

# High-resolution LIDAR for Cape Cod

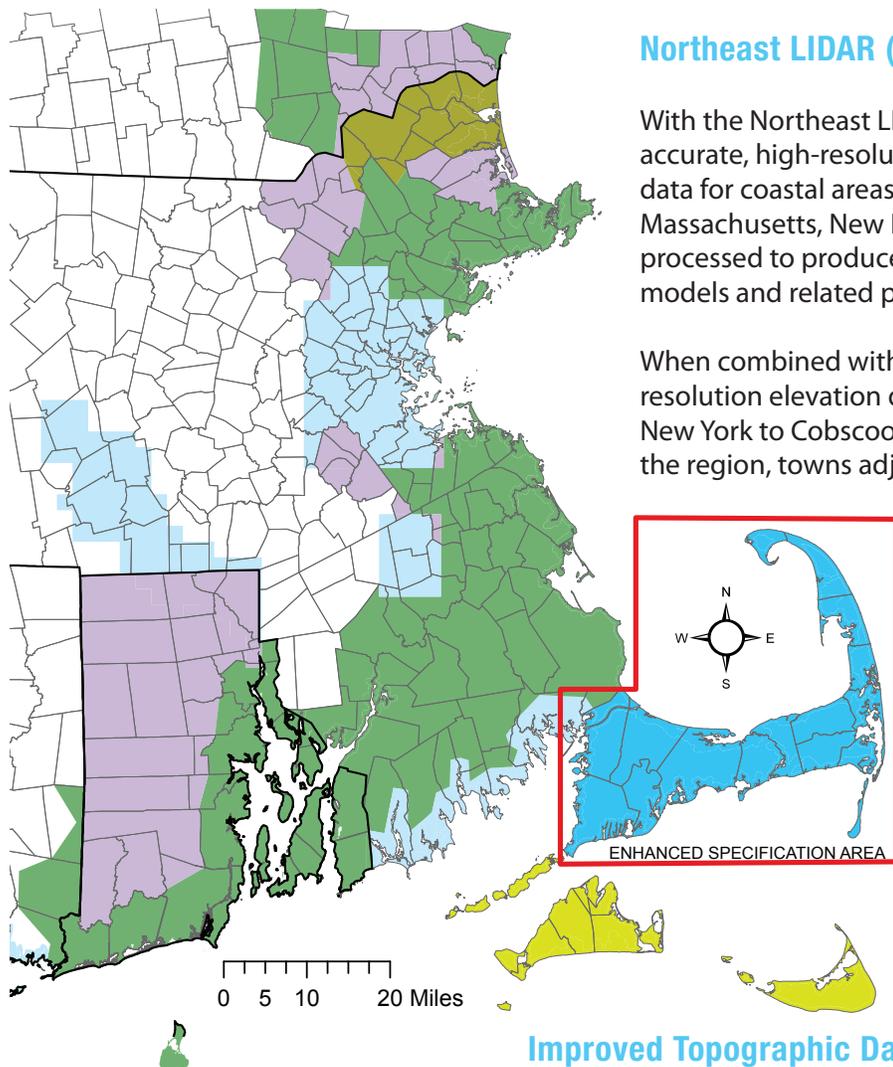
## Northeast LIDAR (NELIDAR) Project

With the Northeast LIDAR project, the USGS will acquire accurate, high-resolution Light Detection and Ranging (LIDAR) data for coastal areas of New York, Connecticut, Rhode Island, Massachusetts, New Hampshire and Maine. The LIDAR data will be processed to produce a classified point cloud, bare-earth elevation models and related products.

When combined with existing data, the project will yield high resolution elevation data for a continuous swath from Manhattan, New York to Cobscook Bay, Maine including all coastal towns in the region, towns adjacent to major tidal rivers, and other areas deemed important to the project partners.

The project will produce LIDAR data and elevation products for areas totaling 8,227 square miles. Project partners will provide data covering an additional 4,582 square miles for a total project area of 12,809 square miles.

