2023

The Raleigh-Durham Airport Authority

SUSTAINABILITY MANAGEMENT PLAN

From the President and Chief Executive Officer

On behalf of the Raleigh-Durham Airport Authority, I am pleased to share our plan for delivering and building on the airport's sustainability efforts. We are committed to continuous improvement as RDU supports regional growth by expanding facilities and infrastructure to accommodate more passengers and flights, and generating additional economic activity.

Our very first Sustainability Management Plan (SMP) provides a framework for the integration of sustainability into airport planning, design, construction, operations, maintenance and business processes. The SMP is founded on the four pillars of airport sustainability: operational efficiency, environmental stewardship, economic viability, and social responsibility.

The Authority developed this plan over a four-year period with input from internal and external stakeholders, sustainability experts and the broader community. The process resulted in the development of nine (9) sustainable focus areas, each with one or more goals that are in line with the four pillars. We will monitor, evaluate and report on progress in the nine focus areas, and offer engagement opportunities for stakeholders and the public.

The Authority is keenly focused on achieving our sustainability commitments as we continue to deliver a world-class airport experience that's consistent with the needs and values of our community. We appreciate the time and efforts of the Raleigh-Durham Airport Authority Board, staff and community members who offered their insights and expertise as we developed the plan.

I am pleased to initiate implementation by Authority staff of the Sustainability Management Plan. The Sustainability Management Plan is a living document and will be updated and amended as necessary.

Sincerely,

Michael J. Landguth, A.A.E. President and CEO

Michael J. Landguth

March 28, 2023 (v1)

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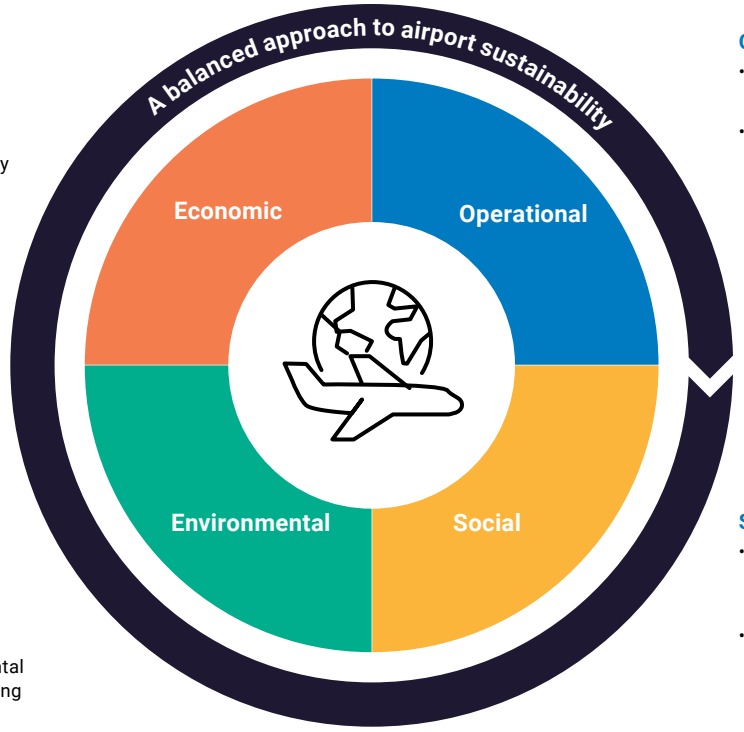
1. Introduction

The Raleigh-Durham International Airport (RDU or Airport) is centrally located between the downtown areas of Raleigh and Durham and is the primary commercial airport serving central North Carolina. The Raleigh-Durham Airport Authority (Authority), originally chartered in 1939, is responsible for the development, operation, and maintenance of RDU. The City of Durham, City of Raleigh, Durham County, and Wake County each appoint two members to the eight-person Board that governs the Authority. The Authority's Vision is to deliver a world-class airport experience, and its Mission is to deliver excellent airport services, facilities and unparalleled customer service.

RDU was constructed during World War II to meet US military needs as well as growing commercial aviation demand in the region. Since that time, the Research Triangle Region has experienced dynamic growth, and RDU's air service, facilities, and supporting infrastructure have evolved to support this growth. The SMP will ensure a holistic and comprehensive approach for managing this growth in a way that ensures operational efficiency, environmental stewardship, economic viability and social responsibility.



Economic Viability

- Reduces development and/or operations and maintenance costs
- Financial accountability over the lifecycle of facilities and infrastructure

Operational Efficiency

- Efficients use of resources and facilities
- Minimizes waste

Environmental Stewardship

- Conserves and protect resources
- Reduce impacts
- Facilitates environmental approvals and permitting

Social Responsibility

- Improves passenger and employee experience
- Enhances quality of life and economic opportunities in the local community

Each pillar carries equal importance as the Authority seeks to balance economic viability, protect the environment and natural resources, and promote equity and public engagement with airport customers, while contributing to the effective and efficient operation of the airport.

The SMP serves as a framework and operational plan for the sustainability program at RDU. It is aligned with the Authority's Strategic Plan, including objectives to deliver and build on sustainability commitments and to operate infrastructure in ways that promote sustainability. The SMP is designed to be a living document that is evaluated and updated periodically to drive sustainability performance for years to come.

RDU AT A GLANCE - 2022

- 4,900 acres
- 14 Major Airlines
- 2 Terminals & 3 Runways
- Approximately 5,000 Airport Employees
- Approximately 112,000 tons of cargo
- $15.1 billion annual economic impact
- 44 non-stop destinations (including 7 intl.)
- Served 11.8 million passengers

Prior to the development of this Sustainability Management Plan, the Authority implemented numerous initiatives to operate RDU more sustainably. These efforts include:

Vision 2040 Master Plan: Approved in 2017, Vision 2040 outlines a 25-year plan to accommodate the continued growth of RDU. The goals of Vision 2040 include proposing improvements that will ensure the airport's safety, efficiency, and capability to serve the community's aviation needs; optimizing infrastructure and resources in a sustainable manner; enhancing the passenger and customer experience; preserving flexibility to adapt to emerging technologies, and; accommodating connectivity to various modes of transportation. The goals and initiatives in the SMP align closely with Vision 2040 as a roadmap for the Authority to achieve its sustainability goals.

Terminal 1 Renovation: Terminal 1 was originally built in 1982 and underwent renovations beginning in 2013. These renovations modernized the facility with a commitment to sustainability and operational efficiency, receiving LEED® Certification for New Construction and Major Renovations in 2014.

Electric Bus Deployment: RDU was the first public entity in the Research Triangle Region to deploy emission-free electric buses in 2019. Today, the Authority operates four electric buses to transport passengers from ParkRDU economy lots to passenger terminals. The Authority plans to add more electric vehicles (EVs) to its fleet.

Water Conservation: Brier Creek Reservoir, the Airport's own non-potable water source, is used to irrigate 80 percent of the landscaping at RDU. Additionally, low flow bathroom fixtures with automatic shut off valves and accessories have been installed in airport facilities to reduce water use.

Energy Conservation: The Authority has implemented several energy conservation measures: replacing 2,000 airfield lights with LEDs, using fritted glass in Terminal 2 to reduce cooling needs, adopting a high efficiency Central Energy Plant (CEP) and computerized Building Management System (BMS), and operating pre-conditioned air and 400 Hz ground power units on jet bridges to promote aircraft efficiency while at the gate.

Recycling Program: Recycling is an important part of the Authority's environmental program. Containers specifically labeled for bottles, cans and newspapers are located throughout the terminals at RDU, and many of RDU's tenants have their own recycling programs.

Sustainability Context

The Authority's efforts to create a more sustainable airport are informed by local, state, and federal initiatives to promote sustainability. Local and regional entities including the City of Raleigh, City of Durham, Durham County, Town of Cary, Wake County, Town of Chapel Hill, Duke University, North Carolina State University, and the University of North Carolina at Chapel Hill all have sustainability plans and programs in place to create more sustainable facilities, reduce (GHG) emissions, promote electric vehicle (EV) use and install EV charging infrastructure, improve energy efficiency, and create economic vitality and social equity in the communities they serve.

In addition, the Triangle J Council of Governments (TJCOG) is building a sustainable and resilient region through a combination of relationship-building, resource prioritization, and projects that improve the efficiency and sustainability of community design and services. Their assessments are helping regional decision-makers understand vulnerabilities and providing guidance on potential solutions.

Building on the tradition of sustainability at both RDU and efforts in the region at large, the Authority developed a Sustainability Statement in 2018, positioning the Authority to begin developing a formal sustainability program and kicking off the development of the SMP. The Authority also has created a Sustainability Policy, adopted on February 16, 2023 by the Raleigh-Durham Airport Authority Board, that further outlines the Authority's commitment to sustainability in operations and infrastructure moving forward.

Environmental, Social, and Governance (ESG) at Airports

Like many other sectors of the economy, the air transportation industry is experiencing an increase in requests for ESG-related information. This is often tied to requests from existing bond holders or from prospective bond holders while an airport is in the process of securing additional bond financing in the market. The establishment of a sustainability program and the development of the SMP gives the Authority tools to respond to inquiries from stakeholders and investors interested in more quantitative data.

2. Stakeholder and Public Engagement

Stakeholder and public engagement is a key component in developing and executing the SMP. By incorporating the priorities and ideas of a range of internal and external stakeholders, the SMP addresses goals and actions that are critical for advancing sustainability at RDU and throughout the region.

Authority staff, airport tenants, business partners, state and local government staff and the public assisted in identifying the framework, priorities and issues to address in the SMP. By engaging stakeholders through a variety of methods such as online surveys and interactive virtual and in-person brainstorming, polling and ranking activities, we were able to gather insights that helped the Authority inform each aspect of the SMP. During SMP implementation, the Authority will continue to engage internal and external stakeholder groups as it carries out the plan.

