Raleigh–Durham
Airport Authority

SUSTAINABILITY PROGRAM

Annual Report

Fiscal Year 2023/2024

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Acronyms

Authority (the)	Raleigh-Durham Airport Authority
BRT	Bus Rapid Transit
CAMPO	North Carolina Capital Area Metropolitan Planning Organization
CMMS	Computerized Maintenance Management System
DCHC	Durham Chapel Hill Carrboro Metropolitan Planning Organization
ECR	Environmental Compliance Review
EF3	Enhanced Fujita Scale 3
EMP	Energy Management Plan
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
EV	Electric Vehicle
FAA	Federal Aviation Administration
GHG	Greenhouse Gas (Emissions)
Hz	Hertz
kWh	Kilowatt hours
LEED™	Leadership in Energy and Environmental Design
NC	North Carolina
NIMS	National Incident Management System
NOMS	Noise and Operations Monitoring System
NOx	Nitrogen Oxide
PLC	Portland Limestone Cement
PM	Particulate Matter
RDU	Raleigh-Durham International Airport
SMP	Sustainability Management Plan
SWMP	Stormwater Management Plan
ULSD	Ultra-low Sulfur Diesel
US	United States
ZEV	Zero-Emission Vehicle

From the President & CEO

On behalf of the Raleigh-Durham Airport Authority, I am pleased to present our first Raleigh-Durham International Airport (RDU) Annual Sustainability Report. In it, you'll find an overview of our efforts to integrate sustainable practices into planning, design, construction, operations, maintenance and business processes at RDU.

The Airport Authority marked major milestones in sustainability in fiscal year 23/24, including the adoption of a Sustainability Policy and initiation of a multi-year Sustainability Management Plan. Under the Policy and Plan, we are guided to consider in all of our decision-making processes the four pillars of sustainability: environmental stewardship, economic viability, operational efficiency and social responsibility.

While balancing these pillars can be challenging, we are committed to continuous improvement at RDU as we accommodate regional growth. Sustainability is top of mind as we embark on the capital improvement projects laid out in our Vision 2040 master plan, and several of those projects are discussed in this report.

Collaboration and communication will continue to be key components of our sustainability program as we move forward. Input from internal and external stakeholders, sustainability experts and the broader community was incorporated into the development of our Sustainability Management Plan, and we will continue to inform and engage the community as we make progress on our sustainability initiatives.

I would like to express my appreciation to our Board of Directors, Airport Authority staff, and our business and community partners for their input and expertise as we together work towards a more sustainable future at RDU.

Sincerely,

Michael J. Landguth

Michael J. Landguth, A.A.E.
President & CEO
Raleigh-Durham Airport Authority

About the Raleigh-Durham Airport Authority

The Raleigh Durham Airport Authority (Authority) is responsible for the development, operation and maintenance of Raleigh-Durham International Airport (RDU). The Authority was created by the North Carolina General Assembly in 1939 and is governed by an eight-member Board. Two representatives are appointed to the Board by each of the following governmental jurisdictions: the City of Durham, Durham County, the City of Raleigh and Wake County.

About this Report

The Fiscal Year 2023/2024 RDU Sustainability Program Annual Report covers the Authority's fiscal year (FY) beginning April 1, 2023 and ending March 31, 2024 - the first year of implementation of the Authority's Sustainability Policy.

The annual report documents and showcases the Authority's efforts to meet its sustainability commitment while working towards its Vision of delivering a world-class airport experience. Sustainability initiatives are in line with the Authority's goal of providing safe and efficient facilities to serve our users and customers, as identified under the Infrastructure Goal in the 2022-2026 Strategic Plan.

The annual report includes an overview of the nine focus areas of the Authority's multi-year Sustainability Management Plan, and it highlights progress on the key actions outlined for FY 2023/2024. The annual report also contains a section on sustainability in capital improvement projects, with a discussion of major projects underway as part of the Authority's Vision 2040 master plan.

More information about the Authority's Sustainability Program can be found at www.rdu.com/sustainability.

FY 2023/2024 in Review

Our Vision:

To Deliver a World-Class Airport Experience

$17.1 Billion
Annual Economic Output*

85,000
Local and Regional Jobs Supported*

17 Total Airlines
4 New Partnerships

Record **9** International Destinations

14.5 Million
Passengers
Busiest Year Ever

25
New Destinations in 2023

Top 5
in J.D. Power Customer Satisfaction Survey

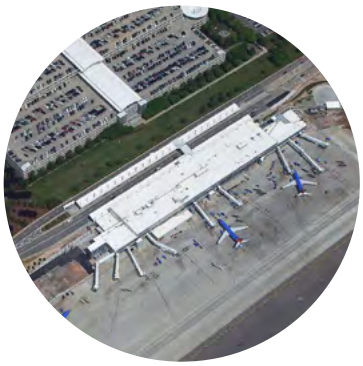
Adopted RDU's **1st** Sustainability Management Policy

**N.C. Department of Transportation, Division of Aviation North Carolina:The State of Aviation Report 2023*

Major Projects Underway

Expansion of
Park Economy 3

Replacement of
Runway 5L-23R



Terminal 1
Expansion

John Brantley Blvd. Expansion/
Public Parking Garage/Ground
Transportation Center Project

Terminal 2 Landside
Expansion

Raleigh-Durham Airport Authority Commitment to Sustainability

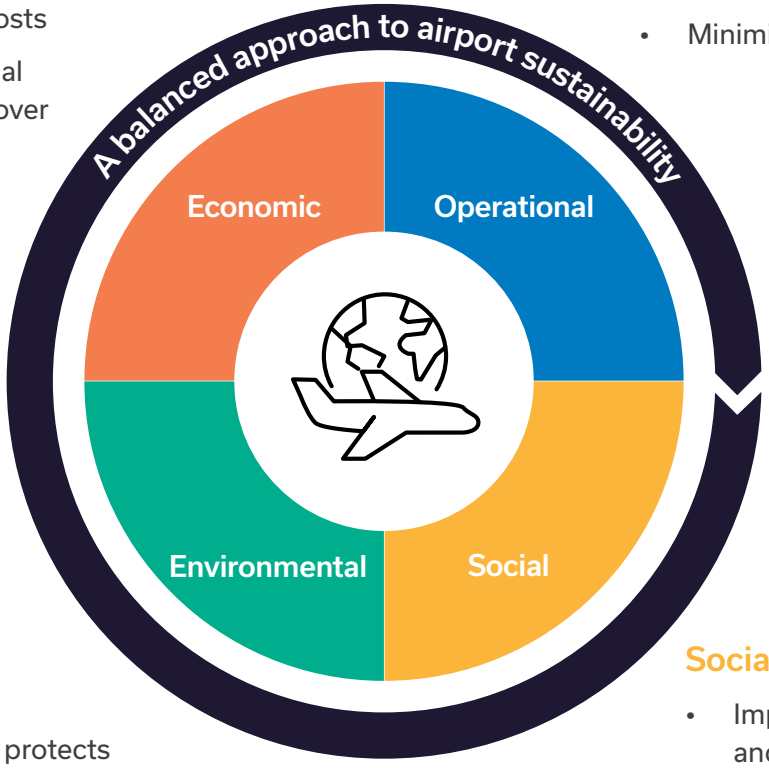
The Raleigh-Durham Airport Authority is committed to delivering a world-class airport experience in a sustainable manner by considering the four pillars of sustainability in its decision-making processes:

Economic Viability

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

Operational Efficiency

- Improves efficient use of resources and facilities
- Minimizes waste



Environmental Stewardship

- Conserves and protects resources
- Reduces impacts
- Facilitates environmental approvals and permitting

Social Responsibility

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

The aim is to create a balanced approach to sustainability by focusing the Authority's endeavors in the areas of environmental stewardship (i.e., minimizing harmful damage to the environment), economic viability (i.e., ensuring our economy is stable and continues to thrive), operational efficiency (i.e., ensuring our business and operations continue to function optimally), and social responsibility (i.e., promoting activities for the public's wellbeing, addressing equity and inclusion, and integrating with local communities).

RDU Sustainability Program

While the Raleigh-Durham Airport Authority has long incorporated sustainable practices into its operations and infrastructure projects, the RDU Sustainability Program was officially initiated in the spring of 2023.

Development of the program was preceded by the adoption of a Sustainability Policy that commits the Authority to a sustainable future consistent with the organization's Vision, Mission and Core Values.

The Authority's first Sustainability Management Plan was finalized in March 2023. The plan was developed over a four-year period with input from internal and external stakeholders, sustainability experts and the broader community. It identifies sustainability goals and targets and will serve as a roadmap for the Authority's sustainability-related actions through 2030 and beyond.

The Authority is committed to investing in sustainable infrastructure and operations by meeting and exceeding regulatory standards and by launching new sustainability initiatives. In FY 2023/2024, the Authority spent or committed to spend more than $28 million in sustainability through the pursuit of Envision sustainability ratings, wetlands mitigation, the Authority's recycling program, installation of a parking guidance system and other efforts.

Sustainability Management Plan Focus Areas

The Sustainability Management Plan provides the framework for integrating a balanced approach to the four pillars of airport sustainability (environmental stewardship, economic viability, operational efficiency and social responsibility) into airport planning, design, construction, operations, maintenance and business processes.

The plan categorizes sustainability initiatives into nine focus areas, each with goals, targets and actions.

A total of 47 actions are identified in the multi-year plan. These will be reviewed on an ongoing basis and modified as needed based on the Authority's priorities, interests and resource availability. The plan is an evolving document that will guide RDU's Sustainability Program.

Sustainability Management Plan FY 2023/2024 Actions

The first 12 actions proposed in the Sustainability Management Plan (SMP) for FY 2023/2024 are shown below. Authority staff have either initiated or completed the majority of these actions during 2023, the first year of the SMP's implementation.

