



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

**Airport Sustainability Training
Course**

ACRP | AIRPORT
COOPERATIVE
RESEARCH
PROGRAM



Course Objectives and Overview

This 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 this course you 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

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

- **EONS** – economic vitality, operational efficiency, natural resources, social responsibility (SAGA n.d.-b)
- **Environmental, Social, and Governance (ESG)** – a framework that assesses a company’s governance mechanisms and its ability to effectively manage its environmental and social impacts (Kaplan et al. 2023)
- **Global Reporting Initiative (GRI)** – an independent, international organization that helps businesses and other organizations understand and communicate their impacts (GRI n.d.)
- **Sustainable Aviation Guidance Alliance (SAGA)** – “a broad volunteer coalition of aviation interests that formed . . . to assist airport operators of all sizes in planning, implementing, and maintaining a sustainability program” (SAGA n.d.-a)
- **Triple Bottom Line** – the foundational principles of sustainability: economic growth, social responsibility, and environmental stewardship (SAGA n.d.-b)

What is Sustainability?

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.”

From this foundational concept, sustainability is often defined in terms of the triple bottom line.

- Triple bottom line is a business concept that defines performance in three key areas: financial, social and environmental
- The triple bottom line is often referred to as the “3Ps” or people, profit, and planet
- The 3P concept is that business organizations can and should be operated to be financially successful while also improving people’s lives and the well-being of the planet
- Sustainability promotes a holistic and balanced approach to managing business organizations

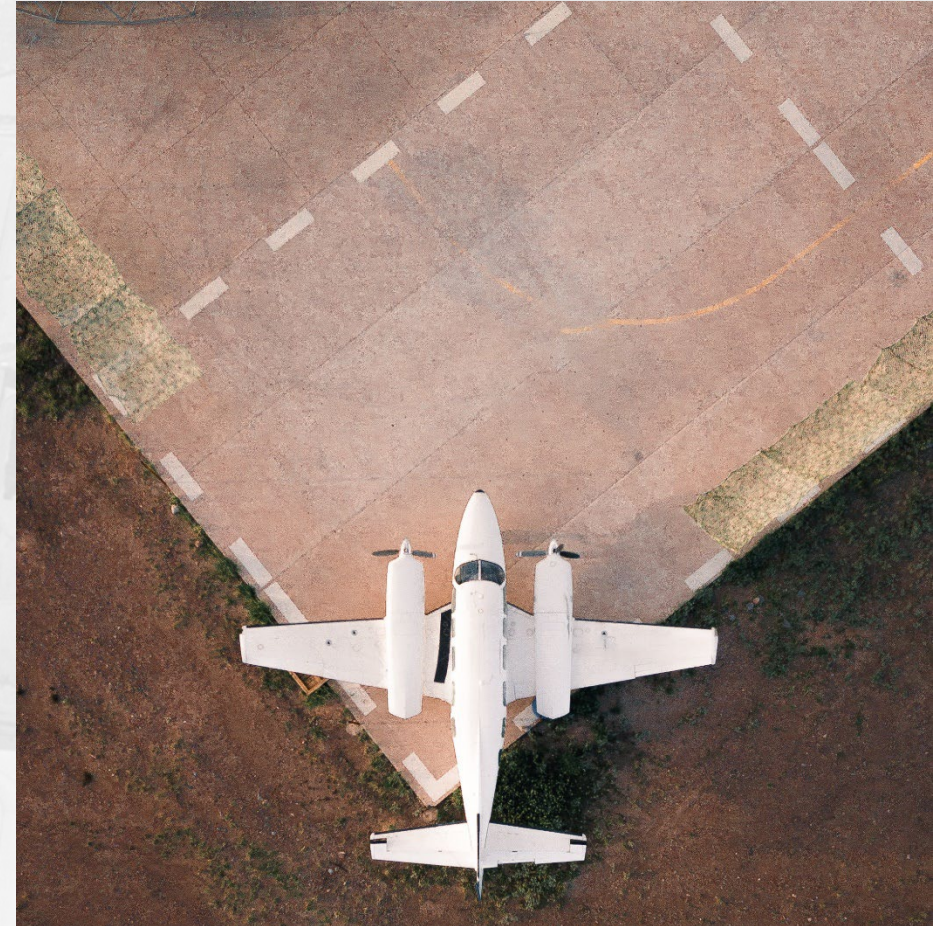
Source: United Nations (U.N.) Brundtland Commission. 1987. *Report of the World Commission on Environment and Development: Our Common Future*

Drivers of Sustainability

Airports adopt sustainability practices for various reasons, often based upon size, location, and other characteristics. However, among those drivers often noted are:

- Cost reductions
- FAA funding availability
- Management support
- Community relations
- Environmental compliance

Text Source: Martin-Nagle, R., and Klauber, A. 2015. *ACRP Synthesis 66: Lessons Learned from Airport Sustainability Plans*. Transportation Research Board, Washington, DC. <https://doi.org/10.17226/22111>



Benefits of Sustainability

The aviation industry recognizes that sustainability:

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



Photo credit: iStock/Getty Images/pidjoe

Sustainability in Aviation

The airport industry has expanded the triple bottom line framework to reflect the characteristic operational intensity through the “EONS” context:

- The “EONS” approach to sustainability (**e**conomic vitality, **o**perational efficiency, **n**atural resources, **s**ocial responsibility) is a more holistic approach to airport management by adding operational efficiency to the triple bottom line
- The EONS framework provides a useful means of viewing and guiding sustainability efforts at airports

What does sustainability mean to you and your airport?