Internal and External Advisory Committees

To ensure diverse perspectives were captured and incorporated in the SMP, the Authority formed two advisory committees, one internally focused and the other more broadly representing the government and business community. The participants in these advisory committees represented key partners in promoting and achieving the Authority's sustainability goals. The Authority met with these committees at key milestones in the development of the SMP to update members on SMP progress and collect feedback and information to inform current and future project stages.

Internal Advisory Committee (IAC)

Representatives from various Authority departments comprised the IAC. IAC members represented a cross section of functional areas.

The IAC was actively engaged in the development of the SMP. Their expertise and knowledge of RDU's operations was leveraged to provide guidance on the development of focus areas, goals, targets, actions, and implementation processes.

External Advisory Committee (EAC)

The EAC consisted of airlines, tenants, business partners, and local governments, state agencies and other external stakeholders. The EAC provided important perspectives to ensure the SMP addresses issues and initiatives meaningful for the broad range of interests at RDU and the region. EAC members aided in the identification of focus areas, prioritization of initiatives, and development of goals, targets and actions.

In addition to convening the EAC, the Authority held one-on-one meetings with representatives of the NC Department of Natural and Cultural Resources, Department of Parks and Recreation, and Umstead Park officials to gather input and recommendations during the development of the SMP.

Public Meetings

Residents of communities served by RDU are also key stakeholders in the SMP process. The general public was engaged at key milestones to educate residents on RDU's sustainability mission and receive input on the SMP's goals, targets, and actions.

Three public meetings were held from 2019 through 2022. During these meetings, residents were invited to learn about the SMP process and focus areas. Authority staff and sustainability experts were available to answer questions and record feedback.

The Authority sought public feedback throughout the project in a variety of ways, including the collection of public comments both during meetings and during public comment periods. This included having the draft SMP available for public review and commenting from Oct. 27 to Dec. 19. The Authority also conducted an online survey in 2021, which gathered feedback on the importance of each focus area and the criteria that should be used when prioritizing actions. This feedback was used to help ensure that the final SMP reflected input from the community.

Internal Stakeholder Meeting 2019

IAC/EAC MEETINGS

May 2019	Meeting 1: SMP Framework
February 2020	Meeting 2: Baseline Assessment Review
August 2021	Meeting 3: Review and Realignment of Plan
November 2021	Meeting 4: Goals, Targets, Actions, and Tactics
October 2022	Meeting 5: Draft Sustainability Management Plan Review

PUBLIC MEETINGS

February 2020	Meeting 1: Sustainability Framework and Baseline Assessment
October 2021	Meeting 2: Goals, Targets, Actions, and Tactics
October 2022	Meeting 3: Draft Sustainability Management Plan Review

INTERNAL

- Five meetings at SMP milestones
- Ranking exercises to identify focus areas
- Data collection and information to support Baseline Assessment
- Online survey on impacts from the COVID-19 pandemic
- Interactive polling exercise on SMP goals and actions
- Development of Implementation and Monitoring Plan

EXTERNAL

- Five meetings at SMP milestones
- Ranking exercises to identify focus areas
- Interactive polling exercise on SMP goals and actions
- Online survey on impacts from the COVID-19 pandemic

PUBLIC

- Three public meetings at SMP milestones
- Public comment periods following each meeting
- Online survey: focus area importance, goals, and ranking criteria for actions
- Outreach via Authority website, social media, and email blasts on SMP process

3. Developing the Sustainability Management Plan

1 SMP Framework

- Introduction of sustainability planning process to stakeholders.
- Development of vision, mission, and guiding principles and defined sustainability.
- Identified focus areas.

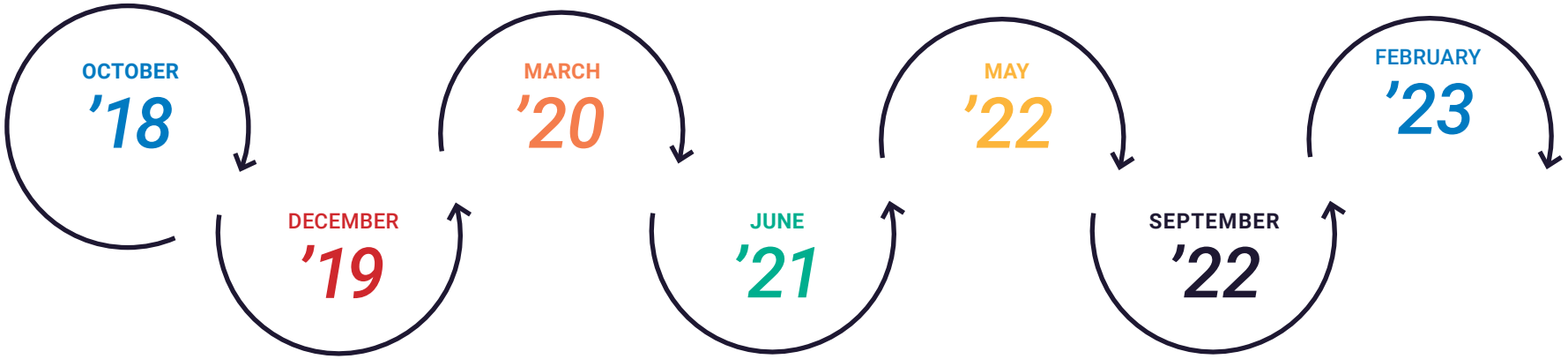
Project on hold due to impacts of the COVID-19 pandemic

4 Goals, Targets, and Actions

- Analysis of vision, mission, and baseline study results.
- Identification, evaluation and ranking of sustainability actions and related tactics.
- Development of "smart" goals and related targets.

6 Sustainability Management Plan

- Preparation of draft SMP and subsequent revisions.
- Review of SMP content by internal and external stakeholders, including the public.
- Final SMP.



2 Baseline Assessment

- Data collection, compilation and analysis through CY 2018.
- Benchmarking analysis of peer airports.
- Identification of data owners.
- Sustainability baseline inventory development.

3 Review and Realignment of Plan

- Re-examination of the sustainability baseline in light of 2019 and 2020 data.
- Analysis of the short- and long-term changes within RDU and the aviation industry at-large that resulted from the COVID-19 pandemic.

5 Implementation and Monitoring Framework

- Definition of implementation plan and monitoring program, including the development of tools, resources and guidelines for Authority departments responsible for implementation.

1 SMP Framework

The framework of RDU's SMP is built on nine focus areas that reflect the operational, environmental, economic, and social areas of importance to the Authority and RDU stakeholders. The plan's focus areas serve as the basis for evaluating current sustainability performance and provide opportunities to improve sustainability outcomes now and into the future through the implementation of actions and the achievement of goals aligned with each focus area. The SMP's focus areas were identified through a collaborative process including the engagement of internal and external stakeholders in the development.

In addition to the identification of focus areas, the sustainability statement developed by the Authority in 2018 was reaffirmed and a plan for stakeholder and public involvement throughout the SMP process was completed during this phase of the project.

2 Baseline Assessment

The Baseline Assessment examined the focus areas in detail by providing an initial assessment of sustainability performance, the Authority's management practices, and available data for each focus area. The Baseline Assessment for each focus area informed the development of sustainability goals and actions in subsequent planning steps. This effort was also instrumental in building overall understanding and awareness of the focus areas and sustainability opportunities and constraints with Authority staff and other RDU stakeholders.

Data from calendar year (CY) 2018 and 2019, representing typical growth and operating conditions, formed the basis of the Baseline Assessment. The results were shared during IAC and EAC Meeting 2 and Public Meeting 1 in February 2020. The results of the Baseline Assessment for each focus area, including data from CY 2019 and 2020 are summarized in Chapter 4.

3 Review and Realignment of Plan

In March 2020, the SMP was put on hold due to the financial and operational impacts of the COVID-19 pandemic. When the project restarted in the summer of 2021, the Baseline Assessment was re-examined to incorporate 2019 data into the established baseline, providing an additional year of data under typical growth and operating conditions. Data from the 2020 calendar year was also collected and analyzed for each focus area to understand how considerations for each focus area shifted during the COVID-19 pandemic. The following findings were documented during this phase of SMP development:

- Environmental and social considerations seen as increasingly important with an overall need to enhance focus on resiliency and health.
- Resource efficiency, embodied in the idea of "doing more with less", was increasingly important.
- Increased engagement and stronger partnerships with employees, passengers, communities, and business partners was seen as a priority to weather the impacts of disruptive and unpredictable events.
- The SMP development process did not need to be significantly altered, but should consider challenges and opportunities resulting from the COVID-19 pandemic.
- In 2020, relative increases in resource intensity use (e.g., per passenger) and consumption were observed for water, energy, and GHG emissions, while absolute use/consumption values in water and GHG emissions decreased. This increase in intensity was likely due to operational changes implemented during the COVID-19 pandemic, such as enhanced hygiene and cleaning protocols, and the increased intake of outside air in the terminals and other facilities.

4 Goals, Targets, and Actions

After the review and realignment of the SMP, the Authority developed sustainability goals, targets, and actions. These terms are defined below, and together form the basis for SMP implementation. They represent a full picture of how the Authority will advance sustainability for each focus area.

S SPECIFIC
Identifies who, what, where, and why.

M MEASURABLE
States how progress will be measured.

A ACHIEVABLE
Goals that are aspirational but within reach to increase likelihood of success.

R REALISTIC
Resources to accomplish the goal are available.

T TIME-BOUND
Defined time frame for accomplishment.

Goals: Statements that align with RDU's core business, provide direction for a focus area, serve as a basis for recognizing and measuring accomplishments, and organize sets of supporting actions. RDU's sustainability goals and targets follow the SMART framework.

Targets: Specific and quantitative representation of goals that identify the key milestones to achieve the goal, key metrics by which progress will be measured, and/or the time in which a goal will be achieved.

Actions: Initiatives or activities that improve sustainability outcomes and support goal and target achievement. Actions are essential to implementing the SMP and achieving its goals.

The Authority developed goals, targets, and actions for each focus area during an iterative process that was informed by results and insights of the Baseline Assessment, public and stakeholder input (including Authority staff and leadership who are instrumental to SMP implementation), relevant industry trends, standards, and best practices.

