway Incursions implemented October 2015. <b>COMPLETE</b></li> </ol>	<p><b>DELIVERY DATE</b> 9/30/2017</p> <p><b>POINTS OF CONTACT</b> <b>Joe Foresto</b> Flight Standards, AFS Operations Safety Inspector</p> <p><b>Freddie James</b> Airports Division, Airport Certification Safety Inspector</p> <p><b>Ronald Rifenberg</b> Flight Standards, AFS Operations Safety Inspector</p>

# Visual Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>3. TAXI CONFORMANCE MONITORING</b> Convey audible taxi instructions/alerts electronically using available technology such as GPS in cockpit.</p> <p><b>INTENDED OUTCOMES</b> Conduct research to refine concept and develop tools for tower-based and cockpit-based taxi conformance monitoring using near-term and farther-term technologies.</p> <ol style="list-style-type: none"> <li>1. Conduct a shortfall analysis to identify Runway Incursions that may be prevented by various taxi conformance monitoring concepts at controlled airports. <b>DELIVERY DATE</b> 9/30/2017</li> <li>2. Research state-of-the-art in taxi conformance monitoring technology used around the world. Estimate the expected impact of near-term and far-term taxi conformance monitoring capabilities on Runway Incursions at controlled airports across Commercial and General Aviation operations. <b>DELIVERY DATE</b> 9/30/2017</li> <li>3. Research and refine existing near and far-term capabilities needed to digitize taxi route instructions. Examples include speech recognition, “point and click” route entry, D-taxi, etc. <b>DELIVERY DATE</b> 9/30/2019</li> <li>4. Develop airport surface database requirements to support taxi conformance monitoring, determine if data meeting the requirements exists, and if the data does not exist, identify ways in which it could be generated or compiled. <b>DELIVERY DATE</b> 9/30/2019</li> <li>5. Research and develop algorithms and human interfaces for taxi conformance monitoring and alerting of controllers and/or pilots when deviations occur. <b>DELIVERY DATE</b> 9/30/2019</li> <li>6. Develop and demonstrate a prototype cockpit-based taxi conformance monitoring system to reduce Runway Incursions at controlled airports. <b>DELIVERY DATE</b> 9/30/2019</li> <li>7. Develop and demonstrate a prototype tower-based taxi conformance monitoring system to reduce Runway Incursions at controlled airports. <b>DELIVERY DATE</b> 9/30/2019</li> </ol>	<p><b>DELIVERY DATE</b> Refer to the numbered intended outcomes for delivery dates.</p> <p><b>POINT OF CONTACT</b> <b>Andras Kovacs</b> Technology Development and Prototyping, Surveillance Branch (ANG-C52), Manager</p>

