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**ENVIRONMENTAL STEWARDSHIP AND COMPLIANCE
TRAINING FOR AIRPORT EMPLOYEES**

ENVIRONMENTAL TRAINING PRIMER FOR AIRPORTS

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1. Introduction to Environmental Stewardship and Compliance

The Airport Cooperative Research Program (ACRP) Project 02-101, “Environmental Stewardship and Compliance Training for Airport Employees,” is meant to provide airports with the tools necessary to implement a meaningful and effective environmental training program, regardless of airport size, location, or status. The Aviation Planning Group (APG) along with subcontractor Aviation, A Woolpert Company conducted research to create training tools for airports of all sizes that can be easily implemented. The products of this ACRP project can be highly utilized by airport, city, and county staff members working at airports, as well as airport stakeholders. This Primer will include:

- Federal and common state environmental regulations that apply to airports
- Common and emerging airport environmental stewardship and compliance goals and initiatives
- The importance of employee training and engagement in environmental sustainability (e.g., risk management, compliance)

The intent of this document is to provide supplemental guidance along with *ACRP WebResource 21: Environmental Stewardship and Compliance Training for Airport Employees* to aid airports in implementing environmental training programs. The WebResource is available at <https://crp.trb.org/acrpwebresource21/>.

Environmental stewardship is guided by federal, state, and local jurisdictions and can vary widely depending on location. Airport management should be familiar with the environmental regulations and rules over their specific area, and reference these regulations in their environmental training programs.

2. Federal Environmental Aviation Regulations

The current regulatory environment for airports in the United States is governed by the National Environmental Policy Act (NEPA), which mandates a decision-making process involving the identification of needs, examination of alternatives, evaluation of environmental impacts, and selection of preferred alternatives for any federal action at an airport. NEPA also considers special purpose laws like the Clean Air Act, Clean Water Act, National Historic Preservation Act, and others.

2.1. Relevant Federal Aviation Administration Orders

The Federal Aviation Administration’s (FAA) current focus on environmental regulation is described in several FAA Orders, as well as Federal Aviation Regulations Part 150 and Part 161. These official documents provide guidance on noise compatibility planning, airport noise and access restrictions, and policies and procedures to comply with NEPA.

- **Environmental Impacts: Policies and Procedures (Order 1050.1):** FAA Order 1050.1 documents the Agency’s policy to comply with the National Environmental Policy Act and regulations set forth by the Council on Environmental Quality (CEQ). These regulations apply to federal actions such as grants, loans, contracts, research, and more. The document describes the purpose of the NEPA and CEQ regulations and details the FAA’s plan to follow those regulations in their work.

- **NEPA implementing instructions for Airport Projects (Order 5050.4):** FAA Order 5050.1 works alongside Order 1050.1 to provide specific instructions for FAA personnel and others involved in FAA actions to ensure those actions comply with NEPA. It acts as the guide to describe how FAA personnel and those acting on their behalf can understand and prevent potential environmental impacts that might result from their projects.
- **Prevention, Control and Abatement of Environmental Pollution at FAA facilities (Order 1050.10):** FAA Order 1050.10 establishes a policy and procedures to ensure all FAA owned, leased, or operated facilities comply with all applicable environmental regulations. It also sets responsibilities for personnel to comply with pollution prevention policies and do their part to reduce pollution and negative environmental impacts at their facility.
- **Airport Noise (Part 150 & Part 161):** FAA Part 150, Airport Noise Compatibility Program, and FAA Part 161, Notice and Approval of Airport Noise and Access Restrictions are the main federal regulations regarding airport noise. These regulations describe how the FAA measures and manages noise at public use airports and determines compatible land use around the airport, as well as implementing the Airport Noise and Capacity Act of 1990.

2.2. Components of NEPA

Depending on a project's scope and environmental impacts, there are three levels of NEPA documentation: Categorical Exclusion (CATEX), Environmental Assessment (EA), and Environmental Impact Statement (EIS). Noise, air quality, water quality, stormwater management, and climate change/resiliency are some of the challenges that airports face.

