

AASHTO Innovation Initiative

[Proposed] Nomination of Innovation Ready for Implementation

Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation

1. Sponsoring DOT (State): North Carolina Department of Transportation

2. Name and Title: Julie White, Deputy Secretary for Multimodal Transportation

Organization: North Carolina Department of Transportation

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City: Raleigh

State: North Carolina

Zip Code: 27601

Email: juliewhite@ncdot.gov

Phone: 919-707-2816

Fax: Click or tap here to enter text.

3. Is the sponsoring State DOT willing to promote this innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative? Yes No

Innovation Description (10 points)

The term “innovation” may include processes, products, techniques, procedures, and practices.

4. Name of the innovation:

Dynamic Spreadsheets & Dashboards for Multimodal Transportation

5. Please describe the innovation. Describe how this innovation transforms your existing “state of play.”

Multimodal divisions at the N.C. Department of Transportation have implemented Smartsheet spreadsheets and dashboards to speed the delivery of funding to external units, to improve compliance and oversight, to assist with emergency operations and to track ridership. This creative use of an existing technology tool has dramatically reduced the amount of time to complete key processes, providing superior service to stakeholders and ensuring funding flows smoothly. The implementation has also allowed the divisions to create real-time data and tracking capabilities that are critical in emergency situations. Finally, the data and corresponding user-friendly dashboards provide easy ways to communicate, share and understand complex data.

6. If appropriate, please attach photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments here. Attach photographs, diagrams, or other images here.

Screenshots attached - Dynamic Spreadsheets & Dashboards

7. Briefly describe the history of its development.

Teams in the multimodal divisions have been working with Smartsheet over the past year and tailoring dynamic spreadsheets and dashboards to match their workflows. Early adopters, like the Division of Aviation, now have documented success and have shared their processes with other divisions. We continue to refine the development process. With the initial success and demonstration of value, other divisions and teams are now participating.

State of Development (40 points)

Innovations must be successfully deployed in at least one State DOT. The All selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

8. How ready is this innovation for implementation in an operational environment? Please check of the following options. Please describe.

- Prototype is fully functional and yet to be piloted
- Prototype demonstrated successfully in a pilot environment

Technology has been deployed multiple times in an operational environment

Technology is ready for full-scale adoption

Click or tap here to enter text.

9. What additional development is necessary to enable routine deployment of the innovation? What resources—such as technical specifications, training materials, and user guides—are already available to assist with the deployment effort?

Smartsheet licenses are required to deploy this innovation. Training materials, videos and support are easily accessible through Smartsheet.

10. Has any other organization used this innovation? Yes No

If so, please list organization names and contacts. Please identify the source of this information.

Organization	Name	Phone	Email
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

Potential Payoff (30 points)

Payoff is defined as the combination of broad applicability and significant benefit or advantage over other current practice (baseline).

11. How does the innovation meet customer or stakeholder needs in your State DOT or other organizations that have used it?

The innovative spreadsheets and dashboards are used on a daily basis within the multimodal divisions, with measurable success. In NCDOT’s Aviation Division, for example, dynamic spreadsheets and dashboards transformed the “Request for Aid” process with local airports. The division used Smartsheet to set up an automated workflow to gather information and move it forward. The new process reduced the turnaround time from 468 days to 146 days in the pilot program. During the preparation for and response to Hurricane Florence, the division also dynamic spreadsheets to ingest airport status through online

forms and created a dashboard that included a map, data views, and links to content that could quickly answer high level questions of the operational conditions of the airports across the state. Over the course of two weeks, the dashboard was viewed approximately 400 times and 348 records were added. At the same time, the UAS program utilized the technology to support their drone efforts to view, inspect and share damage to infrastructure across the state. The tool tracked requests by flight locations so the UAS Team could quickly deploy flight teams throughout eastern North Carolina. Photos and videos of washouts and road closures were then uploaded for distribution. Over the course of just one week, 254 records were created, and there were more than 500 views of the dashboard. Other uses at the Aviation Division include: tracking commercial service airport expenditures, tracking airport compliance with agreements and claims, supporting on-call services, tracking NPE spending plans from airports, conducting risk assessments for airports and tracking claim processes. The Ferry Division has also used a dynamic dashboard to track ridership, trends and marketing efforts for a new passenger ferry service.