	**Business Continuity & Resiliency**
ACTION ITEMS	Perform a vulnerability assessment
	Evaluate risk
	**Sustainable Buildings & Infrastructure**
ACTION ITEM	Improve the Asset Management Program
	**Energy**
ACTION ITEM	Hire an energy manager
	**Sustainable Transportation**
ACTION ITEM	Develop a Sustainable Transportation Policy to address the Authority's vehicle fleet

Community, Customers & Employees

ACTION ITEMS	Convene the internal sustainability committee
	Create partnerships to develop and improve sustainability practices
	Survey existing tenants about sustainability
	Communicate on sustainability efforts

Land Use & Natural Resources

ACTION ITEMS	Engage on land use compatibility
	To the extent practicable and feasible, minimize disturbed landscaped areas

Materials & Waste

ACTION ITEM	Reuse materials in construction and operations

In the subsequent sections, the accomplishments for each of these focus areas are discussed in more detail.

Focus Area

Business Continuity & Resiliency

Goal: Enhance RDU's energy resiliency and adaptability to extreme weather events.

The Authority works to make RDU a resilient facility with the ability to withstand and recover from events that could disrupt airport operations and threaten human health and safety.

As demonstrated in the table below, the Research Triangle region, where RDU is located, is vulnerable to the impacts of severe weather, with the potential threat of straight-line winds, tropical storms, hail, record-setting heat, tornadoes, snow and ice.

Wake County			Durham County		
Hazard	2023	2022	Hazard	2023	2022
Severe Thunderstorm Watches	9	6	Severe Thunderstorm Watches	8	6
Severe Thunderstorm Warnings	43	61	Severe Thunderstorm Warnings	20	38
Tornado Watches	1	4	Tornado Watches	1	5
Tornado Warnings	4	5	Tornado Warnings	0	7

In July 2023, the state experienced a severe Enhanced Fujita Scale 3 (EF3) tornado, which caused significant damage to Nash and Edgecombe counties east of RDU. Tropical storm Ophelia made landfall in North Carolina on Sept. 22, 2023, bringing heavy rainfall, gusty winds, and significant river and storm surge flooding to portions of eastern North Carolina.

Storm Ready Status

To better prepare for weather-related events at RDU, the Authority achieved and maintains Storm Ready status through the National Weather Service. This status affirms that the Authority has the ability to warn the surrounding community of weather-related threats and that it has multiple channels for receiving and disseminating this information.

The Authority's Emergency Operations Department receives twice weekly weather briefings from the National Weather Service. During severe weather events, the frequency of the briefings increases, and information is distributed to RDU employees and stakeholders to ensure personnel and equipment can be adequately sheltered and prepared. Weather briefings include a situation overview, timing, likely hazard information and a map of the severe weather event. The Authority also receives up-to-the-minute weather information through an online forum. At times, National Weather Service representatives are invited to participate in Authority weather-related readiness exercises.

Emergency Operations

The Authority uses the National Incident Management System (NIMS) framework for its emergency and incident response. The NIMS framework is recommended by the Federal Aviation Administration for airport use as noted in Advisory Circular 150/5200-31 on Airport Emergency Plans, because of its usefulness during major events that require response from a diverse group of organizations.

Approximately 90 Authority employees have completed NIMS training courses to be prepared to staff an Emergency Operations Center (EOC) in the case of an event. The EOC can be activated for weather or non-weather-related events and functions as a centralized location to share information and mobilize for a more efficient response. Staff from departments across the Authority have roles during an EOC activation.

To further train employees to manage large-scale incidents, the Authority invited the Texas A&M Engineering Extension Service on-site in February 2024 to conduct a highly sought-after training course in EOC operations and planning for all-hazards events. The course required practical application of NIMS through a simulation-supported exercise designed to encourage the skills necessary to effectively manage an EOC. The training was scheduled to precede the Authority's Triennial Aircraft Disaster Exercise in March 2024, a requirement of the Federal Aviation Administration.

Assessing Project Vulnerabilities Through Envision

In FY 2023/2024, the Authority performed a vulnerability assessment and risk evaluation as identified in the **Business Continuity & Resiliency** section of the Sustainability Management Plan.

The Authority completed an assessment of the climate change vulnerability and risk for the expansion of RDU's Park Economy 3 lot as part of its commitment to achieve Envision verification for the project. Through the process, the project team developed a list of potential mitigation measures to address each identified threat. The **Sustainable Development Highlights: Building a Better Future** section of this report provides more information about the Envision verification process for the Park Economy 3 expansion project.

2023/2024 Action: Perform a vulnerability assessment

2023/2024 Action: Risk Evaluation

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.


American

Focus Area

Sustainable Buildings & Infrastructure

Goal: Consistently adopt sustainability in all phases of Authority project development and maintenance activities.

This focus area addresses the Authority's planning, design, construction and operation of airport facilities and infrastructure to improve their sustainability performance. Buildings and capital assets that are sustainably designed, operated and maintained typically have longer life spans and use resources more efficiently throughout their life cycle.

Project Development

Sustainable buildings and infrastructure:

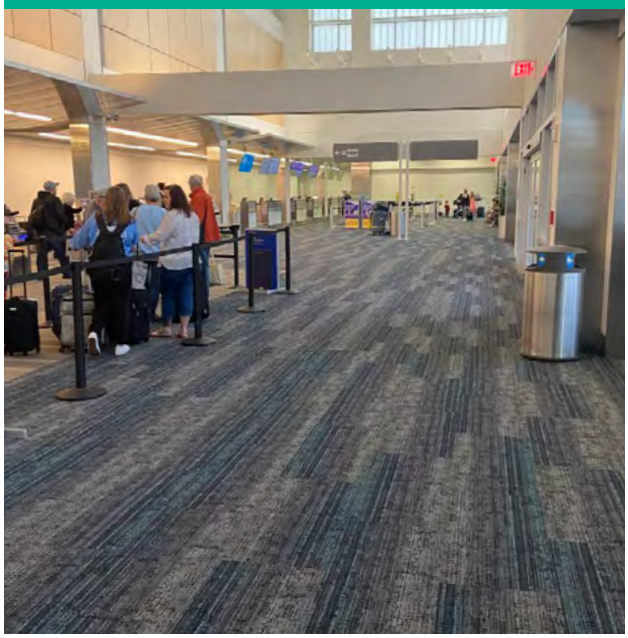
- Are sited and designed consistent with the four pillars of sustainability
- Promote efficient use of resources during construction and throughout their life cycle
- Incorporate renewable energy initiatives
- Enable the reuse and recycling of materials and waste
- Improve the health and wellbeing of facility occupants

Airports often use frameworks such as the Envision and LEED™ rating systems to ensure sustainable practices are incorporated into the design and construction of capital improvement projects.

RDU's Terminal 1 received LEED™ Certification for New Construction and Major Renovations in 2014. Additionally, the Authority is currently pursuing Envision verification for its Park Economy 3 expansion project and the Runway 5L/23R replacement project.

More information about these ratings systems can be found in the **Sustainable Development Highlights: Building a Better Future** section of this report.

The Authority invested $450,000 towards green initiatives during the Terminal 1 Carpet Replacement Project. The newly-installed carpet is made up of 45% post-consumer recycled content, and was installed using environmentally preferrable adhesives.



The renovation of Terminal 1, completed in 2014, received LEED™ certification.

Asset Management

Ensuring that facilities and infrastructure are properly maintained allows the Authority to extend the useful life of critical assets, be fiscally responsible and properly manage resources.

Management of the Authority's asset management program depends on a Computerized Maintenance Management System (CMMS) that centralizes maintenance information for critical pieces of equipment including, but not limited to, boilers, chillers, fleet vehicles, critical lighting systems, pumps and generators. This year, the CMMS was upgraded to a cloud-based system, which allows for better organization of data, automated workflows, optimized completion of work orders for improved performance, and enhanced monitoring.

2023/2024 Action:
Improve the 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.

Prior to this upgrade, maintenance personnel were required to take paper checklists out in the field to complete preventative maintenance procedures, and then return to their desks to input information. This antiquated procedure resulted in time lost in commuting back and forth, wasted paper, and information lost if not immediately transcribed into the system. Personnel can now access necessary information readily and remotely from anywhere with an internet connection. The system upgrade was coupled with staff training and the development of improved operations and work order management processes.

The Authority will continue to make improvements to its asset management program by ensuring critical parts are on hand for maintenance, while not wasting resources by overstocking parts that could become obsolete.

Focus Area

Energy

Goal 1: Develop a comprehensive energy management program and reduce energy consumption in Authority-controlled facilities.

Goal 2: Incorporate renewable energy options into the Authority's energy portfolio.

The Authority uses a combination of electricity, natural gas and other fossil fuels, such as diesel and gasoline, to heat and cool its buildings, light its facilities, power its machinery and fuel its vehicle fleet. As part of its Sustainability Program, the Authority aims to reduce its energy consumption, improve energy efficiency and reduce overall energy costs.

Dedicated Energy Manager

In FY 2023/2024, the Authority completed the Sustainability Management Plan action of hiring its first Energy Manager. This position will be instrumental in helping the Authority achieve its long-term sustainability goals by managing energy resources efficiently, reducing the Authority's carbon footprint, contributing to environmental conservation, and demonstrating RDU's commitment to being a socially responsible organization.

2023/2024 Action:
Hire an Energy Manager

Energy managers can serve two very important functions. They help reduce energy-related expenses, which could benefit RDU's bottom line, and they champion the reduction in energy consumption to support RDU's energy goals.

The Energy Manager is dedicated to reducing energy consumption in Authority-controlled facilities, with a short-term primary focus of developing an Energy Management Plan. Other focuses include conducting comprehensive energy audits across facilities and developing baseline data for energy consumption. The audits will help identify areas where energy use can be optimized, waste can be reduced, and energy-efficient technologies can be implemented. By analyzing energy consumption patterns, the Energy Manager will develop and implement strategies to reduce RDU's overall energy consumption. Additionally, the position will work to integrate renewable sources into RDU's energy portfolio, including solar, wind and other sustainable options that align with Authority goals.

The Energy Manager will also help create a sustainable energy culture at RDU, collaborating to raise awareness about energy conservation practices among employees, enhancing the Authority's reputation in the airport industry and the community, and attracting partners who share sustainability values.

