Appendix F: Aviation Stakeholder Group Survey

After completing the primary research effort, input was collected from airport staff nationwide, regarding current issues, practices, and challenges with PFAS management at their airports through an aviation stakeholder group (ASG) survey. Information from the literature review and research in conjunction with the ASG survey results informed the layout and content of this guide. Survey questionnaires were sent to approximately 8,150 potential respondents via email, and the survey effort was publicized at several national industry conferences. The distributed survey questionnaire and ASG survey results are provided in the following sections.

ASG Survey Approach

During the four-week survey period in January 2022, 238 responses were received, and detailed survey results are presented in this section. The airports represented were inclusive of diverse sizes, climates, and land use settings, and the team solicited feedback from personnel within a variety of aviation roles at these representative airports.

The U.S. was subdivided into major contiguous regions based on similarities in climate and operations as these characteristics may affect PFAS behavior in the environment. The eight survey regions included California and Alaska in the West Coast Region, Hawaii in the Southeast Region, and Idaho in the Northern Rockies and Plains Region. Respondents were asked to identify their geographic region from a map provided within the questionnaire. Survey responses were received from all eight regions.

ASG Participant Airports and Respondent Characteristics

Commercial service airports with FAA Part 139 Certifications were the focus of this survey effort; however, ASG participation by personnel at general aviation airports was included in the analysis of survey results. Airports with FAA Part 139 Certifications in U.S. territories or located outside of the 50 U.S. states, like Guam for example, airports listed as inactive; or airports without a designated National Plan of Integrated Airport Systems (NPIAS) hub category were excluded from the total airport count in the results analysis. These exclusions reduced the potentially participating airports total count from 519 to 490 airports.
Of the remaining NPIAS airports, the number per ASG geographic region was used to determine the percent distribution of possible respondent airports per ASG survey region by hub size classification. This information was used to compare the regional distribution of potential responding airports and the distribution of participating survey respondent airports by ASG survey region. Respondent participation distribution within survey geographic regions was generally proportional to the distribution of airports within survey regions, although the West Coast Region accounted for a slightly greater percentage of respondents than their representative share of airports. If the comparison had shown a disproportionate participation rate compared to the potential number of participating airports, the research team would have considered a revised approach towards soliciting ASG input, but based on the distributions observed, the team determined a revised approach was unnecessary. Protections for respondent anonymity created limitations on the survey data analysis, and as a result, the research team was unable to determine if multiple respondents came from the same airport.

Respondents were asked to identify the aviation services provided by their airport. Most respondents, 82 percent, indicated their airports provide general aviation services, but only 10 percent identified general aviation services as their primary service offering. Additionally, 20 percent of respondent airports are DoD joint use facilities.

Respondents were asked about job duties within their organizations with questions differentiating between primary roles and possible secondary or additional roles as many airports have staff with multiple operational responsibilities. However, respondents were permitted to select only one primary job role, so this data best reflects the distribution of respondents by their perceived or defined primary functions within their organizations. These data suggest the perspectives and priorities reflected in other survey question responses. When asked about secondary or additional job duties, respondents were a much more diverse group.

**ASG Responses and Guide Content**

Responses indicate the guide should direct users towards reliable but familiar sources of information, such as websites for industry groups and regulatory agencies. While the survey sought to identify what information sources the ASG felt were accurate or reliable, the survey also asked how ASG participants prefer to access this information. These data will enable the research team in cooperation with the ACRP to distribute the guide in a format that promotes widespread use.

To understand the scope of content and aviation industry needs that should be addressed by this guide, respondents were asked about their level of interest in a variety of PFAS related topics. Topics were selected to align with the research plans and anticipated work products for ACRP Projects 02-93 and 02-91, but responses were useful in refining which topics should
receive more attention. The topic of greatest interest was for further information on anticipated PFAS regulations and potential impacts to operations, developments, and facilities planning.

These issues are addressed in Chapters 3 and 4, but based on the survey results, the guide emphasizes and expands on airport operations, planning, and development; PFAS and construction management; regulatory planning and institutional resilience; and insurance mechanisms and risk reduction policies.

Other interests centered around management, cleaning, disposal, and remediation of PFAS containing products and potentially exposed areas as well as non-AFFF or fluorine-free AFFF alternatives. Airports also do not appear to consider tenant activities with potential for PFAS exposure when judging operational risks. Based on these results, the guide suggests airport operators consider reviewing tenant lease language, providing tenants with informational brochures about AFFF and PFAS management, and engaging tenants as cooperating parties in AFFF management.

