31st Annual

FY2019 DOI Aviation Safety Summary and Annual Report

HTTPS://WWW.DOI.GOV/AVIATION

Published by: Office of Aviation Services (OAS)

Partnering for better, faster, cheaper, safer aviation missions

Fiscal Year 2019 DOI Aviation Safety Summary and Annual Report

The Department's aviation programs are built on Federal Aviation Administration (FAA) regulatory requirements, Federal Management Regulations (FMR), Departmental regulations (DMs), and industry best practices.

Despite the many layers of regulations designed to promulgate safety and efficiency, none of them are as impactful as culture. Sanctioned by leadership action (or inaction), it is the foundation of beliefs, values and attitudes that become shared by the majority of people within the company or workplace or otherwise characterized as 'the way we do things around here'.

Leaders should ask themselves "do I accept the way we do things around here?"

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The Department of the Interior's Aviation Safety and Aircraft Accident Prevention program is founded on the four pillars of an integrated *Safety Management System (SMS)*:

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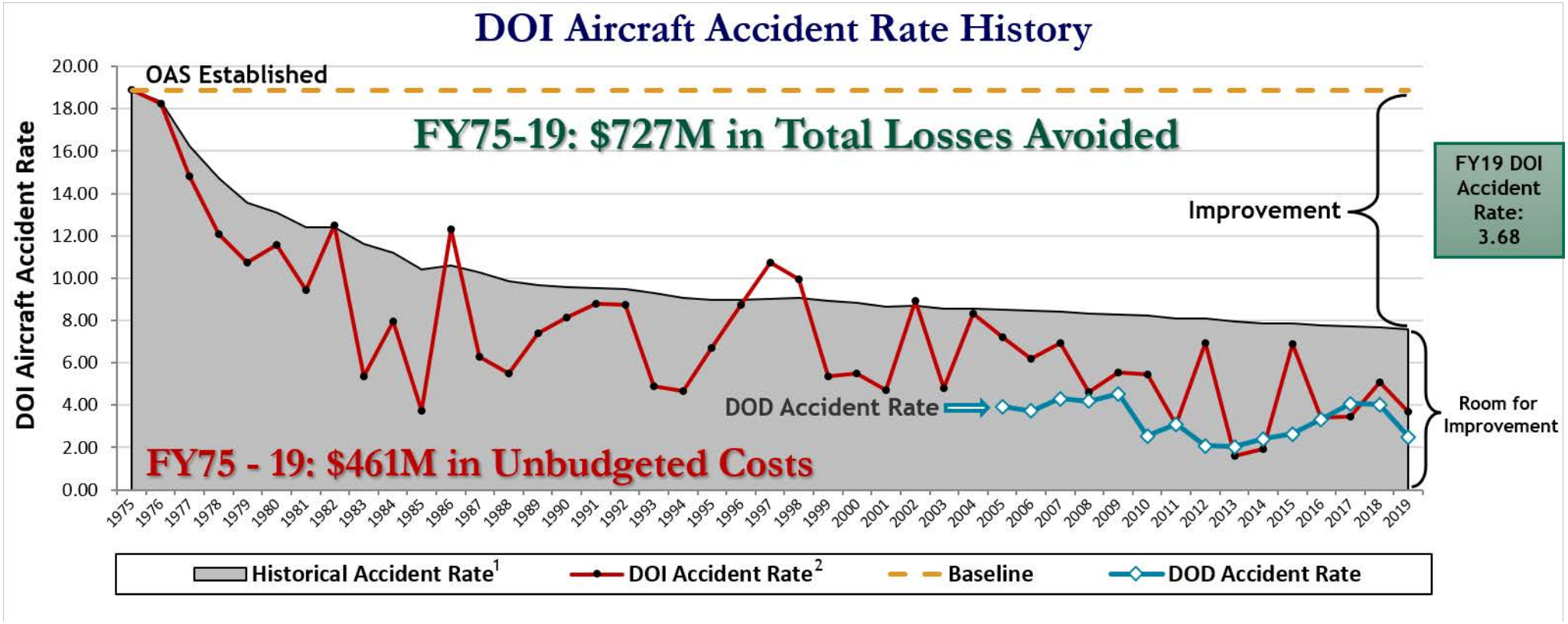
ISO 9001:2015 CERTIFIED

Aircraft Accident Rate

The U.S. Department of the Interior (DOI) ended the year recording one incident with potential (IWP) and two accidents. The annual aircraft accident rate[2] is 3.68 per 100,000 flight hours, a decrease of 1.42 from last year. The DOI mishap rate is 5.51, which is a decrease of 6.37 from the previous year. Zero aircraft accidents IS an attainable goal. We must meet and exceed expectations set for ourselves through training, safety guidelines, and safety tools. (https://www.doi.gov/aviation/library/guides)



As of October 1, 2019, flight data captured 54,415 total flight hours (approximately 4,496 hours less than the 58,911 hours flown in FY2018). Flights on contracted aircraft accounted for 41,066 hours (75% of all hours flown). The remaining 13,349 hours, or 25%, utilized bureau-owned fleet aircraft.

Since 1975, DOI's aviation safety program has resulted in estimated savings of $727M to the Department and its supporting vendors in reduced losses. Flight missions performed for DOI were supported in part by bureau requested and OAS supported aviation contracts that required 1,706 vendor pilot evaluations, 1,125 vendor aircraft inspections, 141 Interior fleet pilot evaluations, and 95 Interior fleet aircraft inspections. Aviation Training supported 674 instructor led course offerings, accounting for 5,285 available student hours of training and the Interagency Aviation Training website recorded 40,428 course completions (30,429 Online, 7,400 Residential Classroom, 1,648 ACE| Workshop, 939 Webinars, and 12 Video Teleconferencing course completions).[3]

[1]Historical aircraft accident rate is defined as total historical aircraft accidents per 100,000 flight hours flown. This is standard throughout the global aviation industry.
[2]Annual aircraft accident rate is defined as total aircraft accidents in one year per 100,000 flight hours flown. This is standard throughout the global aviation industry.
[3]Includes DOI Fleet, Commercial Vendor, and Cooperator aircraft from other agencies. Pilots receive evaluations for each specific special use mission area qualification.

FY19 Mishap Overview

Location	Date	Severity	Operator	Aircraft	Description
Bering Land Bridge National Preserve, AK	4-15-19	Accident	Fleet NPS Alaska	Cessna 185F	While en-route to pick up another employee, the aircraft impacted the terrain. Pilot was rescued and airlifted to Anchorage for medical treatment.
Ennis, MT	7-17-19	Accident	Contractor USGS Midcontinent	Aviat Husky A-1A	Aircraft impacted the terrain while conducting a wildlife survey.
Dahl Creek, AK	8-10-19	IWP	Contractor BLM Alaska	Cessna 208 Caravan / Bell 205 A++	Near mid-air collision between two contracted aircraft during demobilization operations.

Incidental Cost associated with Mishaps

Cost Input	Cost
DOI Losses (includes aircraft repair/recovery/ replacement, loss of availability)	$ 277,500
Vendor Losses (includes aircraft repair/recovery/ replacement, loss of availability)	$ 150,000
DOI sUAS Losses (includes airframe repair/ replacement)	$ 10,094
Fatalities (0) VSL**	$ 0
Minor Injuries (1) Serious Injuries (1)	$ 1,036,800
Total Costs (3 Manned Mishaps, 6 sUAS Mishaps)	**$ 1,474,394**

** Value of Statistical Life(VSL) $9.6 Million - U.S. Department of Transportation

Minor and Serious injuries are calculated as a fraction of VSL: 0.003 and 0.105, respectively

DOI Flight Usage Cost

Cost associated with flight hours only

Procurement Type	Annual Flight Usage Cost	Annual Flight Hours	Cost per Flight Hour
Contract	$63,330,326	41,066	$1,542
• Rotor wing	• $27,235,876	• 21,402	• $1,273
• Fixed wing	• $36,094,450	• 19,664	• $1,836
Fleet*	$ 5,674,318	13,349	$ 425
• Rotor wing	• $1,876,027	• 1,274	• $1,473
• Fixed wing	• $3,798,291	• 12,075	• $ 315
Total Usage	$ 69,004,644	54,415	$ 1,268

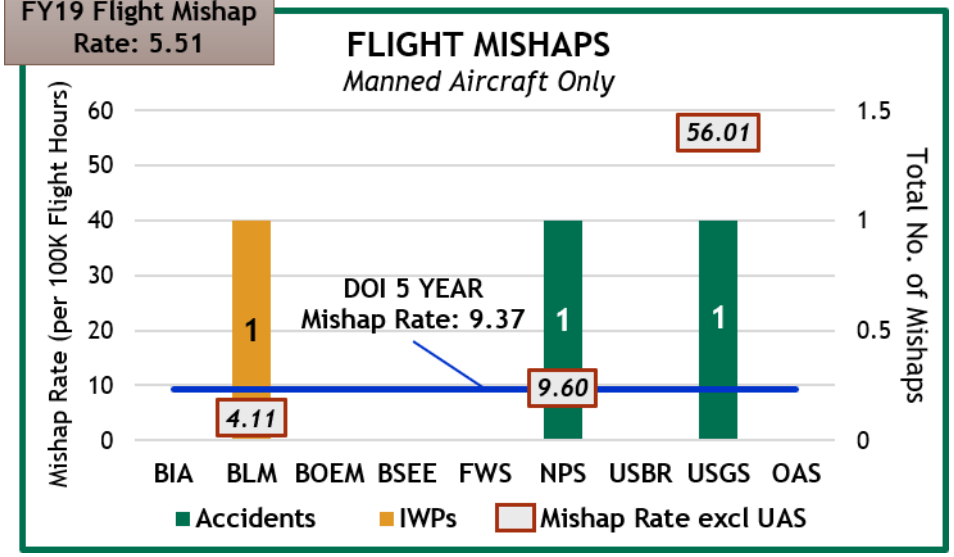
These rates are associated to pay item codes that correspond with flight hours only. They do not include monthly rates, availability, standby, etc…