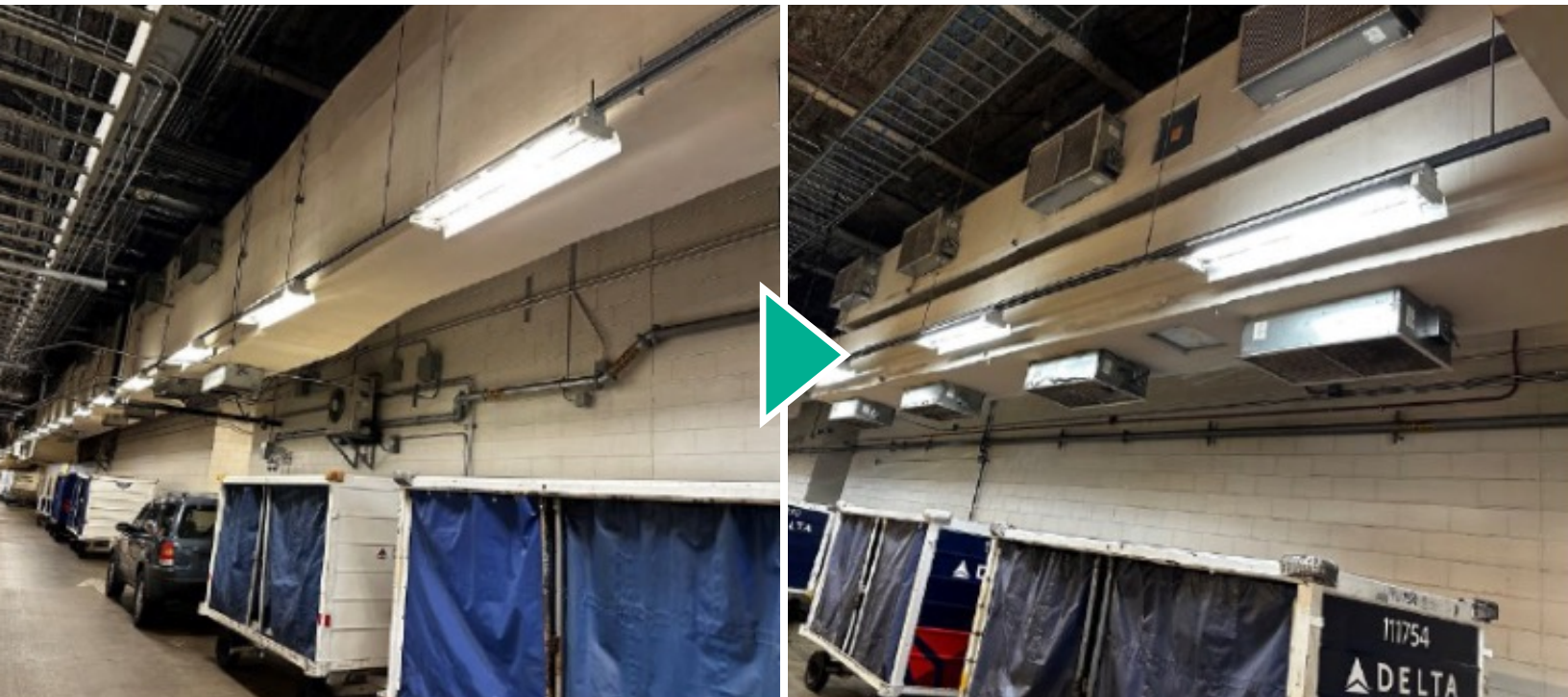
Energy Management Plan

The Energy Manager is tasked with creating an Energy Management Plan (EMP) for RDU, which is one of the actions outlined in the Sustainability Management Plan. The Sustainability Management Plan scheduled the initiation of the EMP in the mid-term (2026-2028); however the EMP is so strategically important to the organization that this effort has been accelerated to the near-term.

The EMP will be a broad-reaching document that will serve as a long-term planning resource to drive and guide progress towards a more resilient, cost-effective and sustainable energy future. The plan will document the Authority's current and future energy needs and provide goals and actionable targets to deliver energy savings. It will support the Sustainability Management Plan with strategies to improve reliability, incorporate renewable energy, ensure availability of infrastructure for electric vehicles, and reduce greenhouse gases, energy costs and reliance on grid energy.

In FY 2023/2024, the Authority released a request for quotes, and received bids from multiple qualified firms to produce an EMP. The Authority selected the winning proposal and is currently engaged in scoping negotiations before plan development will proceed.

RDU is replacing fluorescent lighting with LED lighting in the Terminal 2 baggage makeup area. The benefits of LEDs compared to fluorescent bulbs include increased energy efficiency, longer lifespan, improved light quality to ensure even distribution of light, durability and resistance to shock and vibrations, which is good for baggage makeup areas due to their high traffic and equipment. The project is estimated to save over 130,000 kilowatt-hours per year once complete.



Focus Area

Sustainable Transportation

Goal: Advance sustainable mobility options for airport users, tenants and employees, and reduce greenhouse gas emissions from the Authority's vehicle fleet.

The Authority is working towards having a sustainable transportation system to help improve air quality, traffic congestion and safety on airport roads.

With more than 144 Authority fleet vehicles and approximately 500 user-owned ground support vehicles operating on RDU's campus, the Authority and its partners have an opportunity to invest in and promote the use of sustainable transportation options. Benefits of sustainable transportation include fuel cost savings, reduced greenhouse gas emissions, job creation in the vehicle and battery categories, improved reliability and reduced maintenance needs, and energy security with sourcing of materials domestically.

Sustainable transportation options run on clean fuel, batteries, or both. Alternative fuels can be used in flexible-fuel and dual-fuel vehicles, as well as in vehicles with advanced technology, such as hybrid power systems and fuel cells. Alternative fuels help conserve fuel and reduce emissions and include biodiesel, electricity, ethanol, hydrogen, natural gas and propane.

Authority Fleet

The Authority is currently working on vehicle evaluation metrics to help determine which vehicle types to purchase in the future to help reduce greenhouse gas emissions. These metrics will have a scoring value to compare internal combustion engine vehicles to alternatives such as hybrid vehicles, electric vehicles and other technologies. Formation of these metrics, along with the development of the EMP and a Fleet Management Plan, will inform the subsequent development of an overarching Authority Sustainability Transportation Policy.

2023/2024 Action:
Develop a Sustainable Transportation Policy to address the Authority's vehicle fleet

In Progress: Develop a policy that specifies criteria to be used in vehicle selection and purchase including operational, financial and environmental aspects.

In 2019, the Authority began to incorporate electric buses into its fleet. The Authority was the first public entity in the Research Triangle region to deploy emission-free electric buses and has secured more than $8 million in Zero Emissions Vehicle (ZEV) grants to date.

The current fleet includes four Proterra battery-electric buses with four Proterra level-two charging stations. Each charging station is rated at 50 kW and provides a full charge in about eight hours. The Alternative Fuel Life-Cycle Environmental and Economic Transportation Tool estimates that electric bus trips decrease greenhouse gas emissions by 57 short tons per year per bus in comparison to a diesel bus. In addition to these daily-use buses, the Authority has two Ford E-Transit vans with two level-two charging stations and one Honda Civic hybrid.

The Authority has acquired six additional electric buses from a surplus ordered by Miami-Dade County in Florida for $3.9 million, plus $9,000 in delivery fees. Prior to being deployed, the buses will need to undergo some modifications, including replacing some seats with luggage racks and wrapping the exterior with RDU's branding.

Finally, the Authority issued a request for proposals from electric bus companies for eight to 12 more electric buses. Given the long lead time on electric bus orders, it may be several years before the buses arrive at the airport to be put in use.

Enhancing Connectivity

The Authority is encouraging investments by regional and local transportation partners to increase transit connectivity to the airport to reduce traffic congestion, fuel consumption and greenhouse gas emissions. RDU is working closely with GoTriangle, the entity that manages the regional transit system, to increase bus frequency and link Bus Rapid Transit (BRT) corridors to RDU. The Authority's Vision 2040 master plan includes capital improvements that support BRT implementation and improved access for the region to the airport. The John Brantley Boulevard expansion project includes the development of a Ground Transportation Center within the parking garages to provide easier BRT access to the terminal curbs. Increased transit connectivity would relieve roadway congestion, maximize mobility and promote regional equity.

Focus Area

Greenhouse Gas Emissions

Goal: Reduce GHG emissions, setting the foundation to become a net zero airport.

Greenhouse gas (GHG) emissions absorb and radiate heat in the atmosphere and, at higher concentrations, contribute to increased and more intense extreme weather events. The Authority's Sustainability Management Plan addresses opportunities to reduce greenhouse gas emissions.

GHG emissions are broken down into three scopes.

- The U.S. Environmental Protection Agency (EPA) has identified Scope 1 emissions as direct GHG emissions that occur from sources that are controlled or owned by an organization. At RDU, these sources are primarily Authority fleet vehicles, equipment, and fuel combustion sources like boilers and furnaces in Authority-controlled facilities.
- Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat or cooling. Electricity consumption comprises the majority of RDU's GHG emissions.
- Scope 3 emissions are the result of activities from assets not owned or controlled by the Authority, but that the organization indirectly affects, including all emissions not within the Scope 1 and 2 boundaries. For RDU, Scope 3 emissions would be those from tenants, passengers and other users of the airport.

Reduction in Vehicle GHG Emissions

The Authority uses buses to transport guests and employees from economy parking lots to the terminals. Since 2005, the Authority has only purchased buses with EPA Tier IV engines and retired all other non-Tier IV buses. Tier IV engines have the highest level of emissions controls and aftertreatment systems and can produce up to 99 percent lower particulate matter (PM) and nitrogen oxide (NOx) emissions compared to pre-1996 engines.

The Authority deployed four zero-emission buses in 2019, using a Zero Emissions Vehicle (ZEV) grant from the Federal Aviation Administration, and is exploring adding additional zero-emission buses to its fleet. In addition to the electric vehicles in the Authority's fleet, many rental car companies at RDU are providing the option of electric vehicles for their customers.

The Authority and its partners are also exploring adding more electric vehicle charging infrastructure. This would require careful coordination to ensure electrical demand can be met for the new chargers while allowing for uninterrupted operation of the terminals and other critical infrastructure at RDU. A campus-wide effort to address electrical demand will commence as part of the Energy Management Plan discussed in the **Energy** section of this report.

The Parking Guidance System, installed in RDU's parking garage, uses lights, cameras and digital message boards to help quickly direct guests to available parking spots.

Parking Guidance System

In FY 2023/2024, the Authority began installing a parking guidance system in its parking garage. The system uses red, green and blue lights that show drivers in real time if a space is occupied, unoccupied or handicapped accessible.