**ASG Survey Questionnaire and Results**

The ASG survey questionnaire and results follow on the next page.
ACRP 02-93 Guidebook for PFAS Management at Airports Aviation Stakeholder Survey

RS&H, Inc. (RS&H), under the Transportation Research Board’s (TRB) Airport Cooperative Research Program (ACRP), is conducting research for Project 02-93, “Guidebook for PFAS Management at Airports”. More information about the project from the ACRP’s website can be found here: https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=5024

A PFAS Management Guidebook for airports nationwide requires feedback from a diverse group of aviation professionals about their needs regarding current and foreseeable challenges related to PFAS use and management in an airport setting. This survey is to solicit feedback from you, an aviation stakeholder, on what information and support you would like provided as well as how you would like to access and use the Guidebook.

This survey is strictly confidential, and participants will be kept anonymous. Information identifying, or possibly identifying, participants or their airports will not be collected, retained, or published, and your email is not associated with your submittal. Responses cannot be connected to specific individuals or aviation facilities, and we cannot confirm a specific individual has completed a survey. Data will be organized by geographic region and airport respondent’s operational role only. For those questions with a write in option, please do not provide any information that could be used to identify you, your coworkers, or your institution.

The survey takes on average 8 minutes. Please click Submit at the end of the survey when finished.

Please submit one survey per person for a given airport. A field is provided in the survey for you to clarify if you have multiple job roles at your airport. If you can provide data for multiple airports (i.e. your organization manages multiple airports at separate locations), please complete a new survey for each airport with your job role at that airport. After you click submit for a survey, you will see a prompt to submit another response. You may use this option to begin a survey for another airport immediately, or if you cannot complete multiple surveys in one session, you can re-use the link in the survey invitation at a later time.

We would like to reach as many aviation stakeholders as possible, including other staff at your airport or other aviation professionals you may know. We would appreciate it if you would forward the invitation email with this survey link to coworkers at your airport, or to your contacts at other airports, to increase the coverage of this survey. The email link is unrestricted and will remain functional until the survey effort is completed.

If you would like to discuss the Survey, the Guidebook, or other aviation related PFAS issues, please contact the Principal Investigator, Kate Lindekuweg, directly at kate.lindekuweg@rsandh.com with the subject line “ACRP 02-93” and the best way to contact you in the email body text. You are also welcome to call Kate directly at (864) 202-5015. Thank you!
Airport Region Location: Please select your airport region location.*

- Central (IL, IN, OH, KY, TN, WV)
- Northeast (PA, MD, DE, NJ, NY, MA, VT, CT, RI, NH, ME)
- Northern Rockies and Plains (ID, MT, WY, ND, SD, NE)
- South (TX, LA, MS, AR, OK, KS, MO)
- Southeast (DC, VA, NC, SC, GA, AL, FL, HI)
- Southwest (NM, AZ, CO, UT, NV)
- Upper Midwest (MI, WI, MN, IA)
- West Coast (WA, OR, CA, AK)
Participant Primary Job Category: Please select the option for your primary role at your airport or within your organization. The next question will ask for information if you have multiple or additional roles. *

- Executive Leadership
- Public Relations / Communications / Media
- Airport Facilities Maintenance
- Planning
- Property Management or Administration
- Asset Management
- Engineering
- Airport Operations
- Environmental Management / Compliance
- Health and Safety / OSHA
- Human Resources / Personnel Management
- Aircraft Rescue and Firefighting
- Risk Management
- Legal
- Commissioner / Board Member / Aviation or Port Authority Member
- Tenant / FBO
- Other
Participant Additional Job Categories: If you have direct and significant responsibilities in multiple categories (category accounts for more than 20% of your routine job activities) in addition to your previous Primary Job Category answer, please select all the options that apply to you from the list below.

- [ ] I do not have an additional job category
- [ ] Executive Leadership
- [ ] Public Relations / Communications / Media
- [ ] Airport Facilities Maintenance
- [ ] Planning
- [ ] Property Management or Administration
- [ ] Asset Management
- [ ] Engineering
- [ ] Airport Operations
- [ ] Environmental Management / Compliance
- [ ] Health and Safety / OSHA
- [ ] Human Resources / Personnel Management
- [ ] Aircraft Rescue and Firefighting
- [ ] Risk Management
- [ ] Legal
- [ ] Commissioner / Board Member / Aviation or Port Authority Member
- [ ] Tenant / FBO
- [ ] Other
Federal Aviation Administration (FAA) Categories of Airport Activities: Please select your facility’s primary category of airport activities / service type. *

- Commercial Service – Large Hub
- Commercial Service – Medium Hub
- Commercial Service – Small Hub
- Commercial Service – Non-hub
- Nonprimary Commercial Service, Non-hub
- Reliever
- General Aviation (GA)
- Other

Additional Categories of Airport Activities and Services: If your airport or facility provides additional services in addition to your primary selection above, please select all that apply here.