Figure 1. Action Prioritization Criteria

IMPLEMENTATION COSTS		
Up-Front Costs	**Ongoing Expenses**	**Staff Effort**
What order of magnitude up-front costs are required by the actions?	What order of magnitude ongoing costs are required to maintain the action to its intended quality?	What additional staff effort (beyond day-to-day responsibilities) or external resources are required to accomplish the action?

IMPLEMENTATION BENEFITS			
Resilience	**Environmental Benefits**	**Social Benefits**	**Organizational Alignment**
Does the action contribute to the resiliency of RDU operations?	Does the action provide environmental benefits?	Does the action provide social benefits to the community, customers, and employees?	Does the action align with existing opportunities, future capital projects, leadership interests, and/or regional initiatives?

Prioritization criteria incorporating implementation costs and benefits (Figure 1. Action Prioritization Criteria) guided the development and refinement of actions ultimately included in the SMP. The process resulted in the creation of 9 focus areas, 13 goals, 25 targets, and 47 actions.

From the prioritization exercise as well as conversations with Authority staff to align sustainability efforts with planned and future projects, the Authority identified the time horizon (short-, medium-, and long-term) over the next 10+ years each action would start to be implemented. In addition to the goals, targets, and actions outlined in this plan, the Authority has identified several measures that support multiple focus areas and are essential to standing up the Authority's sustainability program. These activities support more robust management and reporting on the sustainability initiatives. These measures also help prepare the Authority for potential requests for ESG related information that may come up in the future.

These measures include:

- improving the Authority's data collection and management systems to improve accuracy and completeness of data needed to track performance towards sustainability goals;
- reviewing existing policies and procedures for alignment with sustainability initiatives;
- integrating sustainability and climate resilience into the Authority's project intake process; and publishing an annual sustainability report.

5 Implementation and Monitoring Framework

Upon finalization of the SMP's goals, targets, and actions, the Authority developed tools to:

- track the completion of actions,
- monitor progress towards achieving SMP goals and targets,
- estimate time and costs to implement each action,
- identify departments with primary and supporting responsibility, and
- identify potential barriers to implementation.

These tools as well as other relevant fields and considerations were incorporated into a database. The database is meant to assist the Authority staff in developing a more robust implementation plan for each action. As needed, the SMP will continue to be monitored and updated as needed. In this way, the SMP will always serve as a living document to guide Authority staff in implementing the sustainability actions that support the established goals and targets and in making sustainable decisions.

4. Focus Area Summaries

The following chapter presents the Baseline Assessment as well as goals, targets, and actions for each of the focus areas:

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Business Continuity and Resiliency

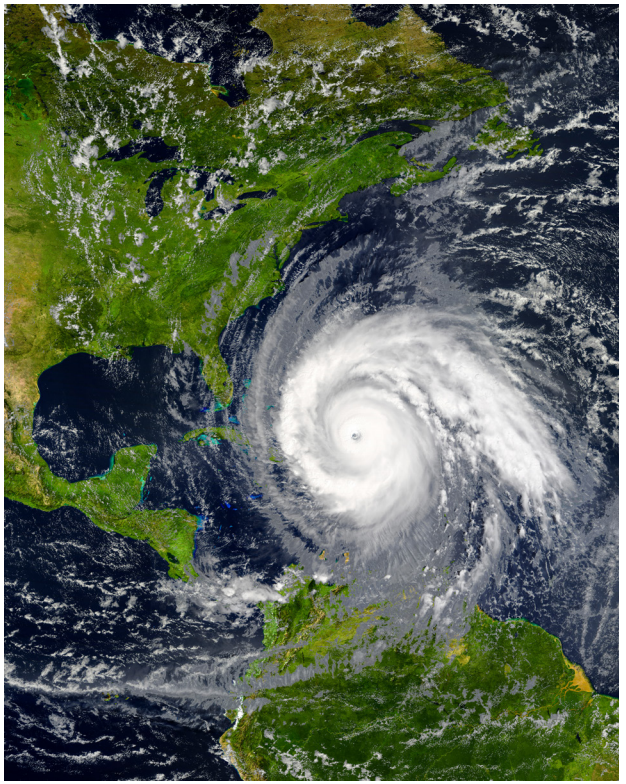
Business continuity and resiliency is the ability to withstand and recover from a range of events that could disrupt airport operations and threaten human health and safety. This focus area addresses energy resilience and the ability to protect against extreme weather events.

Baseline Conditions

Focusing on business continuity and resiliency protects human health and safety, avoids, minimizes, and mitigates disruptions to airport operations, manages uncertainty, and provides flexibility to respond in the short-term and adapt to change in the long-term. In 2018, the Triangle Regional Resilience Partnership authored a Resilience Assessment that found RDU is highly vulnerable to flooding, erosion, and snow and ice events. The Authority has developed plans to remain operational and resilient in case of natural disasters and other emergencies, including:

- **Airport Emergency Plan:** Outlines which individuals are responsible for which tasks and how security and organization are to be maintained in a crisis.
- **Evacuation Plan:** Provides guidance for evacuation of airport facilities, including information on command and control, communications, alerts, protective actions, law enforcement and fire, medical, and airport operation.
- **Hurricane Response and Recovery Plan:** Outlines what must be done before, during and after a major storm to protect people and facilities at the airport depending on storm intensity. RDU is recognized by the National Weather Service as a StormReady Community for its preparedness and plans for severe weather.
- **Snow and Ice Control Plan:** Details proper snow and ice removal operations.
- **Information System Resiliency Plan:** Addresses preparation for, and recovery from, a complete loss of availability of the primary data center to reduce disruptions to airport operations.

Despite the pandemic cutting passenger travel 97% at the start of 2020, the Authority was able to restructure its budget to remain operational and adopt new strategies for public health and safety such as acrylic barriers and hand sanitizing stations. The Authority also activated an Emergency Operations Center in March 2020 to respond to other public health needs brought about by the pandemic.



Focus Area Correlation/Reciprocal Impact

BCR: Goals, Targets, and Actions

Goal

Resilient Airport: Enhance RDU's energy resiliency and adaptability to extreme weather events

Investigate opportunities to enhance continuity of service by minimizing vulnerabilities to critical infrastructure. Vulnerabilities are defined as the degree to which a system, or part of it, may react adversely during the occurrence of a hazardous event.

Target(s)

Develop infrastructure-based adaptation strategies for three high-risk vulnerabilities by 2025

Develop operational based policies, procedures, and training for three high risk vulnerabilities by 2028

Actions

Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Perform a vulnerability assessment	Determine vulnerabilities and increased risk to the airport's facilities and infrastructure systems due to climate-related threats. This includes how project vulnerabilities may impact performance of systems and considers resource availability and impacts to the broader community.	✈	
Evaluate risk	Based on identified vulnerabilities, complete an evaluation of risks by determining the likelihood/probability of a threat/hazard occurring and the associated consequences/impacts. Consequences and impacts should be classified as social, environmental, and/or economic/financial. High risk vulnerabilities are those for which the adverse reactions from a hazardous operational event are the most likely and/or extreme.	✈	
Use results of risk evaluation to develop strategies	Use the results of a risk evaluation to develop risk management strategies that meet performance goals and budget, and increase resilience. Prioritize strategies that result in the greatest reduction of risk within cost constraints. The focus is on developing and maintaining infrastructure to withstand extreme weather events, then on training, policies, procedures, or other strategies.	✈	
Implement resiliency strategies	Implement strategies to change the built environment and increase resilience.	✈	

Sustainable Buildings and Infrastructure

Sustainable buildings and infrastructure are sited and designed with sensitivity to the social and natural environments, promote the efficient use of energy, water and other resources during construction and operation, incorporate renewable energy initiatives, support waste and pollution reduction, enable the reuse and recycling of materials and waste, and improve the health and well-being of the facility's occupants. This focus area addresses planning, design, construction and operation of the Authority's facilities and infrastructure to improve sustainability performance.

Baseline Conditions

Developing sustainable buildings and infrastructure increases the efficiency with which the airport's facility and infrastructure assets use resources throughout their lifecycle, including design, construction, operation, and demolition, to reduce the airport's environmental footprint, "create positive climate and environmental impacts, preserve natural resources and improve quality of life" (World Green Building Council, About Green Building). The creation of more sustainable buildings and infrastructure at RDU will generate opportunities to realize operations and maintenance cost reductions, improve occupant health and comfort, leverage the capital improvement program to create more sustainable outcomes, and improve efficiency by reducing resource consumption.

Airports typically design sustainable infrastructure according to two main rating systems.

- **Leadership in Energy and Environmental Design (LEED®):** LEED® is a green building certification program that is administered by the United States Green Building Council (USGBC) and includes several rating systems that can be used for different building types at different stages of construction or operation. Recently, the USGBC and stakeholders in the aviation industry, have been working to develop guidance for the adoption of LEED® in an airport-specific setting. See https://www.usgbc.org/leed for more information.
- **Envision® Sustainable Infrastructure Rating System (Envision®):** Envision® is administered by the Institute for Sustainable Infrastructure among others, and was developed to integrate sustainability into more traditional infrastructure projects, such as roads, bridges, pipelines, water/wastewater infrastructure, and other civil infrastructure projects including airport infrastructure such as runways. See https://sustainableinfrastructure.org/ for more information.

The Authority has undertaken several initiatives to improve the sustainability performance of RDU's facilities and infrastructure in recent years, (See chapter 1.1 for more information). Additionally, the Authority has begun evaluating several healthy building certifications, including WELL® and Fitwel®, to promote occupant health and wellness with the advent of the COVID-19 pandemic in 2020.

