ACRP WebResource 21: Environmental Stewardship and Compliance Training for Airport Employees

Environmental 101 Training Course

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Course Objectives and Overview

This course will provide a high-level overview of environmental topics and how they apply to airports.

Specifically, participants will be knowledgeable of the following upon completion of the course:

- Which environmental topics are most important to airports
- A basic understanding of the environmental topics affecting airports and airport development
- Training available to airport management and operations staff through *ACRP WebResource 21*.

Links to federal references may be modified over time. Please search FAA and other federal websites to find the most current reference material.

Key Definitions and Terms

- **Clean Air Act (CAA) –** the United States' primary federal air quality law, intended to reduce and control air pollution nationwide
- **Clean Water Act (CWA) –** establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters
- **Day Night Average Sound Level (DNL) –** the standard metric calculated using the A-weighted decibel unit (dBA) for determining cumulative exposure of individuals to noise
- **Direct Emissions –** emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles)
- **Environmental Protection Agency (EPA) –** federal agency with a mission to protect human health and environment

Source: EPA. n.d. Home page. https://www.epa.gov/

Key Definitions and Terms (cont'd)

- **Hazardous Materials** – any substances or materials commercially transported that pose unreasonable risk to public health, safety, and property. They include hazardous wastes and hazardous substances as well as petroleum and natural gas substances and materials
- **Indirect Emissions –** emissions associated with the purchase of electricity, steam, heat, or cooling resulting from the organization's energy use
- **National Environmental Policy Act (NEPA) –** an act signed into law in 1970 requiring federal agencies to assess the environmental effects of their actions prior to making decisions
- **Resiliency –** the ability to anticipate, prepare for, and respond to hazardous events, such as earthquakes, wildfires and flooding, and trends or disturbances related to the changing climate

Source: EPA. n.d. Home page. https://www.epa.gov/

Key Definitions and Terms (cont'd)

- **Sustainability –** according to the U.N. (1987), sustainability is "meeting the needs of the present without compromising the ability of future generations to meet their own needs"
- **Wildlife Habitat -** a place where a population of plants or animals lives, grows, and reproduces; habitats can be small (e.g., a log) or large (e.g., desert) (EPA n.d.)

Airports and the Environment

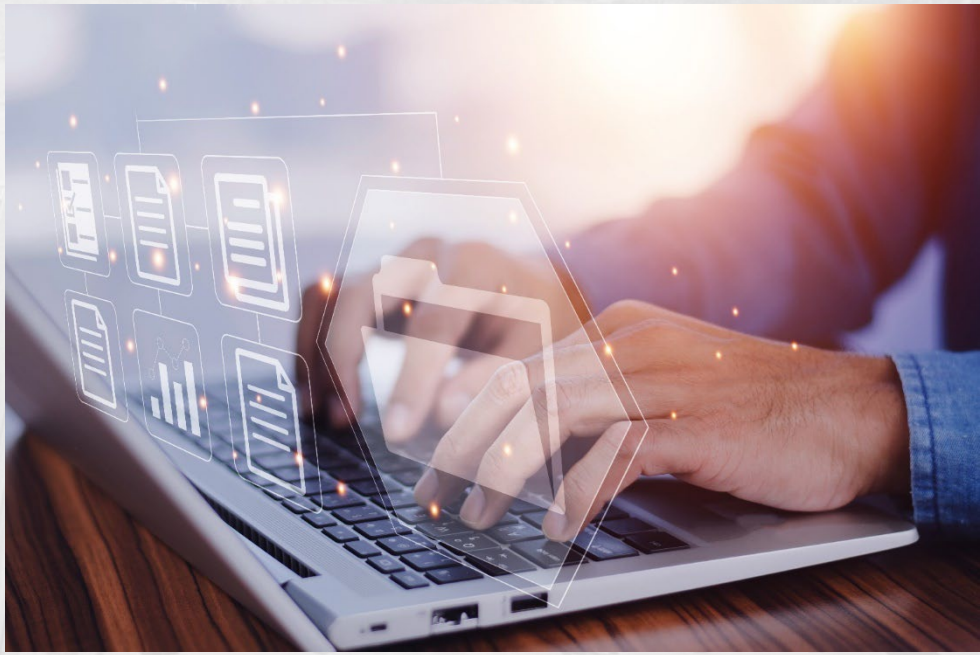
Understanding how airports coexist with the environment is key to understanding how to reduce potential environmental impacts.

- Airports of all sizes can have an impact on the environment
- Consequences of the environmental impacts can harm human health
- Airports can directly impact the environment within airport boundaries but also indirectly impact the surrounding areas
- Airports can train management and operations staff on environmental topics to understand how to reduce the airport's environmental impact (footprint)

Top Environmental Topics for Airports

Through airport interviews, the following were identified as the most pressing topics that airports want more information on:

- Air Quality
- Airport Resiliency
- Airport Sustainability
- Aviation Noise
- NEPA
- Water Quality
- Wildlife Habitat Management and Control
- Hazardous Materials and Waste Management



ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Air Quality – Training Introduction

The Air Quality course will provide a high-level overview of air quality, air quality regulations, and how regulations apply to airports.

