USHST H-SE Status Update

May 31, 2020
Overview of active Helicopter Safety Enhancements (H-SE) – May 31, 2020

Analysis scores ranged from 0.09 – 5.27, Mendoza Line was placed at 3.00

- Total of (21) Approved H-SEs of which, (21) have been officially started.
- (2) have been officially put on HOLD, 1 of the ON HOLD H-SEs has been re-activated, H-SE 81
- (4) have been “Tabled” by the Steering Committee, however portions of these will be implemented via other H-SEs

<table>
<thead>
<tr>
<th>Group</th>
<th>H-SE No.</th>
<th>No. of Output</th>
<th>Months to Complete</th>
<th>Analysis Score</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outreach</td>
<td>19_A</td>
<td>3</td>
<td>22</td>
<td>3.61</td>
<td>Safety Culture and Professionalism</td>
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<tr>
<td>Outreach</td>
<td>22_A</td>
<td>3</td>
<td>36</td>
<td>3.15</td>
<td>Detection and Management of Risk Level Changes During Flight by Pilots and Nonflying Crew</td>
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<tr>
<td>Outreach</td>
<td>28/112</td>
<td>3</td>
<td>30</td>
<td>4.15 &amp; 4.00</td>
<td>Helicopter Final Walk Around/Security of External Cargo</td>
</tr>
<tr>
<td>Policy</td>
<td>30</td>
<td>2</td>
<td>48</td>
<td>3.89</td>
<td>Develop/Publish ACS Rotorcraft-Helicopter Series</td>
</tr>
<tr>
<td>Tech &amp; Equip</td>
<td>70</td>
<td>4</td>
<td>26</td>
<td>4.04</td>
<td>Stability Augmentation System (SAS) / Autopilot</td>
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<tr>
<td>Tech &amp; Equip</td>
<td>81</td>
<td>4</td>
<td>55</td>
<td>3.33</td>
<td>Improve Simulator Modeling for Outside-the-Envelope Flight Conditions - ON HOLD</td>
</tr>
<tr>
<td>Tech &amp; Equip</td>
<td>82</td>
<td>2</td>
<td>48</td>
<td>3.46</td>
<td>Helicopter Flight Data Monitoring</td>
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<tr>
<td>Tech &amp; Equip</td>
<td>91</td>
<td>3</td>
<td>60</td>
<td>3.95</td>
<td>Enhanced Helicopter Vision Systems</td>
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<tr>
<td>Training</td>
<td>115/128</td>
<td>5</td>
<td>30</td>
<td>4.32 &amp; 3.56</td>
<td>Threat and Error Management for Initial and Recurrent Pilot Training</td>
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<tr>
<td>Training</td>
<td>116</td>
<td>4</td>
<td>38.25</td>
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<td>Improve Make/Model Transition Training</td>
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<tr>
<td>Training</td>
<td>123</td>
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<td>20</td>
<td>4.94</td>
<td>Increased Simulation/Education to Develop Safe Decision Making</td>
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<tr>
<td>Training</td>
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<td>78</td>
<td>3.70</td>
<td>Improve Understanding of Basic Helicopter Aerodynamics</td>
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<tr>
<td>Training</td>
<td>125</td>
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<td>42</td>
<td>3.46</td>
<td>Pre-flight risk assessment for student flights</td>
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<tr>
<td>Training</td>
<td>127_A</td>
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<td>42</td>
<td>3.89</td>
<td>Training for Recognition/Recovery of Spatial Disorientation</td>
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<tr>
<td>Outreach</td>
<td>13_A</td>
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<td>24</td>
<td>5.00</td>
<td>Utilities Patrol and Construction (UPAC) Recommended Practice Guide</td>
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<td>Tech &amp; Equip</td>
<td>90</td>
<td>4</td>
<td>36</td>
<td>4.01</td>
<td>Use of UAS or OPA in High Risk Environments/Operations</td>
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<tr>
<td>Outreach</td>
<td>130</td>
<td>3</td>
<td>30</td>
<td>3.15</td>
<td>Education and Simulation on Hazards of Over-The-Counter Medication</td>
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<tr>
<td>Policy</td>
<td>30/122</td>
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<td>3</td>
<td>5.27</td>
<td>H-SE 122 - Output 5 - Recommended Practices for Standardization of Autorotation and Emergency Aircraft Handling Training</td>
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<td>Policy</td>
<td>30/117</td>
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<td>12</td>
<td>4.24</td>
<td>H-SE 117 - Output 3 - Competency-based Training and Assessments in Initial Pilot Training</td>
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<td>Policy</td>
<td>30/37</td>
<td>3</td>
<td>54</td>
<td>3.33</td>
<td>H-SE 37 - All Outputs - Add Progressive Approach to Training Autorotations to Helicopter Flying Handbook</td>
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</tbody>
</table>
Implementation Status as of May 31, 2020

Chart on next page

<table>
<thead>
<tr>
<th>Status Color Key:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Green on target</td>
</tr>
<tr>
<td>• Yellow less than 10% behind target</td>
</tr>
<tr>
<td>• Red greater than 10% behind target</td>
</tr>
<tr>
<td>• Blue is completed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calendar Key:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The numbers under the calendar indicate the Output number.</td>
</tr>
<tr>
<td>• Most Outputs are scheduled to start at the beginning of the month.</td>
</tr>
<tr>
<td>• However there are a few that start mid-month and end mid-month. These are identified with a 0.5 in there start and end months. (Example: Output 1 of H-SE 81 started 9.15.2017 and ended 11/15/2017. And Output 2 of 81 started 11/15/2017.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No status reported for the following H-SEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-SE 13A</td>
</tr>
<tr>
<td>H-SE 82</td>
</tr>
<tr>
<td>H-SE 90</td>
</tr>
<tr>
<td>H-SE 116</td>
</tr>
<tr>
<td>H-SE 124</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outreach</th>
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<th>Training</th>
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<td>H-SE 82</td>
<td>H-SE 116</td>
</tr>
<tr>
<td>H-SE 90</td>
<td></td>
<td>H-SE 124</td>
</tr>
</tbody>
</table>
Green = Progress Made  Orange = Work Still to be Done
Overview of H-SE Status
(All Outputs Together)