Source: Martin-Nagle, R., and Klauber, A. 2015. *ACRP Synthesis 66: Lessons Learned from Airport Sustainability Plans*. Transportation Research Board, Washington, DC. <https://doi.org/10.17226/22111>

EONS Approach Examples

The following are example components (not all-inclusive) of an EONS approach to sustainability:

- **Economic Vitality**
 - Lifecycle cost analysis of capital development
 - Local purchasing
- **Operational Efficiency**
 - Terminal curbside congestion mitigation
 - Automated aircraft docking
- **Natural Resources**
 - Energy, water, and fuel efficiency
 - Waste minimization, reuse, recycling
- **Social Responsibility**
 - Employee and customer health, safety and wellness
 - Diversity, equity and inclusion

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

Source: SAGA. n.d.-b. Sustainable Principles and Practices: Learn.
<http://www.airportsustainability.org/learn>

Economic Vitality: Sustainability in Practice

Economic Vitality includes:

- Federal and state grants
- Bond refunding
- Enterprise risk management
- Innovation programs

Operational Efficiency: Sustainability in Practice

Operational Efficiency includes:

- Preventive maintenance of equipment and systems
- Wildlife management
- Touchless and self-directed customer applications
- Drone based inspection for construction, maintenance and operations
- LED airfield lighting

Natural Resources: Sustainability in Practice

Natural Resources include:

- Renewable energy and fuels purchasing
- Sustainable aviation fuels
- Infrastructure risk assessments
- Greenhouse gas accounting and reduction
- Construction stormwater management

Social Responsibility: Sustainability in Practice

Social Responsibility includes:

- Employee health and wellness
- Employee learning and development
- Employee volunteerism and giving
- Education and outreach
- Minority/women/disadvantaged business enterprise programs
- Health and wellness of neighboring communities

Consider airport participation in local education and outreach opportunities.

Measuring and Reporting Sustainability

Measuring and reporting of airport activities helps drive performance improvements.

- The growing amount of reporting regulations, stakeholder demand and investor requests are driving airports to increasingly report on their corporate responsibility
- Airports need an established and agreed upon set of rules to map out and decide how to report on important issues
- The nonprofit [Global Reporting Initiative](#) (GRI) has pioneered a comprehensive sustainability reporting framework for airports.
- The United Nations' Sustainable Development Goals also provide a useful blueprint for establishing universally accepted targets and measures
- In [Environmental, Social, and Governance \(ESG\) Management Best Practice](#), Airports Council International (ACI) provides guidance to airports seeking to start, improve, or expand their ESG reporting

The establishment of baselines shows improvements and supports investments in sustainability projects.

FAA Support for Sustainable Actions

The FAA offers programs to help airports with sustainable actions that:

- Reduce environmental impacts
- Maintain high, stable levels of economic growth
- Achieve “social progress” through a broad set of actions that ensure organizational goals are achieved in a way that is consistent with the needs and values of the local community

Stay informed about which FAA programs your airport is eligible for.

Source: FAA. 2023. Airport Sustainability.
<https://www.faa.gov/airports/environmental/sustainability>

FAA's Sustainability Programs

FAA's airport sustainability programs include:

- **Noise Compatibility** – promotes cohesiveness between airports and surrounding communities
- **Voluntary Airport Low Emission Vehicle (VALE)** – through VALE, if an airport is in a non-attainment or maintenance area, airport sponsors can use Airport Improvement Program (AIP) funds and Passenger Facility Charges (PFCs) to finance low-emissions vehicles, refueling and recharging stations, gate electrification, and other airport air quality improvements.
- **Zero Emissions Vehicle (ZEV)** – The FAA's 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 AIP funding to purchase zero-emissions vehicles.

For a complete list of FAA's environmental funding programs, visit the [Table of Relevant FAA Funding Programs](#).

Source: FAA. 2023. Airport Sustainability.
<https://www.faa.gov/airports/environmental/sustainability>

Airport Sustainability Planning

Airport sustainability plans take the FAA programs a step further by fully integrating sustainability into airport planning and operations.

The FAA provides eligible airports across the U.S. with Airport Improvement Program (AIP) grant funds to develop comprehensive sustainability planning documents:

- A Sustainability Master Plan fully integrates sustainability into an airport's long-range planning
- An Airport Sustainability Management Plan is a stand-alone planning document focused on an airport's sustainability objectives, policies and initiatives based on a baseline environmental resource assessment
- Grants for airport sustainability planning have been provided to numerous airports by the FAA

The FAA published the U.S. Aviation Climate Action Plan, which defines a path toward achieving net-zero emissions by 2050 based on U.S. aviation industry individual and sector-wide commitments (see FAA's [Aviation Climate Action Plan](#)).

