

Procedure on Critical Aircraft

Background

Critical aircraft is defined by the FAA as the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport. Also called “design aircraft” or “critical design aircraft,” the critical aircraft type is used by planners and others to determine the airport design standards for a specific runway, taxiway, taxilane, apron, or other facility on an airport. “Regular use” is defined as 500 annual operations or more, including both itinerant and local operations but excluding touch-and-go operations. An operation is a takeoff or a landing. The critical aircraft can be a specific aircraft model or a composite of several aircraft with “similar characteristics” using or expected to make regular use at the airport or part of the airport.

Procedure

Acting as an agent of the FAA under the State Block Grant Program, NCDOT Aviation will review and approve forecasts in accordance with FAA Advisory Circular (AC) 150/5070-6, AC 150/5000-17, AC 150/5100-21 and the FAA Forecast Review and Approval Instructions Memorandum dated August 2024.

In forecasting aviation demand, existing activity at the airport as well as activity that’s projected to be at the airport within the planning horizon should be considered. In accordance with section 5 of the FAA Forecast Review and Approval Instructions, planning forecasts at low-activity General Aviation (GA) airports with less than 90,000 annual operations may be streamlined to focus only on analysis of the existing and future critical aircraft by runway. Aviation forecasts must be based on operational data. At airports without an airport traffic control tower (ATCT), sources of aircraft operations data that may be used in forecasting and critical aircraft determinations could include:

- **FAA Traffic Flow Management System Counts (TFMSC).** Completed Instrument Flight Rules (IFR) flight plan data is available for most airports, either towered or non-towered, from the FAA’s Aviation System Performance Metrics web site. IFR counts of jet and turboprop operations are considered representative of the total operations of these aircraft characteristics, which nearly always operate on IFR flight plans. This is useful for critical aircraft determinations, since jets and turboprops are often the most demanding aircraft types operating at a GA airport.
- **Counts from an airport operations data service prequalified with NCDOT Aviation.** Operations data services must provide automated, continuous 24/7, all-weather, real-time access to flight operations data, including aircraft landings and takeoffs. Services must record 90% or better of landings to and takeoffs from runway pavement by equipped (ADS-B) fixed-wing aircraft. Each recorded aircraft operation with ADS-B data should identify its associated Aircraft Design Group (ADG), as defined by the FAA. NCDOT Aviation will partner with GA airports in North Carolina to provide regular counting services through the [TALONS program](#).
- **Airport or aircraft operator reports.** Aircraft landing fee reports, fuel sale records, aircraft operator logs, etc., may be used if developed with a reliable and consistent methodology for data collection. To be useful, logs/reports would need to record the aircraft make and model. NCDOT Aviation will review operator logs/reports, including methodology, on a case-by-case basis for consideration in forecasting.

- **Letters of intent or support from airport users.** The sponsor may submit letters of support or intent from airport users to aid in projecting future activity. Letters must describe in detail the airport user and include quantifiable data (i.e., activity volume and aircraft type/size). NCDOT Aviation will consider letters of intent on a case-by-case basis for consideration in forecasting.

Changes in Critical Aircraft

NCDOT Aviation recognizes that the most recently approved Airport Layout Plan (ALP) for some airports in North Carolina may report a critical aircraft that is not supported by documented operational counts that meet the regular use threshold of 500 annual operations. NCDOT Aviation also recognizes there may be airports with existing facilities that were built to previously justified standards.

In updating the forecast of aviation demand for an airport, either through an ALP/Master Plan Update, or a project justification study, the designation of existing and future critical aircraft on ALP drawing sets must be in accordance with AC 150/5000-17 regardless of the size of as-built facilities and regardless of the critical aircraft shown on any previously approved ALP/Master Plan. NCDOT Aviation recognizes this may result in a change in the critical aircraft for multiple airports across the state and provides the following assurances to aid in this transition:

- ➔ NCDOT Aviation will support maintenance of existing/as-built facilities at airports.
- ➔ A change in critical aircraft does not affect the charts or guides for your airport and should not affect transient traffic use since flight plans are based on existing facility assets.
- ➔ A change in critical aircraft will not result in any immediate material changes at your airport. There will be no requirement to redesign or remove any existing facilities.
- ➔ A change in critical aircraft will not alter your current growth trajectory. You may continue to propose projects in your ALP/Master Plan that are currently unjustified, but which represent the desirable ultimate condition. Please keep in mind the ALP/Master Plan does not provide project justification.
- ➔ NCDOT Aviation may choose to install new facilities at a safety standard that is higher than the critical aircraft based on individual project needs and justification.

The critical aircraft determination is a key consideration in FAA and NCDOT Aviation decision making on project justification, but it does not alone establish justification for federal or state funding.

An airport may update its planning forecast at any time if it feels a significant shift in traffic can be documented.

Resources

FAA Advisory Circular (AC) 150/5000-17, *Critical Aircraft and Regular Use Determination*

FAA AC 150/5070-6, *Airport Master Plans*

FAA Forecast Review and Approval Instructions Memorandum, August 2024

FAA Operations and Performance Data: <https://aspm.faa.gov/>

FAA Runway Design Standards Matrix for AC 150/5300-13 Office of Airports:
https://www.faa.gov/airports/engineering/airport_design/rdsm