- General Aviation (GA)
- Cargo Service
- Heliport
- Sea Plane Airport
- Department of Defense (DOD) Joint Use Facility
- Regional ARFF Training Facilities (e.g. provide ARFF training services for ARFF staff from other airports or emergency responders from other municipalities)
- Airport Fire Support (e.g. provide emergency response services off airport property for other entities like the local municipality)
- N/A
- Other
Have you, or do you currently, use the Airport Cooperative Research Program (ACRP) Research Report 173: Use and Potential Impacts of AFFF Containing PFASs at Airports (Report 173) published by the Transportation Research Board (TRB)? *

- Yes, I have read and frequently reference Report 173.
- Yes, I am familiar with Report 173, but have not looked at it in several months or more.
- I have heard of it, but have not read or used Report 173.
- No, I have never heard of Report 173 before.

Are you aware of per- and polyfluoroalkyl substances (PFAS), PFOA and PFOS, or issues associated with PFAS use, from any of the following sources (check all that apply)? In other words, please select all of the sources where you have read, seen, or heard people discussing PFAS topics. *

- Social media (Facebook, Twitter, YouTube, WeChat, Reddit, etc.)
- Aviation industry advocacy groups (AAAE, ACI, etc.)
- Government research institutions (TRB, ACRP, ICAO, SERDP/ESTCP, NSF, etc.)
- Environmental advocacy groups (Environmental Defense Fund (EDF), Environmental Working Group (EWG), etc.)
- News media (websites, television, podcasts, RSS feeds, email updates, etc.)
- Primary research / scholarly articles or peer reviewed articles
- State regulatory agencies (Dept. Environmental Quality, Dept. Water Resources, etc.)
- Continuing education sources (webinars, training, college courses, etc.)
- Print media (books, journal articles, newspapers, etc.)
- Federal regulatory agencies (FAA, EPA, DOD, OSHA, DOT, etc.)
- Mandatory work training
- Word of mouth
- No, I am unfamiliar with PFAS or PFAS issues
How aware are you of PFAS issues based on what you have seen in social media, the news, movies, or other forms of media? Please select the best option below.

- I am very aware of PFAS issues from what I see in the media – I feel like it comes up all the time.
- I have seen PFAS come up, but usually in specific circumstances – It comes up in my news feed or industry sources, but I don’t hear it everywhere.
- I have heard of PFAS issues, but rarely – I know people are talking about it, but I’m not really sure what the concerns are all about.
- I am not aware of PFAS issues in the media – I don’t know of or can’t remember hearing about PFAS issues in the media.

In your opinion, how aware or concerned do you feel the public is of PFAS issues? Please select the best option below.

- I think the public and my community are very aware of PFAS issues – I feel like everyone is talking about it.
- I think some members of my community or the public are aware of PFAS, but usually in specific circumstances or among specific groups – Some community groups are concerned, but most people seem unaware.
- I have heard people mention PFAS issues, but rarely – I know people are talking about it, but people don’t really seem to know what the concerns are all about.
- I don’t think the public or my community is aware of PFAS issues – I don’t know anyone familiar with or concerned about PFAS issues.
Considering your last response, do you feel the public is aware of airport use of AFFF containing PFAS and the FAA Part 139 mandate to use AFFF? Please select the best option below.

- I think the public and my community are very aware of PFAS and AFFF use at airports – I feel like everyone is talking about it.
- I think some members of my community or the public are aware of PFAS and AFFF use at airports, but usually in specific circumstances or among specific groups (e.g. environmental or special interest groups).
- I think the public has heard of PFAS and AFFF use at airports, but rarely – I know people are talking about it, but they aren’t really sure what the concerns are all about.
- I don’t think the public or my community is aware of PFAS and AFFF use at airports – I don’t know anyone familiar with or concerned about PFAS and airport AFFF use.

Please select all the sources you currently use to find reliable information or answer questions about PFAS issues at airports. Topics could include new remediation or disposal technologies, regulatory updates, sampling methods, case studies or exposure events, legal updates or liability issues, or management guidance.