### H-SE Status - ReOrg

**Percent Complete**

- **Target**
- **Status**

**H-SE Number**
- 19_A Outreach
- 22_A Outreach
- 28/112 Outreach
- 13_A Outreach
- 130 Outreach
- 30 Policy
- 81 Tech & Equip
- 82 Tech & Equip
- 91 Tech & Equip
- 90 Tech & Equip
- 116 Training
- 123 Training
- 124 Training
- 125 Training
- 127_A Training
- 30/122 Policy
- 30/117 Policy
- 30/37 Policy

**Overall Status**
- Blue
- Green
- Red
- Yellow

**Behind**
- 8.18%
- 14.31%
- 9.89%
- 33.13%
- 1.92%
- 37.21%
- 3.00%
- 29.96%
- 15.39%
- 15.00%
- 36.97%

**Overall Status**
- Yellow
- Red
- Blue
- Green

**Overall Status**
- 8.18%
- 14.31%
- 9.89%
- 33.13%
- 1.92%
- 37.21%
- 3.00%
- 29.96%
- 15.39%
- 15.00%
- 36.97%

### April Status
- 5.00%
- 10.00%
- 15.00%
- 20.00%
- 25.00%
- 30.00%
- 35.00%
- 40.00%
- 45.00%
- 50.00%
- 55.00%
- 60.00%
- 65.00%
- 70.00%
- 75.00%
- 80.00%
- 85.00%
- 90.00%
- 95.00%
- 100.00%

### May Status
Overview of H-SE Status

Outputs which have been put On Hold or moved to other H-SEs have been removed from the count below.

- 18 Active H-SEs
  - Output 1 (16) – as scheduled
  - Output 2 (12) – as scheduled
  - Output 3 (9) – 2 more than scheduled
  - Output 4 (2) – 2 more than scheduled

Status shown by all Outputs together

Note: Yellow is less than 10% behind schedule
**Group: Outreach (5 Total H-SEs) – All are Active**

- H-SE 19A is behind target (red) – “Safety Culture and Professionalism”
- H-SE 22A is behind target (red) – “Detection and Management of Risk Level Changes During Flight by Pilots and Nonflying Crew”
- H-SE 28/112 is behind target (red) – “Helicopter Final Walk Around/Security of External Cargo”
- H-SE 13A is behind target (red) – “Utilities Patrol and Construction (UPAC) Recommended Practice Guide”
- H-SE 130 is complete – “Education and Simulation on Hazards of Over-The-Counter Medication”
H-SE 13A – Utilities Patrol and Construction (UPAC) Recommended Practice Guide

Focal: Ron Stewart (rstewart@wilsonconst.com)
Champion: Scott Tyrrell (scott.tyrrell@faa.gov)

- **Output 1:**
  1. 85% complete (red)
  2. Review UPAC Safety Guide for Helicopter Operators for basic content and revise as necessary.

- **Actions:**
  1. USHST Outreach Team brief HAI’s UPAC Committee on USHST fatal accident analysis as it applies to the UPAC industry. Ensure intervention strategies below the Mendoza Line (19, 110, 151) noted previously in the “Relation to Current Aviation Community Initiative” portion of this H-SE are discussed.
  2. HAI’s UPAC Committee review and revise the UPAC Safety Guide for Helicopter Operators.

- **Status:**
  1. The committee has completed work on the Human Performance section of the guide and have submitted the revision to the HAI safety committee and board of directors for approval.

- **Output 2:**
  1. 40% complete (red)
  2. Outreach to UPAC Operators to promote and educate on the latest revisions of UPAC Safety Guide for Helicopter Operators.

- **Actions:**
  1. HAI’s UPAC Committee, FAAST, the FAA, and USHST Outreach Team promote and educate on revised UPAC Safety Guide.
  2. USHST Outreach Team monitor progress of outreach by tracking the number of UPAC operators briefed.

- **Status:**
  1. The UPAC Committee already has a start on Output #2, with the Outreach they have been doing at various conferences.
  2. Several options for press release and active promotion of the standards to the power utility industry are being considered.
**H-SE 19A – Safety Culture and Professionalism**

**Focal:** Tony Malinaro (Tony.Molinaro@faa.gov)

**Champion:** Tony Randall

- **Output 3:**
  1. 85% Complete (red)
  2. Improve mentoring by engaging operators who have already adopted an effective safety culture and used it to change their operations. Connect these operators with those in the rotorcraft community who need mentoring to help the individual or organization being mentored to gain the knowledge and skill to establish an effective safety culture.

- **Actions:**
  1. USHST Outreach Team will establish a framework of existing aviation networks that could be used to establish a safety culture mentoring program. Intent is to use both individuals and organizations to serve in this capacity.
  2. USHST Outreach Team Focus Groups will actively engage with their respective industry sectors to connect individuals or organizations to a safety culture mentor. The USHST Outreach Team will facilitate an initial dialogue with the two parties to get the connection process started.

- **Status:**
  1. Go Local safety workshops have now been given in Phoenix, Torrence Calif, Fort Worth, Little Rock, Columbia SC and Memphis.
  2. We also have positive commitments from FAASteam managers in these 14 cities: Oakland (March 21), Milwaukee, Salt Lake City, Baton Rouge, Denver, Houston, Minneapolis, Pittsburgh, Philadelphia, Sacramento, Greensboro NC, Hartford Conn, Washington DC and Portland, Ore.
  3. We also are building a team of industry safety experts who were co-presenters at the workshops and will serve as “mentors” (or ambassadors) within our Go Local campaign. In a month or two, this work will be completed and running on its own.
  4. No change from last month due to COVID-19.
H-SE 22A – Detection and Management of Risk Level Changes During Flight by Pilots and Nonflying Crew

Focal: Steve Earsom (stephen_earsom@fws.gov)
Champion: Dawn Groh (Dawn.Groh@erau.edu)

- **Output 3:**
  1. 50% Complete (red)
  2. Distribute and promote educational materials.