The renovation of terminal 1, completed in 2014, received LEED® certification

Focus Area Correlation/Reciprocal Impact

High ← → Low

Medium

Energy | Land Use & Natural Resources | Business Continuity & Resiliency | Materials & Waste | Greenhouse Gas Emissions | Water & Stormwater | Community, Customers, & Employees | Sustainable Transportation

SBI: Goals, Targets, and Actions

Goal

Sustainable Buildings and Infrastructure: Consistently adopt sustainability in all phases of Authority project development and maintenance activities

Consider and adopt, where feasible, sustainability in all phases of project development and maintenance activities. There are a variety of certification programs that serve as frameworks, tools, and approaches to understand and measure sustainability in building and infrastructure assets. LEED® and Envision® are the most consistently used certification programs in the airport industry; others include Energy Star as well as the WELL® and Fitwel® programs (both of which are focused on health and occupant experience).

Target(s)

Pursue sustainable building ratings for new projects above $25 million in construction costs

Pursue Envision® certification for one Authority-led civil project by 2025

Actions	Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Develop an evaluation process to determine projects suitable for LEED® or other sustainable rating	The use of sustainability rating systems for larger construction projects enhances the design process by providing guidance and standards that improve economic, environmental, and social benefits while reducing risk and building resilience.	✈		
Develop and utilize a systems commissioning plan for new facilities	Develop professional commissioning services Master Service Agreement (MSA) with multiple firms to support third party commissioning. Design, construction, acceptance and warranty phase services will be utilized to ensure systems are sustainable and maintainable.		✈	
Use the Envision® rating system where feasible to assess the sustainability performance of airport infrastructure projects and development programs	Envision® is a rating system that provides a holistic framework for evaluating the community, environmental, and economic benefits of all types and sizes of infrastructure projects. Envision® can be used to assess the sustainability of existing infrastructure as well as during the planning of new infrastructure.	✈		
Improve Asset Management Program	Improvements that can be made to the Asset Management Program include digitizing components in the Computerized Maintenance Management System (CMMS) and shifting it to be cloud-based, refining and formalizing the O&M manual process, and enhanced monitoring to make the program more efficient overall.	✈		

Energy

Electricity, natural gas, and other fossil fuels like diesel, and gasoline, are consumed at RDU to power the airport's facilities and vehicles. This focus area addresses opportunities to reduce energy consumption and improve energy efficiency, and identifies opportunities to incorporate renewables into RDU's energy portfolio.

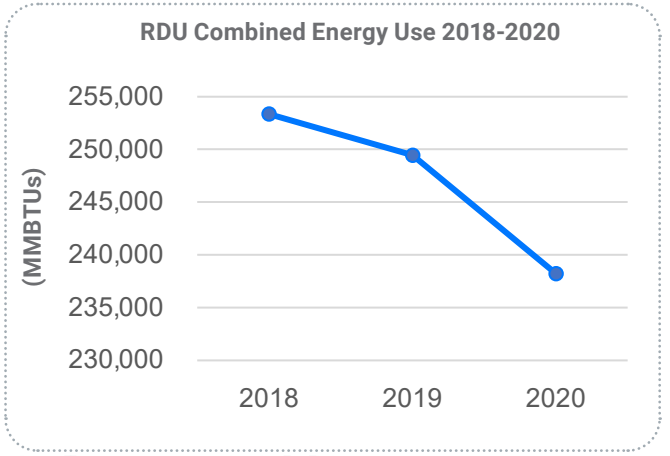
Baseline Conditions

RDU's facilities consume energy in the form of natural gas and electricity as well as diesel for generators. Natural gas is used in the airport to heat facilities and power some of the airport's boilers while fuel oil and diesel power the remaining boilers. Electricity provides power for features like air conditioning, lighting, operational machinery and other equipment and facility needs. The Authority's vehicle fleet also uses energy in the form of diesel, biodiesel, and gasoline fuels, which is further explored in the Sustainable Transportation focus area. The consumption of natural gas and electricity follows a seasonal pattern, where electricity use increases in the summer while facilities are being cooled and declines in the winter when natural gas is used for heating.

To understand energy consumption at RDU, the Authority performed a detailed energy survey and analysis of energy use between CY 2016 and CY 2020, full CY data was available for CY 2018 and 2019 only. Between 2018 and 2019, combined energy use at the airport declined, likely due to operational changes, continued implementation of energy efficiency measures, completion of a project to improve boiler efficiency at the CEP, and year-to-year changes in variables such as weather and number of passengers. Energy usage fell more sharply in CY 2020 when electricity use declined 7.29% from 2019 levels. In contrast, the overall trend of the Authority's natural gas usage during this time trended upwards year-over-year, with a larger increase (10.33%) compared to 2019. This increase in natural gas usage is likely due to the increased exchange rate of outdoor air in occupied areas due to COVID-19 pandemic, which required additional conditioning.

[1]Electricity data only available and analyzed for September 2017 through December 2020.

[2]Some of the decline in electrical use may be due to challenges related to electricity account data.



Overall energy consumption is declining at RDU.

Year	Total Fuel Oil (MMBTUS)	Fuel Oil % Change	Total Electrical (MMBTUs)	Electrical % Change	Total Natural Gas (MMBTUs)	Natural Gas % Change	Total MMBTUs	% Change
2016	3,730.00	N/A	Not available	N/A	45,928.22	N/A	Not Available	N/A
2017	2,730.00	-26.81%	65,416.47*	N/A	38,813.75	-15.49%†	Not Available	N/A
2018	2,863.00	-23.24%	204,419.56	N/A*	46,058.99	0.28%	253,341.55	N/A
2019	2,573.00	-31.02%	201,158.22	-1.60%	45,717.44	-0.46%	249,448.66	-1.54%
2020	3,425.00	-8.18%	184,356.85	-9.81%	50,440.34	9.82%	238,222.19	-5.97%

*Data on electricity consumption available starting in September 2017

† This decrease in natural gas usage in 2017 is due in part to the CEP boilers being out of service for several months for repairs

Focus Area Correlation/Reciprocal Impact

E: Goals, Targets, and Actions

Goal

Energy Efficiency: Develop a comprehensive energy management program and reduce energy consumption in Authority-controlled facilities

A comprehensive energy management program includes the identification and implementation of measures in existing facilities and infrastructure to improve efficiency and reduce consumption. Improving energy efficiency minimizes energy cost increases and may lead to general cost savings, while working towards reducing GHG emissions.

Target(s)

Hire an energy manager by end of year 2025

Develop a strategic energy management plan by 2026

Actions

Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Create an energy manager position at RDU	Energy managers can serve two very important functions: (1) They help to reduce energy-related expenses, which could benefit RDU's bottom line and (2) They champion the reduction in energy consumption which helps support RDU's energy goals while reducing costs and building awareness. This could be a new Full Time Equivalent (FTE) position, or additional training for existing FTE position to take on this role.	✈	
Commission an American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Level Two Energy Audit with a certified energy auditor and conduct and implement recommendations from an energy audit periodically	Build on the Energy Survey Report and complete an ASHRAE Level II Energy Audit. An energy audit is a valuable tool to review operations and identify methods for reducing energy use. A more detailed energy audit would allow for the Authority to make informed choices with more detailed data on what Energy Conservation Measures (ECMs) could be implemented and in what order to meet energy reduction targets.	✈	
Design and implement a Standard Energy Tracking Program for energy usage and develop analytics	Tracking energy usage at RDU in a more detailed way will help identify where efficiencies could be realized, as well as track performance and improvements based on other energy-related actions implemented across the Authority.	✈	
Expand the use of building automation and building management systems (BAS, BMS) in Authority Buildings	By automating functions related to a building's operation, energy use is reduced, and operating costs decrease. Some BMS are outdated and need to include updates that are not solely expansions.	✈	
Perform building retro-commissioning and re-commissioning	Retro-commissioning is an option for buildings that were never commissioned. Recommissioning is the process of analyzing building that has been through the commissioning process but after several years, the building energy performance no longer meets benchmark. The process can often resolve problems that occurred during design or construction, or address problems that have developed throughout the building's life as equipment ages, or as building usage changes. Retro-commissioning involves a systematic evaluation of opportunities to improve energy-using systems. This action will implement commissioning services for all critical infrastructure as well as buildings greater than 50,000 sf, to focus resources on the relatively greater number of larger existing facilities at RDU.	✈	

E: Goals, Targets, and Actions (cont.)

Goal

Renewable Energy: Incorporate renewable energy options into the Authority's energy portfolio

Sustainable energy is derived from resources that can meet the airport's operational requirements while avoiding negative impacts to future resources and climate. This goal involves transitioning the airport's energy sources to renewable sources appropriate for an airport (e.g., solar, geothermal, biomass, etc.). These renewable forms of energy will be explored and, where feasible, implemented through on-site installations and through purchasing for cost avoidance and savings.

Target(s)

Develop a Strategic Energy Management Plan by 2026

Actions

Actions	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Explore and utilize alternative forms of renewable energy (e.g. solar, wind, geothermal) on Authority property	Conduct a feasibility study to determine which renewable energy systems may be appropriate for the Airport.	✈		
Develop a Strategic Energy Management Plan (SEMP) with input from Authority staff	A Strategic Energy Management Plan (SEMP) will analyze various energy improvement options and select actions that will yield the greatest benefit to RDU over the short- and long-term horizons. In addition to reducing energy usage and costs, a SEMP will assist the Authority to reduce GHG emissions, improve public image and leadership position, provide energy independence, buffer against volatile energy markets, and advance the markets for energy improvement technologies to reduce future costs. This action supports both goals of the energy focus area.		✈	
Determine the feasibility of purchasing "Green Power" from a local energy provider to fund renewable energy research, development, production, and use from off site sources	Purchasing green power from a local energy provider is a way to contribute to the overall greening of the grid that RDU relies on, while also greening the power specifically sourced for RDU operations. The SEMP will inform this action, which both influences local green energy choices, as well as RDU's own emissions.		✈	

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Sustainable Transportation

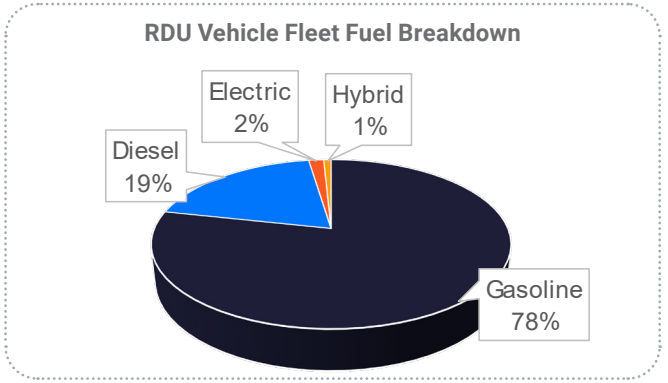
Transportation is a primary source of GHG emissions. Working towards a sustainable transportation system at RDU helps to reduce GHG emissions and improve air quality, traffic congestion, and safety on airport roads. This focus area addresses the operation of vehicles and mobile equipment at RDU as well as aspects of transportation infrastructure and policies that enhance mobility and connectivity and reduce traffic congestion, fuel consumption, and GHG emissions.