- Social media (Facebook, Twitter, YouTube, WeChat, Reddit, etc.)
- Aviation industry advocacy groups (AAAE, ACI, etc.)
- Government research institutions (TRB, ICAO, SERDP/ESTCP, NSF, other FFRDCs, etc.)
- ACRP Guidebooks, including ACRP Report 173
- Environmental advocacy groups (EDF, EWG, Greenpeace, etc.)
- News media (websites, television, podcasts, RSS feeds, email updates or newsletters, etc.)
- Primary research / scholarly or peer reviewed articles
- State regulatory agencies (Dept. Environmental Quality, Dept. Water Resources, etc.)
- Continuing education sources (webinars, training courses, college courses, etc.)
- Federal regulatory agencies (FAA, EPA, DOD, OSHA, DOT, etc.)
- Mandatory work training / classes
- Word of mouth
- I do not look / I’m not interested
What methods or formats do you prefer to use to find information about airport PFAS issues, updates, or management guidance? What formats are you most comfortable with using to access information on a regular basis or what method do you prefer to find answers to questions easily? Please select your level of preference for each option below.

<table>
<thead>
<tr>
<th>Method/Format</th>
<th>1 = Least Preferred / Worst</th>
<th>2</th>
<th>3</th>
<th>4 = Most Preferred / Best</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social media (Facebook, Twitter, WeChat, Reddit, other message boards, etc.)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Websites</td>
<td>○</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>Streaming video (YouTube, TikTok, Vimeo, etc.)</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Podcasts</td>
<td>○</td>
<td>○</td>
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<tr>
<td>RSS feeds</td>
<td>○</td>
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<tr>
<td>Electronic newsletters / routine emails</td>
<td>○</td>
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<tr>
<td>Interactive webinars (live hosted with Q&amp;A or moderated talks)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Virtual conferences / group meetings</td>
<td>○</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>In-person conferences / group meetings</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Print media</td>
<td>○</td>
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<tr>
<td>In-person training courses</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Virtual training courses</td>
<td>○</td>
<td>○</td>
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<td>○</td>
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<tr>
<td>ACRP Guidebooks, including ACRP Report 173</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
How interested are you in learning or receiving more information, guidance, templates, or tools for the following topics?

<table>
<thead>
<tr>
<th>Topic</th>
<th>No interest at all</th>
<th>Somewhat interested</th>
<th>Very interested</th>
<th>I’m not sure / no opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFAS chemical properties, fingerprinting, or laboratory analytical methods</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>PFAS effects on human health, epidemiology studies, or exposure risks</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>PFAS pathways for human exposure, or how PFAS gets into humans</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>PFAS fate and transport in the environment, or how PFAS moves through environmental media like stormwater, surface waters, soils, and groundwater</td>
<td>○</td>
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<td>○</td>
<td>○</td>
</tr>
<tr>
<td>PFAS effects on the environment, including risks to terrestrial and aquatic life, bioaccumulation, and biomagnification</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Anticipated PFAS regulations and potential impacts to operations, developments, and facilities planning</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>PFAS found in construction and building materials, including what materials could contain PFAS and how to store and dispose materials</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Indoor airport environments (terminals, for example) and what materials indoors could contain PFAS, as well as how to store and dispose of those materials</td>
<td>○</td>
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<tr>
<td>Fluorine free AFFF alternatives, including technological benefits and limitations, financial</td>
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<td>○</td>
<td>○</td>
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</tr>
</tbody>
</table>
considerations, and availability

<table>
<thead>
<tr>
<th>PFAS cleaning or decontamination technology for equipment like ARFF trucks, landscaping equipment, or building fire suppression systems, including anticipated effort or costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFAS-containing soil or construction debris stockpiling methods</td>
</tr>
<tr>
<td>PFAS remediation techniques for water or soils (e.g. granular activated carbon, ion exchange resins, etc.), anticipated new technologies or methods and their costs</td>
</tr>
<tr>
<td>PFAS waste/debris disposal methods, including new technologies, types of disposal facilities, and chemical or physical limitations on disposal</td>
</tr>
<tr>
<td>Other potential non-aviation industrial sources of PFAS off airport property, such as metal plating, dry cleaning, agriculture, etc.</td>
</tr>
<tr>
<td>Public engagement and awareness regarding PFAS at your airport</td>
</tr>
<tr>
<td>How and when to engage local media and recommended practices for media interactions</td>
</tr>
<tr>
<td>Decontamination and handling of individual ARFF personnel gear or equipment exposed to PFAS, such as jackets and pants</td>
</tr>
</tbody>
</table>
Does your organization currently have policies and procedures in place at your facility that consider PFAS for any of the following (check all that apply):