- **Actions:**
  1. USHSTs Outreach Team to develop and execute plan for distribution of educational materials to relevant segments of industry.

- **Status:**
  1. The group is looking for a new focal to replace Steve Earsom, who will be exiting once a replacement is found, or mid-July, whichever comes first.
  2. Focal Steve Earsom provided a presentation to the USHST on status and next steps of the HSE
  3. The group is preparing an outreach document that overviews CRM as practice by US Army flight crews
  4. Barring other exigencies, the group will likely consider its work complete once the outreach document is complete and approved by USHST
**Output 3:**
1. 80% complete (red)
2. Promote the guidelines/recommended practices for helicopter inspections to the training community and general pilot community.

**Actions:**
1. HAI SC and USHST SEA Training Team to conduct outreach to training providers regarding inspection guidelines/recommended practices.
2. HAI SC and USHST SEA Training Team to present guidelines/recommended practices at key industry events.
3. HAI SC to brief the Airman Certification Systems (ACS) Working Group on guidelines/recommended practices to inform inspection requirements in standards.
4. FAAST to conduct outreach on emphasizing appropriate inspections, including thorough use of the guidelines/recommended practices, to designate pilot examiners for initial applicants as well as applicants for advanced certifications and ratings.
5. FAAST to conduct outreach on emphasizing appropriate inspections to the pilot community.

**Status:**
1. The HAI Safety Committee will brief the Airman Certification Systems (ACS) Working Group on guidelines and recommended practices contained in this report to inform inspection requirements in standards as part of the tasks involved with this H-SE.
2. HAI Safety Committee will also contact the FAA Safety Team (FAAST) to conduct outreach on emphasizing appropriate inspections, including thorough use of the guidelines and recommended practices to Designated Pilot Examiners (DPE), Certified Flight Instructors and applicants for advanced certifications and ratings.
H-SE 130 – Education and Simulation on Hazards of Over-The-Counter Medication

Focal: Richard Martinez (Richard.martinex@L3T.com)
Champion: Manny Figlia (emanuele.figlia@airbus.com)

• Output 1:
  1. 100% complete (Blue)
  2. USHST Outreach Team to educate the helicopter community on the impairment of OTC medication through a variety of messaging.

• Actions:
  1. USHST Outreach Team will request CAMI provide education/awareness materials about sedating OTC medication. In addition, the USHST Outreach Team also will request CAMI either provide or develop materials more specific to helicopters operations, if possible.
  2. USHST Outreach Team will review CAMI materials and discuss additional methods of outreach to best convey to pilots the effects of OTC medications on flying abilities in a way that is concrete and understandable.
  3. USHST Outreach Team will use the USHST website, mass media distribution, and face to face venues to distribute education/awareness materials. Face-to-face venues will include but not be limited to FAASTeam regional helicopter events and industry sponsored events, such as HAI’s Heli-Expo.

• Status:
  1. GAJSC has produced an OTC Medication for Pilots documents that meets the needs of Output 1. This document is the FAA web site at: https://www.faa.gov/licenses_certificates/medical_certification/media/OTCMedicationsforPilots.pdf
  2. For Output 2, the team determined that the simulation portion was not feasible. Output 2 complete.
  3. Output 3, is no longer applicable due to the results of Output 2. Output 3 complete.
  4. THIS CONCLUDES H-SE 130.
Group: Policy (2 Total H-SEs) – 1 H-SEs is Active (H-SE 37 “Tabled”)

- H-SE 30 is a little behind target (yellow) – “Develop/Publish ACS Rotorcraft-Helicopter Series”

**Additional H-SE Efforts Being Accomplished**

- H-SE 37 is behind target (red) – “Add Progressive Approach to Training Autorotations to Helicopter Flying Handbook”
- H-SE 117 is ahead of target (green) – “Competency-based Training and Assessments in Initial Pilot Training”
- H-SE 122 is behind target (red) – “Recommended Practices for Standardization of Autorotation and Emergency Aircraft Handling Training”
**H-SE 30 – Develop/Publish ACS Rotorcraft-Helicopter Series**

**Focal:** TBD  
**Champion:** Tim Tucker

**Output 1:**
1. 75% complete [yellow]  
2. Develop new ACS for Rotorcraft-Helicopter series to replace the current PTS.

**Actions:**
1. If not already completed, add agenda item for the ARAC - ACS WG quarterly meeting, to introduce new helicopter industry participants and discuss efforts and roles within the WG for the new ACS.  
2. Establish timelines and address progression of each ACS.  
3. Conduct review of each helicopter ACS and address comments and required changes before release to industry.

**Status:**
1. The March 2020 ARAC ACS Committee face to face meeting at HAI Alexandria, VA was canceled due to COVID-19 virus. The members of the Rotorcraft ACS WG continued working via GoTo meetings to draft the Rotorcraft-Helicopter ACS series.  
2. The Rotorcraft-Helicopter ACS WG is developing on the DRAFT Flight Instructor ACS for Rotorcraft-Helicopter  
3. Travel for June 2020 Quarterly F2F ARAC ACS Committee meeting in Washington, DC has been cancelled  
4. As of June 20, the Aviation Rulemaking Advisory Committee (ARAC) has approved the following DRAFT Rotorcraft-Helicopter ACS:  
   - Private Pilot Rotorcraft-Helicopter ACS  
   - Instrument-Helicopter ACS  
   - Commercial Pilot Rotorcraft-Helicopter ACS  
   - The March 2020 session to present the ATP Rotorcraft-Helicopter ACS for approval was cancelled due to the COVID-19 virus.  
5. The revised Helicopter Flying Handbook (HFH) FAA-H-8083-21B was published on October 29, 2019 and is available at: https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/helicopter_flying_handbook/  
6. A review of the Helicopter Instructor’s Handbook (FAA-H -8083-4) was conducted for areas requiring revisions to align content with the HFH (21B). Publish date for changes: TBD  
7. The Focal has taken a new position, leaving a vacancy on this H-SE.

