

Rules & Regulations for Aerial Surveying in North Carolina with Unmanned Aerial Systems (UAS)

Requirements to Operate a UAS in North Carolina

The NCDOT Division of Aviation has the responsibility to ensure safe and legal UAS operation in North Carolina. This is achieved through a permitting process that includes possessing a Federal Aviation Administration (FAA) Airman Certificate, passing the NCDOT UAS Knowledge Test, and registering the UAS through the FAA's UAS website. Please see:

- <https://www.ncdot.gov/aviation/uas/>
- <https://www.ncdot.gov/divisions/aviation/uas/Pages/laws-regulations.aspx>
- <https://www.ncdot.gov/divisions/aviation/uas/Pages/government-operators.aspx>
- <https://www.ncdot.gov/divisions/aviation/uas/Pages/commercial-operators.aspx>

Land Surveying in North Carolina

The practice of Land Surveying in North Carolina is set forth in [General Statute 89C-3\(7\)](#) which in part defines land surveying as:

- “Determining the configuration or contour of the earth's surface or the position of fixed objects on the earth's surface by measuring lines and angles and **applying the principles of mathematics or photogrammetry**”
- “Creating, preparing, or modifying electronic or computerized data, including land information systems and geographic information systems relative to the performance of the practice of land surveying”

General Statute 89C-3(7) does not specify whether the aerial photography or aerial LiDAR data was acquired using a manned aircraft or unmanned aircraft. **It is platform neutral, so it applies to products generated from imagery or LiDAR collected with UAS.**

A derived survey product has coordinates and can be used to perform accurate, reliable measurements. Examples of derived survey products from sensors on manned or UAS platforms are orthophotos, orthomosaics, point clouds, LAS files, elevation data such as digital terrain models or digital elevation models, topographic and planimetric mapping, and 3-D models such as reality meshes.

This is considered the practice of Land Surveying in North Carolina, and as such, is regulated by the North Carolina Board of Examiners for Engineers and Surveyors (NCBEES) which requires the provider of these materials to be a properly licensed North Carolina Professional Land Surveyor. Please see:

- <http://www.ncbels.org/> (NCBEES Newsletters published in [Fall 2017](#) and [Spring 2016](#) address rules and regulations when aerial surveying with UAS)
- [NCBELS Rule 21 NCAC 56 .1606](#) - Specifications for Topographic and Planimetric Mapping, including Ground, Airborne, and Space borne Surveys
- [NCBELS Policy BP-0510-2](#) - Oblique Aerial Imaging Policy
- [NCBELS Policy BP-1007-2](#) - Volume Computation Surveys Policy