

QL2/QL1 LiDAR Collection



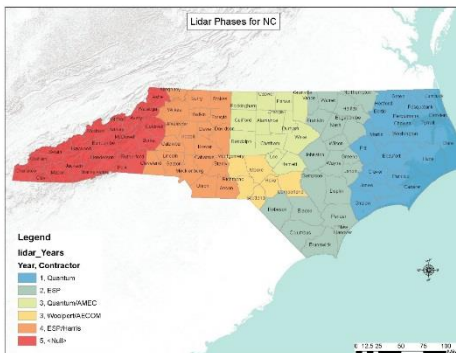
Risk Management

2014 to 2018

Quality Level 1 & 2



QL2/QL1 LiDAR Collection 5 phases



North Carolina Risk Management Office in Coordination with NC Department of Transportation and other partners is in the midst of a statewide collection of LiDAR. The project is being completed in 5 phases. Phases 1-3 were done with a linear aerial sensor (traditional), collected at 2 points per meter in 2014. All data includes multi-return and intensity values and is collected to support a 9.25 cm or 3.36 inches RMSEz for Non Vegetated areas based on NDEP guidelines. Phase 4 is utilizing the new Geiger technology. This allows for a 30 meter post spacing collection with 8 points per meter being processed and delivered. All data includes intensity values and is collected to support a 9.25 cm or 3.36 inches RMSEz for Non Vegetated areas based on NDEP guidelines.

Specifications:

- Specification documents include:
1. USGS Lidar Base Specifications

- Note there was an update to this specification during the 2014 project. Version 1.0 was used for 2014, version 1.1 was used for all other collections.
 - Note there are technological differences in the Geiger sensor that do not meet the specs however all were exempted by NC for the collection
2. ASPRS Guidelines Vertical Accuracy Reporting for Lidar Data
 3. North Carolina Technical Specifications for Lidar Base Mapping. Secretary of State
 - a. Because this specification mirrors the USGS there are several specs that cannot be met by the new sensor. These are non-issues because of the technological differences in the sensors.

match the original class descriptions for the sake of consistency throughout the state.

Other Products:

DEMS, Terrain Datasets by county, and Metadata will be available for all phases. Some minor deliverable differences.

Validation:

All flights will be validated over Wake County. All data is approved before any flights are accepted. Vertical Quality control is done for all deliverables using independent, field collected survey. Data is also run through a series of automated checks on density, road comparisons, noise points, miss-classifications, and road classification. Information will be delivered in NC State plane feet and tiled to the NC statewide tiling scheme.

Projection:

All geospatial deliverables were produced in NAD83 (2011) North Carolina State Plane Coordinate System, US survey feet; NAVD88 (Geoid 12A), US survey feet. Data for Phase 4 will be in Geoid 12B.

Classification:

Class Description	
1	Default
2	Ground
3	Low Veg/Strata**
4	Medium Veg/Strata**
5	High Veg/Strata**
6	Buildings (Automated)
7	Low Points
9	Water (Hydro Cleaned Areas)
10	Breakline Proximity
11	Withheld (high points)
13	Roads
14	Bridges
17	Overlap Default
18	Overlap Ground
25	Overlap Water

There are 13 levels of Class description defined to the right of the page. There have been several changes in USGS specification during the phases. All deliverables will

LiDAR Deliverables:

Deliverables for this product will include:

1. LAS Format deliverables of all return data with classification levels defined- All Phases
2. Tiling Scheme
 - a. LAS delivered in Statewide 5k tiling scheme (Phase 1-3)
 - b. LAS delivered in Statewide 2500k tiling scheme (Phase 4-5)
3. Hydro-Breakline files to USGS specs (200 acres or 100 ft across) (All Phases)
4. Dems in ESRI grid format
 - a. Phase 1-2: 5 foot dem, 10 foot dem, 20 foot dem, and 50 foot dem
 - b. Phase 3: 3 foot dem, 10 foot dem, 20 foot dem, and 50 foot dem
 - c. Phase 4: (future) 3 foot dem, 10 foot dem, 20 foot dem, and 50 foot dem
5. Terrain Datasets by county
6. Intensity imagery for area (8-bit, GeoTiff, 10 foot raster cell size)
7. Metadata to FGDC standards for point cloud
8. QA/QC report from contractors for internal QC