# Visual Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>4. OUTREACH AND EDUCATION</b></p> <p>Using surface event data available to the FAA’s Runway Safety Group collaboratively develop and share focused outreach material through various government and industry channels. Historically, 60% of runway incursions involve a pilot deviation; therefore, the outreach material will primarily focus on the pilot community.</p> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>1. Use a joint government and industry body to analyze surface event data as to gain insight into potential focus topics to generate outreach material. <b>DELIVERY DATE</b> 3/30/2016</li> <li>2. Collaboratively develop timely outreach material using the focus topics from Mitigation 1. An emphasis should be made to incorporate the Aircraft Owners and Pilots Association (AOPA) online Runway Safety Course into the material. <b>DELIVERY DATE</b> 5/30/2016</li> <li>3. Incorporate the material from Mitigation 2 into the AOPA communication/outreach plan by promoting and distributing material via their member base. Such methods may include: AOPA ePilot newsletter and Flight Training Edition, AOPA Pilot Magazine, direct e-mail marketing, Facebook or YouTube, AOPA’s Air Safety Institute’s (ASI) Flight Instructor Refresher Course, and ASI’s Safety To Go. <b>DELIVERY DATE</b> 6/30/2017</li> <li>4. Incorporate the material from Mitigation 2 into various National Association of State Aviation Officials (NASAO) partnership activities such as state aviation conferences and/or pilot forums. <b>DELIVERY DATE</b> 6/30/2017</li> <li>5. Incorporate the material from Mitigation 2 into the FAA Safety Team (FAAST) outreach and education plan by promoting and distributing material via various business plan initiatives. The initiatives are targeted towards the general aviation pilot community, Certified Flight Instructors, Designated Pilot Examiners, and Training Center Evaluators. Such methods may include: FAAST BLASTs, FAA Safety Briefing Magazine, FAASafety.gov website, targeted actions at airports needing heightened awareness, and direct email to advocacy groups / airports / flight schools. <b>DELIVERY DATE</b> 6/30/2017</li> <li>6. Sustainment – At a minimum of once per year, the Runway Safety Council (RSC) will analyze surface event data to provide specific focus topics for outreach. The RSC, along with the representative government and industry organizations, will determine the available means to develop the specific material. The delivery means should, at a minimum, follow the means dictated within Mitigations 2 through 5 above. <b>DELIVERY DATE</b> Continuous</li> </ol>	<p><b>DELIVERY DATE</b> Refer to the numbered intended outcomes for delivery dates.</p> <p><b>POINTS OF CONTACT</b> <b>Chad Brewer</b> ATO AJI-141 Runway Safety, Safety Analyst</p> <p><b>Paul Deres</b> AOPA, Director of Education</p>

# Visual Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>5. FURTHER RESEARCH/DATA ANALYSIS AND POST EVENT COMMUNICATIONS BETWEEN FAA AND INDUSTRY</b> Provide a recurring forum to collaboratively share lessons learned information for the general aviation community.</p> <p><b>INTENDED OUTCOMES</b> Brief the Safety Analysis Team (SAT) of the General Aviation Joint Steering Committee (GA JSC) each quarter on runway safety lessons learned from events or from any research or data analysis supplied by the Runway Safety Office. The SAT is composed of representatives from the various industry associations and government, including: AOPA, EAA, GAMA, specific manufacturers, the instructor community, type clubs, NTSB, NASA and the various lines of business within the FAA. This team meets at a minimum every quarter (depending on workload). This would be the most direct path to get the lessons learned out to industry and the organizations within the FAA who communicate directly with pilots, operators, instructors, type clubs and manufacturers.</p>	<p><b>DELIVERY DATE</b> This action will be continuous under the Runway Safety Council.</p> <p><b>POINT OF CONTACT</b> <b>Corey Stephens</b> AVS Aviation Safety Organization, Operations Research Analyst</p>
<p><b>6. INCREASE EXPANSION AND UTILIZATION</b> Determine where expansion would be most beneficial. Explore existing/alternative technology.</p> <ul style="list-style-type: none"> <li>Deploy a “right site, right size” approach for candidate airports and selected technologies to decrease Runway Incursions.</li> </ul> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>Engage stakeholders and visual panel workgroup in FY15 “right site, right size” technology evaluation conducted by the Runway Incursion Reduction Program (RIRP). <b>DELIVERY DATE</b> 9/30/2017</li> <li>Survey candidate airports for “right site, right size” approach and develop initial cost estimate for candidate technology. <b>DELIVERY DATE</b> 9/30/2017</li> <li>Conduct additional data driven analysis on Runway Incursion trends, locations, and contributing factors. <b>DELIVERY DATE</b> 9/30/2018</li> <li>Continue evaluation of runway safety technologies as they are identified. <b>DELIVERY DATE</b> 9/30/2018</li> <li>Deploy selected technology at candidate airport to mitigate Runway Incursions. <b>DELIVERY DATE</b> 9/30/2018</li> </ol>	<p><b>DELIVERY DATE</b> Refer to the numbered intended outcomes for delivery dates.</p> <p><b>POINT OF CONTACT</b> <b>Andras Kovacs</b> Technology Development and Prototyping, Surveillance Branch (ANG-C52), Manage</p>