12. What type and scale of benefits have your DOT realized from using this innovation? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or any other advantages over other existing baseline practice. Please identify the following benefit types:

Check boxes that apply	Benefit Types	Select a rating from the drop-down menu
<input type="checkbox"/>	Cost Savings	Choose an item.
<input checked="" type="checkbox"/>	Shortened Project/Service Delivery Schedule	4-Moderate to High
<input checked="" type="checkbox"/>	Improved Customer Service	3-Moderate
<input type="checkbox"/>	Improved Quality	Choose an item.
<input type="checkbox"/>	Environmental Benefits	Choose an item.
<input checked="" type="checkbox"/>	Organizational Efficiency	4-Moderate to High
<input checked="" type="checkbox"/>	Improved Safety	3-Moderate
<input checked="" type="checkbox"/>	Improved Operation Performance	4-Moderate to High
<input type="checkbox"/>	Improved Asset Performance	Choose an item.
<input type="checkbox"/>	Other (please describe)	Choose an item.

Provide an additional description, if necessary:

The primary benefits are improved customer/stakeholder service and more efficient workflows and processes. The tool frees staff time by automating information gathering and streamlining communication.

13. Please describe the potential extent of implementation in terms of geography, organization type (including other branches of government and private industry) and size, or other relevant factors. How broadly might the technology be deployed?

Implementation is not limited by organization size or geography. In fact, offices or departments separated by geography or time zones may find the tool most useful to aid in coordination. The technology could be broadly deployed across government offices.

Market Readiness (20 points)

The All selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

14. What specific actions would another organization need to take along each of the following dimensions to adopt this innovation?

Check boxes that apply	Dimensions	Please describe:
<input checked="" type="checkbox"/>	Gaining executive leadership support	Value is easily demonstrated to leadership.
<input type="checkbox"/>	Measuring performance (e.g. benefits documentation)	Click or tap here to enter text.
<input checked="" type="checkbox"/>	Improving technology understanding	Training is plentiful and accessible.
<input checked="" type="checkbox"/>	Overcoming financial constraints	Minimal financial investment required.
<input type="checkbox"/>	Addressing legal issues (if applicable) (e.g., liability and intellectual property)	Click or tap here to enter text.
<input checked="" type="checkbox"/>	Acquiring in-house expertise	Training available and brief. Internal expertise is easily shared.
<input type="checkbox"/>	Resolving conflicts with existing regulations and standards	Click or tap here to enter text.
<input type="checkbox"/>	Other Challenges	Click or tap here to enter text.

15. What is the estimated cost, effort, and length of time required to deploy the innovation in another organization?

Please describe:

Cost: Costs vary depending on the type of Smartsheet licenses selected. Standard business licenses are available for \$25 per user.

Level of Effort: Low to moderate level of effort is required. Training, including videos, is plentiful through the Smartsheet website and on-site training is also available.

Time: 4 hours of training and 8 hours of data input and set up

16. To what extent should the implementation of this innovation require the involvement of third parties, including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

The purchase of licenses is the only required involvement by a third party, although Smartsheet representatives can also assist with training, information and best practices. The tool is intuitive and requires minimal training for set up. One trained "super user" on staff can help train others and provide on-site advice.

Weekly Claim & RFA Dashboard



Duration	Primary
6/21/19-6/27/19	Summary

[Click image above for detailed data](#)

Claims

\$3,697,503

Claims Amount

31

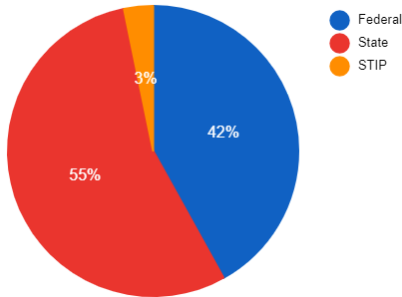
Approved

4.6

Turnaround Time
(Calendar Days)

2

Total Returns/Holds



**Expiring 2014 funds were priority to approving claims this week.*

Requests for Aid

\$2,249,159

RFA Amount

4

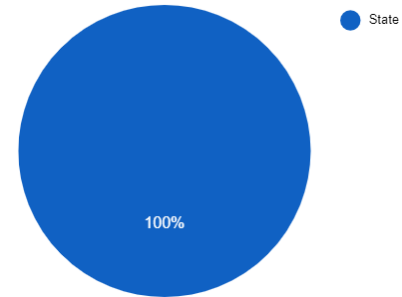
Approved

22.5

Turnaround Time
(Calendar Days)