**Planned:**
1. Continue development of the Draft Flight Instructor ACS for Helicopter  
2. Due to COVID-19 virus the June 2020 Quarterly face to face ARAC ACS Committee meeting in Washington, DC will be conducted virtually as a video conference. During this meeting the Rotorcraft ACS WG will continue to discuss content, concerns and issues with the development and publishing of the Rotorcraft ACS series  
3. The Rotorcraft-Helicopter Draft ATP ACS will be sent to the ARAC June 2020 session for approval, which will be conducted virtually.
H-SE 30+ – Additional H-SE Efforts Being Accomplished


1. Output 1: FAA to work with industry on researching and evaluating helicopter progressive training techniques as detailed in AC 61-140A for autorotations and operational data.
2. Output 2: FAA to incorporate progressive training findings into the Helicopter Flying Handbook (FAA-H-8083-21A). FAA should work with industry on any other areas that should be addressed in the HFH during this revision.
3. Output 3: FAA, HAI, and USHST to conduct outreach on the latest revisions of HFH for helicopter operators.
   • Status: 50% complete (green)

H-SE 122: Recommended Practices for Standardization of Autorotation and Emergency Aircraft Handling Training

• Output 5: Support revisions of Helicopter Flying Handbook, Helicopter Instructor’s Handbook to include information from endorsed White Paper.
• Status:

H-SE 117: Competency-based Training and Assessments in Initial Pilot Training

• Output 3: Brief the ACS working group on competency definitions.
  • Status: The ACS working group is doing aspects of this entire H-SE already.

H-SE 115/128: Threat and Error Management for Initial and Recurrent Pilot Training

• Status: There is a brief introduction to TEM that the ACS team is getting into the Helicopter Flying Handbook, but it does not do to the detail that is dictated in H-SE 115/128. No additional work being done on this H-SE by H-SE 30 team.

• Status Notes:
  1. The ACS WG POC expressed concerns incorporating H-SEs: 37, 122, 115/128, and 117 into H-SE# 30. The Rotorcraft ACS WG membership is made up of Powered-lift ACS WG members currently drafting the Powered-lift ACS series and guidance material. The additional H-SEs may diminish the efforts of those Powered-lift ACS WG members to complete the powered-lift ACS series and required reference material to meet the planned timeline for an entrant Powered-lift aircraft. Members of the Rotorcraft ACS WG may elect to develop material for any of the H-SEs above. The ACS WG, when able, will support their efforts.
H-SE 37 – Add Progressive Approach to Training Autorotations to Helicopter Flying Handbook

Steering Committee decided to “Table” H-SE 37 at Heli-Expo 2019. Portions of this H-SE plan to be incorporated under H-SE 30, via work already being accomplished.

Refer to H-SE 30 page 15 for status.
Group: Tech & Equip (7 Total H-SEs) – 5 H-SEs are Active, 1 H-SE is “On Hold” and 1 is “Deffered”

- H-SE 70 is behind target (red) – “Stability Augmentation System (SAS) / Autopilot”
- H-SE 81 is a little behind target (yellow) – “Improve Simulator Modeling for Outside-the-Envelope Flight Conditions”
- H-SE 82 is a little behind target (yellow) – “Helicopter Flight Data Monitoring”
- H-SE 90 is a little behind target (yellow) – “Use of UAS or OPA in High Risk Environments/Operations”
- H-SE 91 is on target (green) – “Enhanced Helicopter Vision System”
H-SE 70 – *Stability Augmentation System (SAS)/Autopilot*

**Focal:** Chris Hill ([chris.hill@rotor.org](mailto:chris.hill@rotor.org))

**Champion:** Wayne Fry ([wayne.p.fry@faa.gov](mailto:wayne.p.fry@faa.gov))

- **Output 3:**
  1. Draft complete (red)
  2. Draft White Paper that identifies the need and pathways to certification for SAS/autopilot technology for light helicopters.

- **Actions:**
  1. H-SE 70 team to draft White Paper
  2. H-SE 70 team to submit White Paper to USHST Steering Committee for review and approval.

- **Status:**
  1. Team Composition: Rebuilding team and seeking input from key contributors to complete remaining technical portions of the white paper. Team members who have contributed or have indicated willingness to contribute include: Tony Randall and Erik Oltheten (Bell), Marc Salesse, Jeff Trang, Manny Figlia (Airbus), Jamie Luster and Chris Suldo (genesys), Tim Tucker (RHC), George Schwab (FAA), J Sleigh (Thales), Jeff Byrd (EIT), Lauren Haertlein (GAMA), Ray Debs
  2. Document Progress: Majority of non-technical content is now drafted. Technical content requires dedicated effort from OEMs. Without this contribution the project will remain no greater than 50% complete.
H-SE 81 – Improve Simulator Modeling for Outside-the-Envelope Flight Conditions

Focal: Cliff Johnson (Charles.C.Johnson@faa.gov)
Champion: Nick Mayhew

Output 1:
1. 33% complete (green)
2. Coordinate with the FAA, industry, and academia to review existing helicopter simulator/physics-based models and conduct research/testing to develop recommendations for improved helicopter mathematical/physics-based models.

Actions:
1. H-SE 81 to lead review of current simulator/flight training device models for fidelity and gaps in model data for outside-of-the-envelope flight regimes.
2. Collect simulation data from various simulator/training devices, helicopter types, and operators and flight test data from operators performing candidate maneuvers across various mission segments.
3. Use data to develop recommendations for improved mathematical/physics-based flight dynamics simulator models. Test improved mathematical/physics-based flight dynamics simulator models as applicable and feasible.