# Visual Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>7. CONTINUE RESEARCH AND EXPLORE TECHNOLOGY</b> Safely incorporate LED technology into the National Airspace System.</p> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>1. Conduct Flight tests to ensure safe deployment of currently installed LEDs in NAS.</li> <li>2. Continue with flight test plan to test future LED deployment of airport lighting systems (i.e. MALSR, HIRLs) when funding is available.</li> </ol>	<p><b>DELIVERY DATE</b> 9/30/2016</p> <p><b>POINT OF CONTACT</b> <b>Coby Johnson</b> AFS-410 Operations Branch, Manager</p>
<p><b>8. EXPAND NOTAM</b> Expand airfield construction graphic NOTAMS.</p> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>1. Define ownership and technological potential for automation. <b>DELIVERY DATE</b> 12/31/2015</li> <li>2. Develop technological platform for automation of diagrams. <b>DELIVERY DATE</b> 9/30/2016</li> <li>3. Implement Core Airport automation. <b>DELIVERY DATE</b> 12/31/2016</li> <li>4. Expand to construction graphics to focus airports. <b>DELIVERY DATE</b> 3/31/2017</li> <li>5. Implement construction graphics for all towered airports. <b>DELIVERY DATE</b> 9/30/2017</li> </ol>	<p><b>DELIVERY DATE</b> Refer to the numbered intended outcomes for delivery dates.</p> <p><b>POINT OF CONTACT</b> <b>David Siewert</b> JFKT &amp; Construction Council Advisory Chairperson</p>





# Communication

**John Barbagallo** | Deputy Director Flight Standards

The Communication group focused its attention on three issues:

- The familiarity of pilots and vehicle drivers with their given airports
- The relationships between pilots and controllers
- Deficiencies in airport communications

MITRE research showed that communications issues were predominant in 149 records, and the factors associated with communications-related incidents were not isolated to any one causal area. Pilots continue to mistake the intended recipient of some communications and to commit read-back errors. These incidents are not limited to inexperienced pilots; a large percentage of the records can be attributed to pilots with more than 1,500 hours. Further, the events are not prevalent in specific airports or airport types. In nearly every case where the pilot provided a response, the pilot did not ask for clarification. In 28 percent of cases, pilots reported a congested radio frequency. And in 10 percent of cases, pilots admitted that they did not “clearly understand the taxi instruction.”

More than 500 events from the MITRE study were associated with Airport Surface Detection Equipment – Model X, or ASDE-X, installations. For those incidents, there were fewer cases where communications was cited as a contributing factor, suggesting that ASDE-X may have played a role in reducing communications errors, which, in turn, reduces the overall rate of incursions.

To increase airport familiarity, the communications breakout group proposed that the FAA and the aviation industry develop ways for pilots and vehicle drivers to alert air traffic control if they are new to an airport or still learning its surface layout. Also recommended was the formation of a working group to identify best practices in communications. The working group would then develop training, and finally, review current orders, the Aeronautical Information Manual (AIM), and other relevant materials to suggest appropriate changes and updates.