The system reduces the time a driver searches for a spot and has several benefits, such as alleviating traffic congestion, enhancing safety, and minimizing emissions and carbon deposits as drivers spend less time circling the lot to look for a spot.

The Authority anticipates that its $8 million committed investment in the parking guidance system will most likely lead to increased utilization of RDU's parking garages, which will result in incrementally increased revenue for the Authority. The parking garage is often closed when it reaches 95 percent capacity, whereas a parking guidance system can take it to 99 percent capacity.

"Find My Car" technology will also be made available. When customers download the Park Assist App, the system shows a picture of a customer's vehicle and a map of its location if the car is on a level where the parking guidance system is installed and operational. This can enhance customer convenience and safety, while allowing parking staff to spend less time helping people locate their vehicles and more time on other services.

Non-Vehicle Sources of GHG Emissions

The Authority is also taking action to reduce GHG emissions from non-vehicle sources such as boilers, emergency generators, electricity, HVAC systems and other combustion sources.

When planes are pulled up to terminal gates, the Authority provides pre-conditioned air and 400Hz electricity to the aircraft via jet bridges. This allows the aircraft's auxiliary power units to run on electricity instead of fuel while the plane is connected to the gate. The Authority issued an invitation to bid on a project to replace 12 pre-conditioned air units in Terminal 2. While providing the same GHG emissions benefits as the old units, the new units will phase out ozone-depleting refrigerants and be more energy efficient.

Emergency generators and Authority fleet vehicles use ultra-low sulfur diesel (ULSD) as their fuel source. ULSD is a cleaner-burning diesel fuel that contains a maximum of 15 parts-per-million (ppm) sulfur.

The Authority is also working to reduce embodied carbon on the airfield by using Portland Limestone Cement (PLC) for airfield construction projects. PLC is a modified formulation of concrete with a higher limestone content that works, measures and performs the same as traditional concrete products, but results in a carbon footprint reduction of about 10 percent. Because airports use so much concrete in construction projects, even small changes to its formulation can have dramatic effects on the industry's carbon footprint (Portland-Limestone Cement).

Reducing embodied carbon on RDU's main runway has involved the use of Portland Limestone Cement (PLC) for runway repair and replacement projects. By using this special formulation of concrete to replace segments of Runway 5L/23R, the Authority has reduced the carbon footprint of runway construction projects by 10 percent compared to using traditional concrete formulas.

Focus Area

Community, Customers & Employees

Goal 1: Strengthen connections with customers, tenants, employees and the community to enhance RDU's sustainability program.

Goal 2: Incorporate sustainability into the airport experience and educate employees, customers and the community on how they can contribute to a more sustainable airport.

Collaboration is a key component of building a successful sustainability program that balances environmental stewardship, economic viability, operational efficiency and social responsibility. Under its Sustainability Management Plan, the Authority seeks to strengthen its relationships with the community, its customers and its employees to promote a culture that values sustainability.

Community

The Authority is working to develop partnerships in the community to improve its sustainability practices, as well as educate the community about its sustainability efforts. Both actions are outlined in the Authority's Sustainability Management Plan. The Authority actively engages with businesses, non-profits, institutions and government agencies to explore potential opportunities for information sharing or partnership. In May 2023, the Authority hosted a meeting focused on the topic of sustainability in the aviation industry that was attended by a diverse group of business partners. As detailed in the **Land Use and Natural Resources** section of this report, Authority staff regularly meet with local government agencies and neighboring property owners to discuss land use compatibility and other issues.

Additionally, the Authority is engaging its tenants at RDU. As key business partners, there may be unique opportunities for collaboration with the concessionaires, retail vendors, rental car providers and other tenants doing business on the airport campus. The Authority is in the process of developing a survey to gauge tenants' current sustainability practices and evaluate approaches to partnership that could improve sustainability at RDU.

The Authority is also informing and engaging the general public on its sustainability efforts. Updated information about the Sustainability Program is available at rdu.com, including the full Sustainability Management Plan, a mid-year update and the annual sustainability report. Members of the public also have an opportunity to provide feedback on the sustainable elements of select construction projects at rdu.com/sustainableconstruction.

2023/2024 Action: Create partnerships to develop and improve sustainability practices

Diverse partnerships within the local community can help the Authority promote and enhance the sustainability program and help streamline communications with stakeholders.

2023/2024 Action: Survey existing tenants about sustainability

In Progress: The survey results will inform a future policy and approach to partnering with tenants to improve sustainability at RDU.

2023/2024 Action: Communicate sustainability efforts to create awareness and receive feedback

It is a common practice for organizations to develop sustainability reports and communications to various stakeholders.

Customers

The Authority can position RDU for long-term financial success by providing guests a world-class airport experience. This supports the economic pillar of airport sustainability and enables future investment in sustainability initiatives.

The Authority strives to deliver a world-class airport experience through excellent airport services, facilities and unparalleled customer service. To that end, the Authority conducted a customer experience survey in 2023 that included a survey relating to RDU travelers' post-COVID-19 pandemic experiences and their overall experience with facilities and services at RDU.

More than 1,000 passengers were interviewed in person, and the profile of respondents was 55 percent female / 37 percent male / 8 percent no response or other and about 70 percent leisure / 30 percent business travelers.

The overall passenger experience was positive. The score post-pandemic was an average of 4.51 on a 5.0-scale. Generally, most respondents felt positively about the airport experience, using words such as calm, comfortable, easy, good, relaxed, safe, friendly, quiet and pleasant.

Respondents stated they wanted to see more workspaces, art, music, pet relief areas, kiddie play areas, certain restaurants and sleeping units.

Feedback from the survey has been shared with Authority staff for consideration in planning future programs, projects and operations.

The Authority's Guest Experience team assists with guests' needs and ensures their smooth journey through the terminals. Guest Experience employees provide line management services, operate information desks in Terminals 1 and 2, answer customer inquiries in person and over the phone, provide roving customer support, conduct terminal inspections to ensure cleanliness and oversee the Authority's Accessibility Program.

RDU's Accessibility Program aims to ensure that passengers with disabilities or other needs can travel through RDU seamlessly. The Accessibility Program helps passengers get to and from their flights, provides optional pre-flight familiarization tours to ensure all passengers are comfortable with the airport environment, and offers concierge-type service to fill assistance requests and allow those with disabilities a tailored travel experience. As a part of this program, the Guest Experience team has received training on assisting guests with developmental delays, autism, visual impairment, hearing impairment, dementia, and other physical or cognitive disabilities.

Since 2022, the Authority has partnered with the Hidden Disabilities Sunflower Organization. This program offers free sunflower-branded products to airport workers and guests that discreetly indicate the wearer may need extra assistance or time when traveling through the airport. Free sunflower-branded lanyards, pins and other products are available at RDU information desks in Terminals 1 and 2.

Working as an extension to the Guest Experience team, RDU's volunteer program provides assistance to passengers in Terminal 2. Volunteers are stationed in high-traffic areas to answer questions, assist with baggage and provide arrival assistance for international travelers. The volunteer program has increased from 36 to 54 individuals in 2023 and is still growing.

Employees

Authority employee training, development, wellness and benefits programs are vital to maintaining an engaged workforce and are key for the social elements of the sustainability program.

The Authority has a robust Employee Wellness Program that will be enhanced in 2024, underscoring a commitment to health as a key aspect of its Sustainability Program.

A bolstered focus on cultural support will introduce leadership training and mental health assessments, while assessment and screening programs, like the Annual Physical Program, will be optimized in partnership with health insurance providers. The program will also see the re-introduction of the Wheel of Health Plan and an expansion of health and wellness coaching. New engagement methods and quarterly wellness challenges are in the pipeline to increase participation, and an innovative wellness application platform will be integrated to deliver a

RDU Sustainability Champions convened for a meeting on Oct. 3, 2023.

comprehensive range of personalized wellness tools. These efforts aim to foster a supportive wellness culture, with the anticipated outcomes to be shared in future sustainability reports.

Authority employees contribute to the social wellbeing of the Research Triangle region by giving back to community organizations. In 2023, the Authority hosted the annual Plane Pull to benefit Special Olympics North Carolina, helping raise $115,000 for the organization. Employees also participated in two holiday giving drives in 2023, donating more than 850 pounds of food to the Food Bank of Central and Eastern North Carolina.

2023/2024 Action:
Continue to engage internal stakeholders by convening a sustainability committee

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.

To further engage employees in sustainability initiatives, the Authority completed the Sustainability Management Plan action of convening a group of internal Sustainability Champions. The Sustainability Champions represent departments across the Authority to help track and report sustainability initiatives and drive sustainable culture change.

Focus Area

Land Use & Natural Resources

Goal 1: Protect the environment while meeting RDU's operational and business needs.

Goal 2: Ensure surrounding land use and zoning requirements are compatible with the current and future operation of RDU.

The Authority has the challenge of balancing the operational needs of a vibrant and growing airport with the conservation and protection of natural resources. Guided by the Authority's Sustainability Policy, decisions pertaining to land use and natural resources are made by balancing the four pillars of sustainability: environmental stewardship, economic viability, operational efficiency and social responsibility.

Authority staff work hard to address noise and land use compatibility issues around the airport while increasing airport capacity to meet the region's growing need for air service. These efforts require careful analysis of potential environmental and operational impacts. The Authority works diligently to maintain a careful balance of what at times may appear be conflicting interests.

Local Government Agency Coordination

A key to maintaining a delicate balance of the four pillars of sustainability is an understanding of stakeholder interests. The Authority maintains strong relationships with local government agencies, including:

- City of Durham
- City of Raleigh
- Durham Chapel Hill Carrboro (DCHC) Metropolitan Planning Organization
- Durham County
- GoTriangle
- North Carolina Capital Area Metropolitan Planning Organization (CAMPO)
- North Carolina State Parks and William B. Umstead State Park
- Town of Apex
- Town of Cary
- Town of Morrisville
- Wake County

Topics of discussion with these local government agencies include fire and forestry management, noise, land use compatibility concerns with development located near the airport, and discussions on projects occurring on airport and off airport, including environmental efforts. The Authority routinely collaborates with local government agencies to address development concerns as early as possible.