- Purchasing consumables like AFFF, cleaning products, vehicle washing soaps, or pesticides.
- Purchasing large equipment like ARFF vehicles, ground equipment with hydraulic fluids or lubricants, fire suppression systems, etc.
- Storage and inventory management of products, equipment, or wastes.
- Handling of products or wastes, such as labeling, personal protective equipment (PPE), or chain of custody (COC) documentation.
- Disposal of excess or expired products or wastes, including profiling, disposition, disposal method, or type of disposal facility.
- Planning for or implementing new construction / development projects.
- Planning for or implementing building or facility demolition and debris disposal.
- I don’t know about PFAS management at my facility or am unsure about my organization’s approach to PFAS management.
- Other

Does your organization have PFAS-specific policies or lease language regarding tenants use and disposal of PFAS-containing products (e.g., hangar fire suppression, maintenance facilities and chemical disposal)?

- Yes
- No
- I don’t know
Has your organization engaged tenants in PFAS conversations regarding tenant use and disposal of PFAS-containing products?

- Yes
- No
- I don’t know

Is your airport organization responsible for all wastewater discharges from the airport, including those from tenant operated facilities?

- Yes
- No
- I don’t know
- Other
Has your organization considered remedial methods or technologies available and the associated costs for remediating, cleaning, or replacing within the next 5 years any of the following equipment possibly exposed to PFAS at your facility (please select all that apply)?

- ARFF trucks
- Building or hangar fire suppression systems
- Fueling facility fire suppression systems
- ARFF equipment, ARFF buildings or infrastructure, or ARFF PPE
- Non-ARFF vehicles (trucks, construction equipment, etc.)
- Stormwater or sanitary sewer infrastructure
- Building structures like concrete or asphalt pads, parking lots, flooring, etc. exposed to AFFF or other PFAS products
- No, my organization has not considered cleaning or replacement options
- I’m not sure or do not know if my organization has considered cleaning or replacement options for equipment and infrastructure

Does your organization plan to undertake a PFAS remediation project (for example, remediation and disposal of contaminated soils, groundwater, or other environmental media) within the next 5 years at your airport?

- Yes, we plan to start a remediation project within the next year as part of a regulatory compliance action.
- Yes, we plan to start a remediation project within the next year because we are anticipating more regulatory requirements and want to mitigate institutional risks.
- Yes, we are considering a remediation project within the next 5 years, but are still working through logistical considerations (e.g. costs, storage locations, disposal logistics, FAA or USEPA guidance, etc.).
- Yes, we are considering a remediation project, but as of right now, we are not certain the project will begin in the next 5 years.
- No, we are not considering a PFAS remediation project within the next 5 years as remediation is not needed or will not be required.
- I’m not sure or do not know if my organization has considered remediation projects for my facility or airport.
Regarding PFAS exposure at your airport, is your organization concerned about any of the following items in terms of financial costs, impacts to operational capabilities, or effects on future development plans (please select all that apply)?

- Soil or groundwater remediation
- Risk and liability insurance requirements
- Legal action against your organization
- Regulatory fines or penalties
- Construction cost increases from PFAS contamination
- Equipment or infrastructure replacement
- Storage and disposal of PFAS products or contaminated media
- Property values

Are you aware of potential non-AFFF sources of PFAS in an airport setting (please select all that apply)?

- Hydraulic fluids and aviation lubricants
- External paints (e.g. runway paints, weatherproof building paints, vehicle paints)
- Sealants, waxes, and weatherproof coatings
- Vehicle washing soaps and waxes
- Pesticides and herbicides
- Construction materials (concrete, asphalt, etc.)
- Roofing materials and floor coatings
- Off-site soils use, stockpiling, or storage
- Former landfills on-site
- Adjacent, off airport property operations (e.g. metal plating, industrial painting, tanneries, landfills, biosolids application sites, etc.)
- I am only aware of PFAS in AFFF
- I am not aware of these or any other PFAS sources in an airport setting
Has your organization conducted, or will it conduct within the next 2 years, a study to quantify historical PFAS use, discharges, or the potential scope of contamination?