# Communication Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>1. DEVELOP GUIDANCE AND AWARENESS FOR THE PILOT OR VEHICLE DRIVER WHEN UNFAMILIAR WITH AIRPORT, AND INCORPORATE RESULTING GUIDANCE INTO AIM, TRAINING COURSES, ETC. (AIRPORTS AFS-800 AND AFS-200)</b></p> <p><b>INTENDED OUTCOMES</b>            Per Airports Division, the alert technology for vehicle driver’s mitigation is being deployed, and addressed by the Procedures group. ADS-B squitter is the system that the ASDE-X system works on to provide an alert to vehicle of aircraft traffic and position on the airport. Also, per AC 5210-20A published September 2015, a vehicle driver unfamiliar with an airport is required to be trained by the Airport before driving in the movement area, and the AC states that any driver not trained if they are to drive on the airport must be accompanied by a trained driver.</p> <p>Alert system for Pilots. Coordinate with AFS-200 to re-emphasize the content of AC 120-74, Parts 91, 121, 125, and 135 Flight crew Procedures During Taxi Operations, and AC 91-74, Parts 91 and 135 Single Pilot, Flight School Procedures During Taxi Operations.</p> <p>Incorporate any resultant updates into appropriate FAA guidance, and training materials. Projected to take place beyond 2018.</p>	<p><b>DELIVERY DATE</b> 9/30/2018</p> <p><b>POINTS OF CONTACT</b>  <b>Joe Foresto</b>            Flight Standards, AFS Operations Safety Inspector</p> <p><b>Freddie James</b>            Airports Division, Airport Certification Safety Inspector</p> <p><b>Ronald Rifenberg</b>            Flight Standards, AFS Operations Safety Inspector</p>
<p><b>2. ENHANCE OPERATOR AND CONTROLLER RELATIONSHIPS</b></p> <p>Efforts will begin to schedule “familiarization” between operators/controllers at Core 30 airports and regional and towered airports. The efforts to reach all part 139 airports will be on-going and time-consuming but we will engage these airports on two fronts; 1: Industry action to reach out to core 30 airports and 2: Air Traffic managers will institute similar activities by way of their Local RSAT meetings. The Runway Safety Council (RSC) will include communication issues as part of their quarterly meeting agenda to monitor the efforts on the regional/national level.</p> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>Schedule “familiarization” meetings between operators/controllers at Core 30 airports.</li> <li>Expand operator/controller familiarization meetings to regional and local towered airport.</li> <li>Create a national working group to meet annually and act as public/private advocate for the effort.</li> </ol>	<p><b>DELIVERY DATE</b> 11/01/2016</p> <p><b>POINTS OF CONTACT</b>  <b>Steve Jangelis</b>            ALPA International, Airport and Ground Environment Chairman</p> <p><b>Chris Stephenson</b>            NATCA Headquarters, National Representative</p>



# Communication Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>3. ESTABLISH A WORKING GROUP AND DEVELOP TRAINING/CHANGES IN AIRPORT COMMUNICATIONS</b>            Conduct an internal working group of cross organizational (ATO, AVS, ARP) as well as any external stakeholder (Airport Authorities/Owners, Pilots, Fixed Base Operators, etc.) at least annually, and poll of best practices as they relate to Airport Surface/Movement Areas. Best practices will be formalized in cooperation with the Runway Safety Council (RSC) with the assistance of the Runway Safety Group. Develop training and familiarization as necessary to ensure Pilot/Vehicle/Air Traffic Control participants are fully informed about communication related issues in Runway Safety. Once a best practice is ready to be accepted as a formalized process or training item, existing measures will be used to implement and regulate the same. The Runway Safety Group can act as facilitator for those changes.</p> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>1. Establish a Runway Safety Communications Working Group to review “best practices” and make recommendations for formalizing where appropriate.  <b>DELIVERY DATE</b> 11/01/2016</li> <li>2. Develop training and familiarization as necessary.  <b>DELIVERY DATE</b> 11/01/2016</li> <li>3. Amend orders, AIM, CFR, etc., as necessary to formalize changes.  <b>DELIVERY DATE</b> 11/01/2016</li> </ol>	<p><b>DELIVERY DATE</b>            Refer to the numbered intended outcomes for delivery dates.</p> <p><b>POINTS OF CONTACT</b>  <b>Maurice Hoffman</b>            Air Traffic Procedures, Deputy Director</p> <p><b>Chris Stephenson</b>            NATCA Headquarters, National Representative</p>





# Procedures & Awareness

**Jonathan Gray** | Director for Safety (A)

In the Procedures & Awareness breakout session, participants considered safety risks caused by pilot distraction, memory failure, expectation bias, multitasking, and inattention during clearance delivery.

More than 260 events reviewed by MITRE indicated that procedures and awareness factors played a role. A review of investigation narratives confirms that, in a significant number of cases, pilots get lost on the airport surface or are taking wrong turns due to distractions or inattentiveness. Here again, a large number of cases are associated with experienced pilots, including Part 121 operations.