In FY 2023/2024, the Authority worked with local government planners to address development height issues that may impact flights arriving at and departing from RDU, provided information on the Federal Aviation Administration's noise policy and RDU's noise program, and presented information on the RDU Sustainability Policy and Sustainability Management Plan.

Noise Monitoring and Outreach

The Airport Authority monitors airport noise and proactively conducts outreach to the surrounding communities. The Authority supports a Noise Office and a full-time Noise Officer, and annually invests $88,000 to procure a third-party Noise and Operations Monitoring System (NOMS). This system collects, analyzes and processes data from a number of sources, including noise monitors, Federal Aviation Administration radar data, weather data, online noise complaints and telephone calls to the Authority's Noise Office. Noise events and complaints are recorded by the NOMS. This data collection and retention allows the Authority to better understand aviation-related noise and inform the community and local land planning authorities about potential noise impacts.

2023/2024 Action:
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 and municipalities, the Authority can promote off-airport land use decisions that are compatible with airport operations.

The Noise Office also conducts regular outreach by giving presentations to homeowners, real estate groups and local land use planners, as well as maintaining an up-to-date website that helps address noise-related questions.

Landscape Master Plan

To help achieve its Sustainability Management Plan goals, the Authority issued a request for qualifications in 2023 to develop a Landscape Master Plan that will provide sustainable landscaping design guidelines and specifications.

The purpose of the Landscape Master Plan is to help the Authority establish an impactful, attractive and consistent look for RDU through the implementation of sustainable landscaping design. This may include the incorporation of low-maintenance, drought-resistant and native species that are non-wildlife attracting. It may also address strategies to upgrade and maintain the campus's aging landscape in a way that can minimize disturbance to the natural environment and keep pre-existing topography, terrain, trees and vegetation intact. Finally, it will result in a prioritized, phased, campus-wide enhancement plan with recommended projects that can be planned and budgeted for future years.

2023/2024 Action:
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.

The Landscape Master Plan will provide the foundation necessary to investigate and identify opportunities to reduce potable water usage for landscaping activities, which addresses a target within the **Water and Stormwater** focus area of the Sustainability Management Plan.

The Authority is in the process of reviewing proposals to select a consultant team to complete the work.


Spirit

Focus Area

Materials & Waste

Goal: Enhance the Authority's waste management program to increase waste diversion and reduce costs.

Waste management is a complex and decentralized issue in an airport environment. Waste at RDU is generated from a wide range of locations on the airport campus, including public areas, airport administrative offices, terminal retail and concessions units, airplanes and airline offices, cargo operations, and other tenant and contractor operations.

The Authority is responsible for managing a variety of different types of waste streams such as:

- Municipal solid waste (metal cans, glass bottles and containers, plastic bottles and containers, paper products, cardboard, etc.)
- Construction and demolition waste (concrete, wood, metals, soil, bricks, masonry, asphalt, rock, stone, drywall, carpet, pipe, etc.)
- Waste from aircraft (deplaned waste)
- International waste
- Compostable waste
- Hazardous and industrial waste
- Lavatory waste

The Sustainability Management Plan calls on the Authority to reduce the amount of waste destined for landfills and to reuse materials in its construction projects and operations when possible.

Reusing Construction Materials

For the last several decades, the Authority has been recycling and reusing construction and demolition waste such as asphalt and concrete.

The Authority is in the process of rehabilitating and replacing the pavement and improving drainage at RDU's North Cargo Apron. The apron was completed in 1992 and has begun to exhibit distress from its age and the heavy cargo loads it bears. The cargo airline operation that uses the apron moved approximately 20 million pounds of cargo in 2022.

As is standard for the Authority's flatwork projects, most of the waste generated by the project will either be repurposed, recycled or stockpiled on airport property for future use. Stockpiling materials for reuse in the future reduces costs and environmental impacts associated with hauling the material for disposal, as well as reduces the amount of new material that needs to be brought in for future construction work.

So far, approximately 70 cubic yards of asphalt have been recycled from the project, which equates to roughly 7,770 pounds of material. As the old apron material is removed, 177,747 pounds of rebar that was used to reinforce the concrete has been recycled. Approximately 22,000 cubic yards of soil has been stockpiled for use on the future Lumley Road relocation project, and millings are being reused as reclaimed asphalt pavement on other Authority projects.

To date, more than 680 tons of fly ash has been used in the production of concrete for the North Cargo Apron project. Fly ash is a byproduct of coal-combustion from power plants and is generally considered a pollutant that may contain lead, arsenic, mercury, cadmium and even uranium. Using it in a concrete mixture reduces the amount of product that needs to be sent to landfills. In addition to minimizing material sent to landfill, fly ash can improve the durability of concrete and reduce both energy usage and greenhouse gas emissions when used to displace material in manufactured concrete.

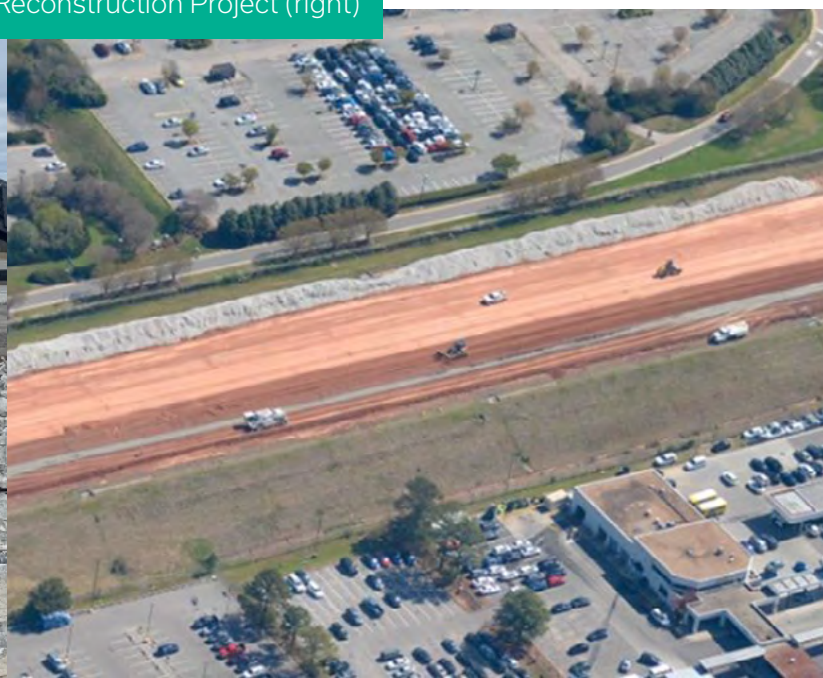
2023/2024 Action:
Reuse materials in construction and operations

Reuse existing structures and/or building components if practical.

The Authority has also completed the reconstruction of Taxiway E. This taxiway was built in the 1980s, and the pavement had reached the end of its useful life. This project recycled more than 11,500 cubic yards of concrete to be used in the new pavement layer and then stockpiled for future projects. More than 8,000 cubic yards of concrete were recycled on the shoulder of the taxiway and re-used in the new pavement. The existing asphalt was milled and recycled into reclaimed asphalt pavement. Of the 2,000 tons of asphalt paved along the shoulders of Taxiway E, 690 tons were incorporated from the reclaimed asphalt.

As the Authority continues its Park Economy 3 expansion and Runway 5L/23R replacement projects, the team will look for opportunities to divert construction and demolition waste from disposal to recycling and/or reuse.

North Cargo Apron Rehabilitation Project (left) and Taxiway E Reconstruction Project (right)



In July 2023, the Authority recycled a backlog of electronic waste that had been accumulating since before the COVID-19 pandemic in 2020. The recycling effort included 1,502 pounds of broken LCD monitors, 8 pounds of switches, 899 pounds of uninterrupted power supply units, 1,512 pounds of e-waste-related scrap metal, 511 pounds of monitor/TV boards and 300 pounds of lead acid batteries. The total estimated amount of material recycled was 4,747 pounds. In November 2023, the Authority recycled approximately 77 pounds of additional phones and switches.

Waste in Operations and Maintenance

The Authority is responsible for the ongoing maintenance and upkeep of all its assets, including but not limited to buildings and their systems, airport grounds and fleet vehicles.

The Authority's solid waste management and recycling programs provide dedicated trash and recycling receptacles throughout the airport terminals and Authority facilities. The Authority has also placed water bottle filling stations in several buildings across campus, including Terminals 1 and 2. The water bottle filling stations have helped eliminate waste from over one million plastic bottles across the RDU campus through October 2023.

A variety of waste is also generated from daily maintenance activities, such as light bulbs, batteries, paint, pallets and other types of waste. The Authority recycles these materials when practicable but has not historically tracked these efforts. As part of its Sustainability Management Plan commitments, the Authority is working to document, track and better manage these waste streams for inclusion in the Authority's waste-tracking metrics.

The Authority is continuing to pursue waste minimization strategies on both building and pavement projects and is looking for ways to streamline and improve the availability of related data. In the near-term, the Authority will be conducting a waste audit to pinpoint opportunities to improve recycling rates around the campus and to identify special waste streams that may be incorporated into the recycling program.