*Not included: An additional 612 Fleet aircraft flight hours flown by external use customers in FY19 (associated usage cost: $883,479 or $1,443 per flight hour)

DOI FY19 Mishap Overview

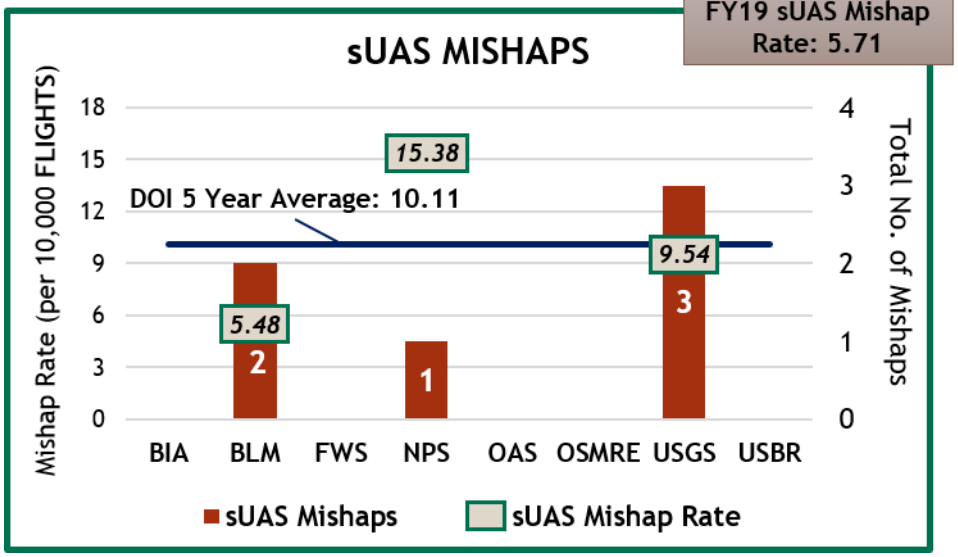
In FY19, the DOI accident rate decreased to 3.68 accidents for every 100,000 hours flown, a 28% decrease from the previous year.

FY19 Flight Mishap Rate: 5.51



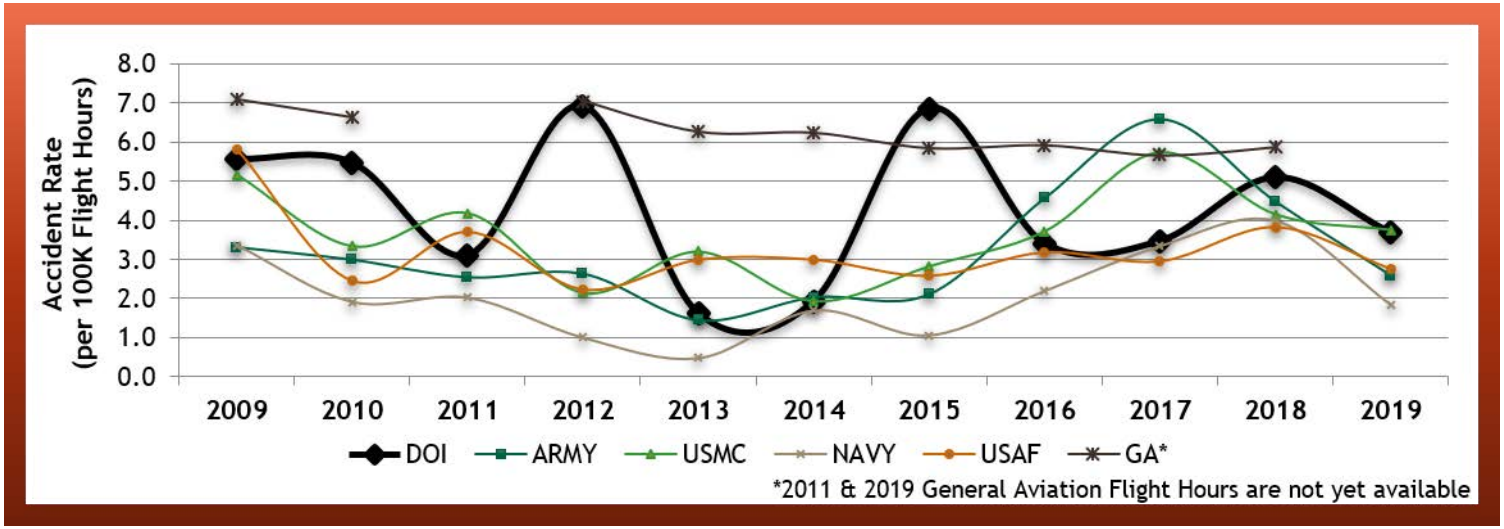
(Manned) Mishaps = Accidents + IWPs

FY19 sUAS Mishap Rate: 5.71



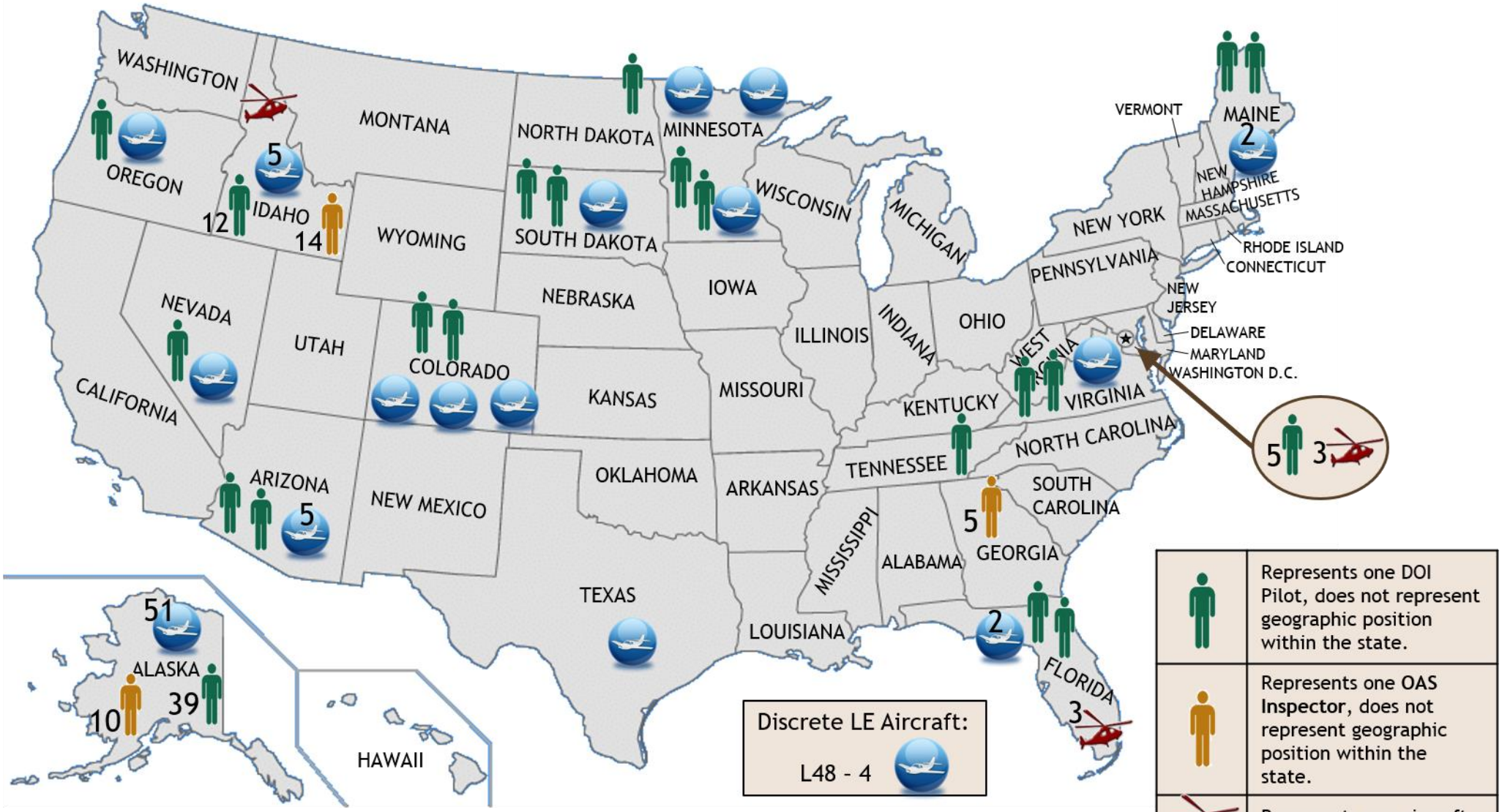
(sUAS) Mishaps = Accidents + IWPs + Aircraft loss

Accident Rate (manned aircraft)



*Accidents are defined by 49 CFR 830.2 and are determined by the NTSB. An Incident With Potential (IWP) is an incident that narrowly misses being an accident and is determined by OAS. sUAS uses slightly different criteria due to lower flight hours and aircraft losses that don't meet either criteria. Mishaps include accidents, IWP's and incidents.