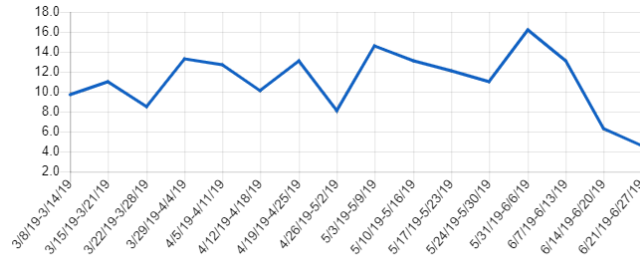
4

Total Returns/Holds

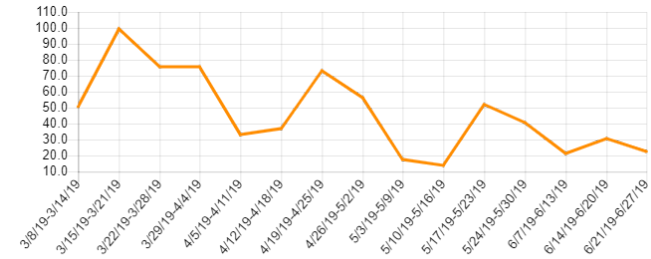


**Workflow from the date Sponsor pins application to DOT fiscal L3 approves agreement.*

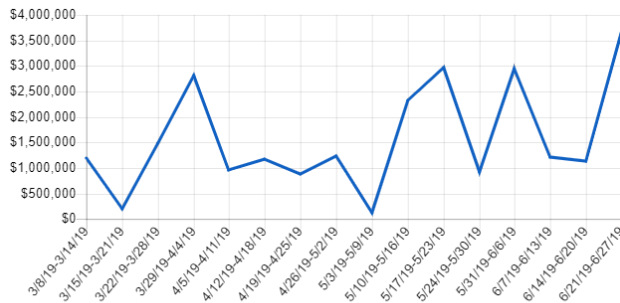
Claim Turnaround Time Trend



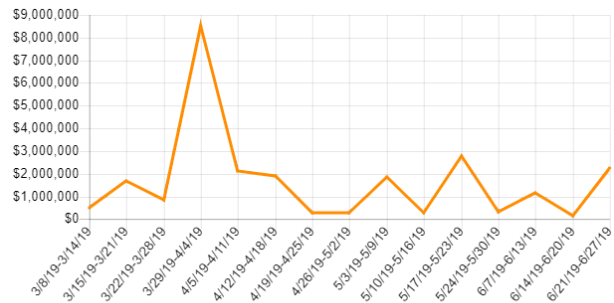
RFA Turnaround Time Trend



Claim Amount Trend



RFA Amount Trend

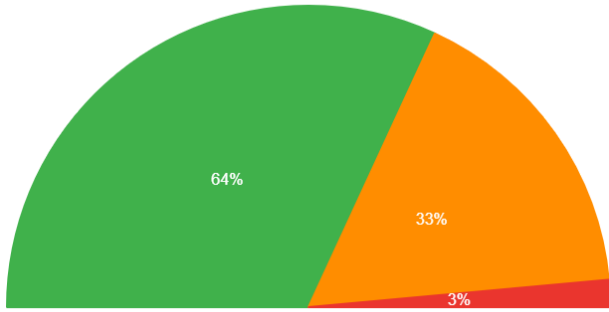


Division of Aviation Risk Assessments

Completed Risk Assessments

Primary	Risk Rating
ALBERT J ELLIS	NOMINAL
ANSON COUNTY (Jeff Cloud Field)	MODERATE
ASHE COUNTY	NOMINAL
ASHEBORO REGIONAL	NOMINAL
ASHEVILLE REGIONAL	NOMINAL
AVERY COUNTY/ MORRISON FIELD	MODERATE
BURLINGTON-ALAMANCE REGIONAL	NOMINAL
CAPE FEAR REGIONAL	NOMINAL
CHARLOTTE-DOUGLAS INTERNATIONAL	NOMINAL
CHARLOTTE-MONROE EXECUTIVE	MODERATE
CLINTON-SAMPSON COUNTY	NOMINAL
COASTAL CAROLINA REGIONAL	MODERATE
COLUMBUS COUNTY MUNICIPAL	NOMINAL
CONCORD REGIONAL	NOMINAL
CURRITUCK COUNTY REGIONAL	NOMINAL
CURTIS L. BROWN, JR. FIELD	NOMINAL
DARE COUNTY REGIONAL	NOMINAL
DAYTON COUNTY	NOMINAL