Status:
1. Brief Description of Work Completed: A team has been formed for conducting the research identified in the H-SE, and they are interfacing with members of other H-SE’s. In addition, the team would welcome participation from others that were active within the older H-SE team/working group. The research focal scheduled and participated in a two-hour teleconference meeting with various industry partners and USHST team members in discussing the overview of the safety enhancement, current status (i.e. goals/objectives, tasks, team input), and future meeting planning. The research focal will hold a monthly teleconference starting May 2020.
2. The team held a formal meeting and welcomed new members to the group including representatives from VRM Simulation and discussed schedules, workplans, and topics for monthly meetings moving forward. The team continued to work on Output 2 and gathered more information on various industry simulators and technologies following HeliExpo 2020. H-SE team members obtained accounts with Airbus Helicopters and Bell to acquire Rotorcraft Flight Manuals, Pilots Operating Handbooks, and other technical details and requested permission to obtain flight test data from trials flown by test rotorcraft like the Bell 206 and Gazelle/AS350. We also discussed plans for flight testing with Airbus Helicopters Marignane for LTE and VRS to assist with building these simulator models and with VRM Simulation for building and integrating these models into their simulators and ours in order to examine motion and virtual reality. The team also continued to work on looking at data from the FAA’s S76 simulator and other simulators based on sample data obtained by the research team. A future meeting is also being arranged with the National Simulator Program (AFS-200) in Atlanta, GA and Georgia Tech. In 2020 to review H-SE content and current policy/guidance/regulatory material pertaining to this H-SE and prepare for formal project start when the FAA receives funding for the project (still pending due to Budgetary Issues).
3. The USHST Industry Co-Chair reached out and announced that he will be taking over duties as the Lead Focal for this H-SE. The FAA will continue to support the H-SE as a member of the overall H-SE team. Due to the pandemic outbreak of COVID-19, all work on the S76 simulator or other data collection flight test/simulation activities have been temporarily halted. The team is using this time to recruit new members and develop additional plans for executing this output and others. The FAA still has not resolved the grounding of the FAA Helicopter which has now become permanent. The H-SE focal is working with industry counterparts to identify another comparable helicopter for lease or purchase to complete the research activities and support the H-SE. This issue also affects H-SE 82 on HFDM and will eventually also affect H-SE 91 on Vision Systems and potentially other H-SE’s such as H-SE 127 where the focals are collaborating and sharing resources including flight test rotorcraft like the FAA’s S76.
H-SE 82 – Helicopter Flight Data Monitoring

Focal: Jeff Byrd (jbyrd@eit.com)
Champion: Raj Helweg

• Output 1:
  1. 85% complete [yellow]
  2. Develop an educational outreach campaign that address the following:
     a) Fundamentals of why the use of data recording devices is valuable to an owner/operator (What is HFDM? How can it be used? How is it part of an effective SMS?).
     b) Specific examples of the benefits to using HFDM as described by success stories of those who were early adopters.
     c) How data recording can work side by side with participation in voluntary safety programs such as Aviation Safety Information Analysis and Sharing (ASIAS) and provide information back to the owner/operator on trends and higher risk areas.

• Actions:
  1. USHST Outreach Team review current industry materials describing HFDM (i.e., Fact Sheets, Toolkits, etc.) from USHST/IHST, Global HFDM Steering Group, Rotorcraft ASIAS HFDM research, etc. and develop modifications for new materials and media types (i.e., audiovisual, mobile app, etc.) for the educational outreach campaign. – completed
  2. USHST Outreach team work with the FAA, ANG-E2 to conduct HFDM Knowledge Sessions and safety seminars and outreach sessions at targeted events.
  3. USHST Outreach Team and the FAA, ANG-E2 develop and implement a pilot program (i.e., similar to the General Aviation Demo Project) for expanding recorder usage among targeted helicopter mission segments.
  4. The FAA and ANG-E2 collect helicopter flight test data from multiple helicopter types and mission segments for incorporation into ASIAS to demonstrate practical ASIAS capabilities to audiences during outreach.

• Status:
  1. Working with several trade publications to publish HFDM/USHST content and scheduling trade show participation. Rescheduling of local and regional events due to COVID 19 - TBD.
  2. Working on success examples with metrics to justify HFDM cost of adoption for small operators.
  3. Meeting with a potential new H-SE 82 team member Friday, via hand-off from Nick Mayhew.
  4. Participated in Agility Prime video conference regarding civil certification and technology aspects of UAM and eVTOL. This appears to be a DOD funded effort with applicability to USHST efforts, NAS, UAS, and more. Copy (free if you provide a log in) of draft National Academies paper can be had here https://www.nap.edu/catalog/25646/advancing-aerial-mobility-a-national-blueprint
**H-SE 90 – Use of UAS or OPA in High Risk Environments/Operations**

Focal: Mark Colborn (kd5elf@tx.rr.com)
Champion: Tony Randall

- **Output 2:**
  1. 100% complete (blue)
  2. USHST Outreach Team to consult with FAA regarding existing operating limitations for UAS and OPA and whether any policy/guidance change would be necessary for UAS and OPA to be integrated and operate in the conditions or environments identified in Output 1.

- **Actions:**
  1. USHST Outreach Team will submit findings of the H-SE 90 Team to FAA – AUS. The purpose is for FAA – AUS to identify whether any of the conditions or operations identified in Output 1 would require any policy/guidance change(s) prior to implementation.
  2. The USHST Outreach Team will coordinate a meeting to receive feedback from the FAA after the FAA’s review.

- **Recent Actions:**
  1. The re-constituted FAA’s Drone Advisory Committee (of which the facilitator of this H-SE is a member) met for the third time in Washington D.C. at the NTSB Boardroom on Feb 27, 2020. Three task groups presented their assigned projects. This is work that was assigned during the October 17, 2019 meeting. Your facilitator was involved in all three task groups and participated in 24 conference calls between early November and late January while working on these projects. The three taskings included:
    - What are the options for a better FAA/Industry collaboration to update and improve UAS facility maps and airspace access for all operators?
    - Provide information about what the DAC thinks the remaining challenges are for Beyond Visual Line Of Sight (BVLOS) UAS flight. This can help inform the FAA of upcoming decisions on what comes after IPP, PSPs, etc. and the future FAA work plans
    - Comment on the FAA’s NextGen UAS UTM ConOps V2.0 concept and provide information about what is most important for them for UTM capabilities. The idea was to help inform FAA of priorities and planning as we work toward building UTM capabilities and fully integrating UAS into the NAS. CONOPS Version 2 was not released by the FAA during this particular iteration of the DAC, so the task group proceeded to identify priorities based on NEXGEN UTM CONOPS Version 1.
  2. CONT on next page
H-SE 90 – Use of UAS or OPA in High Risk Environments/Operations

