



# LOCATION and SURVEYS UNIT

NCDOT Technical Services Division



**The Location & Surveys Unit provides engineering and geomatics analysis, surveying, mapping and other data for NCDOT units and other state agencies that precede and support land acquisition, infrastructure design and construction.**

We bring extensive in-house knowledge and experience with state transportation projects and processes. With offices conveniently located in all 14 NCDOT Divisions, we deliver timely response, easy project scoping and streamlined communications.

Location and Surveys staff use the latest technologies and apply best professional engineering and surveying practices consistent with all laws and regulations governing North Carolina's highway system.

Our close working relationship with the North Carolina Geodetic Survey and North Carolina Emergency Management streamlines interagency coordination. We maintain limited-service agreements with private engineering firms that can support your projects.

Call on the Location and Surveys Unit for support with every project phase, from early project planning through design, right-of-way acquisition and construction.

## Contact

[LocationSurveysContactUs@ncdot.gov](mailto:LocationSurveysContactUs@ncdot.gov)

[connect.ncdot.gov/resources/location/pages/](https://connect.ncdot.gov/resources/location/pages/)



## Services

- Aerial mapping, video, photography, assessments
- Base mapping
- Deed descriptions
- Digital terrain models
- Geodetic network controls
- Hydrographic surveys
- LiDAR surveys
- Localized horizontal and vertical project control
- MAP Act exhibits
- Photogrammetric controls
- Preliminary design surveys
- Property condemnation maps
- Right of way staking/monumentation
- Right of way plan sets
- Sonar/Bathymetric surveys

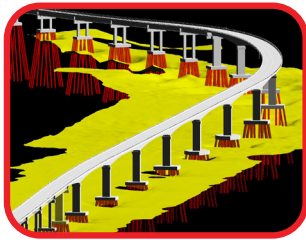


# PROJECT EXAMPLES



## FULL SURVEYS OF LARGE ECONOMIC DEVELOPMENT PROJECT SITES

The Location and Surveys Unit's Central Region developed full surveys of a 300-acre parcel at Piedmont Triad International Airport selected by Boom Supersonic for its aircraft manufacturing facility three months after the project kickoff meeting to meet an accelerated timeline. The full surveys used photogrammetry, QL2 LiDAR, unmanned aerial vehicle technology, mobile LiDAR and conventional survey methods to survey the parcel. It included 29 lane miles of interstate roadway, 44 properties, 150 drainage structures, 1.5 miles of creeks, wetlands and underground utilities.



## 3D IMAGING AND BATHYMETRIC SURFACE MODELING OF MARINE ENVIRONMENTS

The unit's East Region used mobile, terrestrial and marine LiDAR to develop a three-dimensional view of the dynamic scouring environment around the Basnight Bridge at Oregon Inlet and its effect on the structure's individual pile embedment. A bathymetric surface model was developed using sonar technology aboard the team's 25-foot sonar vessel.



## STRUCTURE INVENTORY AS-BUILTS

The unit's Terrestrial LiDAR Scan Group contracted surveys for as-built dimensions for 132 signs of varying sizes, including overhead sign structures on interstates. Lettering and overall panel sizes were obtained with measurements to the nearest 1/8 of an inch. Due to the utilization of a terrestrial static scanner, all survey personnel were stationed safely on the road shoulder and all fieldwork was completed without the need for lane use closures or extensive traffic control devices.



## 3D DIGITAL TERRAIN MODELING OF CRACKED ROADWAY

The unit's West Region identified the best applicable technology and contracted with a highly skilled on-call firm to utilize a hybrid LiDAR drone to obtain and provide a three-dimensional digital terrain model of the Cowee Mountain area plagued by roadway cracks due to an ancient landslide. The team completed the modeling in record time, saving the department time, money and resources when compared to conventional survey methods.