Baseline Conditions

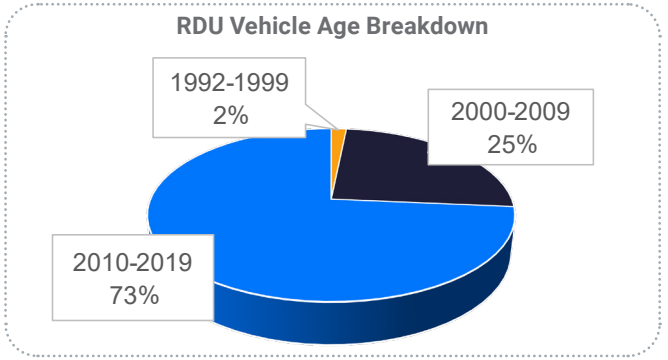
The Airport's transportation system of vehicles, parking areas, and traffic control devices provide crucial access to air travel for passengers and jobs for employees. It is essential to the operation of the airport, and the movement of goods and cargo that supports the regional economy. There are several aspects of transportation that are included in the Sustainable Transportation focus area including:

- **Authority Fleet Vehicles:** The Authority's fleet includes 125 vehicles and mobile equipment and 19 buses. The majority of the Authority's vehicle fleet uses gasoline or diesel; however, there are four electric buses in operation and more planned for the future.
- **Ground Support Equipment (GSE):** Approximately 500 GSEs are in use at RDU by tenants to service aircraft between flights and provide other support activities.
- **Rental Car Shuttles:** 50 vehicles, which are operated by the rental car companies, transport passengers between the terminals and rental car areas.
- **Ground Transportation:** Ground transportation at RDU is provided by a variety of companies, including Transportation Network Companies (TNCs) and a dedicated taxi service. Since 2015, TNCs such as Uber have grown from less than 5% to 56% of ground transportation trips at RDU.
- **Public Transit:** RDU is connected to GoTriangle's public transit network through bus route 100 which provides connectivity to the Regional Transit Center and the GoRaleigh Station located in downtown Raleigh.
- **Parking:** RDU has five parking facilities (ParkRDU Premier, Central, Express, Economy 3, and Economy 4) for passenger and employee vehicle parking.

The Airport is planning to construct a Consolidated Rental Car Facility (CONRAC) and Quick Turnaround Facility between Terminals 1 and 2, as well as the construction of a remote rental car storage lot along National Guard Drive. Future walkways and tunnels between the CONRAC and Terminals 1 and 2 will provide passengers with direct pedestrian access, eliminating the need for the rental car shuttle buses that now circle the airport campus, reducing engine idling from ground transportation, and improving the overall efficiency of RDU's transportation network.



Authority Vehicle Fleet Fuel Types



Authority Vehicle Fleet Age Distribution Types

Focus Area Correlation/Reciprocal Impact

ST: Goals, Targets, and Actions

Goal

Sustainable Transportation Adoption: Advance sustainable mobility options for airport users, tenants, and employees and reduce GHG emissions from the Authority's vehicle fleet.

Sustainable transportation involves managing RDU's infrastructure and policies to balance socioeconomic and operational needs with environmental considerations for the airport's transportation system. Sustainable transportation considers alternatives to single occupancy vehicle (SOV) travel, including regional transit and multimodal solutions that improve mobility and reduce dependencies on SOVs. Sustainable transportation also encourages the use of electric vehicles (EV), zero emission vehicles (ZEV), and hybrid and alternative fuel vehicles in airport operations (Authority and tenant vehicles). There are currently limited options for some types of alternative fuel vehicles in the Authority's vehicle fleet, such as fire trucks and heavy maintenance equipment. Sustainable transportation also involves ground transportation options to and from RDU for passengers and employees.

Target(s)

Develop Sustainable Transportation Program by 2028

Phase out purchase of new conventional fuel vehicles where alternatives are commercially available by 2035

Achieve a 95% reduction in usage of fossil fuel for Authority fleet vehicles, compared to 2018 baseline, by 2050

Actions

	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Develop a sustainable transportation policy to address the Authority's vehicle fleet	Develop a policy that specifies criteria to be used in vehicle selection and purchase including operational, financial and environmental aspects.	✈		
Develop and implement a sustainable transportation program in alignment with the sustainable transportation policy	The Authority promotes a reduction in air emissions and congestion on the road network by encouraging the use of EV, ZEV/low emission and alternative fuel vehicles at RDU. The Authority supports and encourages the enhancement and development of transit options in the local community, and will work with the responsible agency (e.g. NCDOT, RTA, and/or GoTriangle) once an implementable plan is created and agreed by all stakeholders. Developing a sustainable transportation program at RDU will provide a set of strategies including policies, incentives, revenue, funding, and infrastructure development that can be tailored to the various modes of ground transportation and Authority needs.	✈		
Analyze EVs, ZEVs, low emission or alternative fuel vehicles and their infrastructure and develop a plan for the installation of the infrastructure	Perform an analysis of the EV, ZEV, low emission and alternative fuel vehicles market to identify opportunities and viable alternatives to the current Authority fleet mix, as well as employees, tenants, passenger, and other non-fleet vehicles in use at the airport to identify charging and other infrastructure needs. Constantly monitor technological evolution over time.	✈		

Greenhouse Gas (GHG) Emissions

Greenhouse Gases absorb and radiate heat in the atmosphere. Increased concentration of these gases resulting from human activity is contributing to increases in the number and intensity of extreme weather events. This focus area addresses opportunities to reduce GHG emissions and for RDU to become a net zero airport by 2050.

Baseline Conditions

The recently released Intergovernmental Panel on Climate Change Sixth Assessment Report states that human influence has unequivocally caused warming of the atmosphere, ocean, and land. This is primarily driven by observed increases in the concentrations of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other GHGs in the earth's atmosphere. Increased concentration of these gases is leading to increases in the quantity and intensity of extreme weather events.

To understand GHG emissions at RDU, the Authority developed a GHG Emissions Inventory for CYs 2018, 2019, and 2020 that included Scope 1 and Scope 2 emissions from fleet vehicles and equipment (gasoline, diesel, biodiesel), stationary combustion sources (natural gas, diesel), and electricity consumption. Electricity consumption (scope 2) comprises the majority of RDU's inventoried GHG emissions.

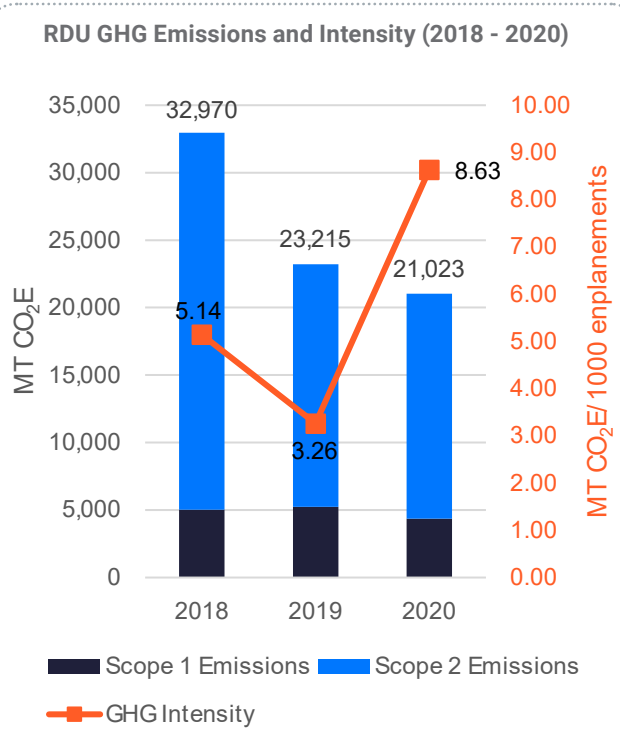
Between 2018 and 2020, Scope 1 and 2 GHG emissions declined more than 10,000 metric tons of CO_2 equivalent (MT CO_2e). Scope 1 includes direct emissions from on-site fossil fuel and fleet fuel consumption. Scope 2 includes indirect emissions from the generation of electricity and heat purchased from utilities.

SCOPE 1 EMISSIONS (DIRECT)	SCOPE 2 EMISSIONS (INDIRECT)
– Company facilities – Company vehicles	– Purchased electricity, steam, heating, and cooling for own use

Source: Greenhouse Gas Protocol

This reduction was largely driven by increases in energy efficiency and a decline in energy consumption as well as the reduction in airport operations during the COVID-19 pandemic in 2020.

However, when emissions are normalized by enplanements (also referred to as intensity), the Authority found that there was a decreased GHG emissions intensity from 2018 to 2019 (meaning RDU was more "carbon efficient"), and then a large increase in 2020 (meaning RDU was less efficient with its emissions). The 2020 increase in intensity is likely a measure of the smaller number of passengers as compared to the minimal emissions created during airport operations, as well as operational changes that increased energy consumption, such as increased fresh air intake in Authority facilities.



Metric tons of carbon dioxide equivalent (MT CO_2e) represents an amount of a GHG whose atmospheric impact has been standardized to that of one unit mass of CO2, based on the global warming potential of the gas.