Within the subset of incidents involving aircraft taxiing out for departure, the effects of inattention to procedure and distraction appear to be even greater, as indicated by the larger percentage of narratives categorized for awareness or flagged for pilot distraction. This could be the result of the limited time available to complete tasks during short taxi routes. In cases where information is provided during the ground movement phase, incident rates are three times as likely to occur during taxi out. In 40 percent of cases, pilots reported a distraction in the cockpit at the time of incident.

Experienced pilots again are equally susceptible: 55 percent of incidents involved pilots with more than 1,500 hours. Pilots reported they did not review the airfield diagram prior to taxi 25 percent of the time. Another 25 percent of the time, pilots reported feeling rushed. Additionally, lack of sleep played a role, with hours since awakening showing to be less than five in 30 percent of the cases that were analyzed. Additionally, the group suggested that an expansion in the use of technology for speech recognition should also be considered.

# Procedures and Awareness Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>1. IMPLEMENT CROPD VOICE RECOGNITION VERSION (SPEECH ONLY WITHOUT CONTEXT)</b></p> <ul style="list-style-type: none"> <li>• Reduce takeoffs and landings on closed runways.</li> <li>• Implement one CROPD per service area.</li> <li>• Track each instance of CROPD alerts.</li> </ul> <p><b>INTENDED OUTCOMES</b> Prepare Operational Test Plan and Master schedule to finish the Operational Test Demonstration site 1 and execute Operational Test Demonstration at site 2 &amp; 3.</p>	<p><b>DELIVERY DATE</b> 9/30/2017 (Date dependent on obtaining additional funding.)</p> <p><b>POINT OF CONTACT</b> <b>Valerie Outlaw</b> Air Traffic Systems Directorate, Senior Systems Engineer</p>
<p><b>2. CONTINUE TO DEVELOP THE CROPD TECHNOLOGY BY IMPLEMENTING ADDITIONAL REQUIREMENTS</b></p> <p><b>INTENDED OUTCOMES</b> Implement CROPD voice recognition version and continue to develop the CROPD technology by implementing additional requirements.</p>	<p><b>DELIVERY DATE</b> 9/30/2018 (Date dependent on obtaining additional funding.)</p> <p><b>POINT OF CONTACT</b> <b>Valerie Outlaw</b> Air Traffic Systems Directorate, Senior Systems Engineer</p>
<p><b>3. EVALUATE NAS-WIDE IMPLEMENTATION OF ADVANCED ELECTRONIC FLIGHT STRIPS (AEFS)</b></p> <ul style="list-style-type: none"> <li>• Terminal Flight Data Manager (TFDM) Program Office has identified the proposed locations to receive AEFS as a component of TFDM.</li> <li>• AEFS was installed in Cleveland Air Traffic Control Tower in September 2015.</li> </ul> <p><b>INTENDED OUTCOMES</b> AJT-2 will review runway incursion data for CLE quarterly for FY2016 and FY2017. The review will focus on the cause, frequency and severity of runway incursions and whether AEFS impacted those events. <b>DELIVERY DATE</b> 9/30/2017</p>	<p><b>DELIVERY DATE</b> 9/30/2017</p> <p><b>POINT OF CONTACT</b> <b>Ron Singletary</b> ATO, Technical Advisory Group, Manager</p>