In the Air Quality course, participants will learn:

- The importance of air quality at airports and potential impacts
- Air quality statutes and regulations, including the Clean Air Act (CAA), that are relevant to airports and airport projects
- Greenhouse gas (GHG) emissions at airports
- Typical airport emissions and their sources

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Air Quality – Why is it Important?

Air quality can impact residential areas, recreational areas and the quality of the local environment.

- Air pollution reduces the quality of the air we breathe daily
- Poor air quality from air pollution has been linked to a variety of health problems
- Older adults, children, and people with heart and respiratory diseases have greater risk for air pollution-related health effects
- Emissions from aircraft, surface transportation and construction all contribute to an airport's emissions footprint, including direct and indirect emissions that may affect surrounding communities
- FAA often requires that an air quality analysis be completed for airport improvements to measure emission-related impacts and ensure compatibility with the local air quality standards

Be sure to consider the entire project, landside and airside, when analyzing air quality emissions.

Airport Resiliency – Training Introduction

The Airport Resiliency course will provide basic information regarding resiliency and how airports can use resiliency practices to predict, manage, and prevent disruptive events.

Resiliency will be discussed in terms of climate change, with the understanding that resiliency at airports can encompass a wide variety of topics.

In the Airport Resiliency course, participants will:

- Gain a basic understanding of airport resiliency
- Become knowledgeable about climate adaptation within the aviation context
- Develop an awareness of steps that could be undertaken to minimize extended disruptions

Airport Resiliency – Why is it Important?

Resiliency is the ability to adapt to changing conditions as well as withstand and rapidly recover from disruptions due to emergencies.

- Organizations use business continuity plans and procedures to keep operating during disruptive events
- A resilient organization continuously anticipates changing conditions and disruptions and adjusts to them
- This approach is summarized as prevention, protection, mitigation, response and recovery
- Airports need to consider addressing airport resiliency for uninterrupted operations

Consider establishing an airport resiliency team and/or an airport resiliency plan to adequately assess and create action plans following events.

Airport Sustainability – Training Introduction

The Airport Sustainability course will provide basic information regarding sustainability and how it can be applied at airports. It will present general concepts, examples and benefits, and resources available to aid airports in developing and maintaining sustainability programs.

In the Airport Sustainability course, participants will:

- Gain a basic understanding of sustainability in the context of airports
- Become familiar with available airport sustainability resources
- Gain awareness of steps that can be undertaken to develop and maintain sustainability programs

Photo credit: iStock/Getty Images/pidjoe

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Airport Sustainability – Why is it Important?

The U.N. has defined sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

Sustainability promotes a holistic and balanced approach to managing organizations. The aviation industry recognizes numerous benefits of sustainability, including:

- Promotes innovative practices
- Reduces operational and reputational risk
- Enhances organizational and infrastructure resiliency
- Improves asset utilization
- Supports cost efficiencies
- Strengthens stakeholder relationships
- Increases transparency

Sustainability is scalable and applicable to airports of all sizes in all regions.

Source: United Nations (U.N.) Brundtland Commission. 1987. *Report of the World Commission on Environment and Development: Our Common Future*

Aviation Noise – Training Introduction

The Aviation Noise course will provide a high-level overview of noise impacts and regulations and how they apply to aviation.

In the Aviation Noise course, the participant will learn:

- Noise levels at airports and potential impacts
- Noise statutes and regulations relevant to airports and airport projects
- Day Night Average Sound Level (DNL) and how it applies at airports
- Noise analysis and how it applies to airports

Photo credit: iStock/Getty Images/ David-Prado

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Aviation Noise – Why is it Important?

Aviation-related noise has the potential to impact residential and recreational areas in proximity to an airport.

- In terms of airports, noise is most often associated with aircraft operations, impacting nearby residential and recreation areas
- Noise has been linked to human health impacts
- Noise from aircraft, surface transportation and construction all contribute to an airport's noise profile
- FAA often requires a noise analysis for airport improvements to measure noise-related impacts and ensure compatibility with surrounding land uses

When considering noise-sensitive areas, be sure to consider areas that will be directly and indirectly impacted. Indirect areas may be outside the project area or flight path but still exposed to increased noise.

NEPA 101 – Training Introduction

The NEPA 101 course will provide a high-level overview of NEPA regulations and how they apply to airport management and operations.

In the NEPA 101 course, participants will learn:

- The definition of NEPA and why it is important in aviation
- NEPA and the types of airport projects considered federal actions
- Required levels of NEPA documentation
- NEPA environmental impact categories
- A high-level understanding of FAA Order 1050.1 and how it applies to airport management and operations roles

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

NEPA 101 – Why is it Important?

The National Environmental Policy Act (NEPA) requires federal agencies to assess the environmental effects of their actions prior to making decisions.