Focus Area Correlation/Reciprocal Impact

GHG: Goals, Targets, and Actions

Goal

GHG Reduction: Reduce GHG Emissions, setting the foundation to become a net zero Airport

Airports Council International (ACI), a trade association for airports, set an industry-wide goal of becoming net zero in carbon emissions by 2050. To support GHG emissions reductions, the implementation of best practices at RDU, and to recognize GHG reduction achievements, it is recommended to seek Airport Carbon Accreditation (ACA). ACA is a platform for aviation industry GHG and climate leadership, sponsored by ACI, to track and recognize efforts to manage and reduce carbon emissions.

Target(s)

Develop an emissions reduction roadmap by 2025 and establish interim milestones through 2050

Become ACA certified at Level 2 by 2025

Reach net zero carbon emissions by 2050

Actions

Actions	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Identify emission sources and create a roadmap to achieve the airport's decarbonization goals	The ACI Long- Term Carbon Goal Study proposes an assortment of measures that airports may consider and adapt to their own decarbonization journey. A roadmap to decarbonization is essential to lay out the specific emission-related actions and timelines to work towards RDU's goals. This should focus on both emission reduction and supporting/ funding the removal of CO_2 generated by RDU operations. These roadmaps can be referred to by many names including Climate Action Plan, Carbon Management Plan, or Decarbonization Plan.	✈		
Pursue Airport Carbon Accreditation (ACA)	Use the baseline information gathered for the SMP to pursue ACA. ACA is the only institutionally-endorsed, carbon management certification standard for airports. ACA provides a roadmap and common framework for airports to actively manage and reduce their carbon emissions through six levels of certification: 1) Mapping, 2) Reduction, 3) Optimization, 4) Neutrality, 5) Transformation, and 6) Transition. ACA leads to lowered energy consumption, shared expertise and knowledge exchange, and robust communication of results. Annual emissions inventories and verification are an essential part of this certification program.	✈		
Pursue GHG offset measures	As the Authority develops a carbon management program and implements GHG reduction measures, there will be residual emissions from both Scope 1 and Scope 2 that will require time to be eliminated completely, and in some case that may not be a possibility. This action compensates for the impact of residual emissions by purchasing green energy through Renewable Energy Credits (RECs), Power Purchase Agreements (PPAs) or other carbon offset measures. Offsetting can also be applied to GHG emissions that are not necessarily under the Authority's control - such as passenger choices for traveling to and from the airport or aircraft emissions.		✈	
Develop a comprehensive Ground Support Equipment (GSE) Electrification Plan to include charging infrastructure	A GSE Electrification Policy was passed by the Board of Directors several years ago. The policy and its timelines should be reviewed and updated as per the Authority's current operating standards. Additionally, the Alternative Fuel Policy should be reviewed as a part of this effort. Moving forward there should be one cohesive comprehensive policy for GSE that is both achievable by tenants and enforceable by the Authority.	✈		

Community, Customers, and Employees

With approximately 5,000 employees working at RDU, millions of annual passengers, and a wealth of restaurants, vendors, and stores, the airport serves as an economic and community hub for the Research Triangle region. This focus area addresses RDU's plan for engaging the community, customers, and employees to drive positive social impact in the region while also allowing RDU to leverage regional resources and innovative practices to improve its own sustainability initiatives.

Baseline Conditions

Community: The Authority regularly partners with organizations for community-based and philanthropic activities such as the Special Olympics of North Carolina Plane Pull, blood drives benefiting the Red Cross, and holiday food drives with the Eastern North Carolina Food Bank. RDU property also contributes to the region's public recreational opportunities, such as Lake Crabtree County Park which provides mountain biking, fishing, boating, picnicking, hiking, and a variety of educational programming. In 2020, the Authority convened a COVID-19 pandemic Task Force of experts from the university, non-profit, technology, and biotech communities to help guide RDU's actions to prevent the spread of infectious diseases. In 2021, the Authority supported the Triangle Impact Challenge for students and employees to find ways to improve the airport experience. In this way, sustainability is strengthening connections and relationships with the region's businesses, academic institutions, nonprofits, as well as airport stakeholders and the community at large to raise awareness of the importance of sustainability, provide educational opportunities, and foster innovation and assistance in achieving the Authority's sustainability goals.

Customers: Customer satisfaction is a key measure of success at RDU and is determined by several factors, including check-in, baggage handling/claims, security, and terminal amenities including food, beverage, and retail options. RDU was ranked one of the top five large airports for customer satisfaction in the latest J.D. Power North America Airport Satisfaction Study. The airport was named fourth in 2022, its second consecutive year in the top five and fourth consecutive year in the top 10. By providing the best possible customer experience, the Authority can ensure RDU's long-term financial growth and profitability, thereby supporting the economic pillar of airport sustainability and enabling future investments in sustainability initiatives. Moreover, customer engagement allows the Authority to raise awareness and education on sustainability topics, including steps passengers can take to reduce their environmental footprint and communicating measures the airport is taking to create more sustainable outcomes.

Employees: Employees represent the Authority's most important resource and are vital to the implementation and success of the SMP. The Authority provides its employees various benefits and development programs including Individual Development Plans for career planning, tuition reimbursement for full time employees, free professional

training courses, and a free comprehensive wellness program. Employee training, development, wellness and benefits programs and competitive wages are vital to maintaining a robust and engaged workforce at RDU and is key for the social elements of the sustainability program. Further, an engaged workforce is better positioned to manage the organizational change and enthusiasm needed to drive RDU's sustainability program, particularly with the departments that will be involved in the SMP implementation.

Focus Area Correlation/Reciprocal Impact

High ← → Low

Medium

Materials & Waste | Sustainable Transportation | Water & Stormwater | Sustainable Buildings & Infrastructure | Land Use & Natural Resources | Greenhouse Gas Emissions | Business Continuity & Resiliency | Energy

CCE: Goals, Targets, and Actions

Goal

Strengthening Connections: Strengthen connections with customers, tenants, employees, and the community to enhance RDU's sustainability program

Collaboration is key to promoting a culture that values sustainability, improves passenger and customer experience, improves relationships with customers, tenants, employees, and the community, and demonstrates RDU's commitment to sustainability.

Target(s)

Formalize internal sustainability committee in 2023

Periodically engage with external stakeholders to obtain feedback

Actions

	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Continue to engage internal stakeholders by convening a sustainability committee to guide, direct, and evaluate the integration of sustainability practices	The SMP process brought together a wide group of internal stakeholders across Authority departments. Sustainability Champions will be selected and meet as a group to ensure continued communication on progress or challenges associated with the SMP as it is implemented.	✈		
Create partnerships with local businesses, non-profits, academic institutions, and local government agencies to develop and improve sustainability practices	The Authority recognizes the importance of being an active member of the community and having more partnerships established with local businesses, non-profits, academic institutions, and local and state government agencies. These diverse partnerships within the local community can help the Authority promote and enhance the sustainability program at the airport and can help streamline communications with stakeholders.	✈		
Survey existing tenants to establish baseline of sustainability initiatives. The survey will be used to inform a future policy.	As key business partners at RDU, tenants can be engaged directly and through contractual mechanisms such as leases where sustainability requirements or metrics can be incorporated into lease language (e.g., energy use, recycling rates). The survey results will inform a future policy and approach to partnering with tenants to improve sustainability at RDU.	✈		

CCE: Goals, Targets, and Actions (cont.)

Goal

Sustainability Training and Awareness: Incorporate sustainability into the airport experience and educate employees, customers and the community on how they can contribute to a more sustainable airport

Providing sustainability training and awareness creates a culture that values and promotes sustainability, and supports a safe, healthy and informed organization. Further, building sustainability awareness with RDU's business partners, passengers, and broader community provides greater potential to achieve the outcomes intended for the SMP.

Target(s)

Develop and implement an employee training program in 2023

Develop and implement customer and community awareness activities by 2025

Actions

Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Develop an employee sustainability training and education program	Employee training is an important component of effective sustainability programs. Training ensures employees receive relevant information, including roles, responsibilities, policies, and procedures, and informs how employees can contribute to the success of the program.	✈	
Communicate the Authority's sustainability efforts to passengers, employees, tenants, and the community to create awareness and receive feedback	It is a common practice for organizations to develop sustainability reports and communications to various stakeholders. This serves an important function of communicating progress, keeping stakeholders informed and allowing for feedback from those stakeholders that play a role in the success of the program.	✈	

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Land Use and Natural Resources

Environmental stewardship and the conservation of natural resources such as trees and vegetation, wildlife, surface water, and wetlands is important to the Authority's efforts to protect water quality, preserve biological diversity and protect wildlife habitat. This focus area addresses the management of land use and natural resources while balancing RDU's business and operational needs to ensure long-term economic, social and ecological function.

Baseline Conditions

The Authority faces unique challenges in balancing the needs of running a complex operation while managing land use and natural resources. RDU is located in one of the fastest growing regions in the US and is one of the few international airports in the country that shares a border with a park (William B. Umstead State Park). As RDU grows, its impact on the surrounding community will continue to be an area of focus, from an economic, social and environmental perspective.

RDU property spans to nearly 5,000 acres, of which approximately 53% is forested, 28% is landscaped or open areas, 16% is impervious surface, and 3% is surface water. RDU's forest stands are typical of the Southeastern Mixed Forests of the Piedmont Ecoregion, dominated by loblolly pine, white oaks, sweet gum, red oaks and yellow poplars. These forests, as well as landscaped and open areas, provide habitat for a range of wildlife species. As required by the Federal Aviation Administration (FAA), the Authority works to minimize the risk of airplane incursions with wildlife such as bald eagles, Canada geese, white-tailed deer, coyotes, gulls, and vultures through a Wildlife Hazard Management Plan (WHMP).

Current and future land use on RDU property is governed by the Airport Layout Plan (ALP), which is part of RDU's Vision 2040 Master Plan. Vision 2040 provides a flexible framework to:

- guide airport development and land use to accommodate future aviation demand through 2040;
- maximize revenue-generating opportunities while effectively managing land uses and development;
- optimize airport infrastructure and resources in an operationally, financially, and environmentally sustainable manner; and
- be responsive to the needs of the communities RDU serves.