# Procedures and Awareness Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>4. AURAL AWARENESS FOR GA AND GROUND VEHICLE OPERATORS (AIRPORTS DIVISION AND AFS-800)</b></p> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>1. Airports deploying a vehicle alerting system. Reference the Communication item 1.</li> <li>2. GA ground/taxi alerting technology. Most of the GPS systems utilized by General Aviation have “Safe Taxi” installed in their system. Re-emphasis to GA the importance of situational awareness when taxiing for takeoff or taxiing to parking and the situational asset these systems bring to a pilot. Also, increase awareness of GA pilots to state to ATC that they are “unfamiliar” with the airport and to request “progressive” taxi instructions.</li> </ol>	<p><b>DELIVERY DATE</b> 9/30/2016</p> <p><b>POINTS OF CONTACT</b> <b>Joe Foresto</b> Flight Standards, AFS Operations Safety Inspector</p> <p><b>Freddie James</b> Airports Division, Airport Certification Safety Inspector</p> <p><b>Ronald Rifenberg</b> Flight Standards, AFS Operations Safety Inspector</p>
<p><b>5. PROCEDURES TO ADDRESS AIRPORT GEOMETRY ISSUES</b></p> <p>Improve construction planning and geometry</p> <ul style="list-style-type: none"> <li>• Develop procedures to avoid direct access/entrances to runways (violates existing airport design criteria), RIM and other RSAT recommendations.</li> <li>• ACAC – Identify other procedural gaps, geometry problems and general issues, i.e. construction monitoring and coordination with local ATC.</li> <li>• Improving runway construction NOTAMS and the corresponding data to address current process shortfalls.</li> </ul> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>1. The Office of Airport Engineers AAS-100 implemented the design standards in AC 150/5300-13A to prevent direct access to a runway from an apron or ramp area. This guidance can be utilized to ensure airport designers and builders use the same concept to reduce the number of direct access/entrances to runways. <b>COMPLETE</b></li> <li>2. Current NOTAM guidance details the procedures available to retrieve construction NOTAMs which present the available airports in a digital map presentation. The presentation shows the location of the outage on an airfield diagram. This product is available, however, not all airports are in the database. The goal is to have all airports imported into the system.</li> </ol> <p>NOTE: NOTAM item is included in Visual 8, Expand NOTAMs.</p>	<p><b>DELIVERY DATE</b> 9/30/2017</p> <p><b>POINTS OF CONTACT</b> <b>Freddie James</b> Airports Division, Airport Certification Safety Inspector</p> <p><b>Ragaey Mansour</b> ATO, Supervisor, Aviation Technical System</p>

# Procedures and Awareness Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>6. FREQUENCY PROCEDURES</b> Review common protocols for dual frequency concerning military aircraft.</p> <p><b>INTENDED OUTCOMES</b> Validate there is a hazard that needs to be corrected. If there is a hazard discovered then AJV-8 make the necessary changes to FAA Orders through current processes.</p>	<p><b>DELIVERY DATE</b> 7/31/2016</p> <p><b>POINT OF CONTACT</b> <b>Lawrence Beck</b> AJV-82, Terminal Procedures, Manager</p>
<p><b>7. ATC MEMORY AIDS</b> Establish a requirement to review memory aid efficacy on an annual basis.</p> <ul style="list-style-type: none"> <li>A Work Group was formed to address Surface Memory Aids from the Top 5 from 2015. One of the outcomes was to visit memory aids annually to see if they are been effective. Six tower operations have been made mandatory for the use of memory aids. The effective date of the change is May 26, 2016.</li> </ul> <p><b>INTENDED OUTCOMES</b> A work group was formed to address Surface Memory Aids from the Top 5 from 2015. One of the outcomes was to visit memory aids annually to see if they have been effective. Six tower operations have been made mandatory for the use of memory aids. The effective date of the change is May 26, 2016.</p>	<p><b>DELIVERY DATE</b> 7/2/2018</p> <p><b>POINTS OF CONTACT</b> <b>Ross Knoll</b> AJI-151 Safety Services</p> <p><b>Ric Loewen</b> NATCA, National Runway Safety Representative</p>
<p><b>8. PILOT MEMORY AIDS. EVALUATE MEMORY AIDS FOR PILOTS. MANDATE AT LEAST ONE OR TWO PILOTS TO BE “HEADS UP” DURING TAXI TRAIN/PRACTICE FOR “RECOVERY UNUSUAL SITUATIONS.”</b></p> <p><b>INTENDED OUTCOMES</b> Re-emphasize AC-120-74 and AC-91-74, which contains specific information regarding pilots maintaining situational awareness.</p>	<p><b>DELIVERY DATE</b> 9/30/2016</p> <p><b>POINTS OF CONTACT</b> <b>Joe Foresto</b> Flight Standards, AFS Operations Safety Inspector</p> <p><b>Ronald Rifenberg</b> Flight Standards, AFS Operations Safety Inspector</p>



