



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

J. ERIC BOYETTE  
SECRETARY

**NCDOT Division of Aviation FY 2021 Annual Report**  
March 31, 2022

General Statute 63-74.5 (Section 41.11 of S.L. 2021-180) requires the Division of Aviation to report annually to the Joint Legislative Transportation Oversight Committee on the following information from the prior fiscal year:

- A list of all public use airports within the state, their municipality and county, status as commercial services or general aviation, airport code and the following corresponding information:
  - Total amount of funds allocated to each airport, subtotalling federal, Commercial Services, State Aid to Airports, Special Projects, Economic Development and the State Transportation Improvement Program dollars and total number of projects receiving allocations.
  - Total amount of funds disbursed to each airport, subtotalling federal, Commercial Services, State Aid to Airport, Special Projects, Economic Development and the State Transportation Improvement program dollars and total number of projects receiving disbursements.
  - Total amount of unallocated state appropriations for Commercial Services, State Aid to Airports, Special Projects and Economic Development.
- A summary of activities related to unmanned aircraft systems, including total number of drones owned, subtotaled by units of the Department of Transportation and by other state agencies, purpose and uses of drones in each unit and agency, a list describing each private-sector partnership to which the Division of Aviation is a party, and any other activities of this unit.
- Total number of trips and flight hours by each manned aircraft owned by the Department of Transportation, subtotaled by agency, fees charged to each agency and total cost of providing services to each agency.
- Summary of activities related to Safety and Education, including total expenditures, number and description of programs and the number of participants.

*Mailing Address:*  
NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF AVIATION  
1560 MAIL SERVICE CENTER  
RALEIGH, NC 27699-1560

*Telephone:* 919-814-0550  
*Fax:* 919-840-9267

*Website:* [ncdot.gov/aviation](http://ncdot.gov/aviation)

*Location:*  
1050 MERIDIAN DRIVE  
MORRISVILLE, NC 27560

## N.C. PUBLIC AIRPORT DEVELOPMENT

The Division of Aviation administers a range of state and federal grant programs for the state's 72 public airports for infrastructure improvements to help them meet safety and other goals set forth in the [North Carolina Airport System Plan](#), the guiding document for airport development that is funded and approved by the Federal Aviation Administration (FAA), regulator of federally funded airports and the National Air Space.

We also provide planning and technical assistance, a statewide program of infrastructure maintenance and federally mandated services, business development services to expand business investment at the airports and professional development for airport personnel (*see Safety and Education section for additional details on our professional development programs*).

Ninety-eight percent of the Division of Aviation's annual budget is spent on programs that support the state's public airports. Below is the requested information on grant funding, as well as highlights of our airport assistance programs.

### Grant Programs

**The attached Excel spreadsheet entitled, "FY 2021 Aviation Finance Report for NCGA items 1a-1c," provides details of state and federal grant funds allocated to each airport, amounts disbursed and the amounts unallocated, as requested.**

NOTE: Our grant programs reimburse airports for eligible expenditures on projects that often span multiple years. Thus, funds allocated by the legislature in one fiscal year may be reimbursing airports for expenditures on multi-year projects awarded in previous fiscal years.

Here is a summary of our work and results in FY 2021

### State and Federal Airport Grants Management

The Division of Aviation:

- prioritizes and manages the multi-year program of airport infrastructure development funding that includes State Aid to Airports, economic development, STIP and legislatively directed funding to the state's 62 public general aviation airports to ensure all expenditures comply with state and federal requirements and support the safety and performance measures called for in the North Carolina Airport System Plan;
- as the FAA State Block Grant Program administrator for North Carolina, manages awards federal grants to the state's 62 general aviation airports;
- disburses and oversees spending and compliance of state grant funding allocated to the state's 10 commercial service airports;
- in FY 2021, managed more than \$10 million in federal COVID relief grants awarded in 2020 and 2021 to the state's 62 eligible general aviation airports to help them continue operating and employing staff and to pay the local match for federally funded airport infrastructure improvement grants.

The spreadsheets referenced above quantify the volume and type of grants managed in FY 2021.