Overall Risks by Status



2019 Key Metric Data

Cash Flow Report					
Avg Agreements	Avg Claims	Avg Delta	Total Agreements	Total Claims	Total Delta
\$1,041,479.19	\$847,092.95	-\$194,386.23	\$294,738,610.18	\$239,727,306.22	-\$55,011,303.96

70
Avg Days NTP to First Claim

148
Avg Days Last Interim to Final Claim

71
Projects Closed during SFY2019

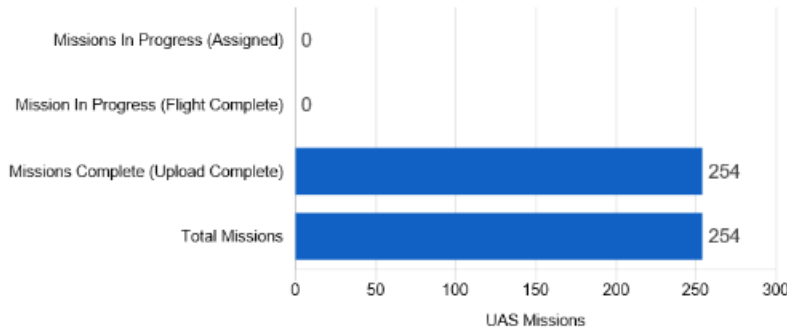
UAS Florence Missions
 Division of Aviation
 N.C. Department of Transportation



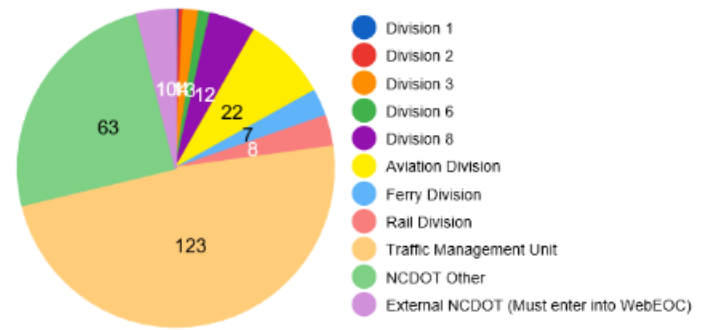
UAS Mission Workflow: Not Assigned -> Assigned -> Flight Complete -> Upload Complete

Mission Status and Business Unit Breakdown

UAS Missions - Florence



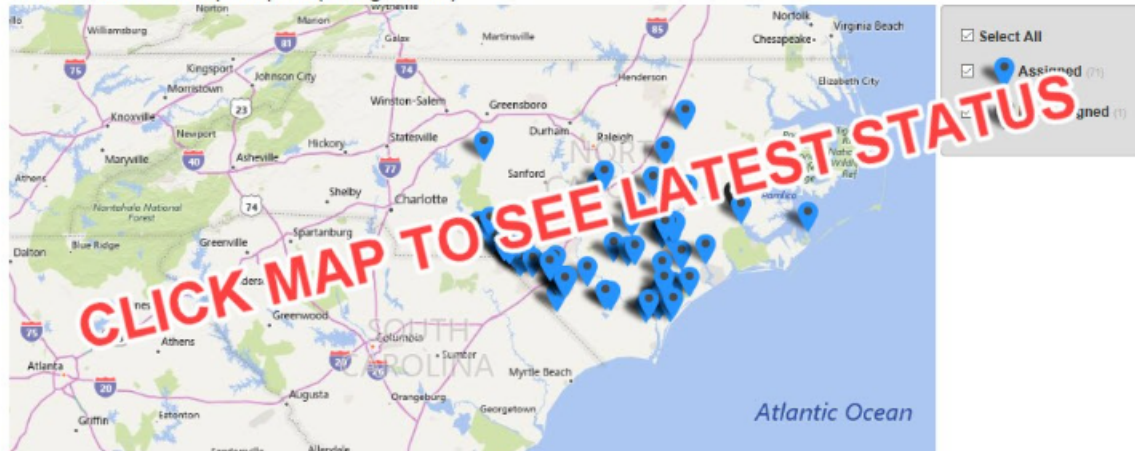
UAS Missions by NCDOT Unit - Florence



UAS Missions - in Progress (Cumulative)