All of the data will be compiled for submission to the National Elevation Database (NED) and the Center for LIDAR Information Coordination and Knowledge (CLICK).



## Improved Topographic Data

The topographic data currently available for much of the Massachusetts coastal region is inadequate for analysis of site-based coastal water resources, their threats and opportunities for conservation. Improved topographic data would save money and time required to obtain measurements of tidal basins and infrastructure.

Such data would also help landowners and government agencies to develop conservation plans, create and restore wetlands, restore and manage other natural ecosystems, as well as advise on stormwater remediation, nutrient and animal waste management and watershed planning. The collection of improved topographic data supports the mission of the USDA Natural Resources Conservation Service (NRCS).

 Towns

### NELiDAR project areas

#### LiDAR collection status

-  NELiDAR (ARRA-funded)
-  NELiDAR (State/federal govt-funded)
-  NELiDAR (NRCS-funded)
-  LiDAR data exists
-  Non-NELiDAR project underway
-  UNH/MBL-funded collection

more on reverse 

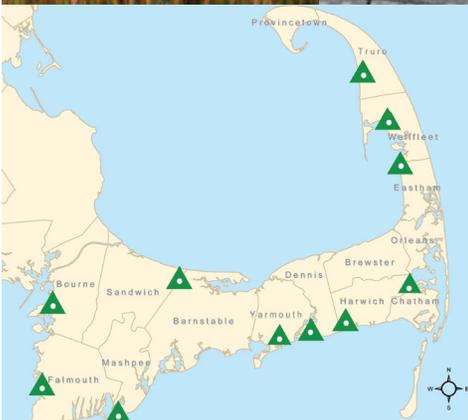
## Enhancements for Barnstable County, Massachusetts

### Supplemental Ground Control



Mutually committed to applying sound scientific methods, NRCS and the Commonwealth of Massachusetts are collaborating to gather supplemental ground elevation data on Cape Cod.

In marshland vegetation, these data will help provide confidence measures essential for volumetric calculations of salt marsh drainage basins and for the development of wetland restoration plans.



Ground Control Point (GCP) collection sites

The NELIDAR project consists of two phases. Phase 1 is funded by a \$1.4 million USGS American Recovery and Reinvestment Act grant. The Phase 2 work is being paid for by a consortium of non-profit, state and federal agencies. The consortium funds LIDAR acquisition and product development for adjacent areas and enhanced-specification products within the greater project area. As part of Phase 2, NRCS Massachusetts is funding the acquisition of enhanced-specification LIDAR for Barnstable County, Massachusetts.

The base specifications and deliverables required are detailed in the USGS National Geospatial Program Base LIDAR Specification (Version 12).

The Barnstable County enhancements include:

1. A higher nominal pulse spacing (NPS) of 1.0 meter;
2. Increased vertical accuracy of 9.25cm RMSE<sup>2</sup>;
3. Tidal coordination of acquisition flights to meet a 'MLT +/- 90 minutes' standard where flights are not to occur during 'neap tide' weeks;
4. A 1-meter resolution Bare Earth Digital Elevation Model (DEM).

In addition to the normal USGS LIDAR distribution systems, the Barnstable County LIDAR dataset will be served online by NRCS using state-of-the-art Qcoherent LIDAR Server and Silverlight technologies. These enhanced delivery tools will allow users to view and access the datasets faster at [www.ma.nrcs.usda.gov/LIDAR](http://www.ma.nrcs.usda.gov/LIDAR).

To comply with their key mission goals, several public agencies await completion of the Barnstable County LIDAR dataset:

- Cape Cod Conservation District
- Federal Emergency Management Administration (FEMA)
- Massachusetts Office of Coastal Zone Management
- National Oceanic and Atmospheric Administration-National Geodetic Survey (NOAA-NGS)
- U.S. National Park Service
- USGS Woods Hole Coastal and Marine Science Center

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