- Noise remains a concern, affecting communities in terms of annoyance, health impacts, speech interference, and more. This includes not only fixed-wing aircraft noise but also helicopter and unmanned aerial vehicle (UAS) noise.
- Air quality is a significant concern due to emissions from various sources at airports, with aircraft being the major contributors. Efforts to reduce emissions include electric aircraft and sustainable aviation fuels.
- Water quality and stormwater management are vital concerns due to runoff from deicing chemicals and other pollutant-generating activities at airports. Emerging pollutants like polyfluoroalkyl substances (PFAS) are also a concern.
- Climate change and resiliency are increasingly important, with growing evidence linking greenhouse gas emissions to climate change. Airports are taking measures to reduce emissions and enhance resiliency to climate-related risks.
- Sustainability is a key focus, with airports working on integrating sustainable practices into planning, design, and operations to meet present needs without compromising future generations' ability to meet their own needs.
- Resiliency involves anticipating and preparing for climate-related hazards, such as rising sea levels and severe storms, which threaten airport operations. Airports are adjusting their infrastructure plans to prioritize resiliency in light of these risks, often as a requirement tied to federal grants.

In summary, airports are subject to NEPA regulations and are addressing challenges related to noise, air and water quality, climate change, sustainability, resiliency, and others to ensure the safety and environmental sustainability of their operations.

3. Airport Environmental Stewardship Goals and Initiatives

Below are some common environmental initiatives brought forth by the FAA and industry trade organizations, with a number of environmental subcategories. Airports can incorporate these initiatives to reduce waste, increase awareness of environmental stewardship efforts, and include airport employees, and tenants, and the surrounding community in making environmental improvements.

3.1. Federal Aviation Administration Environmental Initiatives

The FAA currently has a number of environmental initiatives and examples that focus on energy efficiency, greenhouse gas emissions, and sustainability. Airports who are interested in participating can learn more about these exciting initiatives on the FAA's website.

- **Greenhouse Gas Emissions Reductions:** The FAA is encouraging airports to reduce carbon dioxide and other greenhouse gas emissions directly by sourcing cleaner electricity to power airport facilities, making the switch to electric vehicles when updating airport-owned fleets, and phasing out ground service equipment that uses diesel fuel. The FAA also encourages airports to work with their tenants, airline partners, and community to reduce emissions from aircraft on the ground, tenant-owned vehicles and equipment, and passenger vehicles.
- **Energy Efficiency:** The FAA recommends that airports consider energy efficient measures, such as installing better insulation in buildings, to reduce both emissions and operating costs. They also recommend investing in renewable energy systems. There are a number of local and federal programs to help fund these energy efficient initiatives, as well as grant programs offered by the FAA.
- **Zero Emissions Vehicle (ZEV) Program:** The FAA Airport Zero Emissions Vehicle and Infrastructure Pilot Program boosts air quality and the use of new zero emissions technologies at airports across the country. The program lets airports use Airport Improvement Program (AIP) funding to purchase zero emissions vehicles.
- **Voluntary Airport Low Emissions (VALE) Program:** Similar to the ZEV program, the VALE program allows the use of AIP funding and Passenger Facility Charges (PFC) to purchase low emission vehicles and related infrastructure and air quality improvements. This program helps airports meet their state-related requirements under the Clean Air Act.
- **Water Resources:** The FAA provides guidance to airport operators on when they should file for a Section 404 permit when airport drainage ditches require maintenance due to sediment buildup and vegetation growth. The FAA website also provides access to

applicable portions of the Clean Water Act, which describes the implementation of water pollution prevention measures.