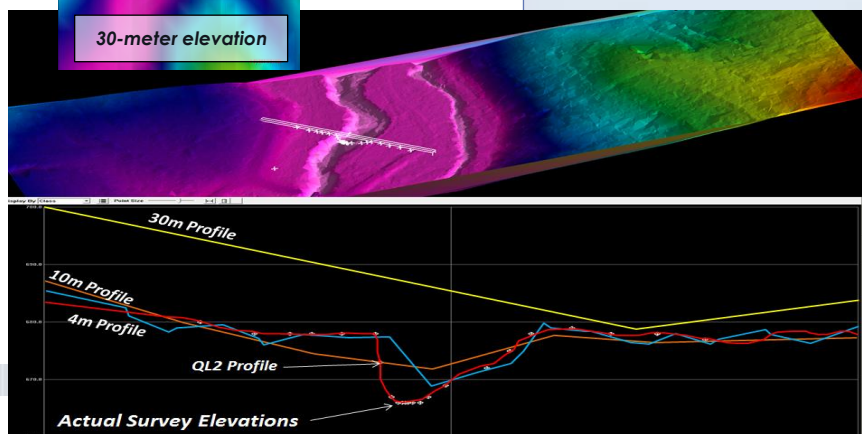
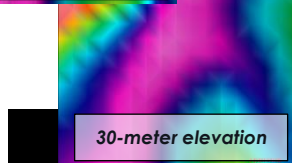
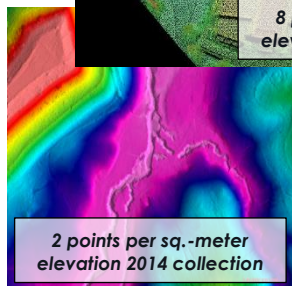
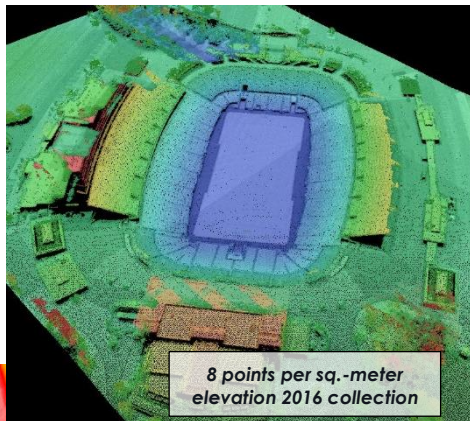
QC Control Collection

North Carolina Geodetic Survey will provide Independent QC for the collection. No less than 40 points of field collected survey per county, determined by the area of the county. Points collected within that area are collected based on a percentage of land cover to include:

- Bare earth/open terrain/low grass
- Urban
- High grass and crops
- Scrub-shrub/brush vegetation
- Forested and Fully Grown

These points provide the control for the State independent QC completed by NC Geodetic Survey. These reports are provided with the data for public distribution when the product is finalized. All information can be found on the North Carolina Geodetic Survey Site.

<http://www.ncgs.state.nc.us/Pages/Library.aspx>



Spatial Data Download



<https://rmp.nc.gov/sdd/> is online and available. Currently Phase 1 and 2 are available for download on the site, phases 3 will be available by the end of April. With this site there is the ability to download smaller areas of lidar data up to 5 acres. The data can be selected by tile or the tool will clip the data by box or area if interest. This will be helpful if you are working in a smaller area that crosses tiles. This will also assist by not requiring a specific type of software you will be able to use the data with any software that will work with .las files. If you need larger dataset you can do a large data request, send us a drive and we will provide the information. We are updating this tool to soon provide all the information from the legacy lidar data as well as data currently available from the FRIS site.