[Click Image to See Active UAS Missions!](#)

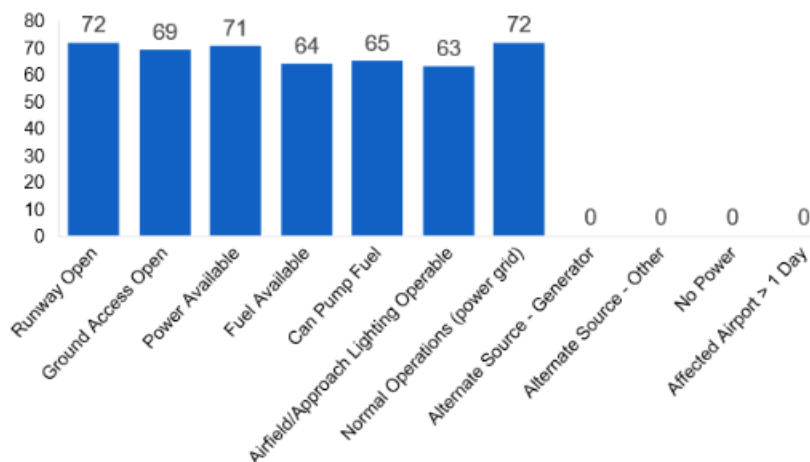
UAS Missions - Map Report (Assignment)



Hurricane Florence Airport Updates and Information

Division of Aviation
North Carolina
Department of Transportation
State Emergency Operations Center

Current Status for All Airports



Search FAA Notices to Airmen

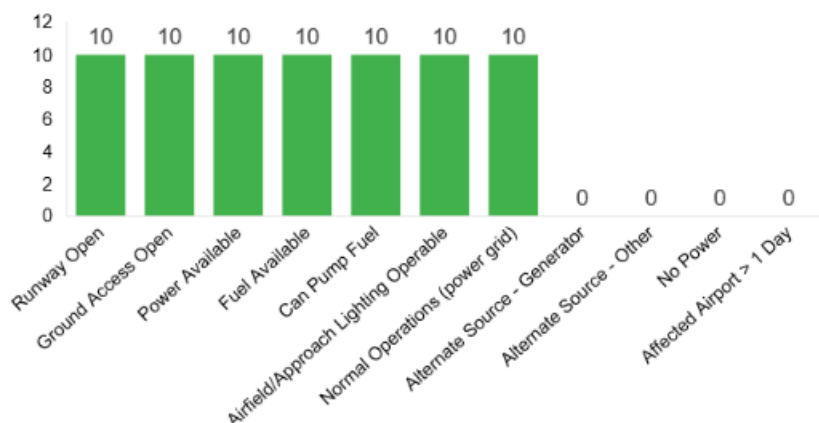


Links to Maps:

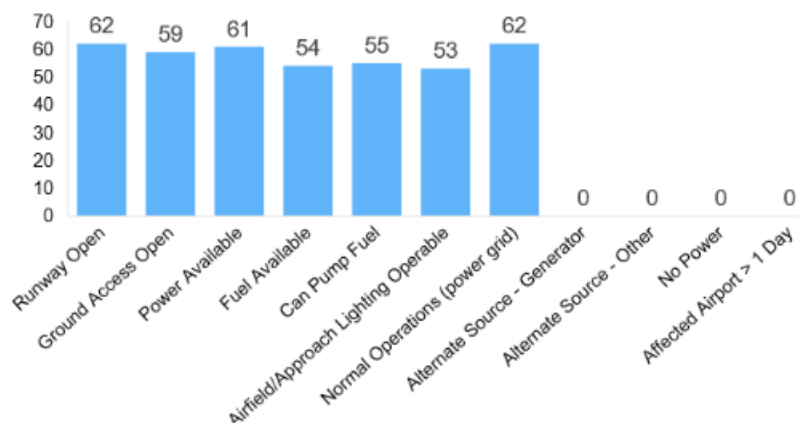
- [Dynamic Airport Status Map \(Dashboard Data\)](#)
- [NCDOT Facility Status Map - Hurricane Florence](#)