# Procedures and Awareness Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>9. WORKGROUP TO EVALUATE TAXI INSTRUCTIONS</b>            This item will include:</p> <ul style="list-style-type: none"> <li>• Evaluate current taxi instructions.</li> <li>• The lack of progressive taxi instructions.</li> <li>• The use of the phrase “Via” instead of “Turn Left/Right.”</li> <li>• Long and complex taxi instructions.</li> <li>• Heightened awareness around hot spots.</li> <li>• Evaluate when/where “Hold Short” instructions should be issued in the taxi instructions.</li> </ul> <p><b>INTENDED OUTCOMES</b>            Determine if changes to the current procedures are necessary. AJV-8 will process those changes through current processes if it is determined that changes are needed.</p>	<p><b>DELIVERY DATE</b> 9/30/2016</p> <p><b>POINT OF CONTACT</b>  <b>Lawrence Beck</b>            AJV-82, Terminal Procedures, Manager</p>
<p><b>10. HOLD SHORT TAXI INSTRUCTIONS</b>            Evaluate use of NextGen Technologies e.g. Data Communications (DATACOM), Electronic Flight Strips.</p> <ol style="list-style-type: none"> <li>1. Evaluate the use of Data Comm to issue taxi instruction including hold short instructions. The concept of operations for Data Comm includes the D-Taxi function. D-Taxi instructions will be typed by the controller and transmitted to the pilots. The pilots will acknowledge the instructions using a keyboard entry. The implementation of D-Taxi is included in the NAS Segment Implementation Plan (NISP).</li> <li>2. Taxi Conformance Monitoring for Controllers. D-Taxi instructions are interfaced with ground surveillance technology. Controllers are alerted if an aircraft does not follow their assigned route when taxiing. Taxi Conformance Monitoring is included in the NAS Segment Implementation Plan.</li> <li>3. The use of NextGen technology to issue taxi clearances instructions including hold short is expected between 2023 – 2027.</li> </ol>	<p><b>DELIVERY DATE</b> 2023 – 2027</p> <p><b>POINT OF CONTACT</b>  <b>Ron Singletary</b>            AJT-22, Technical Advisory Group, Manager</p>

# Procedures and Awareness Recommendations

IMPLEMENTATION PLANS, MITIGATIONS, AND INTENDED OUTCOMES	DELIVERY DATE AND POINT/S OF CONTACT
<p><b>11. TOWER/MAINTENANCE COMMUNICATION</b>            Evaluate current standards and improve where needed.</p> <ul style="list-style-type: none"> <li>On September 1, 2015 the release of AC 150/5210-20A, Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airport, reminds drivers of the requirement for communication between Tower and vehicle drivers, which are mandatory in the movement areas. It also provides guidance on developing procedures to effectively operate in the Runway Safety Area during emergency conditions.</li> </ul> <p><b>INTENDED OUTCOMES</b></p> <ol style="list-style-type: none"> <li>Require Towered facilities at non-Part 139 airports receiving FAA funding to enter into a Letter of Agreement with their airport operator. Safety Risk Management Document (SRMD) complete and Advisory Circular update is in the process for vehicle operation in the RSA.</li> </ol>	<p><b>DELIVERY DATE</b> 9/30/2016</p> <p><b>POINTS OF CONTACT</b>  <b>Freddie James</b>            Airports Division, Airport Certification Safety Inspector</p> <p><b>Ragaey Mansour</b>            ATO, Supervisor, Aviation Technical System</p>



**RUNWAYSAFETY**  
.....Call to Action.....

**SUMMARY REPORT PHASE 2**

**NEXT  
STEPS**

With more than 53.8 million arrivals and departures annually, the National Airspace System (NAS) is the busiest air traffic environment in the world. The day-long focus on runway safety in June 2015 is part of a continuum of steps to demonstrate the FAA's commitment to its objective of reducing conditions that give rise to surface events.