### Statewide Program

The Division of Aviation's statewide program provides an array of infrastructure maintenance and federally mandated services for the general aviation airports that supplements the grant funding they receive and cost-effectively strengthens airport infrastructure. The program includes the:

- Airport Pavement Management System (APMS) that monitors and reports on pavement conditions at the airports that are required by the FAA to inform decision-making and prioritization of maintenance and repairs;
- Safety, Preservation, and Maintenance Program (SPAM) that repairs and rehabilitates runways, taxiways, parking aprons and other airport pavement to extend their useful life at a significantly lower cost;
- Airport Safety/5010 Program, which conducts inspections that are required and funded by the FAA for the 99 N.C. airports that are open to the public (includes 37 airports not eligible for our state and federal grant programs);
- Wildlife Hazard Mitigation Program, operated through a cooperative service agreement with U.S. Department of Agriculture, to provide FAA-required wildlife mitigation training for airport staff, conduct airport site visits and wildlife hazard assessments, and produce wildlife hazard management plans – all designed to improve safety and prevent aircraft from striking wildlife, causing damage and loss of life;
- Automated Weather Observation Systems (AWOS) Program, which provides tri-annual FAA-required inspections at the state's 43 non-federal AWOS and makes all necessary upgrades and repairs to the systems (AWOS collect and disseminate local weather data pilots rely on for approaching and departing airports).

In FY 2021, due to budget constraints, we offered a scaled-back program that included performing 29 inspections, completing 12 maintenance projects totaling \$1.2 million, completing \$575,798 in AWOS maintenance work and conducting two wildlife hazard visits. We also developed a prioritization schedule for maintenance repairs to be pursued in FY 2022 and a new agreement with the U.S. Department of Agriculture to resume wildlife hazard services when funding allows.

### **Planning and Technical Assistance**

The Division of Aviation provides extensive planning and technical assistance to the airports, conducting annual planning meetings with each airport every year and providing guidance throughout the year to help airports identify infrastructure development projects that meet community and state needs, develop long-term airport development plans, determine how to leverage, secure and optimize funding they may be eligible to receive from multiple sources, and attract business investment that expands their impact.

We provide subject matter and technical expertise to assist airports in defining project requirements, determining funding and eligibility, reviewing land acquisition plans and helping airports resolve a wide and growing range of compliance issues, all designed to ensure that publicly funded projects enhance airport safety, infrastructure health and mobility, employ best practices and comply with state and federal requirements.

In FY 2021, we launched virtual quarterly convenings of managers and consultants working for the state's 72 public use airports. The 1.5-hour, interactive format helps strengthen collaboration among the partners in building N.C.'s air transportation system. The meetings, typically attended by approximately 100+ people, highlight people and projects across the state, provide updates about the division's grants processes and airport development guidance, and encourage questions and suggestions for innovations and improvement.

### **Annual Financial Risk Assessment**

The Division of Aviation completed the second annual financial risk assessment of the state's 72 public use airports in FY 2021, yielding improvements over the first year of the program. The assessment program, created to ensure airports manage state and federal grant funds in accordance with state and federal guidelines, provides a financial risk score. Division staff then work with airports to mitigate their financial risk.

No airports scored at high risk in FY 2021, compared to two in FY 2020. Fifty-one scored low risk – seven fewer than the previous year. The remaining 21 scored moderate risk. Staff conducted desk audits of those airports to help them mitigate their risk to improve future scores. We will conduct the assessment again in FY 2022 and include new measures, such as timely execution of awards and grant projects, aimed to improve cash flow.

### **Aerospace Business Development Services**

The Division of Aviation released its biennial *North Carolina: The State of Aviation* report in January 2021 showing the state's 72 publicly owned airports contribute more than \$61 billion to the state's economy each year and support 373,000 jobs. Those jobs provide \$15 billion in personal income and contribute \$2.5 billion in state and local tax revenues each year.

A business development initiative launched by the Division in June 2019 works to expand that impact by attracting aerospace and airport-related business investment and creating new jobs. The program formalized the division's long-standing but unofficial role of supporting aviation business development efforts of the NC Department of Commerce and Economic Development Partnership of North Carolina (EPDNC). The goal: extend the economic benefits and opportunities that aviation enables to every corner of the state.

In July 2020, the division launched the North Carolina Aerospace Business Development Plan, developed in collaboration with Dept. of Commerce, EPDNC and a diverse group representing airports, economic and workforce developers, universities, community colleges, companies and sector support organizations and initiatives. The three-pronged plan seeks to expand aerospace business investment and jobs in North Carolina by:

- Generating leads and supporting aerospace project development in North Carolina through business recruitment, retention and expansion.
- Mapping and aligning existing and future business development opportunities, assets and plans.
- Strengthening partnerships and infrastructure that support the cluster strategy.

The division worked throughout FY 2021 to advance implementation, hosting six regional stakeholder briefings to publicize the initiative and attract stakeholder participation in implementing the plan. We developed a range of online data tools that airports and partners can use to recruit aerospace-related businesses to their communities, provided consulting services requested by 34 of the state's 72 airports and launched a strategic planning service for airport authorities in collaboration with Dept. of Commerce's Rural Economic Development Office.