Regarding airports, NEPA applies to:

- Federally funded actions
- Federal approval of changes to Airport Layout Plans (ALPs)
- Issuance of federal grants
- Federal approval of land purchases and land disposals
- Locally/privately funded projects, if they result in a change to the ALP
- Future conditions that are conditionally approved and shown on an ALP
- Imposing and spending Passenger Facility Charge (PFC) funds for airport projects
- Changes in land use at the airport

Future conditions shown on an ALP are conditionally approved upon further environmental review. Just because it is shown does not mean it is approved.

Water Quality – Training Introduction

The Water Quality course will provide a high-level overview of water quality, water quality regulations, and how regulations apply to airports.

In the Water Quality course, participants will learn:

- The importance of water quality at airports
- Water quality regulations relevant to airports and airport projects
- Water quality-related permits and plans
- Typical airport water pollutants and their sources

Photo credit: iStock/Getty Images/Xavi Arroyo

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Water Quality – Why is it Important?

Clean water resources are vital to all forms of life. They include a variety of sources, such as surface water, groundwater, wetlands, and floodplains.

Water quality can impact both on-airport and off-airport water resources.

- Water runoff from airports can impact nearby water quality, potentially impacting animals, plants, and human populations
- The use of permits, prevention plans, and Best Management Practices (BMPs) can help prevent water quality impacts
- Understanding water resources and the regulations that protect them is key to preventing water quality impacts

Consider the entire water system when analyzing impacts to water.

Wildlife Habitat Management and Control – Training Introduction

The Wildlife Habitat Management and Control course will provide a high-level overview of wildlife hazards at both Part 139 and non-Part 139 airports and describe how FAA wildlife requirements apply to airport management and operations.

In the Wildlife Habitat Management and Control course, participants will learn:

- Requirements at airports in relation to wildlife habitat management
- Wildlife hazard identification
- Recommended techniques for wildlife control

Photo credit: iStock/Getty Images/In Stock

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Wildlife Habitat Management and Control – Why is it Important?

Wildlife strikes impact aviation safety and safe airport operations.

- Wildlife strikes pose a risk to aircraft crews, passengers and aircraft
- Economic losses are in the billions of dollars
- Wildlife hazards can be present at all airports, regardless of size or number of operations
- Airports are required to take appropriate action to mitigate wildlife hazards
- The management of wildlife hazards is an ongoing process
- Control strategies need to account for threatened and endangered species

It is important to understand how the land on your airport is being used; for example, standing water may serve as a wildlife attractant.

Hazardous Materials and Waste Management – Training Introduction

The Hazardous Materials and Waste Management course will provide a high-level overview of waste management and hazardous materials and how regulations apply to airports.

In the Hazardous Materials and Waste Management course, participants will learn:

- Typical hazardous materials at airports, their sources, and potential impacts
- Hazardous material and waste management regulations relevant to airports and airport projects
- Typical sources of waste at airports

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

Hazardous Materials and Waste Management – Why is it Important?

Appropriate storage and handling of hazardous materials at airports is vital to protect the local environment.

Proper waste management at airports can help divert hazardous materials and solid waste from landfills.

- Federal, state, and local laws regulate hazardous materials use, storage, transport and disposal
- Airport sponsors purchasing or developing lands for airport purposes may encounter hazardous materials contamination
- Disturbing sites that contain hazardous materials or contaminants may cause significant impacts to soil, surface water, groundwater, air quality and the organisms using these resources
- Accidental spills of hazardous materials may violate federal, state and local laws

What Does this Mean to Your Airport?

Which environmental topics are important to your airport?

- Provide links to the online training resources, and prioritize the training for airport staff

What are the environmental resources that have potential to exist in and around your airport?

- Provide a list and a map of potential environmental resources in and around your airport

What environmental programs does your airport have in place to help protect the environment?

- Provide a few statements regarding the sustainability goals/commitments at your airport and explain how employees can help contribute
- Describe any recycling, reuse and waste reduction efforts at your airport and share any wins in waste reduction

Course Wrap-Up

Some key takeaways include:

- The environment can be impacted by airports big and small
- Consequences of the environmental impacts can harm human health
- Airports can directly impact the environment within airport boundaries but also indirectly impact the surrounding areas in proximity to the airport
- Airports can train management and operations staff on environmental topics using the trainings in *ACRP WebResource 21* to help reduce the airport's environmental impact (footprint)

References

EPA. n.d. Home page. https://www.epa.gov/

United Nations (U.N.) Brundtland Commission. 1987. *Report of the World Commission on Environment and Development: Our Common Future*

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP Disclaimer and Publication Details

This presentation was produced as part of ACRP Project 02-101, “Environmental Stewardship and Compliance Training for Airport Employees.” The full publication for this project can be accessed at crp.trb.org/acrpwebresource21. Program information for ACRP can be found at www.trb.org/ACRP.

The ACRP is sponsored by the Federal Aviation Administration. ACRP is administered by the Transportation Research Board, part of the National Academies of Sciences, Engineering, and Medicine.

Any opinions expressed or implied in resulting research products are those of the individuals and organizations who performed the research and are not necessarily those of TRB; the National Academies of Sciences, Engineering, and Medicine; or ACRP sponsors.

ACRP AIRPORT COOPERATIVE RESEARCH PROGRAM