- Yes, my organization was or is required to complete a study on airport PFAS exposure and environmental media contamination by a regulatory agency.
- Yes, my organization has or will complete a study on airport PFAS exposure and environmental media contamination as a proactive measure.
- No, my organization will not conduct a study within the next 2 years, but may conduct a study at a later time.
- No, I do not believe my organization has considered a PFAS exposure study or has discussed the potential for one.
- No, my organization has not conducted a study and has no intention of doing so unless mandated by a regulatory authority.
- I have no direct knowledge of these types of decisions within my organization, so I have no opinion on this question.

Does your organization have its own ARFF department with AFFF, or does it have a mutual agreement with a local municipality or other service provider / third-party contractor?

- Yes, we have our own ARFF department with a facility on-site that stores and uses AFFF.
- Yes, we have our own ARFF department with AFFF use capabilities, but it serves multiple locations and is not located on airport property.
- No, we use the local municipality’s firefighting and rescue services or another service provider / third-party contractor with AFFF use capabilities.
- I don’t know or am not sure who provides our ARFF services.
ACRP 02-93 Guidebook for PFAS Management at Airports
Aviation Stakeholder Survey

1. Airport Region Location: Please select your airport region location.

- Central (IL, IN, OH, KY, TN, WV) 22
- Northeast (PA, MD, DE, NJ, NY, ...) 22
- Northern Rockies and Plains (ID, ...) 14
- South (TX, LA, MS, AR, OK, KS, ...) 29
- Southeast (DC, VA, NC, SC, GA, ...) 41
- Southwest (NM, AZ, CO, UT, NV) 26
- Upper Midwest (MI, WI, MN, IA) 24
- West Coast (WA, OR, CA, AK) 60

Responses 238
Average time to complete 144:34
Status Active
2. Participant Primary Job Category: Please select the option for your primary role at your airport or within your organization. The next question will ask for information if you have multiple or additional roles.

<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Leadership</td>
<td>76</td>
</tr>
<tr>
<td>Public Relations / Communications</td>
<td>1</td>
</tr>
<tr>
<td>Airport Facilities Maintenance</td>
<td>4</td>
</tr>
<tr>
<td>Planning</td>
<td>11</td>
</tr>
<tr>
<td>Property Management or Administration</td>
<td>7</td>
</tr>
<tr>
<td>Asset Management</td>
<td>1</td>
</tr>
<tr>
<td>Engineering</td>
<td>15</td>
</tr>
<tr>
<td>Airport Operations</td>
<td>36</td>
</tr>
<tr>
<td>Environmental Management / Compliance</td>
<td>44</td>
</tr>
<tr>
<td>Health and Safety / OSHA</td>
<td>2</td>
</tr>
<tr>
<td>Human Resources / Personnel Management</td>
<td>1</td>
</tr>
<tr>
<td>Aircraft Rescue and Firefighting</td>
<td>30</td>
</tr>
<tr>
<td>Risk Management</td>
<td>0</td>
</tr>
<tr>
<td>Legal</td>
<td>3</td>
</tr>
<tr>
<td>Commissioner / Board Member</td>
<td>2</td>
</tr>
<tr>
<td>Tenant / FBO</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>
3. Participant Additional Job Categories: If you have direct and significant responsibilities in multiple categories (category accounts for more than 20% of your routine job activities) in addition to your previous Primary Job Category answer, please select all the options that apply to you from the list below.

- I do not have an additional job ... 58
- Executive Leadership 40
- Public Relations / Communications 26
- Airport Facilities Maintenance 41
- Planning 61
- Property Management or Administration 36
- Asset Management 29
- Engineering 19
- Airport Operations 67
- Environmental Management / Compliance 48
- Health and Safety / OSHA 33
- Human Resources / Personnel 18
- Aircraft Rescue and Firefighting 26
- Risk Management 26
- Legal 5
- Commissioner / Board Member 2
- Tenant / FBO 7
- Other 18

4. Federal Aviation Administration (FAA) Categories of Airport Activities: Please select your facility’s primary category of airport activities / service type.

- Commercial Service – Large Hub 39
- Commercial Service – Medium Hub 54
- Commercial Service – Small Hub 38
- Commercial Service – Non-Hub 62
- Nonprimary Commercial Service 7
- Reliever 5
- General Aviation (GA) 24
- Other 9
5. Additional Categories of Airport Activities and Services: If your airport or facility provides additional services in addition to your primary selection above, please select all that apply here.