- **Pollution Prevention:** Resources are available for noise, air, and water pollution through the FAA. The Noise Pollution Clearinghouse is a nonprofit organization that offers various noise-related resources. The Clean Air Act and Clean Water Act provide regulation on air and water pollution prevention standards.
- **Electronics Stewardship:** The Environmental Protection Agency (EPA) offers resources for sustainable electronics management and recommends reusing, refurbishing, or recycling electronics to reduce waste. The EPA's Sustainable Electronics Management system encourages sustainable practices from procurement of materials all the way through the end of use.
- **Sustainable Acquisition:** The FAA follows a Sustainable Acquisition Policy which details how the FAA complies with the Clean Air Act, as well as other acquisition documents through the Department of Transportation, which mandates that federal agencies must purchase sustainable goods and services. Other documents include the Federal Acquisition Regulation (FAR), the DOT Acquisition Regulation (TAR), the DOT Acquisition Manual (TAM), and the FAA Acquisition Management System (AMS). Through these documents, the FAA sets a strong example for sustainable acquisition of products and services.
- **High Performance Sustainable Buildings:** The FAA is championing sustainable practices through facility improvements as well. At the Mike Monroney Aeronautical Center in Oklahoma City, the Agency has implemented several sustainable building practices such as installing electric vehicle charging stations, planting natural grasses to reduce water consumption, and switching in part to renewable energy sources. All are changes that could be implemented similarly at airports to achieve equally sustainable results.
- **Regional and Local Planning:** The FAA operates nine regional offices and offers programs to assist airports on the local level. Grant programs such as the Rural Opportunities to Use Transportation for Economic Success (ROUTES), Airport Improvement Program (AIP), and Airport Infrastructure and Airport Terminals program can provide funding for a number of improvements, including energy efficient and sustainable advancements.
- **Environmental Management Systems:** The FAA created Order 1050.21A to outline the Agency's efforts to implement an environmental management policy to manage significant environmental consequences, prevent pollution, comply with environmental regulations, and promote environmentally sustainable practices.
- **Sustainable Air Traffic Control Towers (ATCT):** FAA has chosen standardized elements to reduce construction and operational costs while allowing for the building to be tailored to local climate and location issues such as very high and very low temperatures, wet and dry environments, and high winds. The designs have been standardized in order to reduce construction and operational costs.

3.2. Organizations, Publications, and Initiatives

- **Airports Council International (ACI):** ACI is a worldwide organization of airport management and professionals that provides industry tools, training, certification, and legislative support. ACI recently launched a study to support the implementation of sustainable aviation fuels and reduction of carbon emissions at airports worldwide. The study also focuses on hydrocarbon fuels at airports and issues airports might face in regard to implementation of these new technologies.

ACI's Airport Excellence in Environment program is a peer review process that allows participants to share best practices and current environmental issues and collaborate with other airports to find a common, sharable solution.

- **AAAE:** AAAE created the Airport Consortium on Customer Trust Program (ACT) in recent years to bring airports together with industry partners in an effort to solve some of the largest current issues airports face. The Consortium began by focusing on issues such as indoor air quality, touchless technology, sustainability, and virtual queuing.
- **Airport Consultants Council (ACC):** ACC is host to the Planning and Environmental Committee, which informs members about industry trends, innovations, and activity regarding airport planning and environmental sustainability. With consultants often guiding their client airports and the committee's interaction with FAA headquarters, the membership can keep airport leadership informed of regulations and sustainable practices that can be implemented at their airports.
- **Air Transport Action Group (ATAG) - Waypoint 2050:** The Waypoint 2050 report provides an in-depth look at how the aviation industry can achieve a lengthy goal of meeting net-zero emissions by the year 2050. This would be accomplished through a collaborative effort between airports, government entities, and other stakeholders to implement long-lasting sustainable technology that eliminates carbon emissions.
- **Aviation Sustainability Forum (ASF):** ASF is an organization devoted to promoting environmental sustainability within airport operations by bringing together industry professionals and supply chain companies to find sustainable solutions for in-flight services. ASF analyzes current processes in food sourcing and production, packaging, tableware, comfort items, personal protective equipment, and in-flight services to find sustainable alternatives.