Department of the Interior Fleet Aircraft, Pilots, and Inspectors



Note: Fleet aircraft and pilots occasionally move their home base location. For the latest information on current locations, please contact the L48 Fleet Maintenance Manager at 208-433-5082 or the Alaska Fleet Maintenance Manager at 907-271-6104. Aircraft locations can also be found at the following link: https://sites.google.com/a/ibc.doi.gov/aviation-resources/doi-fleet

DOI Fleet Inventory

DOI Fleet Aircraft: 87

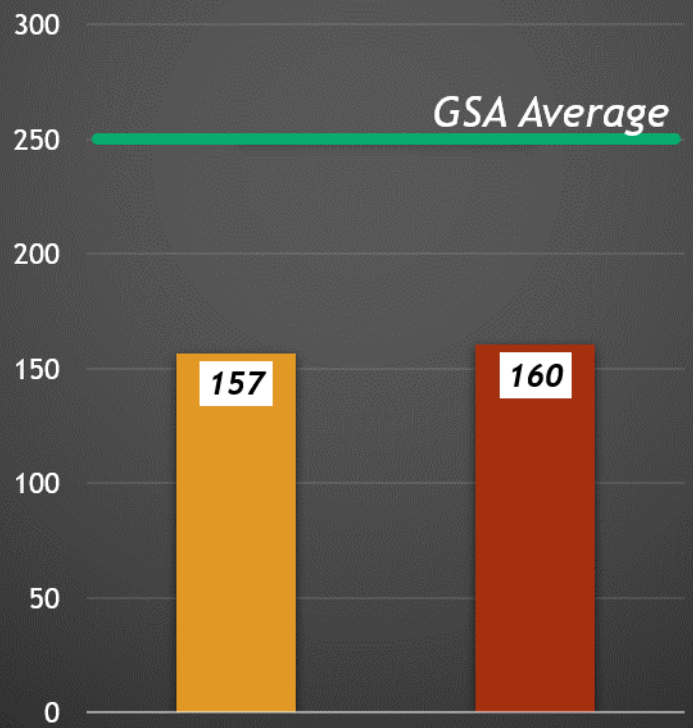
(average age: 23 years old - six years less than the average federal operation aircraft age of 29)

# of Aircraft	Type of Aircraft
1	Aerospatiale AS350
1	Aviat A-1B Husky
2	Beechcraft BE200 King Air
2	Bell 206 B-3
2	Bell 206 L-3
2	Bell 412
3	Cessna 182
13	Cessna 185
21	Cessna 206
20	Cub Crafters CC-18 Top Cub
2	DHC2 MK1 Beaver
1	DHC-6-300 Twin Otter
6	Found FBA 2C
1	Partenavia P-68 Observer
1	Pilatus PC-12
1	Piper PA-18 Super Cub
8	Quest Kodiak 100

The graph below represents DOI's average annual flight hours compared with the GSA benchmark utilization average of **250** flight hours per year.

DOI Fleet pilots flew an average of **157** hours each this year.

DOI Fleet aircraft averaged **160** hours in FY2019.



DOI Fleet Pilots: 89

Manned Aircraft Pilots: 74

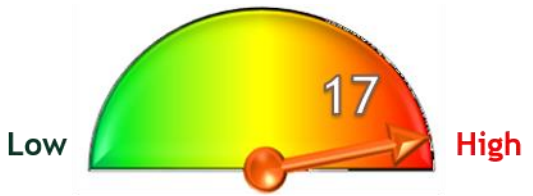
- **Pilot: 19**
- **Dual Function Pilot: 54**
- **Trainee: 2**

Inspector Pilots: 15

(1.02 pilots per manned aircraft)

Note: A pilot to aircraft ratio of at least 1.0 or greater is desirable.

Fleet Aircraft Inspectors: 15



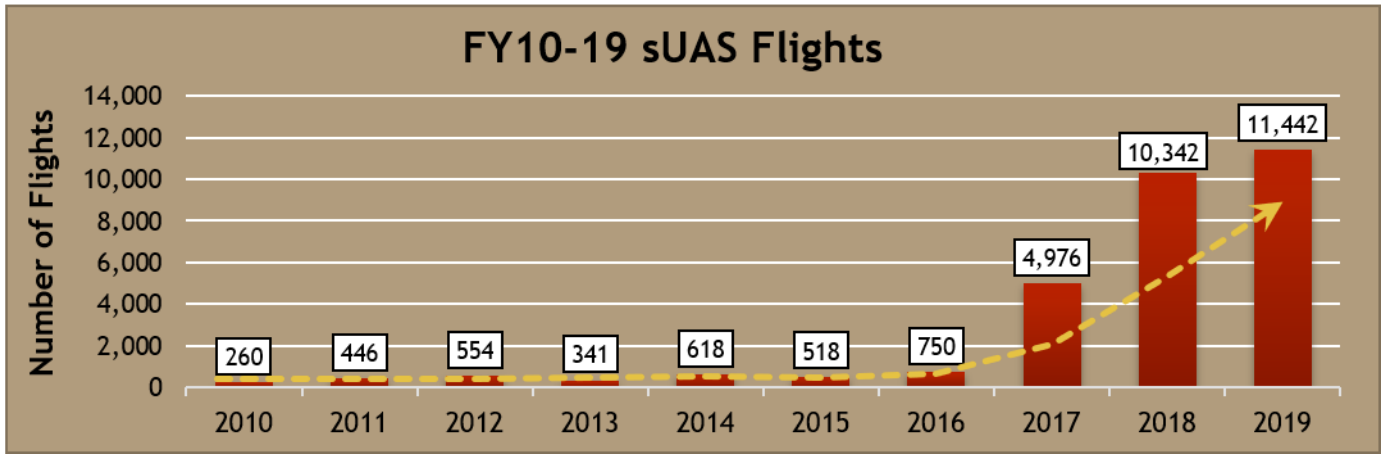
High Diversity Rate

A low fleet diversity is desirable, due to savings in training and maintenance.

Fleet Unmanned Aircraft Systems (sUAS)

DOI sUAS
Fleet Pilots: 468

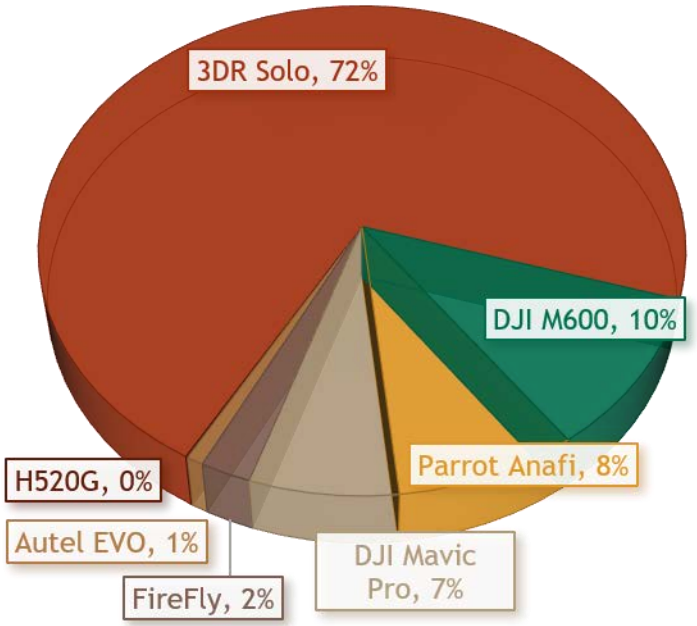
DOI sUAS
Fleet Aircraft: 810



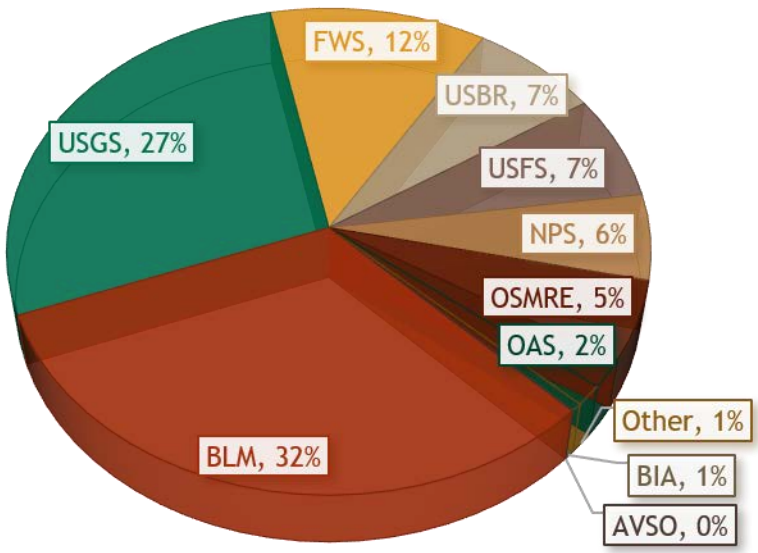
#	Aircraft Make/Model
486	3DR Solo
144	Parrot Anafi
74	DJI Mavic Pro
45	DJI Matrice 600 (M600)
24	Parrot Anafi Thermal
24	FireFLY6 PRO
5	Autel Evo
8	OTE Aircraft (Testing)

FY19 Fleet sUAS Activity

BY AIRCRAFT:



BY BUREAU:



FY19 Aviation Overview

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	1,411	$ 2,290,851	$ 1,624

FY19 BIA Fleet Statistics	
Unmanned Aircraft	9
sUAS Pilots	6
Unmanned Pilot-Aircraft Ratio	0.4

FY19 BIA sUAS Flights	
Total Flights	112
Principal Mission Types	• Pilot Proficiency/ Pilot Training • Air Crew Training • Mapping – Non-Fire • Test and Evaluation • Reconnaissance
Aircraft Systems Used	• 3DR Solo • Parrot Anafi

SAFECOM

BIA has a perfect SAFECOM completion rate of 100% with no SAFECOMs remaining open from 2015 to 2019. BIA's manned aircraft SAFECOM reporting rate increased 46% from FY18 and the sUAS SAFECOM reporting rate increased 100% from FY18.