**Recent Actions (cont.):**

2. All three task group projects were presented and favorably received by the FAA. And our presentations reached a large number of FAA employees working at the UAS Integration Office. There were approximately 40 personnel from the FAA, DOT, NOAA, NTSB and other government agencies in attendance. The FAA at this meeting assigned two new tasks to the DAC, to be completed before the June 19, 2020 virtual meeting:
   - Aviation Safety Culture for Drone Operators: What are ways the FAA can help the drone community fully adopt the safety culture that is so ingrained in manned aviation? Develop recommendations and ideas to assist the drone community in adopting an aviation safety culture. This includes ideas for motivation and suggestions for industry involvement.
   - The facilitator has already reached out to Tony Molinaro, the facilitator for H-SE 19A – Safety Culture and Professionalism for assistance. Tony and his group have come up with some great ideas, and the ideas that the DAC task group develops will be shared in return.
   - #2 Task Group #7 on UTM has been continued by the FAA. NextGen UAS UTM ConOps V2.0 was released shortly after the RID NPRM comment closing date in early March. And the FAA wants feedback on this updated report and suggestions on how it can be improved and move forward.

3. In the meantime, the FAA is charging ahead with their Unmanned Traffic Management (UTM) concept. On March 12, 2020, the FAA released a notice for Request For Information (#33333) entitled: Low Altitude Manned Aviator Participation in UAS Remote Identification. The FAA, despite recommending RID for UAS, is faced with a detect and avoid and collision avoidance gap in the low altitude airspace. All UAS (as proposed in ConOps2 and RID NPRM), in order to fly in the low altitude airspace, will eventually be required to log into a Unmanned Aircraft Service Supplier (USS) and request an airspace authorization and transmit flight intent, and this is regardless of type of airspace, controlled or uncontrolled. However, in ConOps 2, manned aircraft operators are still NOT required to participate in UTM, but they may voluntarily choose to do so. There is no plan for how manned aircraft can equip to receive UAS RID information. And with only 50% of all manned aircraft currently equipped with ADS-B Out, how will BVLOS UAS be able to avoid these “non-cooperative” manned aircraft? This may be problematic for the FAA from a safety of flight and risk analysis standpoint – and from a liability standpoint -- especially for uncontrolled airspace operations. The FAA is asking for the opinion on this matter from manned aviators. The facilitator is participating in this RFI by providing input to the HAI UAS Task Group, which as a group will submit a comment before the filing deadline (which has been extended).

**Notable Actions:**

1. During the February 27 DAC meeting, the FAA for the first time provided feedback to the DAC on projects assigned and completed. These projects were for the early equipage of RID, Improved UAS Security, and suggestions on how to improve the Part 107 Waiver process. These projects were assigned at the June 2019 meeting and presented during the October 17, 2019 meeting in D.C. This was a very unexpected development, graciously welcomed, and highly praised by all members of the DAC. It showed that the FAA is really interested in what the DAC has to say and is seriously considering the work and ideas that the group is submitting. Thank you FAA UAS Integration Office for the very welcomed feedback on these projects, and please keep that feedback coming.

2. For a detailed look at the information presented by the DAC, and feedback provided by the FAA at the February 27, 2020 meeting (152 page DAC E-Book v3a), please refer to this link and click on the “Meeting Materials” tab under “Next DAC Meeting, February 27, 2020”: [https://www.faa.gov/uas_programs_partnerships/drone_advisory_committee/](https://www.faa.gov/uas_programs_partnerships/drone_advisory_committee/)

**Status:** CONT on next page
H-SE 90 – Use of UAS or OPA in High Risk Environments/Operations

Status:

1. The facilitator, on behalf of the USHST Outreach Team, submitted a report compiled by the H-SE 90 SME Team to the FAA UAS Integration Office in June 2019. This report, mandated by Output #1, was entitled Identifying How UAS/OPA Can Reduce Fatal Accidents in High Risk Manned Helicopter Operations (December 14, 2018). Output #2 mandates that the USHST Outreach Team submit findings of the UAS SME Team to FAA – AUS. The purpose is for FAA – AUS to identify whether any of the conditions or operations identified in Output 1 would require any policy/guidance change(s) prior to implementation. From those I have talked to in the FAA, including Jay Merkell, the Report was well received by members of the UAS Integration office. The Report included a large section on the importance of adopting some sort of Remote ID (RID). The FAA has since made their request for regulations and presented their ideas to the UAS community in the form of an NPRM. The comment period for the long awaited NPRM on Remote ID for drones closed on March 2, 2020. The FAA received a record number of comments from respondents (53,040). This NPRM has been a priority for the FAA for years and was needed for rulemaking to facilitate the ongoing integration process of UAS and OPA into the NAS. Now, the FAA has the monumental task of reviewing all the comments received and formulating regulations that will guide the industry forward.

2. Until the FAA issues new regulations on Remote Identification, essentially the industry is in a holding pattern. In the meantime, the FAA has set up a great system for operators to continue to receive airspace authorizations, either through LAANC or through Before-You-Fly portal on their website. They have also greatly improved their Part 107 Waiver process and all the other avenues UAS operators can use to request waivers for more complex UAS operations. Recommendations have been submitted, and the ground work has been done. Also, even before H-SE was formulated, the manned aviation industry has realized the benefits of automation and made great strides in integrating autonomous technologies available in UAS into future production aircraft. It is the opinion of this facilitator that corporations that do not integrate these technologies into future manned helicopters will be at a severe disadvantage in the marketplace. The integration of automation will eventually make manned flight safer. At this time, the facilitator of H-SE 90 recommends that Output #2 be considered complete and that this H-SE move into the Output #3 stage.
H-SE 91 – Enhanced Helicopter Vision Systems

Focal: Cliff Johnson (Charles.C.Johnson@faa.gov)
Champion: Dawn Groh

- **Output 2:**
  1. 43% complete (green)
  2. Develop policy and operational changes to allow for the use of vision-enhancing technologies (Update FAA Order 8260.42B Advisory Circulars 90-80B, 90-106A, and FSIMS 8900.1). Review 14 C.F.R. § 91.175/176 and decide whether a regulatory revision through rulemaking would be necessary for the H-SE to be implemented.