NEWSPAPER
CANS
BOTTLES
RDU
Recycles

Focus Area

Water & Stormwater

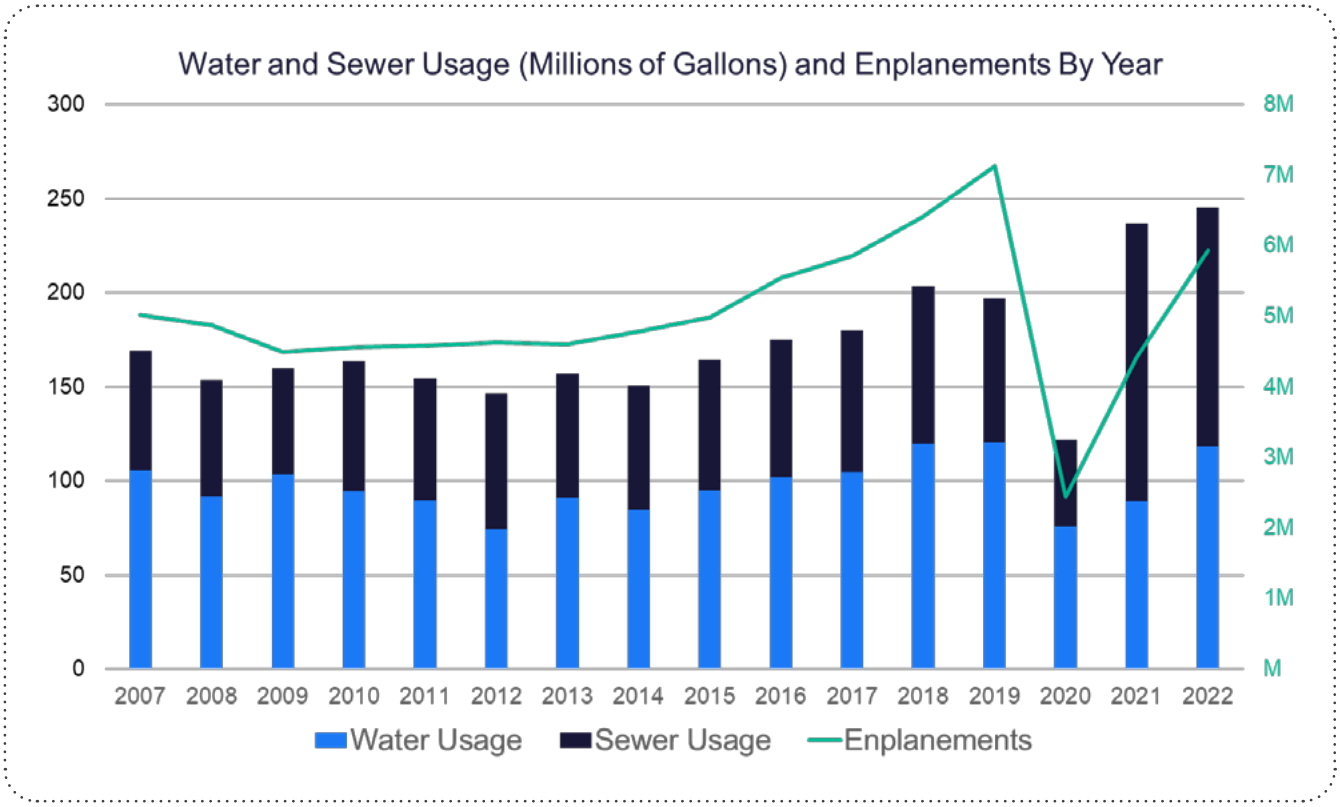
Goal 1: Reduce potable water usage.

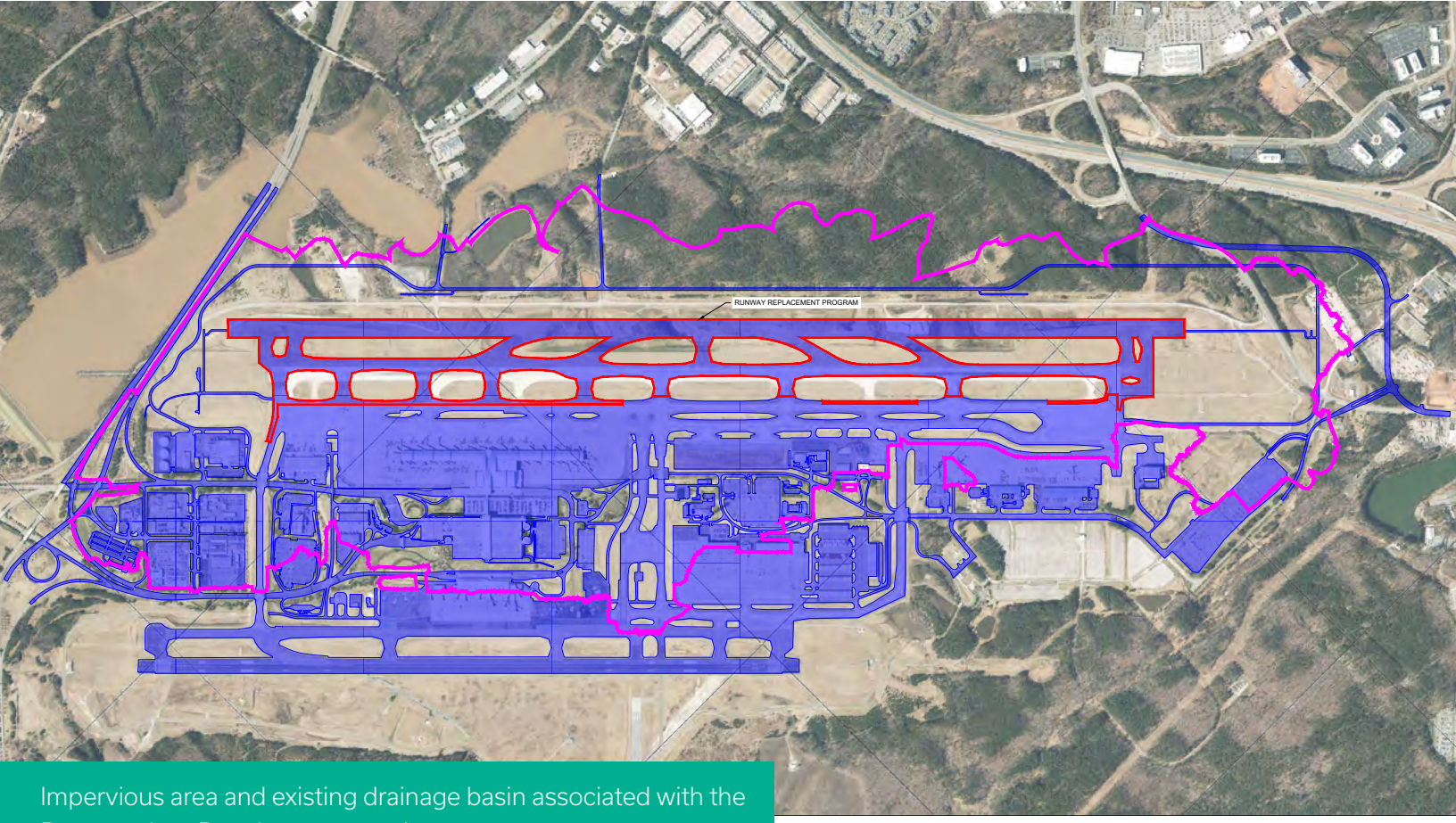
Goal 2: Develop and maintain a best-in-class stormwater management program.

Managing water and stormwater is a vital component of the Sustainability Management Plan. At RDU, water is used in a variety of ways, including as drinking water for guests and employees, for the cleaning of aircraft, and in the maintenance of landscaped areas across the airport campus.

The Airport Authority is working to reduce potable water consumption through efforts such as installing radio controls for the irrigation system to allow landscapers to control sprinklers by zone.

The Authority is actively tracking water and sewer usage to better understand historical consumption trends. The data will also be useful to assess the impact of potable water reduction strategies as they are implemented across campus. Data from 2007 through 2022 is depicted in the graphic below.





Impervious area and existing drainage basin associated with the Runway 5L-23R replacement project

Stormwater Management

The Authority maintains a system of stormwater infrastructure to collect, treat and control stormwater discharges and is working to implement best practices in stormwater management.

The Sustainability Management Plan directs the Authority to develop a stormwater management program that protects water quality, minimizes erosion, and prevents flooding and damage on and around the RDU campus.

The Authority has developed a Stormwater Management Plan (SWMP) that focuses on the drainage area associated with the Runway 5L/23R replacement project. This project will modify a significant portion of the west side of the airfield. The SWMP serves as the first phase of developing an overall Stormwater Management Master Plan that will address drainage areas on the whole RDU campus.

The main objective of the SWMP is to analyze drainage areas affected by the Runway 5L-23R replacement project and develop strategies to better manage stormwater quality and quantity.

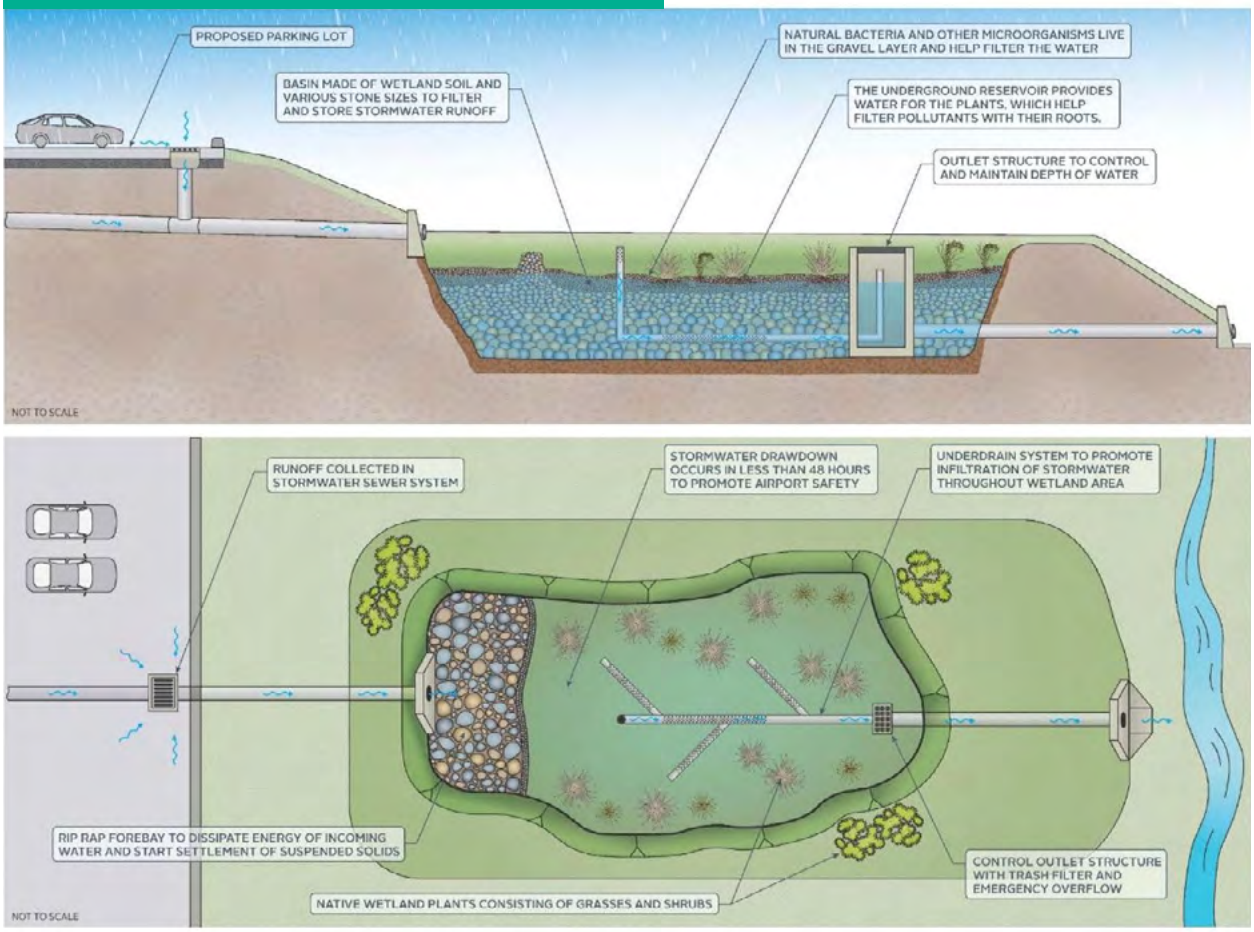
Submerged Gravel Wetlands

In the design phase for the Park Economy 3 expansion project, several stormwater treatment options were discussed, including wet ponds, dry ponds and bioretention. These presented issues such as wildlife safety, maintenance and limited design options for the treatment of stormwater.