BIA manned aircraft flight hours decreased 39% from FY18.
Total BIA sUAS flights decreased 2% from FY18.

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	23,153	$ 43,578,937	$ 1,882
Fleet	1,190	$ 1,031,945	$ 867

FY19 BLM Fleet Statistics	
Manned Aircraft	7
Unmanned Aircraft	265
Manned Aircraft Age	
0-10 Years	2
11-20 Years	0
> 20 Years	5
*Pilots	5
Dual Function Pilots	8
sUAS Pilots	144
Manned Pilot-Aircraft Ratio	1.85
Unmanned Pilot-Aircraft Ratio	0.55

Dual Function Pilots: Pilots who also have another job. (Ex. Scientist)

FY19 BLM sUAS Flights		
Total Flights	**Fleet: 3,618** **Contract: 14**	
Principal Mission Types	• Pilot Proficiency/ Training • Mapping – Non-Fire • Reconnaissance • Mapping Interagency Fire • Habitat/Environmental Evaluations • PSD aerial ignition	
Aircraft Systems Used	• 3DR Solo • Firefly	• DJI MavicPro • DJI M600 • Parrot Anafi

SAFECOM

BLM ended FY19 with a completion rate of 100% with no SAFECOMs remaining open from 2015 to 2019. BLM's manned aircraft SAFECOM reporting rate decreased 10% from FY18, while the sUAS SAFECOM reporting rate decreased 6% from FY18.

Aviation Mishaps = 1 Incident with Potential (IWP)
BLM manned aircraft flight hours decreased 5% from FY18.
Total BLM sUAS flights decreased 7% from FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.

FY19 Aviation Overview

BOEM

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	528	$ 859,803	$ 1,629
Fleet	119	$ 84,728	$ 715

SAFECOM

No SAFECOMs were submitted by BOEM in FY19 and no SAFECOMs remain open for the period between 2015 and 2018.

BOEM manned aircraft flight hours increased 11% over FY18. BOEM did not have any sUAS flights in FY19.

BSEE

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	6,462	$7,458,920	$1,154

SAFECOM

BSEE has a perfect SAFECOM completion rate of 100% with no SAFECOMs remaining open from 2015 to 2019. BSEE's manned aircraft SAFECOM reporting rate decreased 34% from FY18.

BSEE manned aircraft flight hours increased 5% from FY18. BSEE did not have any sUAS flights in FY19.

U.S. Fish & Wildlife Service

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	1,514	$ 1,196,402	$ 790
Fleet	7,123	$ 2,155,099	$ 303

FY19 FWS Fleet Statistics	
Manned Aircraft	50
Unmanned Aircraft	153
Manned Aircraft Age	
0-10 Years	23
11-20 Years	10
> 20 Years	19
Pilots	6
Dual Function Pilots	30
Trainee	1
sUAS Pilots	69
Manned Pilot-Aircraft Ratio	0.74
Unmanned Pilot-Aircraft Ratio	0.45

FY19 FWS sUAS Flights		
Total Flights	1,340	
Principal Mission Types	• Pilot Proficiency/ Pilot Training • Habitat/Environmental Evals • Reconnaissance • Air Crew Training • Law Enforcement • Wildlife Surveys	
Aircraft Systems Used	• 3DR Solo • Firefly • Autel EVO	• DJI Mavic Pro • DJI M600 • Parrot Anafi

SAFECOM

FWS finished the year with a 100% SAFECOM completion rate and no SAFECOMs remain open for fiscal years 2015 to 2019. FWS's manned aircraft SAFECOM reporting rate decreased 41% from FY18, while the sUAS SAFECOM reporting rate increased 476% from FY18.

FWS manned aircraft flight hours decreased 7% from FY18. Total FWS sUAS flights increased 39% over FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.

FY19 Aviation Overview

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	6,149	$ 6,607,762	$ 1,075
Fleet	4,270	$ 2,113,846	$ 495

FY19 NPS Fleet Statistics	
Manned Aircraft	28
Unmanned Aircraft	60
Manned Aircraft Age	
0-10 Years	7
11-20 Years	4
> 20 Years	19
Pilots	8
Dual Function Pilots	14
Trainee	1
sUAS Pilots	37
Manned Pilot-Aircraft Ratio	0.82
Unmanned Pilot-Aircraft Ratio	0.7

FY19 NPS sUAS Flights	
Total Flights	588
Principal Mission Types	• Pilot Proficiency/ Pilot Training • Air Crew Training • Reconnaissance • Mapping – Non-Fire • Reconnaissance
Aircraft Systems Used	• 3DR Solo • Parrot Anafi • DJI Mavic Pro • DJI M600 • FireFly

SAFECOM

NPS has a SAFECOM completion rate of 72% with 17 SAFECOMs remaining open from 2015 to 2019. NPS manned aircraft SAFECOM reporting rate decreased 41% from the previous year, while the sUAS SAFECOM reporting rate decreased 66%.

Aviation Mishaps = 1 Accident

NPS manned aircraft flight hours decreased 17% from FY18. Total NPS sUAS flights increased 46% over FY18.

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	16	$ 8,313	$ 510

FY19 OSMRE Fleet Statistics	
Unmanned Aircraft	34
sUAS Pilots	24
Unmanned Pilot-Aircraft Ratio	.71

FY19 OSMRE sUAS Flights		
Total Flights	516	
Principal Mission Types	• Mapping- Non-Fire • Pilot Proficiency • Habitat/ Env Evals	
Aircraft Systems Used	• 3DR Solo • Firefly	• Anafi • DJI Mavic Pro

SAFECOM

OSMRE submitted 0 SAFECOMs in FY19. Their manned aircraft SAFECOM reporting rate remained unchanged from the previous year, while their sUAS SAFECOM reporting rate decreased 100%.

OSMRE manned aircraft hours decreased 23% from FY18. Total sUAS flights increased 404% over FY18.

Appraisal and Valuation Services Office (AVSO) Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	5	$ 3,797	$ 730

FY19 AVSO Fleet Statistics	
Unmanned Aircraft	0
sUAS Pilots	3
Unmanned Pilot-Aircraft Ratio	0

FY19 AVSO sUAS Flights	
Total Flights	3
Mission Type	Test & Evaluation
Aircraft System Used	Parrot Anafi

SAFECOM

No SAFECOMs were submitted by AVSO in FY19 and none remain open from 2015 to 2019.

AVSO did not have any manned aircraft flight hours or sUAS flights prior to FY19.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.

FY19 Aviation Overview

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	69	$ 80,376	$ 1,163
Fleet	13	$ 5,934	$ 446

FY19 USBR Fleet Statistics	
Unmanned Aircraft	51
sUAS Pilots	24
Unmanned Pilot-Aircraft Ratio	0.44

FY19 USBR sUAS Flights	
Total Flights	732
Principal Mission Types	• Mapping – Non-Fire • Pilot Proficiency/ Pilot Training • Reconnaissance • Air Crew Training • Test & Evaluation • Auto Surveyor • Maintenance Flights
Aircraft Systems Used	• 3DR Solo • Parrot Anafi

SAFECOM

USBR has a SAFECOM completion rate of 67% with 1 SAFECOM remaining open for the period between 2015 and 2019. USBR's manned aircraft SAFECOM reporting rate remained unchanged from FY18, while the sUAS SAFECOM reporting rate decreased 43% from FY18.

USBR manned aircraft flight hours increased 47% over FY18.
Total USBR sUAS flights increased 4% over FY18.

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	1,689	$ 1,160,795	$ 687
Fleet	96	$ 25,086	$ 261

FY19 USGS Fleet Statistics	
Unmanned Aircraft	179
Dual Function Pilots sUAS Pilots	1 114
Unmanned Pilot-Aircraft Ratio	0.7

FY19 USGS sUAS Flights	
Total Flights	3,170
Principal Mission Types	• Mapping – Non-Fire • Habitat/Environmental Evaluations • Pilot Proficiency/ Pilot Training • Test & Evaluation • Wildlife Surveys • Animal Counting • Reconnaissance
Aircraft Systems Used	• 3DR Solo • DJI Mavic Pro • Parrot Anafi • DJI M600 • Firefly

SAFECOM

USGS finished FY19 with a 100% SAFECOM completion rate and 0 SAFECOMs remaining open for 2015 to 2019. USGS manned aircraft SAFECOM reporting rate decreased 15% from FY18, while the sUAS SAFECOM reporting rate decreased 23% from FY18.