- **Actions:**
  1. The recommended approach is for the FAA to pursue the least arduous path to allow availability of some level of vision-enhancing technologies. Preferably, this approach would be no more complex than a revision to policy or guidance. The following represents a potential list of policy and guidance that would require either development or update. There is also one regulatory reference listed also included. Given that rulemaking is a sow, time consuming process, pursuing regulatory change could jeopardize implementation of this H-SE ever occurring and should be pursued only as a last resort, and certainly only if absolutely necessary.
   1. Update FAA Order 8260.42B
   2. Update FAA Advisory Circular 9080-C.
   3. Revise FSIMS 8900.0.
   4. Update FAA Advisory Circular 90-106A (or create a new Advisory Circular specific to helicopters).
   5. Review § 91.175/176. Consider whether rulemaking is necessary and pursue this path only if necessary for successful implementation of the H-SE.
   6. Implement resolution to any issues identified as FAA barriers in Step 2 of Output 1.

- **Status:**
  1. The research focal attended a monthly technical interchange meeting with Lifeflight of Maine regarding low-level IFR Infrastructure and Routing which involves a vision system component as part of a national demonstration project. In addition, members of the research team continued to engage and attend follow-up EUROCAE WG-79/RTCA SC-213 meetings of WG-4. Again, this was mainly to help refine the concepts for both operational credit/benefit and visual enhancement for safety (i.e. marginal VFR).
  2. In addition, the draft market survey of EHVS operators was further refined based on input from EUROCAE/RTCA and other FAA offices (AIR, ASW, AFS). However, the release date of the survey is still to be determined based on the complications surrounding the DOT’s PRA Process, and in the interim, the FAA is reaching out to individual operators and associations.
  3. Additional work will involve integrating industry partners’ Vision Systems technologies into the simulator for experimental trials planned to occur in 2020. The research focal scheduled and participated in a two-hour teleconference meeting with various industry partners and USHST team members in discussing the overview of the safety enhancement, current status (i.e. goals/objectives, tasks, team input), and future meeting planning. The research focal will hold additional monthly meetings beginning in May 2020 and continuing indefinitely. In addition, coordination between this H-SE and H-SE 127A is still ongoing, as we have held discussions to assist H-SE 127A with analyzing results from their spatial disorientation survey. However, due to the COVID-19 pandemic outbreak, all work on the simulator and upcoming flight-testing has been indefinitely delayed as the FAA has been relegated to telework only status and the simulation facility has been shut down. Thus, development work on preparing the FAA’s S76 Helicopter Simulator for use in supporting future EHVS experimental trials for the autopilot/flight management system, and vision systems’ technology integration has been postponed for the immediate future.
Group: Training (8 Total H-SEs) – All H-SEs are Active
- H-SE 116 is behind target (red) – “Improve Make/Model Transition Training”
- H-SE 123 is ahead of target (green) – “Increased Simulation/Education to Develop Safe Decision Making”
- H-SE 124 – “Improve Understanding of Basic Helicopter Aerodynamics”
  - Output 4 is ahead of target (green)
- H-SE 125 is behind target – “Pre-flight risk assessment for student flights”
  - Output 2 is behind target (red)
  - Output 3 is behind target (red)
  - Output 4 is on target (green)
- H-SE 127A is on target (green) – “Training for Recognition/Recovery of Spatial Disorientation”
H-SE 115/128 – Threat and Error Management for Initial and Recurrent Pilot Training

Steering Committee decided to “Table” H-SE 115/128 at Heli-Expo 2019. Portions of this H-SE plan to be incorporated under H-SE 30, via work already being accomplished.

Refer to H-SE 30 page 15 for status.


H-SE 116 – Improve Make/Model Transition Training
Focal: Raj Helweg (rajesh.helweg@airmethods.com)
Champion: N/A

- **Output 1:**
  1. 25% complete (Red)
  2. Review best practices and recommendations related to transition training developed and published by other organizations (e.g., AOPA, EAA, GAJSC) and use these materials to create updated and unified recommendations regarding transition training in helicopters.

- **Actions:**
  1. USHST SEA Training Team will review existing best practices and recommendations related to transition training. They should request assistance as needed from HAI TC, AOPA, EAA, GAJSC, or any other industry organizations that may have experience developing transition training.
  2. USHST SEA Training Team will draft standardized guidelines for transition training to include a gap analysis template for CFIs. The gap analysis template will allow CFIs to identify highest risk areas for pilots of various experience levels transitioning to a different helicopter type.
  3. USHST SEA Training Team will review their draft proposal with insurance underwriters for final edits (consider using NBAA to establish connection, if needed).
  4. USHST SEA Training Team will publish the transition training toolkit.

- **Status:**
  1. No status update for November.
  2. Focal is stepping down. Focal is checking with Richard Cannon to see if he wants to step in as new Focal.
  3. Current Focal indicated he will be sending the SAT all the work they have done to date.
Steering Committee decided to “Table” H-SE 117 at Heli-Expo 2019. Portions of this H-SE plan to be incorporated under H-SE 30, via work already being accomplished.

Refer to H-SE 30 page 15 for status.
H-SE 122 – Recommended Practices for Standardization of Autorotation and Emergency Aircraft Handling Training

Steering Committee decided to “Table” H-SE 122 at Heli-Expo 2019.
Portions of this H-SE plan to be incorporated under H-SE 30, via work already being accomplished.

Refer to H-SE 30 page 15 for status.
H-SE 123 – Increased Simulation/Education to Develop Safe Decision

Making

Focal: Nick Mayhew (nick.mayhew@L3Harris.com)
Champion: N/A

- **Output 2:**
  1. 95% complete (green)
  2. H-SE 123 SME team will work to eliminate any barriers in existing guidance and oversight that may currently inhibit or discourage increased use of helicopter simulation devices. The specific intent is to prevent future fatal accidents by enabling a greater number of pilots to be safely educated on at risk scenarios at all levels of simulator training.