- General Aviation (GA) 196
- Cargo Service 146
- Heliport 54
- Sea Plane Airport 20
- Department of Defense (DOD) J... 47
- Regional ARFF Training Facilities... 34
- Airport Fire Support (e.g. provid... 52
- N/A 12
- Other 14

6. Have you, or do you currently, use the Airport Cooperative Research Program (ACRP) Research Report 173: Use and Potential Impacts of AFF Containing PFAS at Airports (Report 173) published by the Transportation Research Board (TRB)?

- Yes, I have read and frequently r... 14
- Yes, I am familiar with Report 17... 78
- I have heard of it, but have not r... 74
- No, I have never heard of Repor... 72
7. Are you aware of per- and polyfluoroalkyl substances (PFAS), PFOA and PFOS, or issues associated with PFAS use, from any of the following sources (check all that apply)? In other words, please select all of the sources where you have read, seen, or heard people discussing PFAS topics.

- Social media (Facebook, Twitter, ...) 68
- Aviation industry advocacy group(s) 203
- Government research institution(s) 132
- Environmental advocacy groups 87
- News media (websites, television) 145
- Primary research / scholarly article(s) 57
- State regulatory agencies (Dept...) 143
- Continuing education sources (...) 94
- Print media (books, journal articles) 70
- Federal regulatory agencies (FA...) 173
- Mandatory work training 28
- Word of mouth 127
- No, I am unfamiliar with PFAS or...

8. How aware are you of PFAS issues based on what you have seen in social media, the news, movies, or other forms of media? Please select the best option below.

- I am very aware of PFAS issues from other sources 77
- I have seen PFAS come up, but I haven’t read it... 125
- I have heard of PFAS issues, but I haven’t read it... 16
- I am not aware of PFAS issues in my community 20

9. In your opinion, how aware or concerned do you feel the public is of PFAS issues? Please select the best option below.

- I think the public and my community... 21
- I think some members of my community... 109
- I have heard people mention PFAS... 56
- I don’t think the public or my community...


10. Considering your last response, do you feel the public is aware of airport use of AFFF containing PFAS and the FAA Part 139 mandate to use AFFF? Please select the best option below.

- I think the public and my community... 10
- I think some members of my community... 89
- I think the public has heard of PFAS... 58
- I don’t think the public or my community... 81

1. Please select all the sources you currently use to find reliable information or answer questions about PFAS issues at airports. Topics could include new remediation or disposal technologies, regulatory updates, sampling methods, case studies or exposure events, legal updates or liability issues, or management guidance.

- Social media (Facebook, Twitter,... 13
- Aviation industry advocacy groups... 194
- Government research institution... 144
- ACRP Guidebooks, including ACRP... 111
- Environmental advocacy groups... 53
- News media (websites, television... 57
- Primary research / scholarly or peer reviewed... 75
- State regulatory agencies (Dept... 154
- Continuing education sources (... 82
- Federal regulatory agencies (FAA... 181
- Mandatory work training / classes... 18
- Word of mouth 51
- I do not look / I’m not interested 9
12. What methods or formats do you prefer to use to find information about airport PFAS issues, updates, or management guidance? What formats are you most comfortable with using to access information on a regular basis or what method do you prefer to find answers to questions easily? Please select your level of preference for each option below.

1 = Least Preferred / Worst  2  3  4 = Most Preferred / Best

- Social media (Facebook, Twitter, WeChat, Reddit, other message boards, etc.)
- Websites
- Streaming video (YouTube, TikTok, Vimeo, etc.)
- Podcasts
- RSS feeds
- Electronic newsletters / routine emails
- Interactive webinars (live hosted with Q&A or moderated talks)
- Virtual conferences / group meetings
- In-person conferences / group meetings
- Print media
- In-person training courses
- Virtual training courses
- ACRP Guidebooks, including ACRP Report 173
13. How interested are you in learning or receiving more information, guidance, templates, or tools for the following topics?