In collaboration with North Carolina State University, submerged gravel wetlands were designed to treat stormwater associated with the project. A submerged gravel wetland uses plants to treat runoff in an above-ground wetland through a biochemical process. Below-ground internal storage will have gravel layers that maintain constant water levels for the plants and provide anaerobic processes to treat water.

The submerged gravel wetlands are expected to remove more nutrients (total nitrogen and total phosphorus) from stormwater than other control measures such as dry ponds. All the water that is discharged from the basins will be analyzed for treatment values. The submerged gravel wetlands will be designed to exceed state requirements for stormwater treatment. They will treat more than one inch of runoff, improve nutrient treatment, be designed for at least a 50-year storm event, and provide attenuation for a 100-year storm event.

Illustration of submerged gravel wetland function




DELTA
CONNECTION
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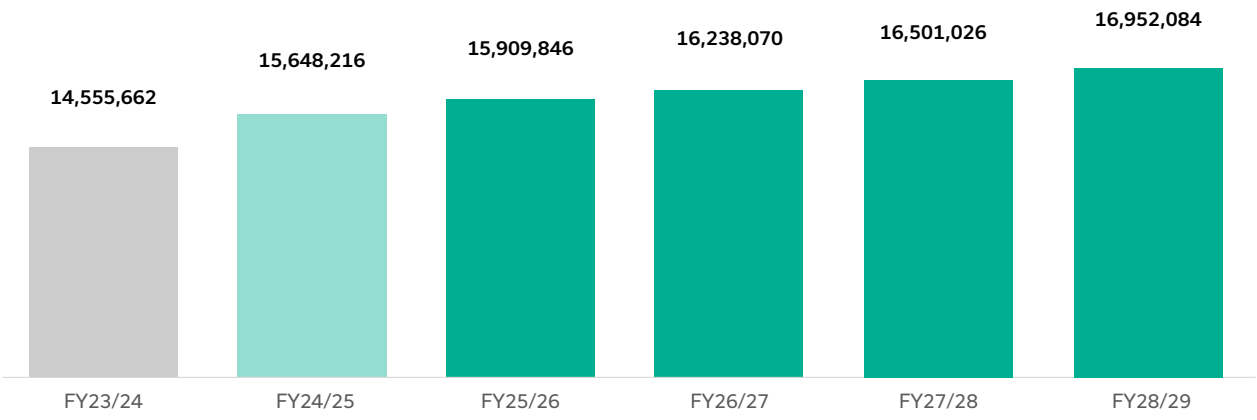
Sustainable Development Highlights: Building a Better Future

The Research Triangle community is experiencing tremendous growth, and RDU is growing along with it.

The Raleigh-Durham Airport Authority continually consults forecasting models to better understand current and future demands for air service at RDU. Projected increases in passenger traffic are driving the need to implement important development initiatives across RDU.

Five-Year FY Total Passenger Forecast

Total Enplaned and Deplaned FY Passenger Forecast



The Authority had an exciting FY 2023/2024 as it began to move forward with key development projects outlined in the Vision 2040 master plan. In accordance with the Authority's Sustainability Policy, the Authority is working to ensure sustainability is a priority throughout the capital project lifecycle. Capital projects are planned, designed, constructed and maintained in accordance with the four pillars of sustainability, with an emphasis on reducing carbon footprint, improving energy efficiency, reducing waste, enhancing the customer experience and reducing operational costs.

An additional commitment included in the RDU Sustainability Policy is the application of a sustainable rating system on significant future capital development projects. While multiple frameworks or performance rating systems are available to coordinate, track and recognize sustainable development practices, the Authority has begun to investigate two in particular for upcoming capital projects: Envision and LEED™.

Envision: Envision is a sustainability rating system developed by the Institute of Sustainable Infrastructure that is geared for civil engineering projects, such as roads, runways and taxiways.

The Envision framework encourages innovation and provides direction in the planning, design and construction of sustainable and resilient infrastructure. The criteria and performance objectives available in the Envision framework promote sustainable choices throughout a project's lifecycle, including in the operations and maintenance stages.

Projects seeking an Envision rating can earn up to 64 credits that are organized into five categories: quality of life, leadership, resource allocation, natural world, and climate and resilience. For each credit, a narrative with supporting documentation must be submitted, and third-party verification that criteria have been met is required. Envision has four award levels based on credits earned: Verified, Silver, Gold and Platinum.

LEED™: Leadership in Energy and Environmental Design (LEED™) is a globally recognized green building rating system that signifies achievement and leadership in sustainability. LEED™ certification provides a framework for healthy, highly efficient and cost-saving buildings.

Projects seeking LEED™ certification must address carbon emissions, energy consumption, waste reduction, sustainable transportation, materials selection, occupant health and indoor environmental quality before undergoing a third-party evaluation process by the Green Business Certification Inc. A point system determines the project's level of achievement: Certified, Silver, Gold or Platinum.

This section of the annual report will focus on the sustainability highlights and accomplishments of four development projects that form the backbone of the Authority's capital improvement program: the expansion of Park Economy 3; the replacement of Runway 5L/23R; the renovation and expansion of the Terminal 2 landside areas which includes an extension of John Brantley Boulevard and replacement of Parking Garages 1 and 2; and the expansion of Terminal 1. In addition to this annual report summary, the Authority maintains a sustainable construction website to highlight sustainable practices in ongoing development work and it also provides a forum for public feedback.

Park Economy 3 Expansion

The Authority's Park Economy 3 expansion project involves the expansion of the public surface parking lot located near the intersection of Aviation Parkway and National Guard Drive. The lot offers one of the lowest daily parking rates and provides shuttle bus service to Terminals 1 and 2.

The existing lot has approximately 3,820 spaces, and the proposed expansion will add approximately 7,000 new spaces to meet future increased demand and maintain a more affordable parking product for airport customers. The project site encompasses 158 acres and will include expanded parking areas along with new circulation roadways, drainage areas and a single-story Customer Amenity Building. The Customer Amenity Building will enhance the parking customer's experience by providing restrooms, vending machines, and a customer lounge with monitors to display flight information. Offices for law enforcement and parking staff will enhance the overall security of the lot and ensure timely customer service response and lot maintenance efforts. Following the completion of a rigorous environmental and public participation process, discussed in detail in the **Environmental Compliance Review** section below, the Authority began construction on the project in the fall of 2023. The project will be completed in phases through 2026.

Environmental Compliance Review

The Environmental Compliance Review (ECR) is a first-of-its-kind process among airports nationwide to ensure compliance with environmental laws and regulations during project implementation. Development of an Environmental Compliance Report is a process (including a public participation effort) that Authority staff will follow when evaluating environmental impacts of a project.

The Authority Board adopted an ECR policy in December 2022 directing staff to complete an ECR for projects that require permitting or other approval or final action, pursuant to any state and federal environmental Special Purpose Law when: (1) the Federal Aviation Administration determines it does not have approval authority pursuant to Section 163 of the FAA Reauthorization Act of 2018, and, as a result, the preparation of documentation in compliance with the National Environmental Policy Act is not required; and (2) the North Carolina Environmental Policy Act of 1971 does not apply.

The Park Economy 3 expansion project was the first project subject to the ECR process at a cost of $280,000 to the Authority. The public participation effort for the project included two public workshops and two public comment periods, with responses prepared for all comments to formally engage with and inform the community about this important project. For more information about the ECR, visit Project Environmental Compliance Review - Raleigh-Durham International Airport (rdu.com)

Key Project Sustainability Initiatives

- **Envision Verification**: The Authority announced its intention to pursue Envision verification for the Park Economy 3 expansion project in December 2023. Support for this effort cost the Authority $138,000 in FY 2023/2024.

Above: Rendering of the Customer Amenity Building, part of the Park Economy 3 expansion project
Below: Mockup of completed Park Economy 3 expansion

As part of this commitment, the Authority has completed a project-specific Sustainability Commitment Statement and is maintaining a project-specific Sustainability Management Plan. Project team coordination efforts, project score collaboration, and the climate and risk vulnerability assessment for the project are already underway. The vulnerability and risk assessment identified extreme heat, extreme precipitation, increased wildfire threat, wind and unpredictable winter weather as climate stressors that may result in project vulnerabilities. To reduce those potential risks and vulnerabilities, mitigation strategies were proposed for the project's critical asset groups and systems. The comprehensive list of mitigation strategies will be considered by the project team for inclusion in the final design.

- **LEED™ for the Customer Amenity Building**: The Authority is pursuing LEED™ certification for the PE3 Customer Amenity Building. The project has been registered on LEED™ Online, which is the preferred platform for organizing and submitting project documentation.