Source: FAA. 2023. Airport Sustainability.
<https://www.faa.gov/airports/environmental/sustainability>

Aviation Sustainability Resources

Key aviation-related sustainability resources include the following:

- Sustainable Aviation Guidance Alliance (SAGA)
- Airports Council International–North America (ACI-NA)
- *Sustainable Airport Manual (SAM)* by Chicago Department of Aviation (CDA)
- ACRP

Sustainable Aviation Guidance Alliance

SAGA offers a database of best practices, including:

- Interactive website for exploring and sharing sustainability information
- Created for airports but useful for all industries to learn about sustainability, share ideas and experiences, search for practices based on custom information, and efficiently plan, implement and monitor sustainability activities
- Extensive database of sustainable practices
- The database can be found on SAGA's website at www.airportsustainability.org/sustainable-practices

Text Source: SAGA. n.d.-b. Sustainable Principles and Practices: Learn.
<http://www.airportsustainability.org/learn>



Airports Council International–North America

- Airports Council International–North America (ACI-NA) is an airport-oriented organization that advocates for policies and provides services that strengthen airports' abilities to service passengers, customers and communities
- Through its Sustainability Policy and Environmental Goals, ACI-NA is committed to assisting airports' integration of sustainability
- More information on ACI-NA can be found online at <http://airportscouncil.org>.

Source: ACI-NA. n.d. About ACI-NA. <https://airportscouncil.org/about/>

Chicago Sustainable Airport Manual

The Chicago Department of Aviation (CDA) created the Sustainable Airport Manual (SAM) as part of the city's efforts to implement environmentally sustainable initiatives across all airport activities.

- The SAM is a comprehensive guidance manual created to incorporate and track sustainability in administrative procedures, planning, design and construction, operations and maintenance, and concessions and tenants with minimal impact to project schedules or budgets
- The SAM not only guides the implementation of sustainability initiatives at Chicago airports but also has been used for guidance by airports around the world
- The [Sustainable Airport Manual](https://www.flychicago.com/community/environment/sam/Pages/default.aspx) can be found on the CDA's website at [www.chicago.gov](https://www.flychicago.com/community/environment/sam/Pages/default.aspx)

Source: Chicago Department of Aviation. 2020. *Sustainable Airport Manual*. <https://www.flychicago.com/community/environment/sam/Pages/default.aspx>

ACRP Resources

ACRP research reports and syntheses related to airport sustainability include:

- [ACRP Report 42: Sustainable Airport Construction Practices](#)
- [ACRP Report 43: Guidebook of Practices for Improving Environmental Performance at Small Airports](#)
- [ACRP Report 80: Guidebook for Incorporating Sustainability into Traditional Airport Projects](#)
- [ACRP Report 110: Evaluating Impacts of Sustainability Practices on Airport Operations and Maintenance](#)
- [ACRP Report 119: Prototype Airport Sustainability Rating System—Characteristics, Viability, and Implementation Options](#)
- [ACRP Report 148: LED Airfield Lighting System Operation and Maintenance](#)
- [ACRP Report 154: Water Efficiency Management Strategies for Airports](#)
- [ACRP Research Report 174: Green Stormwater Infrastructure, Volume 1: Primer](#)
- [ACRP Research Report 174: Green Stormwater Infrastructure, Volume 2: Guidebook](#)
- [ACRP Synthesis 21: Airport Energy Efficiency and Cost Reduction](#)
- [ACRP Synthesis 42: Integrating Environmental Sustainability into Airport Contracts](#)
- [ACRP Synthesis 66: Lessons Learned from Airport Sustainability Plans](#)
- [ACRP Synthesis 69: Airport Sustainability Practices—Drivers and Outcomes for Small Commercial and General Aviation Airports](#)
- [ACRP Synthesis 77: Airport Sustainability Practices](#)
- [ACRP Synthesis 93: Sustainability's Role in Enhancing Airport Capacity](#)

What Does this Mean to Your Airport?

What does sustainability mean to your airport?

- Provide your airport's sustainability mission statement, or consider creating one if you do not yet have one

Are local initiatives in place? If so, does your airport participate in the initiatives?

- Provide information on state and local initiatives and provide contact information

Do your airport planning documents consider sustainability?

- Provide links and references to planning documents and capital improvement plans that reference sustainability; if they do not yet include sustainability, consider adding it

What does the future of sustainability look like to your airport?

- Provide a few statements regarding the sustainability goals/commitments at your airport, and explain how employees can help contribute

Is your airport eligible for FAA sustainability funding?

- Contact your local ADO to determine eligibility and provide guidance to employees

Course Wrap-Up

Some key takeaways include:

- Sustainability promotes a holistic and balanced approach to managing business organizations
- The EONS framework provides a useful means of viewing and guiding sustainability efforts at airports
- Sustainable practices can produce desirable outcomes across the spectrum of airport activities
- Robust resources exist to help airports adopt, implement, and maintain sustainable programs and practices

References

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SAGA. n.d.-a About. <http://www.airportsustainability.org/about>

SAGA. n.d.-b Sustainable Principles and Practices: Learn. <http://www.airportsustainability.org/learn>

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

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.

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