- PFAS chemical properties, fingerprinting, or laboratory analytical methods
- PFAS effects on human health, epidemiology studies, or exposure risks
- PFAS pathways for human exposure, or how PFAS gets into humans
- PFAS fate and transport in the environment, or how PFAS moves through environmental media like...
- PFAS effects on the environment, including risks to terrestrial and aquatic life, bioaccumulation, and...
- Anticipated PFAS regulations and potential impacts to operations, developments, and facilities planning
- PFAS found in construction and building materials, including what materials could contain PFAS and how...
- Indoor airport environments (terminals, for example) and what materials indoors could contain PFAS, as...
- Fluorine free AFF alternates, including technological benefits and limitations, financial considerations, and...
- PFAS cleaning or decontamination technology for equipment like ARFF trucks, landscaping equipment, ...
- PFAS-containing soil or construction debris stockpiling methods
- PFAS remediation techniques for water or soils (e.g. granular activated carbon, ion exchange resins, etc.)...
- PFAS waste/debris disposal methods, including new technologies, types of disposal facilities, and chemical...
- Other potential non-aviation industrial sources of PFAS off airport property, such as metal plating, dry...
- Public engagement and awareness regarding PFAS at your airport
- How and when to engage local media and recommended practices for media interactions
- Decontamination and handling of individual ARFF personnel gear or equipment exposed to PFAS, such...
14. Does your organization currently have policies and procedures in place at your facility that consider PFAS for any of the following (check all that apply):

- Purchasing consumables like AF... 89
- Purchasing large equipment like... 103
- Storage and inventory manage... 121
- Handling of products or wastes,... 104
- Disposal of excess or expired pr... 94
- Planning for or implementing n... 79
- Planning for or implementing b... 60
- I don't know about PFAS manag... 51
- Other 9

15. Does your organization have PFAS-specific policies or lease language regarding tenants use and disposal of PFAS-containing products (e.g., hangar fire suppression, maintenance facilities and chemical disposal)?

- Yes 50
- No 110
- I don't know 77

16. Has your organization engaged tenants in PFAS conversations regarding tenant use and disposal of PFAS-containing products?

- Yes 72
- No 92
- I don't know 74

17. Is your airport organization responsible for all wastewater discharges from the airport, including those from tenant operated facilities?

- Yes 156
- No 42
- I don't know 34
- Other 5
18. Has your organization considered remedial methods or technologies available and the associated costs for remediating, cleaning, or replacing within the next 5 years any of the following equipment possibly exposed to PFAS at your facility (please select all that apply)?

- ARFF trucks: 123
- Building or hangar fire suppress.: 53
- Fueling facility fire suppression.: 29
- ARFF equipment, ARFF building.: 102
- Non-ARFF vehicles (trucks, cons.): 12
- Stormwater or sanitary sewer infra.: 47
- Building structures like concrete.: 25
- No, my organization has not co...: 49
- I’m not sure or do not know if ...: 58

19. Does your organization plan to undertake a PFAS remediation project (for example, remediation and disposal of contaminated soils, groundwater, or other environmental media) within the next 5 years at your airport?

- Yes, we plan to start a remediati...: 24
- Yes, we plan to start a remediati...: 11
- Yes, we are considering a remedi...: 32
- Yes, we are considering a remedi...: 30
- No, we are not considering a PF...: 69
- I’m not sure or do not know if ...: 69

20. Regarding PFAS exposure at your airport, is your organization concerned about any of the following items in terms of financial costs, impacts to operational capabilities, or effects on future development plans (please select all that apply)?

- Soil or groundwater remediation: 185
- Risk and liability insurance requi...: 146
- Legal action against your organi...: 141
- Regulatory fines or penalties: 128
- Construction cost increases fro...: 130
- Equipment or infrastructure repl...: 126
- Storage and disposal of PFAS pr...: 163
- Property values: 44
21. Are you aware of potential non-AFFF sources of PFAS in an airport setting (please select all that apply)?

- Hydraulic fluids and aviation lub... 52
- External paints (e.g. runway paint) 40
- Sealants, waxes, and weatherpro... 49
- Vehicle washing soaps and waxes 49
- Pesticides and herbicides 44
- Construction materials (concre... 40
- Roofing materials and floor coat... 26
- Off-site soils use, stockpiling, or ... 37
- Former landfills on-site 32
- Adjacent, off airport property o... 39
- I am only aware of PFAS in AFFF 120
- I am not aware of these or any ... 30

22. Has your organization conducted, or will it conduct within the next 2 years, a study to quantify historical PFAS use, discharges, or the potential scope of contamination?

- Yes, my organization was or is r... 38
- Yes, my organization has or will ... 54
- No, my organization will not co... 25
- No, I do not believe my organiz... 28
- No, my organization has not co... 41
- I have no direct knowledge of t... 51

23. Does your organization have its own ARFF department with AFFF, or does it have a mutual agreement with a local municipality or other service provider / third-party contractor?

- Yes, we have our own ARFF dep... 188
- Yes, we have our own ARFF dep... 2
- No, we use the local municipality... 38
- I don't know or am not sure wh... 8