The division supported 28 business recruitment projects in FY 2021 for aircraft manufacturers, research and testing facilities, maintenance and repair operations, and corporate hangars. Four projects announced investments totaling \$40.6 million, expected to create 250 jobs in eastern North Carolina. Eighteen projects were still active, four had been put on hold due to the pandemic and two chose to close.

The division also managed the North Carolina Airport Economic Development Fund to provide state funding for time-sensitive economic development projects that create jobs. By the end of FY 2021, a total of \$25 million in grant funding had been awarded to six projects in Burlington, Kinston, Johnston County, Statesville and Wilkes County with investments valued at nearly \$50 million and expected to create 694 jobs.

### **Training and Resources**

The Division of Aviation provides the North Carolina Airport Technical Assistance Program (NC AirTAP) for state airports. NC AirTAP provides professional development and resources that

improve the financial and operational capabilities of staff at the state's 72 publicly funded airports and encourages sound stewardship of public funds.

Our signature program is the new 12-course series launched in 2018, called the Airport Leadership and Management Program (ALMP), which works to strengthen management of the state's public airports. ALMP covers every aspect of airport management, from infrastructure development to finance to operations.

In FY 2021, we developed and offered four courses (Courses 7-10) in the series, pivoting from an in-person to a virtual format due to the pandemic to avoid interruption (*see Safety and Education section on page 9 for course details*).

## UNMANNED AIRCRAFT SYSTEMS PROGRAM

### Summary of Activities

Unmanned aircraft systems, (UAS, or drones) offer the potential to transform how we live and work but require a complex system of infrastructure and regulation to do so. North Carolina, at the forefront of developing such a system since 2014, achieved significant advances in FY 2021.

The Division of Aviation's UAS Program leads the state's efforts to integrate UAS into the air space in ways that make government operations more efficient, safer and less costly and to enable commercial operations that serve the public interest and grow the economy. The program focuses on three interrelated areas:

- expanding the safe, efficient and cost-effective use of drones by N.C. government agencies, with particular focus on NCDOT;
- enabling the expansion of small UAS for deliveries, with particular focus on medical deliveries;
- developing the infrastructure for enabling advanced air mobility, which includes the movement of people and large cargo by autonomous drones.

**Expanding NCDOT Drone Use.** In FY 2021, we conducted "opportunity assessments" with NCDOT business units to determine their interest, experience and opportunities to use drones to improve operational efficiencies, increase safety and save money.

As the table on page 7 shows, six NCDOT units owned and operated a total of 45 drones by the end of FY 2021 and used them to support a wide range of operations. As our Safety and Education report shows on page 9, we conducted 69 events to demonstrate, train and assist 689 NCDOT personnel in integrating drone use into their operations. We also held six training sessions and provided online course materials to help prepare 147 NCDOT personnel to take the FAA Part 107 Remote Pilot certification test to qualify them as drone operators.

**Supporting Other Public Agencies.** Also in FY 2021, we participated in demonstrations, trained and assisted other public agencies interested in using drones to support their operations (NC State University, NC A&T University, Charlotte Police and Fire Department, FBI). These activities help the state continue to push the envelope on how drones can be used to support government and business.

**Advancing Commercial Use of Drones.** NCDOT continued playing a leading national role in integrating drones into the National Airspace System in FY 2021 as one of eight US teams tapped for the Federal Aviation Administration's BEYOND program, which aims to fully integrate the routine use of drones and advanced air mobility.

NCDOT works with companies on the leading edge of developing, making and using UAS technologies and the FAA to test and prove safe new uses for drones. This allows North Carolina to lead the nation in many new commercial uses for drones and positions our state for business investment in this emerging industry, while also helping push and shape FAA regulation that will enable this new frontier of air transportation.

Among our FY 2021 results:

- The division completed the FAA’s three-year Integration Pilot Program (IPP), the precursor to BEYOND, completing more missions and more national firsts than any of the other eight IPP teams combined. That included the launch of the nation’s first routine commercial medical deliveries and deploying North Carolina’s first coordinated drone response to hurricanes. In FY 2021, five commercial operations were delivering medicines, supplies and personal protective gear across health systems in rural and urban areas of North Carolina in and around Charlotte, Fayetteville, Raleigh, Wilson and Winston-Salem.
- NCDOT Aviation was the first state department of transportation approved by FAA to conduct beyond-visual-line-of-site bridge inspections using drones. The team used a drone to inspect one of the 10 massive cement columns supporting the Basnight Bridge at the Outer Banks without traffic interruption or the need for a person to rappel inside the 80-foot-deep columns to inspect them, increasing safety. It is one of a growing number of ways NCDOT is using drones to improve operational efficiencies, increase safety and save tax dollars, from monitoring highway projects to supporting disaster emergency responses, from landslides to hurricanes.
- BEYOND partner Volansi was approved by FAA in FY 2021 to deliver emergency supplies from Hatteras Ferry Terminal to Ocracoke Village 14 miles away. Tests of that service are being conducted in FY 2022 and hold the potential to provide critical relief to Ocracoke following hurricanes, when roadways are impassable.
- Volansi Inc. and Merck launched the nation’s first commercial delivery of temperature-controlled (cold chain) medicines from its manufacturing facility to patients at Vidant Healthplex-Wilson two miles away.
- BEYOND partners Flytrex (drone manufacturer) and Causey Aviation (drone operator) expanded routine delivery of food and retail items in the Fayetteville area and Raeford under a FAA waiver, enabling the largest-scale backyard drone deliveries of goods to date in the nation.
- Wake Forest Baptist Medical Center (now Atrium Health) and UPS’s drone delivery service, UPS Flight Forward, launched drone delivery of time-sensitive medicines and personal protective equipment across the medical center’s campus in Winston-Salem.
- The Southeastern Association of State Highway and Transportation Officials (SASHTO) recognized NCDOT’s drone medical delivery logistics program with a 2020 America’s Transportation Award for Best Use of Technology & Innovation – Small Category.

### **NCDOT and State Agency Drones**

**The following table shows the total numbers of drones owned, subtotaled by units, of the Department of Transportation and by other state agencies with the purpose and uses of drones in each unit and agency.**

**North Carolina State Agency\* Drone Ownership and Usage**

Agency	No. of Drones	Uses
Administration	1	Photograph state-owned buildings
Commerce	0	
Environmental Quality	22	Emergency response, surveying and mapping
Health and Human Services	7	Surveying, including areas that are radioactive
Information Technology	0	
Military and Veterans Affairs	0	
Natural and Cultural Resources	3	Marketing, historic site photography
Public Safety	49	Emergency response, search and rescue operations, collision reconstruction
Revenue	0	
<b>Transportation</b>	45	<i>See use by NCDOT units below</i>
• Aviation	38	Loaner drones provided to NCDOT units; complex missions for units such as inspections, surveys, mapping, volumetric measuring
• Photogrammetry	1	Photogrammetry work
• Environmental Analysis	2	invasive plant species control
• Highway Division 1	1	inspections, surveys, mapping
• Highway Division 3	1	inspections, surveys, mapping
• Roadside Environmental	2	Photos, video, environmental assessments

\* The Division of Aviation maintains and controls drone usage for NCDOT units and supports other state agencies, upon request, but has no authority to manage drones for other state agencies. The state agency data in this table outside of NCDOT was obtained by contacting each agency and requesting it.

**Private-sector Partnerships**

The UAS Program enters into teaming agreements with private-sector partners who are interested in and capable of advancing the routine commercial operation of drones in North Carolina as part of our participation in the FAA's BEYOND program.

Company	Role	HQ Location	NC Operating Location	BEYOND Focus
ANRA Technologies	Unmanned traffic management	Washington, DC, London, Tartu, New Delhi	Remote	Provide support in creating a statewide service under a Supplemental Data Service Provider (SDSP) to allow state/local governments to post warnings of activities taking place within their jurisdictions
Causey Aviation	UAS operator	Liberty, NC	Fayetteville, Raeford	Conduct Beyond Visual Line of Sight (BVLOS) drone delivery operations in partnership with Flytrex. Current customer partnerships: Pizza Hut, Starbucks, Walmart

Flytrex	UAS manufacturer	Israel-based with US HQ in Apex		Provide a FAA type-certified drone to Causey Aviation and potentially others
Matternet	UAS manufacturer	Mountain View, CA		Provides FAA type-certified UAS to UPS Flight Forward
Novant	Customer	Winston-Salem	Kannapolis, Huntersville	Explore ways to expand medical drone delivery operations
Skydio	Small UAS original equipment manufacturer	Redwood City, CA	Statewide	Provide NCDOT small UAS and support for infrastructure inspection use cases
UPS	UAS operator	Louisville, KY	Raleigh, Winston-Salem	Conduct Beyond Visual Line of Sight (BVLOS) drone delivery operations in partnership with WakeMed and Wake Forest Baptist Hospital
Volansi	UAS manufacturer and operator	San Francisco, CA	Wilson	Conduct BVLOS drone delivery operations in partnership with Merck and Vidant
WakeMed	Customer	Raleigh	Raleigh	Explore ways to expand medical drone delivery operations
X-Wing	Large UAS manufacturer and operator	California	TBD	Conduct large UAS operations in support of UPS and NCDOT
Zipline	UAS manufacturer and operator	Half Moon Bay, CA	Kannapolis, Huntersville	Conduct BVLOS drone delivery operations in partnership with Novant and other healthcare systems in the Charlotte region



## MANNED AIRCRAFT

The Division of Aviation's Flight Operations team provides flight services for passenger and photogrammetry missions of state agency personnel conducting state business.