The Authority complies with all FAA rules, regulations, and compliance obligations applicable to the use of airport property, and works with the counties of Wake and Durham and the municipalities of Raleigh, Durham, Cary, and Morrisville to ensure surrounding land use and zoning requirements meet FAA restrictions and are compatible with the current and future operation of RDU. This includes considerations related to:

- Aircraft noise (in accordance with CFR Part 150)
- Maintenance of runway protection zones
- Measures to limit obstructions and restrict the height of buildings in proximity to the runways (in accordance with CFR Part 77)

[1]The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities.

Focus Area Correlation/Reciprocal Impact

High ← → Low

Medium

Sustainable Buildings & Infrastructure | Water & Stormwater | Business Continuity & Resiliency | Sustainable Transportation | Community, Customers, & Employees | Greenhouse Gas Emissions | Materials & Waste | Energy

LU: Goals, Targets, and Actions

Goal

Sustainable Natural Resources Management: Protect the environment while meeting the airport's operational and business needs

Sustainable Natural Resources Management includes maintaining the long-term value of resources in the natural environment, in a way that meets the airport's business and operational needs while ensuring long-term economic, social and ecological function. As RDU grows, its impact on the regional natural resources will continue to be an area of focus. Within airport land, sustainable land use means developing buildings and infrastructure within the Vision 2040 framework that support the airport's aeronautical business functions while preserving natural resources to the extent practicable.

Target(s)

Develop plans relating to the management of natural resources by 2025

All new landscaped areas align with sustainable landscaping guidelines by 2028

Actions

	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Develop and implement sustainable landscaping guidelines/specifications that require plantings to be low-maintenance, drought resistant, and native species that are non-wildlife attracting	Sustainable landscaping guidelines will promote native species, help improve water quality, and reduce adverse impacts of erosion. This will require engaging a landscaping consultant.	✈		
Develop and implement an Integrated Pest Management (IPM) Plan	IPM is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices. IPM programs use current, comprehensive information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.		✈	
To the extent practicable and feasible, minimize disturbed landscape areas and keep pre-existing topography, terrain, trees, and vegetation (non-wildlife attracting) intact	By minimizing disturbance to the natural environment the Authority can protect water quality, and promote conservation and resource preservation.	✈		
Incorporate fire management into forestry plan	The Authority's current forest management plan does not include guidance on managing fire in the airport's forested area. This plan would provide procedures for both planned/ controlled burns to improve forest health as well as unplanned fires resulting from natural or man-made hazards.	✈		
Assess wildlife management plan for ways to exceed regulations	The Authority's Wildlife Hazard Management Plan was last updated in 2019. This action will identify ways in which wildlife habitats can be managed to exceed relevant environmental regulations while making the Airport as safe as possible by eliminating or reducing habitat features or practices that make the Airport attractive to birds and other wildlife that represent a strike hazard.	✈		

LU: Goals, Targets, and Actions (cont.)

Goal

Sustainable Land Use: Ensure surrounding land use and zoning requirements are compatible with the current and future operation of RDU

Airport compatible land use helps prevent the encroachment of incompatible land uses to protect current and future operations. For adjacent airport land, this means working with federal, state, and local governments to ensure adjacent land use and zoning are compatible with airport operations. This includes, but is not limited to, aircraft noise, wildlife management, and height zoning requirements.

Target(s)

Authority representatives meet with local planning and zoning entities on a quarterly basis or as warranted

Actions

Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Engage with neighboring governments and property owners to address land use compatibility	RDU is located in one of the fastest growing regions in the country, and commercial and residential development continues to grow closer to RDU. By partnering with counties of Wake and Durham and the municipalities of Raleigh, Durham, Cary, and Morrisville, the Authority can promote off-airport land use decisions that are compatible with airport operations, as specified in CFR Part 150, Airport Noise Compatibility.	✈	
Engage with neighboring governments and property owners to address current and future noise impacts	To promote future off-airport land use decisions that are compatible with airport operations, the Authority will continue to work with the counties of Wake and Durham and the municipalities of Raleigh, Durham, Cary, and Morrisville in accordance with CFR Part 150, Airport Noise Compatibility. The engagement with neighboring property owners includes both those physically adjacent to RDU property as well as those who may be exposed to the noise created by RDU's operation.	✈	

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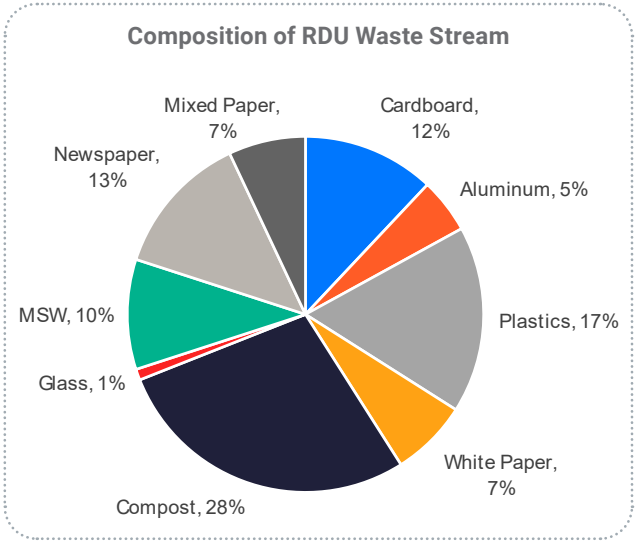
Materials and Waste

Sustainability for materials and waste is primarily focused on reducing the amount of waste destined for landfills. Landfills represent the third-largest source of human-related methane emissions, which is categorized as a greenhouse gas. Reducing waste to landfills also conserves land resources. This focus area addresses the waste management hierarchy - reduce, reuse, recycle and compost - to use materials more responsibly over their lifecycle, with an emphasis on consuming and using less.

Baseline Conditions

At RDU, solid waste is generated daily in terminal and airside operations, tenant operations, and in the Authority's operation and administration of the airport itself. The primary waste-generating activities at the airport include construction activities, food preparation, and the deplanement of waste generated in passenger aircraft. A 2010 waste audit found that more than a quarter of RDU's waste is compostable, with recyclables such as paper products and plastics compromising the majority of RDU's waste stream.

The Authority's solid waste management and recycling programs provide dedicated trash and recycling receptacles throughout the airport terminals and Authority facilities to encourage the separation of recyclable materials. RDU allows comingled recycling of common consumer materials like glass, aluminum, cardboard, paper, and plastic food and drink containers; however this creates challenges related to a higher rate of contamination by moisture, food waste, and plastic bags. An analysis of the airport's waste generation and recycling weights in CY 2018 found that the waste diversion rate is approximately 9%, not including wastes for which weights are not tracked by the Authority such as construction and demolition waste and toner cartridges returned through vendor take back programs.



RDU's 2010 waste audit

Focus Area Correlation/Reciprocal Impact

High ← → Low

Medium

Community, Customers, & Employees

Sustainable Buildings & Infrastructure

Greenhouse Gas Emissions

Land Use & Natural Resources

Business Continuity & Resiliency

Water & Stormwater

Energy

Sustainable Transportation

MW: Goals, Targets, and Actions

Goal

Efficient Waste Management: Enhance the Authority's waste management program to increase waste diversion and reduce costs

The Authority-handled waste streams are primarily made of compostable material, plastics, paper and cardboard from operations including food preparation, and the removal of waste generated in passenger aircraft. Airport tenants and the public also contribute to waste streams by discarding everyday items in airport parking facilities, terminals, rental car facilities, office spaces, and cargo areas. Waste is also generated by construction activities and the demolition of obsolete building and infrastructure components. Enhancing the waste management program will increase waste diversion from landfills and reduce costs.

Target(s)

Complete a comprehensive waste audit and set targets for Authority waste stream by 2025

Develop and adopt a Sustainability Purchasing Program by 2030

Actions

Actions	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Conduct a comprehensive waste audit of Authority-handled waste streams	A waste audit will identify the current composition of the solid waste stream at the airport and provide the foundation from which the Integrated Solid Waste Management reduction plan will be developed to include e-waste, batteries, bulbs, heavy metal, pallets, etc. A waste audit was completed in 2010.	✈		
Assess and improve waste data collection and tracking	Improving data collection and reporting for waste generation and waste diversion metrics will help the Authority have a better understanding of its current waste stream and track progress towards waste diversion and cost reductions.		✈	
Develop and implement an Integrated Solid Waste Management & Reduction Plan	Integrated Solid Waste Management is a comprehensive waste prevention, recycling, composting, and disposal approach. Development of this plan will define strategies to reduce waste generation and divert waste from landfills.		✈	
Reuse materials in construction and operations	Reuse existing structures and/or building components if practicable.	✈		
Develop and enforce tenant sustainability practices related to materials and waste	These recommended practices would incentivize tenants to improve their sustainability performance relative to materials and waste to align with the Authority's goal to increase waste diversion and reduce costs. These practices could include lease agreements or other contractual requirements, tenant outreach, education, training, and policies related to tenant activities.			✈
Develop and adopt a Sustainability Purchasing Program	This program would promote sustainability by ensuring that recycled, recyclable, and reusable materials are procured for airport operations and capital improvement projects where practicable.			✈

Water and Stormwater

A secure long-term potable (drinking water) supply is essential to RDU's operations, while sustainable stormwater management protects water quality, minimizes erosion, and prevents flooding and damage to RDU's facilities and infrastructure. This focus area addresses opportunities to reduce potable water consumption and implement best practices in stormwater management to minimize flooding and erosion while protecting regional water quality.