- **Actions:**
  1. The H-SE 123 SME team will conduct a full review of guidance and oversight for all helicopter simulation in the U.S. The team should provide recommendations to the FAA on the necessary revisions to guidance and oversight that would allow as much simulator training and checking credit as possible. If the recommendations are implemented, they would serve to promote increased use of simulation for at risk scenarios. (Cont.....)

- **Output 3:**
  1. 95% complete (green)
  2. Work with industry to identify specific at risk scenarios, address the feasibility of their inclusion or further emphasis in simulator training for both ab initio and recurrency sessions, promote their inclusion, and recommend how the most recently identified at risk scenarios can continue to be routed to the simulator training providers.

- **Actions:**
  1. The USHST SEA Training Team will define specific at risk scenarios using the results of analysis from the 21 fatal accidents.
  2. The USHST SEA Training Team will then determine the feasibility of introducing these scenarios into the simulator training environment, or expand on existing at risk scenarios.
  3. The USHST Outreach Team should promote the findings of Actions 1 & 2 to the broader flight training and flight simulation industry.
  4. The USHST SEA Training Team will recommend a real-time mechanism for feedback such that at risk scenarios identified by front line helicopter operators can be considered for an Evidence Base Training (EBT) approach that would feed these scenarios back into the simulator training environment.

- **Status:**
  1. Held monthly web conference meeting Friday 8 May 2020. Next meeting planned for Fri 12 Jun 2020. H-SE 123 Recommended Practice (RP) document was submitted approved the Steering Committee (SC) and released 27 April 2020. It is now accessible on both the USHST.org and ISHF.aero websites. The release was supported by press release and numerous social media posts recognized as the first RP document issued by the USHST. The draft Advisory Circular H-SE 123 was submitted to the FAA 19 Jun 2019 – awaiting update from FAA - no change. FAA have previously indicated that we may need to modify the AC target audience to only cover ATDs if we are to realize a May 2021 issue date. We will hold at 95% complete until the AC is issued in some format. H-SE 123 will feature in HeliOps in the next but one issue in a regular column written by Nick Mayhew. H-SE 123 RP will also feature on the front page of the AVS Flyer (internal FAA publication). The WG is working on a 3-4 minute “YouTube” style video that will promote the RP.
H-SE 124 – *Improve Understanding of Basic Helicopter Aerodynamics*

**Focal:** Tim Tucker ([pilottucker@earthlink.net](mailto:pilottucker@earthlink.net))

**Champion:** N/A

- **Output 4:**
  1. 50% complete *(green)*
  2. Revise AC 61-83 (Nationally Scheduled, FAA-Approved, Industry-Conducted Flight Instructor Refresher Course) to add critical helicopter aerodynamics to the core topic list.

- **Actions:**
  1. The FAA to coordinate with the USHST SEA Training Team to revise AC 61-83 to include helicopter critical aerodynamic state recognition and recovery information.
  2. FAA to release an updated advisory circular.

- **Status:**
  1. The FAA has published the new HFH late October, which completes Output 1 and Output 2.
  2. Due to the release of the new HFH, Output 3 is no longer required.
  3. Output 4 – status report is 50% complete.
H-SE 125 – Pre-Flight Risk Assessment For Student Flights

Focal: David Dziura (david.dziura@gmail.com)
Champion: TBD

Output 2:
1. 60% complete (red)
2. Develop guidance for the inherent risks associated with the flight training environment, thereby allowing mitigation to be implemented to reduce the risk as low as reasonable possible (ALARP) prior to and during the training flight.

Actions:
1. USHST SEA Training Team is to develop and issue guidance based on the information obtained from Output 1.
2. USHST SEA Training Team to promote the pre-flight risk assessment guidance to flight training organizations.

Output 3:
1. 40% complete (red)
2. Deliver suggested pre-flight risk assessment guidance to the FAA for possible development into an Advisory Circular to support establishing a standard for pre-flight risk assessments on training flights.

Actions:
1. USHST SEA Training Team to meet with FAA (AFS-800) to review results of the recommended practices consolidated by industry and discuss development of an Advisory Circular (AC) supporting pre-flight risk assessment guidance for training.
2. AFS-800 should consider AC development using the results of the USHST’s work.

Output 4:
1. 35% complete (green)
2. If an AC is developed, then promote the contents of the AC to flight instruction organizations.

Actions:
1. The text of H-SE 125 specifies several methods for promotion of this H-SE. Please refer to H-SE 125 Output 4 Actions 1-4. Document progress of outreach effort (who contacted, number of attendees, etc).

Status:
1. No Advisory Circular will be developed at this time, per Nick Mayhew. Instead developing a USHST Safety Bulletin for publishing. Focal has most of the SB text written, almost ready for review.
2. Implementation and improvement of Pre-Flight Risk Assessment at major training and instructor access locations is on-going.
**H-SE 127A – Training for Recognition/Recovery of Spatial Disorientation**

**Focal:** Jill Browning (jill.g.browning@lmco.com)

**Champion:** Chris Lowenstein (chris.o.lowenstein@lmco.com)

- **Output 2:**
  1. 60% complete (green)
  2. Create helicopter unique SD training products to include simulation technology.

- **Actions:**
  1. Define SD scenarios for emphasis in training products (use 52 fatal accidents analyzed by the USHST LoC-I/UIMC/LALT working group as starting point).
  2. Coordinate education materials to define simulation technology.
  3. Create educational materials (fact sheets, articles, video, lesson plans, scenarios, et).
  4. Report completion to USHST SAT.

- **Status:**
  1. Generating initial work products for ground training portion. The team is through 50% of content topics and working to capture examples to support training syllabus topics. The team will then address simulator and flight training.

- **Output 3:**
  1. 60% complete (green)

- **Actions:**
  1. Use all available media outlets (Rotor Safety Challenge at Heli Expo, regional FAAST conferences, other safety conferences) to promote and distribute SD training products and technology.
  2. USHST Outreach Team will track use of SD training products.
     a) Track purchase, usage, and installation of SD training products and simulation technologies.
     b) Survey whether end users find the new products effective.

- **Status:**
  1. Data will be ready to disseminate to multiple communities upon completion. This will be three-phased: ground, sim, and flight.