Aviation Mishaps = 1 Accident
USGS manned aircraft flight hours increased 18% from FY18.
Total USGS sUAS flights increased 7% over FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.

FY19 Aviation Overview

Performance & Safety Updates

Office of Aviation Services

Manned Aircraft	Annual Flight Hours	Annual Flight Usage Cost	Cost per Flight Hour
Contract	33	$ 46,280	$ 1,420
Fleet	538	$ 257,681	$ 479

FY19 OAS Fleet Statistics	
Manned Aircraft	2
Unmanned Aircraft	39
Manned Aircraft Age	
0-10 Years	0
11-20 Years	0
> 20 Years	2
Inspector Pilots	15
sUAS Pilots	10
Manned Pilot-Aircraft Ratio	7.5
Unmanned Pilot-Aircraft Ratio	1.17

FY19 OAS sUAS Flights	
Total Flights	336
Principal Mission Types	• Reconnaissance • Test & Evaluation • PSD aerial ignition • Air Crew Training • Pilot Proficiency/ Pilot Training
Aircraft Systems Used	• DJI M600 • 3DR Solo • Parrot Anafi • DJI Mavic Pro • 3DR H520G

SAFECOM

OAS ended FY19 with a 100% SAFECOM completion rate and 0 SAFECOMs remaining open from 2015 to 2019. OAS manned aircraft SAFECOM reporting rate increased less than 1% from FY18 and there were 0 sUAS SAFECOMs reports in FY19, a decrease of 100% over the previous year.

OAS manned aircraft flight hours increased 33% from FY18. Total number of OAS sUAS flights decreased 70% from FY18.

Flight hour, cost, and mission data are obtained from Aircraft Use Reports (AURs) submitted by the user. Costs (such as monthly rates and central bill costs) not associated with flight hours are not included.

Office of Aviation Services

PERFORMANCE

Performance	Quantity
Interagency Safety Communications Issued	14
Program Evaluations completed	15
Elevated SAFECOMs completed	11
Student Hours of Training completed	70,408
Fleet Pilot Evaluations completed	141
Fleet Aircraft Inspections completed	95
UAS Aircraft Inspections completed: Fleet & Vendor	230
UAS Pilots Inspections: A-450 & Advanced Workshop	157
Commercial Pilot Evaluations	1,706
Commercial Aircraft Inspections	1,125
Point to Point Inspections	469
Fuel Service Vehicle Inspections	375
Cooperator Approvals	138
Technical Specifications for procurement reviewed and/or created	38

Aircraft Mishap Review Board (AMRB) Update

DOI Bureaus and the Office of Aviation Services continued their efforts towards closing open Aircraft Mishap Review Board (AMRB) recommendations. As of January 2020, 23 AMRB recommendations remained open. A multi-bureau team has been established to close them.

AMRB recommendations result from accidents that have claimed lives, caused injuries, and/or resulted in significant damages and are a bureau-led process with the goal of preventing similar mishaps from occurring again in the future.

In FY19, three AMRBs resulted in 15 additional recommended action items, of which 4 have already been closed.

FY19 Safety & Training Updates

OAS Training Division Update

IAT.GOV

In FY19, the OAS Training Branch successfully hosted 2 Aviation Centered Training events. The events were held in Vancouver, WA and Minneapolis, MN and averaged 113 students per event. In total, the OAS Training Branch supported 674 instructor led course offerings accounting for 5,285 available student hours of training and the Interagency Aviation Training website recorded 40,428 course completions:

- 30,429 Online
- 7,400 Residential Classroom
- 1,648 ACE| Workshop
- 939 Webinars
- 12 Video Teleconferencing

OAS Training has begun revising and updating the complete library of online courses. Newly updated versions of A-100 Basic Aviation Safety, A-110 Aviation Transportation of Hazardous Materials, and M-3 DOI Aviation Management Training for Supervisors are in the final stages of approval. Other updating efforts have been initiated on A-103 FAA NOTAM Systems, A-115 Automated Flight Following, A-203 Basic Airspace, A-204 Aircraft Capabilities and Limitations and A-207 Aircraft Flight Following.

Other OAS Training initiatives include the continuous improvements to the IAT website. In 2019, we added several bureau specific training plans that supplement Departmental requirements. Additionally, we also made significant progress on the instructor qualification functionality that will enable users to locate qualified instructors as well as allow instructors to view their own qualifications.

ACE: Aviation Centered Education events continue to be a big success thanks to all of those who participate as students and as instructors! ACE allows DOI bureau and interagency partner personnel to acquire in one week required training that would otherwise take many months to complete. DOI employees and partner agencies will have two opportunities to attend ACE in FY20. The first event will be held in Anchorage, AK March 9-13 and the second opportunity will be in Phoenix, AZ April 13-17.

Be on the lookout for the FY21 ACE events to be announced in the near future.

Aviation Program Evaluation Update

Aviation program evaluations are an essential means of providing feedback related to the operations, process, and outcomes of aviation programs with a focus on program enhancement. This quality assurance system assesses aviation safety, ensures efficiency, and provides a means for sharing best practices.

Departmental Aviation Program Evaluations are conducted via a systematic process for analyzing and reporting information regarding aviation programs within the bureaus and their respective units. These assessments are tailored to meet departmental and bureau needs in terms of regulatory compliance and continual improvement. The evaluations also provide feedback regarding OAS's effectiveness in communicating and implementation of DOI aviation policies, while identifying potential improvements to support the needs of the field.

FY19 Results & Top 5 Findings

In FY19, OAS conducted 15 aviation program evaluations amongst 8 bureaus resulting in a total of 82 findings and no material weaknesses. Findings, corrective actions, and aviation program enhancements were collaborated with bureau aviation managers. 36 Best Practices were observed and identified within evaluation final reports.

Top 5 Findings, 2015-2019

1. Aviation training requirements not met (per OPM-04 or more restrictive bureau requirements) » *82%*
2. Inadequate project planning, including Project Aviation Safety Plan completion in accordance with OPM-06 » *71%*
3. Incomplete, inaccurate and/or out of date Aviation Management Plans » *53%*
4. Aviation Life Support Equipment (ALSE) inspection and tracking below Interagency ALSE Standard requirements » *49%*
5. Flight Hazard Maps lacking or inadequate » *30%*

Inadequate Aviation Management Plans and Project Aviation Safety Plans (PASPs) continue to account for a significant number of aviation program evaluation findings across the department. These deficiencies were also found in 34% of departmental aviation accidents and Incidents With Potential (IWPs) during this same period (2015-2019).

Operational Procedure Memorandum-06 (OPM-06) identifies National Aviation Management Plan standards, standardizes PASPs, and identifies management approval requirements for both types of plans. OPM-06 in conjunction with bureau specific National, Regional/State, and Local requirements should be utilized to address planning deficiencies and facilitate aviation safety improvements across the department.

Project Aviation Safety Plans (PASPs)

As an integral part of aviation mission planning, Project Aviation Safety Plans (PASPs) must be developed for all special use missions (as defined in OPM-29 Special Use Activities for Manned Aircraft). Appendix 2 of OPM-06 identifies the minimum elements required within a PASP. Aviation Program Evaluations and mishap reports have consistently identified the following PASP elements to be inaccurate or lacking required content:

- Participants - List of individuals involved, their qualifications (e.g. Helicopter Manager, Fixed-Wing Flight Manager, Aircrew Member, etc.), individual project responsibilities, and dates of last aviation training associated with the position they will occupy.
- Communication Plan, Flight Following and Emergency Search and Rescue - Identify the procedures to be used that coincide with departmental and bureau requirements.
- Aerial Hazard Analysis - An aerial hazard analysis with attached map must be provided to the pilot before the flight.
- Protective Clothing and Equipment - Identify the required Aviation Life Support Equipment (ALSE) applicable for the operation. This includes both PPE and secondary restraint equipment.
- Risk Assessment/SMS - Risk assessment utilizing tools such as those listed in Appendix G of NWCG Standards for Helicopter Operations or a bureau approved Safety Management System (SMS).
- Signatures - Line Manager or appropriate level of approval based on the risk assessment or bureau specific requirements.

For those bureaus that perform similar special use aviation missions on a recurring or routine basis, the required PASP can be rolled into a station/unit aviation plan that is reviewed at least annually. In this instance, the bureau must possess a documented process to capture any unique circumstances (e.g. passenger manifest, training requirements, risk assessment and/or approval process) to meet the minimum PASP requirements.