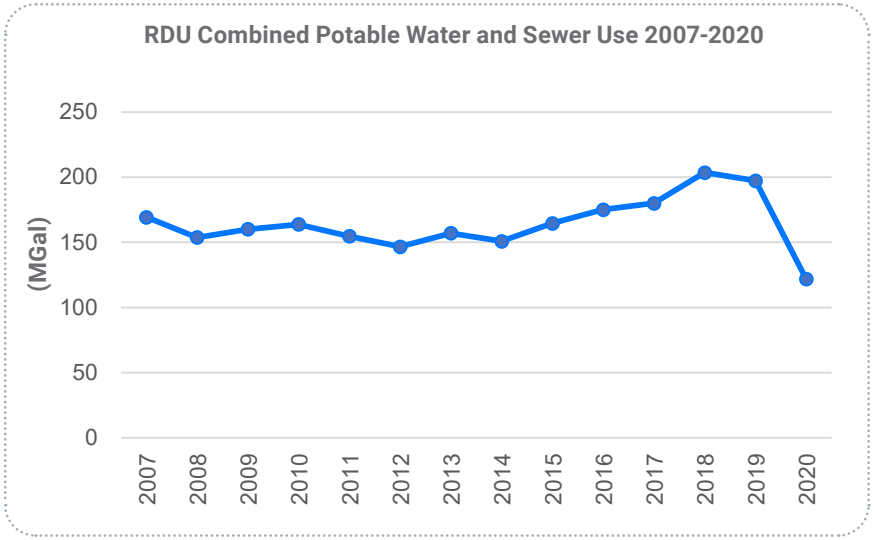
Baseline Conditions

Stormwater Management

RDU maintains a system of stormwater infrastructure to collect, treat, and control stormwater discharges. RDU's stormwater ultimately outflows to four streams and the Brier Creek Reservoir, all within the Crabtree Creek Watershed of the Neuse River Basin. RDU's operations must abide by the airport's National Pollutant Discharge Elimination System (NPDES) permit, which contains limits on pollutant discharge, monitoring and reporting requirements, and other provisions to protect water quality and human health and safety. RDU is also guided by the airport's Stormwater Pollution Prevention Plan (SPPP). The RDU SPPP includes best management practices used at RDU to eliminate or reduce pollutants in any discharge to surface waters and protect water quality.

Water Consumption

RDU's employees and passengers consume and use water for a variety of activities, including drinking, sanitation, food preparation, cleaning of aircraft, vehicles, and equipment, deicing, and the irrigation and maintenance of landscaped areas. The baseline assessment, and subsequent review and realignment in 2021, examined water use and consumption (including sanitary sewer data) for CY 2007-2020. Water consumption trended downward between 2007 and 2014, and then steadily increased between 2015-2019. The trend is similar for sewer usage. Despite the increase in passengers during this time, the intensity of water consumption (on a per passenger basis) has gradually decreased from 20.97 gallons per passenger in 2007 to 16.94 gallons per passenger in 2019.



In 2020, total water consumption fell sharply, corresponding to the drop in passenger levels during the COVID-19 pandemic. However, when normalized for annual enplanements, water consumption increased 83.7%. This increase is likely due to increased cleaning and hygiene regimens during the pandemic, the occurrence of several major water leaks, and the "fixed" water use related to the operation of Authority-controlled facilities that does not increase or decrease with changes in passenger levels.

Focus Area Correlation/Reciprocal Impact

High ← → Low

Medium

Land Use & Natural Resources

Business Continuity & Resiliency

Sustainable Buildings & Infrastructure

Community, Customers, & Employees

Greenhouse Gas Emissions

Energy

Materials & Waste

Sustainable Transportation

WS: Goals, Targets, and Actions

Goal

Water Efficiency: Reduce potable water usage

Sustainable water usage includes the efficient use of water by RDU's employees, tenants, and customers for drinking, to meet sanitation needs, prepare food, clean aircraft and equipment, maintain landscaped areas, and other operational water requirements. Water efficiency can help to reduce water utility costs.

Target(s)

Reduce building potable water usage by 10%, on a per passenger basis compared to 2018 baseline, by 2028

Actions

Actions	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Upgrade Authority facilities where practicable to use high-efficiency fixtures, fittings, and equipment	Upgrading airport facilities with high-efficiency fixtures, fittings, and equipment will reduce potable water consumption and water utility costs.	✈		
Develop a Potable Water Asset Management Plan	A Management Plan that focuses on the potable water assets at the airport will ensure these assets are undergoing routine O&M based on condition, age, and use. This would contribute to asset reliability, use and longevity.			✈
Investigate opportunities to reduce potable water usage for landscaping activities and incorporate into landscape guidelines/specifications	Reducing potable water use for landscaping at the airport can include both water conservation and efficiency measures, as well as updating the landscaping itself to less water-intensive plantings.		✈	

WS: Goals, Targets, and Actions (cont.)

Goal

Stormwater Management: Develop and maintain a best-in-class stormwater management program

During precipitation events, water flows over the ground and into drains, sewers, or waterways. Pervious groundcover such as forests and lawns allows for water to absorb into the soil, while impervious surfaces, including buildings, roads, parking areas, aprons, taxiways, and runways are non-absorbent, and require infrastructure to direct stormwater runoff that eventually reach local streams and water bodies. Sustainable stormwater management, also called low impact development (LID) or green infrastructure, means designing systems and implementing practices such as stormwater control measures (SCM). SCMs can include practices that mimic natural processes to capture, filter, and reduce stormwater runoff, protecting infrastructure and avoiding adverse water quality impacts to local waterways due to erosion, sedimentation or pollution. Stormwater management is an essential component of wildlife management on airport property as standing water is a wildlife attractant. Stormwater management will also prevent flooding and damage of RDU facilities and infrastructure during storm events. It protects overall regional water quality, which is important due to the proximity of RDU to public recreation, forest land and multiple large bodies of water.

Target(s)

Minimize stormwater runoff and enhance surface water quality through the implementation of SCMs and LID strategies for new construction and renovation projects by 2025

Develop a strategy for managing stormwater assets by 2028

Actions

Action	Action Description	Short-Term 2023-2025	Medium-Term 2026-2028	Long-Term 2029+
Complete a Stormwater Master Plan, addressing anticipated increase in flooding and extreme weather events	Phase 1 of a comprehensive Stormwater Master Plan is already under development as part of RDU's runway replacement program. Phase 2 will see the completion of the Stormwater Master Plan on the remainder of the campus.	✈		
Design and implement SCMs, LID and/or Green Stormwater Infrastructure (GSI) into new projects	Stormwater Control Measures (SCMs) are techniques that are utilized to effectively manage both water quality and quantity. Such practices are often required by regulatory agencies and are important for airport sustainability efforts. GSI are smaller-scale measures (e.g., green roofs, permeable pavements) that also provide stormwater control and treatment benefits. SCMs and GSIs are unique or innovative approaches to stormwater management that can have a number of sustainability benefits including improved water quality of surrounding water bodies, improved recreational access to the community as a result of water quality improvements, and effective management of water from large storm events to prevent flooding and/or damage. SCMs can include sand infiltration systems, vegetative swales, bioretentions, or pollution control equipment such as oil/water separators and floating booms. FAA has restrictions on the type of SCMs/GSI implemented at airports due to the potential to attract wildlife.		✈	
Develop a Stormwater Asset Management Plan	A Stormwater Asset Management Plan will provide inventory and condition assessment of existing stormwater infrastructure (pipes, SCMs etc.) on airport property and provide guidance for ongoing preventative maintenance. Level of Service scores and key performance indicators can be developed as part of the plan to effectively maintain these assets. The plan will prioritize any repairs and rehabilitations needed to maintain the level of service for the stormwater systems. This approach protects existing investments in stormwater infrastructure while facilitating the proper function as intended during design. Long-term benefits include proper drainage (reduced flooding) and achieving planned water quality treatment. Another benefit by maintaining the stormwater systems is compliance with the NPDES permit.		✈	

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5. Ongoing Plan Management

The next step of the SMP process is to implement the plan's actions. The SMP is intended to be used as an ongoing operational planning document that will evolve over time as available resources, funding mechanisms, technology, and Authority strategic direction continues to evolve. Roles and responsibilities for sustainability at RDU will also be continuously refined as the SMP is implemented.

The Authority will follow the plan-do-check-act cycle to monitor implementation progress, including the tracking of performance metrics and progress towards goals. The Authority will communicate its progress and results to the public in an annual report.

A. Appendix A: Acronyms

ACA	Airport Carbon Accreditation
ACI	Airport Council International
ALP	Airport Layout Plan
AOC	Airport Operations Center
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
Authority (the)	Raleigh-Durham International Airport Authority
BAS	Building Automation System
BMS	Building Management System
CEP	Central Energy Plant
CFR	Code of Federal Regulations
CH_4	Methane
CMMS	Computerized Maintenance Management System
CO_2	Carbon Dioxide
CONRAC	Consolidated Rental Car Facility
DEACS	Division of Environmental Assistance and Customer Service
CY	Calendar Year
EAC	External Advisory Committee
ECM	Energy Conservation Measure
EO	Executive Order
EONS	Economic vitality, Operational efficiency, Natural resources, Social responsibility
ESG	Environmental, Social, and Governance
EV	Electric Vehicle
FAA	Federal Aviation Administration
FTE	Full Time Equivalent
GHG	Greenhouse Gas (Emissions)
GSE	Ground Support Equipment
GSI	Green Stormwater Infrastructure
Hz	Hertz
IAC	Internal Advisory Committee
IPM	Integrated Pest Management
kWh	kilowatt hours

LEED®	Leadership in Energy and Environmental Design
LID	Low Impact Development
Mgal	Millions of Gallons
MMBTUs	Metric Million British Thermal Unit
MT CO_2e	Metric tons of Carbon Dioxide Equivalent
MTX	Maintenance
N_2O	Nitrous Oxide
NC	North Carolina
NCDEQ	North Carolina Department of Environmental Quality
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PPA	Power Purchase Agreement
RDU	Raleigh-Durham International Airport
REC	Renewable Energy Credit
SCM	Stormwater Control Measure
SEMP	Strategic Energy Management Plan
SMP	Sustainability Management Plan
SPPP	Stormwater Pollution Prevention Plan
TNC	Transportation Network Company
US	United States
USGBC	United States Green Building Council
WHMP	Wildlife Hazard Mitigation Plan
ZEV	Zero-Emission Vehicle