See All Airports Latest Status Update Table Below for Status of Fuel Available at each Airport

Commercial Airport Status (10 Airports)



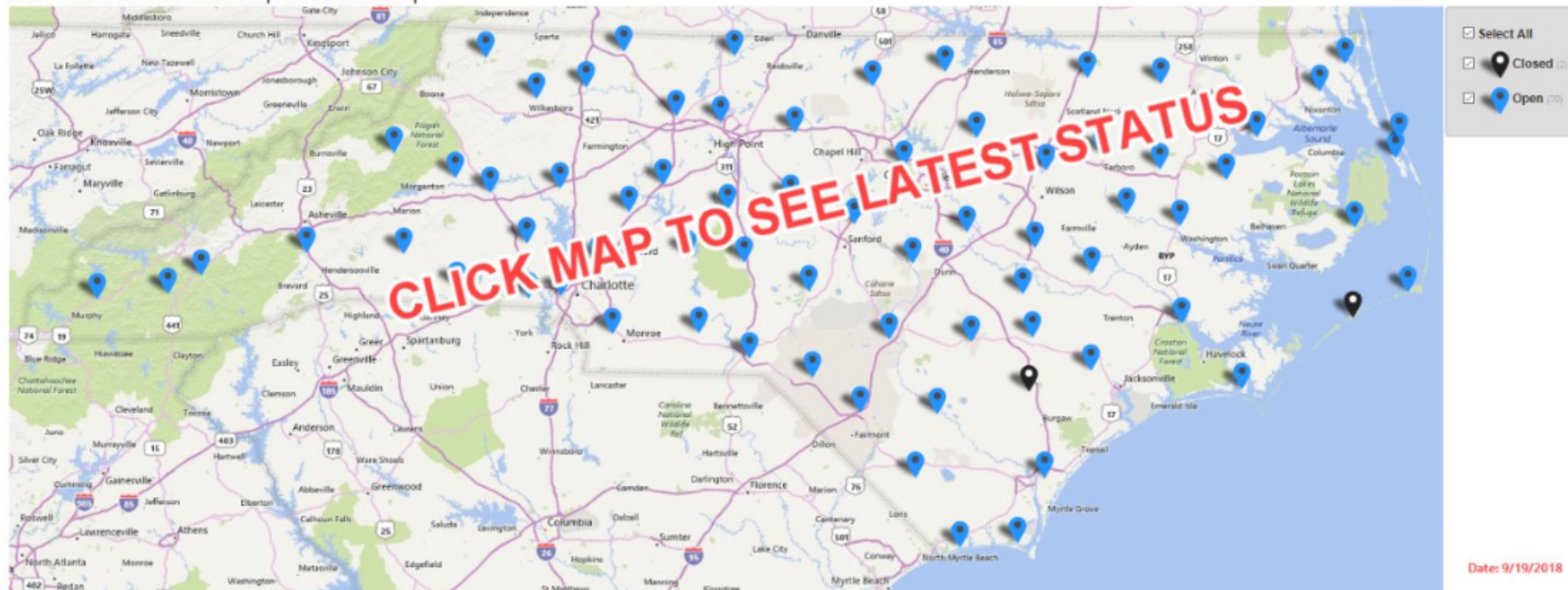
GA Status (62 Airports)



All Airports Latest Status Update

Click Image for Dynamic Map of Airport Status

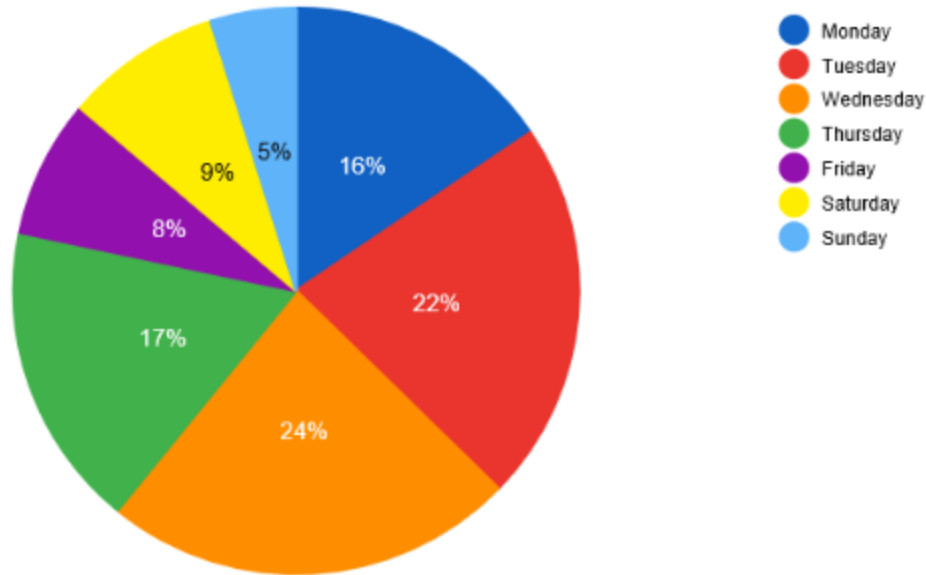
Hurricane Florence N.C. Airports Status Map