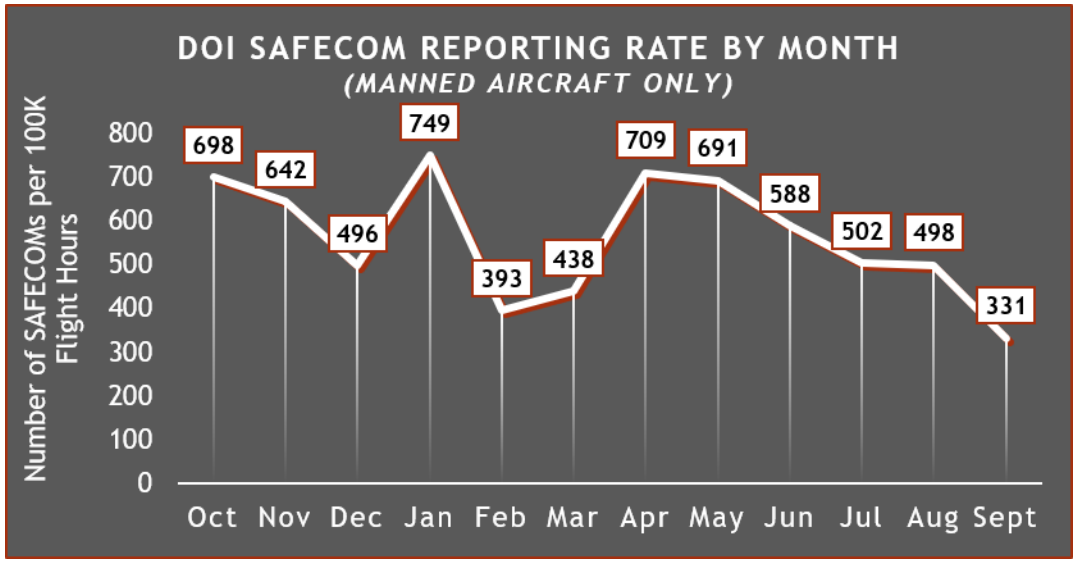
Project supervisors and management-level project approvers are responsible for ensuring PASPs are completed in satisfactory manner. The Project supervisor should work closely with aviation managers in preparing these plans. PASPs are approved at a management level that is commensurate with the level of risk as determined by the risk assessment. Bureaus may determine their own routing and approval process for PASPs along with any specific document format they may prefer.

FY19 SAFECOM Overview

Using the **SAFECOM** system for punitive actions is prohibited (352 DM 3.10B).

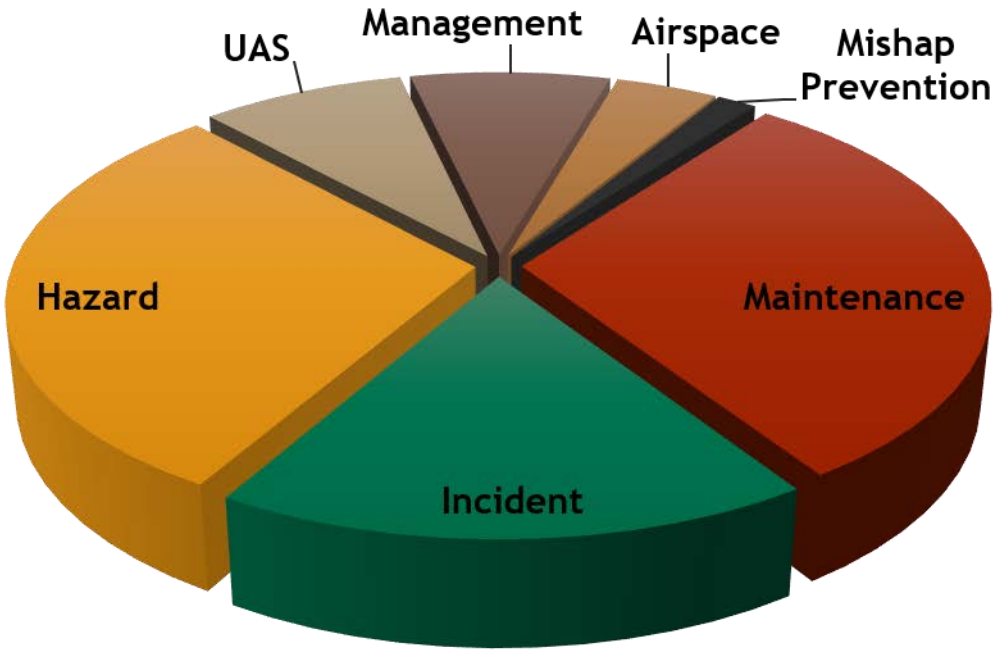
Submitting a SAFECOM is **not** a substitute for "on-the-spot" corrections to a safety concern. It is a tool used to identify, document, track, and correct safety related issues.

A SAFECOM **does not** replace the requirement for initiating an accident or incident report.



Percentage of SAFECOMs submitted by Bureau	
BLM	42%
BSEE	30%
NPS	7%
FWS	7%
USGS	6%
BIA	5%
OAS	2%
USBR	1%
OSMRE	0%
BOEM	0%

SAFECOMs by Category



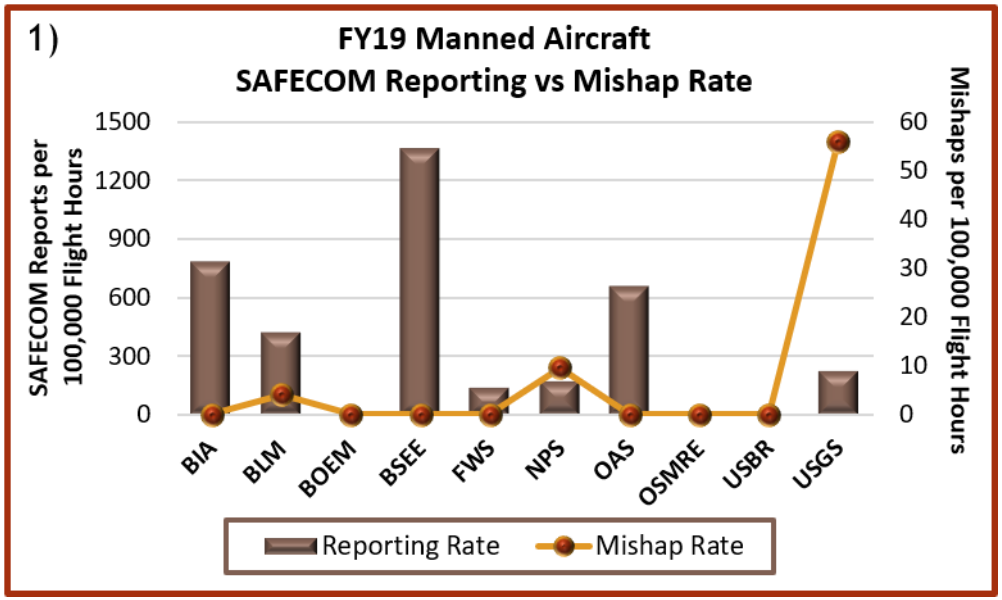
Well-represented Hazards include:

- Pilot Action
- Policy Deviation
- Mission Equipment
- Pre-flight Action
- Communications
- Ramp

Top Maintenance Issues:

- Engine
- Electrical
- Fuel
- Airframe
- Avionics
- Instrument

FY19 SAFECOM Overview



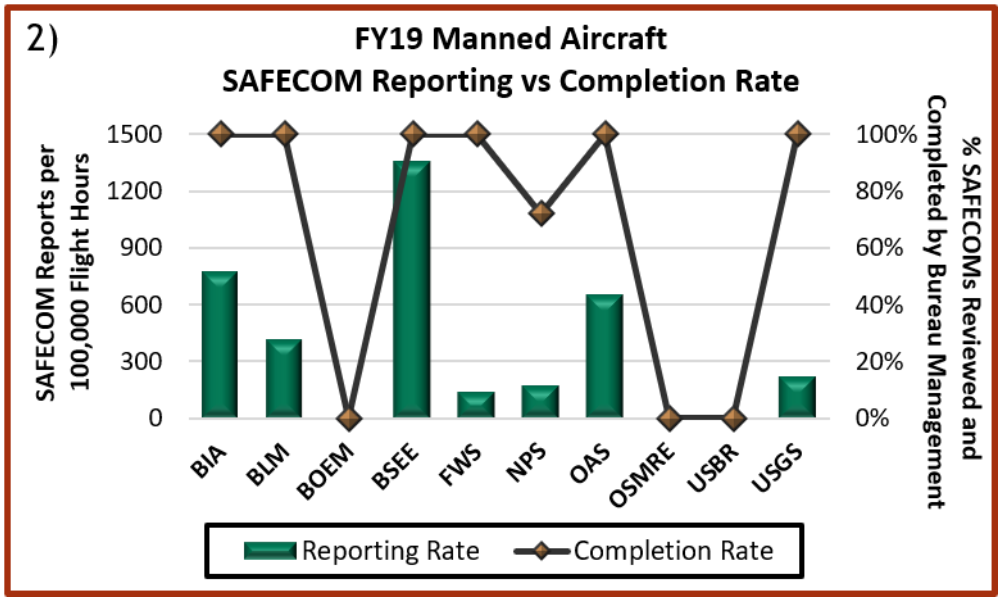
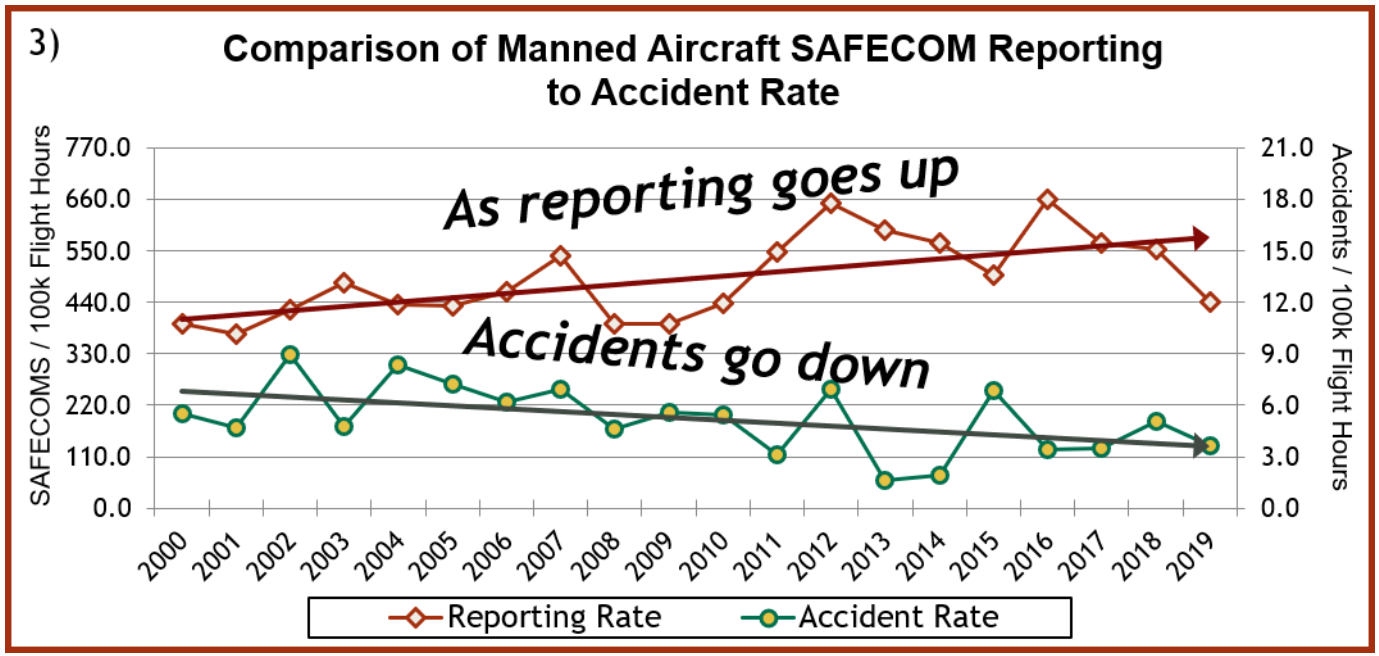