- **LED Lighting**: All new lighting for the project will be LED, and all existing parking lot lighting will be converted to LED. LEDs are more energy efficient than traditional lighting options, free of toxic materials and recyclable. In addition, LEDs are longer-lasting and more durable than traditional lighting options, which decreases the frequency of replacement. LED lighting options also enable light to be delivered more efficiently to the desired location, with less light distribution off-site.

- **Submerged Gravel Wetlands**: With significant monetary investment by the Authority, this project is poised to become the largest application of submerged gravel wetlands as a stormwater treatment technology in the state of North Carolina. The technology is a non-wildlife attractant (because wildlife can pose safety hazards for an airport) and is expected to exceed nutrient removal values seen in more traditional treatment methods. North Carolina State University will assist the Authority with monitoring the performance of the stormwater treatment measures. More information about submerged gravel wetlands can be found in the **Water & Stormwater** section of this report.

- **Minimized Land Disturbance**: The parking expansion footprint was configured to reduce land clearing activities, reduce water resource impacts, avoid environmentally sensitive areas and minimize rock blasting work. The Authority's engineering consultant estimates that the current design, which avoids significant environmental impact, will cost at least an additional $5 million. After preparation and publication of the ECR document, tree clearing activities were further reduced by an additional 1.75 acres. Critical design changes have also been made to avoid rock that would require blasting to the extent possible. Reduced blasting activity also means reduced waste being hauled offsite.

- **Solar Canopies**: The project will apply solar technology on the lot's covered walkways to power parking lot lighting, message boards, ticket machines and bathrooms. The panels are expected to produce 560 kilowatt hours of electricity, which will offset roughly 84 percent of the energy used at the parking lot each year.

Runway 5L/23R Replacement Project

The Authority has initiated construction of one of the most pivotal projects in the Vision 2040 master plan—the replacement of its primary commercial runway, 5L/23R. The new 10,639-foot runway will be located 537 feet west of the current location, and the old runway will be converted to a taxiway.

The Runway 5L/23R replacement project will provide greater economic opportunities for the region, ensure RDU maintains its transatlantic connections and allow for domestic long-haul aircraft to move more passengers and cargo. It will also make room for the future addition of gates at Terminal 2.

The Runway 5L/23R replacement project and taxiway conversion is anticipated to begin construction in 2024.

Environmental Assessment

On August 31, 2023, the Federal Aviation Administration (FAA) issued a Finding of No Significant Impact and Record of Decision, providing the Authority with its final environmental determination and approval of the runway project.

The Environmental Assessment included a robust public involvement process in compliance with policies from the National Environmental Protection Act and Council on Environmental Quality. The Authority conducted outreach to the general public and specific populations that could be potentially impacted by the project. These efforts were made through mailings, a website, social media, documents posted in key locations throughout the community, and public meetings and hearings. Written public comments were also solicited and responded to. The Authority completed the Environmental Assessment at a cost of $2.2 million.

For more information about the Environmental Assessment, please visit Raleigh-Durham International Airport EA – RDU EA (airportprojects.net).

Key Project Sustainability Initiatives

- **Envision Verification**: In December 2023, the Authority announced its intention to pursue Envision verification for the Runway 5L/23R replacement project. While still in the early phases, the Authority will share construction updates of the project as it moves forward. Support for this effort in FY 2023/2024 cost the Authority $123,000.

Runway 5L/23R Groundbreaking Ceremony on Oct. 11, 2023

- **Minimizing Land Disturbance**: The Environmental Assessment document estimated that approximately five million cubic yards of fill material is needed to level the area proposed for the relocated runway. As various sources for this fill material are analyzed during the final design process for this project, the Authority is focused on reducing land disturbance to the extent possible.

- **Wetland Mitigation Banking**: The FAA Record of Decision requires that all wetland impacts incurred by the project be fully offset through wetland mitigation banking or participation in the State of North Carolina's in-lieu fee program. In this case, a wetlands mitigation bank is a wetland area in the same watershed that has been restored, established, enhanced or preserved, and is then set aside to compensate for future impacts on wetlands during development activities. Permittees, upon approval of regulatory agencies, can purchase credits from a mitigation bank to meet their requirements for compensatory mitigation. The Authority has committed $12.5 million to its wetland migration banking effort.
(Source: Mitigation Banks under CWA Section 404 | US EPA)

- **Particle Pollution and Greenhouse Gas Emission Reduction**: Construction equipment and construction activities will aim to minimize particle pollution and reduce greenhouse gas emissions. Some of the reduction strategies may include the use of alternatively fueled vehicles, the minimization of vehicle idle time, and the use of a blasting plan and coverings.

Terminal 2 Landside Renovation and Expansion

The Authority has started planning for the renovation and expansion of Terminal 2 landside areas that extend from the terminal curbside through the passenger security checkpoint area. The vision for the expansion is to create a modern, functional and sustainable space that enhances the passenger experience, accommodates passenger growth and brings the landside areas into balance with the existing airside areas. Key areas that will be included in the project are Customs and Border Protection, baggage sorting and handling, meeter/greeter areas, restrooms, pre-security concessions, airline ticketing, airline club/lounges, and an expanded security checkpoint, among other enhancements. Concurrently, John Brantley Boulevard will be realigned to the northeast of its current location to provide more space for future parking, rental car and commercial ground transportation options. Parking Garages 1 and 2 will be demolished to make way for a new larger and taller Public Parking Garage that will match the appearance and operation of existing Parking Garage 3 and Parking Garage 4.

Planning efforts include analysis of passenger and aircraft operations forecasts, as well as facility space needs, through 2050. Schematic design began in the spring of 2023 with a focus on how to resolve space deficits and gain operational efficiencies through technology and other improvements.

Sustainability practices that consider a balance between environmental, economic, operational and social elements are being investigated by the development team and will continue through construction and beyond. Construction is anticipated to start in 2025.

Rendering of proposed landside and concourse expansion for Terminal 2

Key Project Sustainability Initiatives

- **Sustainable Building Rating System:** The Authority is exploring the merits of pursuing a sustainable building certification such as LEED™ Building Design & Construction, WELL, Fitwel and/or Green Globes. The Authority is also planning to complete an energy modeling report in accordance with LEED™ standards to explore energy conservation measures applicable to the project.

- **Energy Efficiency and Resiliency:** The project will involve the review of utility bills and the completion of an energy audit to identify potential opportunities to reduce energy consumption. The project team is exploring building envelope commissioning, which is a quality assurance process to verify that the requirements for the building enclosure are defined and met. Commissioning also includes airtightness testing of the air barrier construction to improve the performance of exterior wall systems. The commissioning process results in improved energy performance and increased levels of comfort for passengers. The project team will explore upgrades to the building's mechanical control systems that can reduce overall operations and maintenance costs. Finally, the project team is looking at reducing heat gain with the addition of sunshades on the more exposed glazed areas, particularly for the harsh south and southwest sun angles.

- **Material Selection and Waste Reduction:** The project team will investigate ways to reduce the building's embodied carbon through thoughtful materials selection. Embodied carbon is the energy and emissions that come from materials used in construction. The team is investigating the use of Cross Laminated Timber in lieu of traditional steel and concrete floor decking, reusing materials where possible, and using materials with recycled content. These lower carbon alternatives can reduce the airport's overall carbon footprint. Also, as a standard practice, the project team will pursue recycling and reuse opportunities during construction to minimize the amount of waste going to landfills.

As the Terminal 2 landside renovation and expansion project progresses, the Authority will select which sustainable practices to implement that align with the goals and targets from RDU's Sustainability Management Plan.

Terminal 1 Renovation and Expansion

The building known today as Terminal 1 opened in the early 1980s, adjacent to the original 1955 terminal with six gates. At the time, the terminal served as the primary passenger processing facility for the entire airport. It has undergone several modifications and expansions since then to meet the evolving needs and expectations of passengers and tenants, including the addition of gates in the mid-80s. By the early 2000s, the southwest (Terminal 1) side of the airport served more than 25 gates. Extensive modernization and renovation of the central portion of the terminal was completed in 2014 and outdated portions of the building were demolished in 2016, bringing the gate total down to nine.

The 2014 project included a complete renovation of the original terminal structure. Only the steel skeleton and concrete floors remained. During design and construction, the development team sought ways to reduce water consumption, improve energy efficiency, utilize low-carbon materials and improve indoor air quality. The paints and coatings used are low-carbon-emitting, the materials used in the construction were recycled, and highly reflective roofing materials were used to control building temperature and reduce overall cooling costs. These sustainable practices led to Terminal 1 being LEED™ Certified by the U.S. Green Building Council in 2014 in recognition of the Authority's performance and commitment to sustainability.

In FY 2023/2024, the Authority is once again exploring expansion of Terminal 1 to meet increasing passenger and air service demands. The project is expected to expand the number of gates to provide flexibility in accommodating the growing number of domestic and international flights at the airport. The passenger experience will be reassessed to provide a service level more comparable to Terminal 2.

The Authority will work to maintain its LEED™ certification for Terminal 1 and use the LEED™ framework to guide the development of sustainability targets and practices for the renovation and expansion project.

Looking Forward

While the Authority continues to implement ongoing actions that began in FY 2023/2024, several new initiatives will begin in FY 2024/2025. The Authority will be developing an Energy Management Plan as a strategic opportunity to outline necessary steps to manage and optimize the Authority's energy usage. The plan will provide an opportunity to reduce operational costs, provide resiliency to unexpected energy disruptions and provide a pathway to realize energy use reduction. This effort will also enable the Authority to evaluate potential renewable or alternative energy sources on an airport campus-wide basis.

In alignment with the Energy Management Plan, the Authority will develop a comprehensive Greenhouse Gas Emissions Roadmap defining GHG reduction milestones through 2050. The roadmap will set goals, baselines, and benchmarks; establish emissions forecast scenarios; evaluate reduction strategies; devise a phased implementation plan consistent with the four pillars of sustainability; implement monitoring and reduction strategies; and explore potential funding for decarbonization efforts.

With new development activities occurring across the airport to serve RDU's regional customers and provide a world-class experience, the Authority will also be developing a Building Commissioning Plan and a sustainability rating system evaluation process to ensure the built environment aligns with the goals and objectives set forth in the RDU Sustainability Management Plan.

As guided by its Sustainability Policy, the Authority will continue to apply a balanced approach to airport sustainability that considers economic viability, environmental stewardship, operational efficiency and social responsibility in all decision-making processes.

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