### NCDOT Aviation Aircraft Flights, Charges and Costs

Agency	Trips	Flight Hours	Fees Charged to Agency*	Total Cost of Services to NCDOT
<b>Passenger Service Aircraft (King Air B200)</b>				
N.C. Department of Commerce	6	10.3	\$8,240	\$18,540
N.C. Department of Cultural Resources	1	1.0	\$800	\$1,800
N.C. Department of Health and Human Services	7	10.1	\$8,080	\$16,380
N.C. Department of Public Safety	4	6.3	\$5,040	\$11,340
N.C. Department of Transportation	6	9.5	\$17,100**	\$17,100
N.C. Governor's Office	1	2.3	\$1,840	\$4,140
UNC Medical Air	3	4.7	\$3,760	\$8,460
Maintenance, Test & Training Flights	9	5.9	\$10,620**	\$10,620
<b>Passenger Service Aircraft Subtotal</b>	<b>37</b>	<b>50.1</b>	<b>\$55,480</b>	<b>\$88,380</b>
<b>Photogrammetry Service Aircraft (King Air C90)</b>				
NCDOT Photogrammetry Service	<b>46</b>	95.9	\$187,005**	\$187,005
Maintenance, Test & Training Flights	2	1.9	\$3,705**	\$3,705
<b>Photogrammetry Service Aircraft Subtotals</b>	<b>48</b>	<b>97.8</b>	<b>\$190,710</b>	<b>\$190,710</b>
<b>Total for Both Services</b>	<b>85</b>	<b>147.9</b>	<b>\$246,190</b>	<b>\$279,090</b>

\* Agencies outside NCDOT are charged the direct operating costs associated with their flights.

\*\* NCDOT incurs all costs associated with its flights, which include the direct operating costs and the fixed (overhead) costs it incurs to run the flight department.

## SAFETY AND EDUCATION

The Division of Aviation's safety and education programs are designed to support a safe and vibrant air transportation system and build the talent pipeline for our aviation workforce.

In FY 2021, our safety and education programs focused on five areas to improve the operations of public airports, support the use of drones by NCDOT and other government agencies and inspire the next generation of talent for our state's aviation sectors.

**Summary of activities related to safety and education, including total expenditures, number and description of programs and the number of participants for fiscal year 2021**

<b>Program</b>	<b>Total Expenditures</b>	<b>Number of Programs</b>	<b>Description</b>	<b>Number of Participants</b>
Airport Leadership and Management Program	\$126,662	4	North Carolina Airport Technical Assistance Program (NC AirTAP) aims to improve financial and operational management of the state's publicly funded airports.	210
NCDOT Drone Use Training and Demonstrations	\$0	69	We demonstrate, train and assist NCDOT personnel in using drones for operations that increase safety and efficiency and lower costs.	689
NCDOT Drone Operator Certification Preparation Training	\$10,074	6	We help NCDOT personnel prepare for their Part 107 Remote Pilot Certification test and purchase course subscriptions for them.	147
Government Agency Drone Training and Demonstrations	\$0	11	We demonstrate, train and assist other government agencies, upon request, to use drones for operations that increase safety and efficiency and lower costs.	216
STEM Events	\$0	14	We demonstrate, educate, and participate in science and technology events that expose young people to aviation to inspire the next generation of talent for the aviation industry.	332
<b>Total</b>	<b>\$136,736</b>	<b>104</b>		<b>1,594</b>

**Annual Art Contest**

In FY 2021 our annual North Carolina Art Contest was funded for the second year in a row by the North Carolina Airports Association. Despite school disruptions caused by the pandemic, we received 764 entries for this year's contest. Winners of the state contest that we submitted to the national contest won five of nine top national awards. National N.C. winners that were submitted to the international contest won three of nine top international awards. The division hosts the statewide art contest each year to inspire the next generation of aerospace talent. A total of 10,349 submissions from 720 schools from 93 counties have been entered in the art contest since 2015.