Chart 1 – Mishap prevention efforts are more effective when reporting rates are high, as you only know what's being reported. Although USGS and NPS both suffered an accident in FY19, the USGS mishap rate was much higher as a result of their lower flight hours. In FY19, BSEE had the highest SAFECOM reporting rate, submitting one SAFECOM for every 73 hours flown.

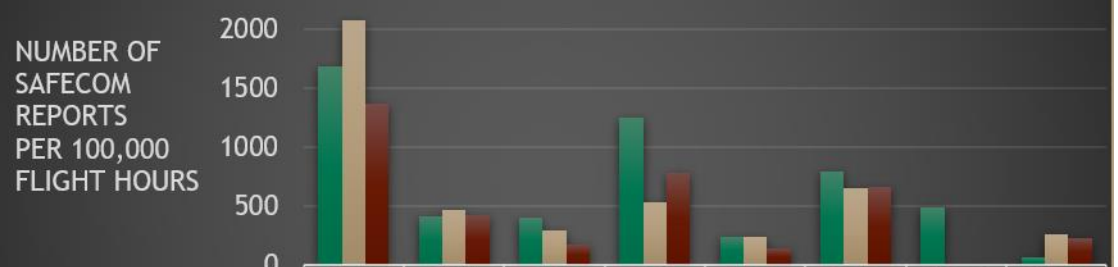
Chart 2 – Six Bureaus (BIA, BLM, BSEE, FWS, USGS, and OAS) finished the year with a **100%** SAFECOM completion rate by Bureau Management! The **overall** DOI SAFECOM completion rate increased 1% over the previous year, with 97% of all SAFECOMs reviewed and completed by Bureau Management. However, the DOI SAFECOM reporting rate decreased 21% this year.

Chart 3 – We continue to see an inverse correlation between SAFECOM reporting and DOI's accident rate. SAFECOM reporting for the period between 2000 and 2019 has increased 11% while the accident rate has decreased by 33%.



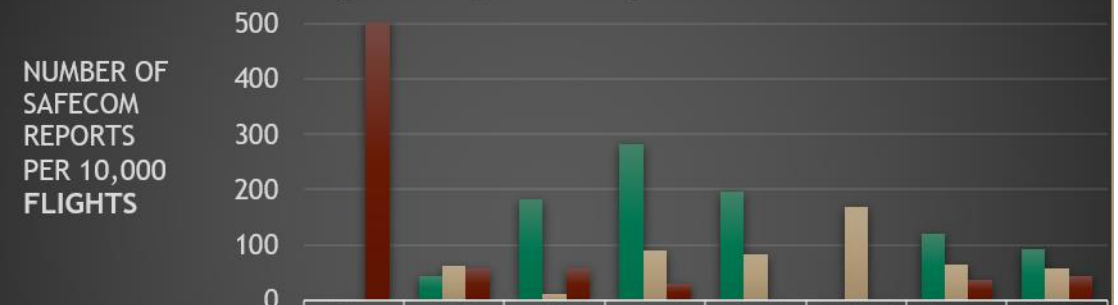
FY17-19 SAFECOM Trends

FY17-19 Manned Aircraft SAFECOM Reporting Rate by Bureau



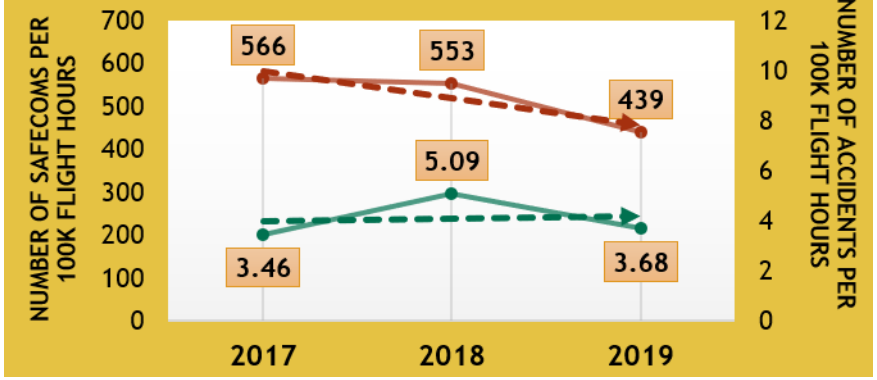
	BSEE	BLM	NPS	BIA	FWS	OAS	USBR	USGS
FY17 Reporting Rate	1683	415	398	1248	239	794	490	69
FY18 Reporting Rate	2068	466	293	534	236	656	0	263
FY19 Reporting Rate	1362	419	173	780	139	658	0	224
% change in 3 years	-19%	1%	-57%	-38%	-42%	-17%	-100%	224%

FY17-19 sUAS SAFECOM Reporting Rate by Bureau



	BIA	BLM	FWS	NPS	OAS	OSMRE	USBR	USGS
FY17 Reporting Rate	No Flights	43	183	282	195	0	120	92
FY18 Reporting Rate	0	61	10	90	83	168	64	58
FY19 Reporting Rate	508	58	59	31	0	0	37	45
% change in 3 years	∞	33%	-68%	-89%	-100%	0%	-69%	-52%

DOI Manned Aircraft SAFECOM Reporting vs Accident Rate (FY17-19)



Manned aircraft SAFECOM reporting: As shown in chart 3 on the previous page, as SAFECOM reporting goes up, accidents go down. The opposite is also true. The graph above demonstrates this relationship. Between FY17 and FY19, the Department of the Interior's manned aircraft SAFECOM Reporting Rate has decreased by 22% while the accident rate has increased by 6%.

sUAS SAFECOM reporting: Between FY17 and FY19, the 111% increase in the number of sUAS flights substantially outpaced the 21% increase in the number of sUAS SAFECOMs. As a result, the overall DOI sUAS SAFECOM reporting and mishap rates decreased by 43% and 59%, respectively.

Importance of SAFECOM reporting: The SAFECOM system is an essential tool in the Department's efforts to reduce aviation mishaps. Early identification, correction, and reporting of hazards can save time, money, and most importantly, lives. The trend in lower SAFECOM reporting rates we've seen in recent years may indicate that managers may not know what hazards aren't being reported. In order to maintain an effective safety culture, the Department of the Interior continues to depend on input from aviation users.

If you see something, say something.

FY19 Awards and Achievements

In-Flight Action Award

Bureau of Land Management

David Fennen

Fish and Wildlife Service

Terry Liddick

Bureau of Safety and Environmental Enforcement

Esteban Ortiz-Ventura

Tyler Roy

Ted Viator

Derrick Wulf

Airward

Bureau of Safety and Environmental Enforcement

Ahmed Abdelmoghith

Beau Beveridge

Preston White (2 awards)

William White

Award for Outstanding Contribution to Aviation Safety

This award is established to recognize an individual, group, or organization for outstanding contribution to aviation safety or aircraft accident prevention.