The recommendations gathered from the June 2015 meeting were provided to all Call to Action participants from industry, labor, and government. Lines of business (LOB) assigned points of contact who analyzed the recommendations and developed implementation plans to include mitigations and a timeline. The Runway Safety Group will track the progress of the plans through completion in the Runway Safety Tracking System. The Runway Safety Group will coordinate quarterly updates with all POCs.

As recommendations from the Runway Safety Call to Action Plan are implemented, the goals of formulating a collaborative action plan and roadmap to develop runway safety solutions will be achieved. With the advent and maturation of NextGen, the NAS continues to become more complex. New technologies mean that the risk of new hazards is inevitable. We must continue to actively prepare for these challenges. Only with continuous improvement and faithful monitoring activities can we expect to provide the global leadership for which the FAA is known.

# Acronyms

## A

<b>AAAE</b>	American Association of Airport Executives
<b>ACAC</b>	Airport Construction Advisory Council
<b>ACI</b>	Airports Council International
<b>ADS-B</b>	Automatic Dependent Surveillance Broadcast
<b>AEFS</b>	Advanced Electronic Flight Strips
<b>AFS</b>	Flight Standards Service
<b>AFS-800</b>	General Aviation and Commercial Division
<b>AIM</b>	Aeronautical Information Manual
<b>AJI</b>	Safety and Technical Training
<b>AJM</b>	Office of Program Management
<b>AJT</b>	Air Traffic Services
<b>AJW</b>	Technical Operations
<b>AJV</b>	Mission Support Services
<b>ALPA</b>	Air Line Pilots Association
<b>ANG</b>	NextGen
<b>AOA</b>	Airport Operations Area
<b>AOPA</b>	Aircraft Owners and Pilots Association
<b>ASDE-X</b>	Airport Surface Detection Equipment – Model X
<b>ARP</b>	Office of Airports
<b>ATC</b>	Air Traffic Control
<b>ATO</b>	Air Traffic Organization
<b>AVP</b>	Office of Accident Investigation and Prevention
<b>AVS</b>	Aviation Safety

## C

<b>CFR</b>	Code of Federal Regulations
<b>CROPD</b>	Closed Runway Operation Prevention Device
<b>C2A</b>	Runway Safety Call to Action

## D

<b>DOD</b>	Department of Defense
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## F

<b>FAA</b>	Federal Aviation Administration
<b>FAM</b>	Familiarization
<b>FAAST</b>	FAA Safety Team
<b>FBO</b>	Fixed Base Operators

## G

<b>GA</b>	General Aviation
<b>GAJSC</b>	General Aviation Joint Steering Committee
<b>GPS</b>	Global Positioning System

## L

<b>LED</b>	Light-Emitting Diode
<b>LOB</b>	Line of Business

## M

<b>MOR</b>	Mandatory Occurrence Report
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## N

<b>NAS</b>	National Airspace System
<b>NATCA</b>	National Air Traffic Controllers Association
<b>NextGen</b>	Next Generation Air Transportation System
<b>NOTAM</b>	Notices to Airmen

## P

<b>PASS</b>	Professional Aviation Safety Specialists
<b>PFS</b>	Partnership for Safety
<b>PMO</b>	Program Management Organization
<b>POC</b>	Point-of-Contact

## R

<b>RIM</b>	Runway Incursion Mitigation
<b>RIWS</b>	Runway Incursion Warning System
<b>RSA</b>	Runway Safety Area
<b>RSAT</b>	Runway Safety Action Teams

## S

<b>SRMD</b>	Safety Risk Management Document
<b>SOP</b>	Standard Operating Procedures





**RUNWAY SAFETY**  
===== Call to Action =====

**Federal Aviation Administration**  
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Safety and Technical Training  
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