Airport_Name	Back to Normal Operations	Date Submitted	Commercial Service	Person Submitting Information	Best method of contact	Comments	AvGas_Available	JetA_Available
AVL - Asheville Regional Airport	Yes	09/18/18 3:26 PM	<input checked="" type="checkbox"/>	Jonathan Cox	828.684.4577	n/a	7863	
CLT - Charlotte Douglas International Airport	Yes	09/16/18 2:43 PM	<input checked="" type="checkbox"/>	Coy Almond	cralmond@cltairport.com		13000	5
EWN - Coastal Carolina Regional Airport	Yes	09/21/18 10:10 AM	<input checked="" type="checkbox"/>	Andrew Shorter	2526702001		3000	
FAY - Fayetteville International Airport	Yes	09/19/18 9:36 AM	<input checked="" type="checkbox"/>	Robert Dean Hammon	910-433-1624		6000	
GSO - Piedmont Triad International Airport	Yes	09/14/18 4:08 PM	<input checked="" type="checkbox"/>	Benjamin Rodkey	rodkeyb@gsoair.org		9700	
ILM - Wilmington International Airport	Yes	09/24/18 9:58 AM	<input checked="" type="checkbox"/>	Gary L. Taylor	910-233-1390	As of 9/26/18 Airport Open to commercial and Private operations, working through repairing administrative offices and terminal due to storm wind & Rain. Some airfield navaids are out due to wind, rain, or flooding.-TM	9500	
JQF - Concord Regional Airport	Yes	09/17/18 2:42 PM	<input checked="" type="checkbox"/>	Frank Demorow	704-516-0899		8000	

Passenger Ferry 2019

Day of Week Popularity: Passengers



Passenger Counts:
21705



Bicycle Counts:
1303

Last Date Reported:
08/01/19

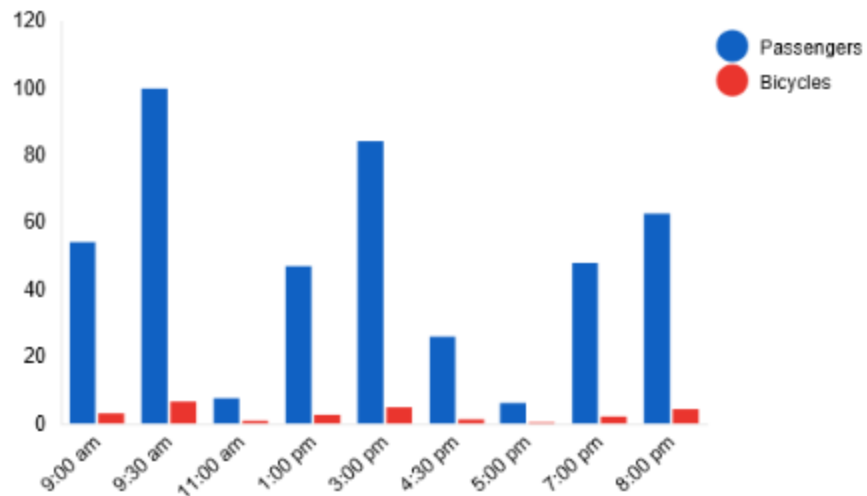
Bogo Counts: **150**

Last Time Reported:
9:30 am

[Route Daily Summaries](#)

[Passenger Ferry Per Trip](#)

Time of Day Popularity



Day of Week Popularity: Bicycles