Bureau of Land Management

Don Bell

DOI Accident Free Pilots

Bureau of Land Management

Allen, Lisa
Bell, Don
Germann, Hans
Gusse, Walker
House, Greg
Lenmark, Paul
Mascheroni, Andre
McCormick, Bob
Pearson, Craig
Smyth, Scott
Swisher, Chris

Office of Aviation Services

Bannister, Gene
Castillo, James
Cook, Thomas
Curtis, Scott
Englert, Rich
Flack, Andy
Fowler, Dale
Howell, Gil
James, William
Kearney, Patrick
Kopczynski, Jim
Lindley, Jonathan
Miller, Arlyn
Pena, Terry
Wittkop, Jim

U.S. Fish and Wildlife Service

Anderson, Anna
Bayless, Shawn
Bosch, Brandon
Coggins, Lewis
Daniels, Chris
Earsom, Stephen
Greeley, Chris
Greil, Thomas
Guldager, Nikki
Hilwig, Kara
Kadrmas, Neil
Koneff, Mark
Liddick, Terry
Lubinski, Brian
Mallek, Ed
Olson, Nate
Pepin, Dan
Rayfield, John
Rees, Kurt
Rhodes, Walt
Rippeto, Dave
Scotton, Brad
Shelden, Dan
Shults, Brad
Spangler, Robert
Sundown, Robert
Thorpe, Phil
VanHatten, Kevin
Wade, Mike
Watts, Dominick
Wortham, James
Yates, Sarah

U.S. Geological Survey

Heywood, Charles

National Park Service

Bell, Steven
Capra, Jim
Enzfelder, Glen
Goodwin, Fred
Grenda, Adam
Hamon, Troy
Howell, Galen
Hummel, James
Larsen, Amy
Nigus, Brett
Richotte, Rich
Sample, Scott
Taylor, Scott
Thompson, Nick
Welty, Don

U.S. Park Police

Eavasick, Ryan
Haapapuro, Eric
Perkins, Christopher
Wright, Keaton

FY19 Safety Improvement Opportunities

Continuous Accident Free Milestones

BSEE	45 Years
OSM	33 Years
USBR	22 Years
BOEM*	8 Years
FWS	4 Years
BIA	2 Years

*contributed to BSEE's 45 year accident free milestone

Honorable Mention

US Park Police has had 46 years of accident free flying!

"You've got to expect things are going to go wrong. And we always need to prepare ourselves for handling the unexpected."

-Neil Armstrong

Safety Publications

As part of the DOI mishap prevention program, OAS, in partnership with the U.S. Forest Service, publishes a variety of safety publications.

https://www.doi.gov/aviation/safety/library

Accident Prevention Bulletins

IA 19-01 Filter Monitor Media Migration
IA 19-02 AS 350 Throttle Quadrant
IA 19-03 NOTAM Location Identifiers and Pointer NOTAM Use
IA 19-04 UAS Intrusions in Fire Suppression Operations
IA 19-05 Spatial Disorientation, Vertigo, and Head Movement/Position Changes

Safety Alerts

DOI 19-01 BirdsEyeView (BEV) FireFLY 6 Pro Dynamite Battery Charger
IA 19-01 Aero Commander 690 Vertical Fin Attachment Bulkhead Cracks
IA 19-02 Retardant Safe Drop Height
IA 19-03 External Load Rigging Failure
IA 19-04 Parrot Anafi sUAS Propeller Blades

Lessons Learned

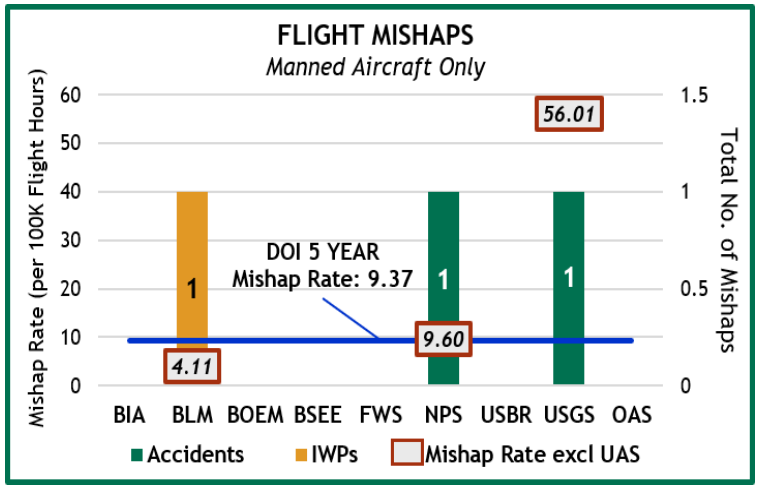
DOI 19-01 3DR Solo Master Air Screw Propellers
DOI 19-02 Aircraft Mishap Reporting
IA 19-01 The Importance of Preflight and Postflight Inspections
IA 19-02 Management and Aeronautical Decision Making

Bureau Aviation Managers

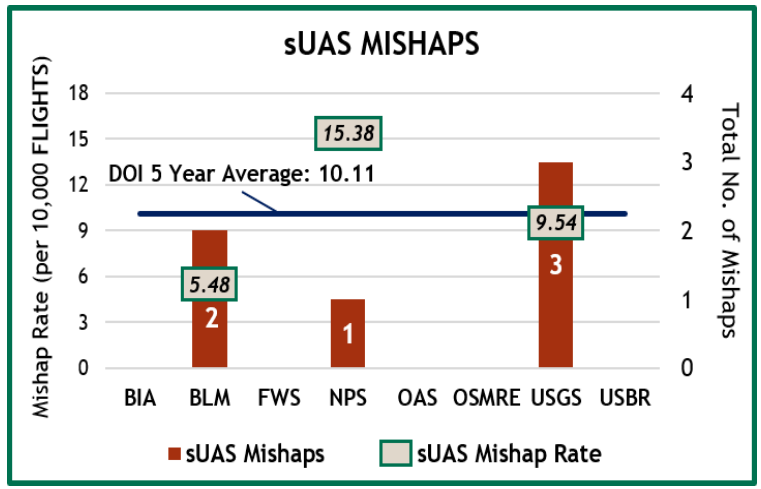
BIA - Joel Kerley (208) 387-5371
BLM - Brad Gibbs (208) 387-5182
BSEE - Andrew Wareham (907) 334-5278
BOEM - Richard Knowles (907) 334-5268
FWS - Anthony Lascano (571) 213-3021
NPS - John Buehler (208) 387-5227
OSMRE - Dave Rosser (208) 433-5050
USBR - Dave Rosser (208) 433-5050
USGS - Bill Christiansen (303) 236-5513

Executive Summary

Take Away Sheet



2 Accidents and 1 Incident with Potential



Procurement Type	Annual Flight Usage Cost	Annual Flight Hours	Cost per Flight Hour
Contract	$ 63,330,326	41,066	$ 1,542
Fleet	$ 5,674,318	13,349	$ 425
Total Usage	$69,004,644	54,415	$ 1,268

POLICY: In FY19, three AMRBs resulted in 15 additional recommended action items, of which 4 have already been closed. As of January 2020, 23 AMRB recommendations remained open. A multi-bureau team has been established to close them.

ASSURANCE: In FY19, the OAS Training Branch hosted 2 Aviation Centered Training Events averaging 113 students per event. In total, the Training Branch supported 674 instructor led course offerings accounting for 5,285 available student hours of training and the IAT website recorded 40,428 course completions.

ASSURANCE: In FY19, 15 Program Evaluations were completed among 8 bureaus with no material weaknesses found. These evaluations resulted in a total of 82 findings with 36 best practices observed and identified within evaluation final reports.

POLICY: Inadequate Aviation Management Plans and Project Aviation Safety Plans (PASPs) continue to account for a significant number of aviation program evaluation findings across the department. Between 2015 and 2019, these deficiencies were found in 34% of all departmental aviation accidents and incidents with potential (IWPs). OPM-06 in conjunction with bureau specific National, Regional/State, and Local requirements should be utilized to address planning deficiencies and facilitate aviation safety improvements across the department.

RISK MANAGEMENT: Over the last three years, the DOI manned aircraft SAFECOM reporting rate has declined by 22% while the accident rate has increased 6%. sUAS flights increased 111% between FY17 and FY19 but also resulted in a reduction the sUAS SAFECOM reporting rate during the same period. The SAFECOM system is about accident prevention and it's effectiveness is dependent upon aviation user input. *If you see something, say something.*

PROMOTION: FY19 award nominations came from 3 different bureaus. FY19 awards included 6 In-Flight Action Awards and 5 Airwards (One individual even received 2!). The FY19 Departmental Award for Outstanding Contribution to Aviation Safety goes to Don Bell (BLM).

PROMOTION: Bureaus maintaining excellence in aviation safety through their continuous accident-free years record include: BSEE-45 years (*manned aircraft safecom reporting rate-1362*), OSM-33 years (*manned aircraft & sUAS safecom reporting rate-0*), USBR-22 years (*manned aircraft safecom reporting rate-0, sUAS reporting rate-37*), BOEM-8 years (*manned aircraft and sUAS safecom reporting rate-0*), FWS-4 years (*manned aircraft safecom reporting rate-139, sUAS reporting rate-58*), and BIA-2 years (*manned aircraft safecom reporting rate-780, sUAS reporting rate-508*). Kudos as well to the US Park Police for their 46 continuous accident-free years (*manned aircraft and sUAS reporting rate-0*)

Keith Raley - Chief, Aviation Safety, Training, Program Evaluations and Quality Management, OAS (208) 433-5071
Monique Way - Aviation Safety Data Analyst, OAS (208) 433-5070