4. Importance of Employee Training and Engagement in Environmental Sustainability

Many airports share a common goal of increasing environmental training to some degree. Airports are complex systems, and a comprehensive understanding of possible environmental concerns is important for airport employees to consider. Below are topics airport personnel have identified on their “training wish list” that were considered in the development of the *ACRP WebResource 21* training modules. These modules and training topics could be considered by airport management as additions to their environmental training.

- **Environmental Concerns on Airport Construction Sites:** Construction sites include several environmental concerns such as soil erosion, hazardous materials use and storage, wildlife attractants, proper recycling and disposal of construction materials, and more. It is important for airport personnel who have access to construction sites to be aware of these concerns.
- **Sustainability Training:** Several airports have noted a lack of formal sustainability training and cited recommended training topics such as sustainable purchasing and procurement, robust recycling programs, and practical changes employees and tenants can make to increase energy efficiency and reduce waste.
- **Aircraft Rescue and Fire Fighting (ARFF) Chemicals used on Airports.** As airport personnel respond with ARFF personnel in the event of an accident or major fire, it is important that they know which types of firefighting agents might be used and how to safely work around them.
- **Environmental Spill Prevention, Identification, and Mitigation for Tenants:** Tenants should complete standardized spill prevention, identification, and mitigation training to ensure they understand the potential impact of environmental spills. Training should cover how to identify the spill and inform the necessary parties, the location and contents of spill kits, how to mitigate potential damage to pavement areas, and how to prevent entrance into the stormwater system and nearby soil.
- **Recycling and Composting Training:** Airports can implement recycling and composting programs that teach tenants, airport employees, and even passengers how to properly recycle items such as aluminum cans, cardboard, and cooking oil. Some airports utilize a cooking oil recycling program to turn used cooking oil into Sustainable Aviation Fuels (SAFs).

The tools developed for *ACRP WebResource 21* are meant to guide airport leadership in developing their own customized training. The tools include customizable PowerPoint Templates and Facilitator Handouts as well as the Choose Your Airport Role tool and accompanying Decision Matrix (Figure 4-1). Training courses can be taken on-demand as self-study or in a classroom setting by utilizing the facilitator handouts.

Figure 4-1: Airport Role – Decision Matrix

	 Airport Leadership <small>Executive, Sponsor, Boards, Commission</small>	 Public Safety <small>Fire, Police, Security</small>	 Administrative Staff <small>Procurement, Human Resources, Contracts, IT, Finance, Customer Service</small>	 Operations Staff <small>Airside and Landside Operations and Maintenance Staff</small>	 Airport Tenants <small>FBOs, Rental Cars, Airlines, SASO</small>	 Contractors <small>Construction Companies and Consultants</small>	 Concessions <small>Retail, Food, Lounge Operators</small>	 Technical Staff <small>Engineering, Environmental, PMs, GIS, and Planning</small>
NEPA 101				✓				✓
Water Quality & Conservation		✓		✓	✓	✓	✓	✓
Air Quality		✓		✓	✓	✓		✓
Wildlife - GA				✓				✓
Wildlife - Part 139				✓				✓
Sustainability	✓	✓	✓	✓	✓	✓	✓	✓
Hazardous Materials & Waste Management		✓		✓	✓	✓	✓	✓
Noise				✓	✓	✓		✓
Resiliency and Climate Adaptation				✓	✓			✓
Environmental 101	✓	✓	✓	✓	✓	✓	✓	✓

5. Summary

Federal and state regulations act as an important foundation to enact real environmental change at airports, but there is still room for significant growth in any airport environmental training program. By understanding these regulations, as well as environmental initiatives, training tools, and resources available, airport management can build a diverse environmental training program. Airports can utilize *ACRP WebResource 21* to further educate their staff and tenants to ensure compliance and awareness.