

Managing Digital Survey Maps

The majority of the records a land surveyor uses in his work can now be obtained in a digital format. The trend toward digitization will continue as organizations that maintain these records migrate more of their own work processes from hard copy documents to digital files. How does this migration to digital land records impact land surveyors? How can land surveyors benefit from implementing their own system of managing digital land records? What are the challenges to implementing this type of system? What future opportunities for land surveyors do digital land records present? This article will try to provide answers to these questions.

— by **Landon Blake**

What are filed survey maps?

A filed survey map shows the final results of a land surveying process in a graphical format, usually on a map. Examples are (1) the resolution and monumentation of an existing parcel boundary; (2) subdivision of an existing parcel; and (3) location of a natural monument such as the ridge line that forms the boundary between two counties. Filed survey maps are typically filed with the County Surveyor and a copy is recorded with the County Clerk and Recorder. In California, "Record of Survey Maps," "Parcel Maps," and "Subdivision or Tract Maps" are all examples of filed survey maps. Many County Surveyor offices still maintain hard copies of all their filed survey maps. These hard-copy maps were the mainstay of the old land records management system.

The old records management system

Previously, a land surveyor would typically travel to the County Seat to perform research using the hard-copy map index maintained by the County Surveyor. The surveyor would pay for paper copies of the maps he thought were relevant to his project. He would then take the maps back to his office. When they were no longer needed, the maps would be stored in the project files. Ideally, the hard-copy maps would be placed in a central storage area at the office so that they may be used by other surveyors.

The modern records management system

The modern system for managing filed survey maps focuses on the acquisition, storage, and indexing of digitized not hard-copy maps. The digital maps are often in a PDF or TIFF format. Many surveyors can export these digital files directly from their CAD software and review them without printing the maps.

Component #1: Acquisition

The first component of the modern system for managing filed digital survey maps is acquiring the maps. In many

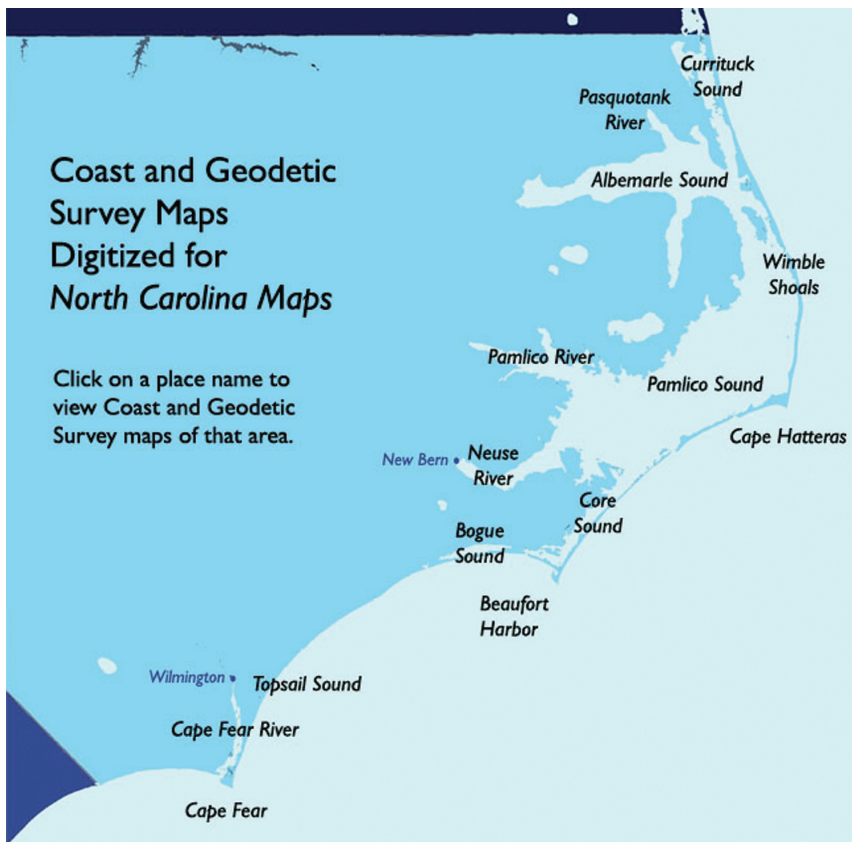
jurisdictions, land surveyors can obtain digitized maps from the government agency that maintains them. The maps may be made available for download individually or as groups from the internet. Other jurisdictions package their maps on CD or DVD on a regular basis and make them available to the land surveying community and the public. In jurisdictions where digital copies of filed survey maps are not available, land surveyors can use scanners or cameras to acquire their own digital images of the maps.



Preparing to digitize Durham, NC, map. [dukenews.duke.edu]

Component #2: Storage

The second component is storing the maps. Implementing a management system for filed digital survey maps often means replacing large file cabinets with servers or with personal computers. Because filed digital survey maps are often acquired and stored in raster (or image) format, the



Coast & Geodetic Survey Maps [lib.unc.edu]

Benefits of digitizing survey maps

There are three primary benefits of the modern land records management system.

- (1) The time required to acquire filed survey maps is reduced.
- (2) It is easier to index and subsequently locate filed survey maps.
- (3) The waste from paying for duplicate hard copies of the same filed survey maps is eliminated.

Challenges

One of the challenges we already mentioned is data storage. Sufficient data storage capacity is a must. Providing such capacity may be expensive but this is often offset by reduced clutter in the office and/or elimination of storage fees. Other challenges to implementing a digital land records management system include the cost of scanning maps if they are not available in digital format from the jurisdiction that maintains such maps, designating a land surveyor or other staff

member to organize the filed survey maps and maintain the index, and ensuring all members of the team adhere to the procedures put in place for locating, indexing, storing, and adding maps to the system.

Conclusions

Migration to digital filed survey maps presents the land surveying community with several opportunities for streamlining workflow. Tech savvy organizations are already taking advantage of several of the opportunities listed below:

- (1) The ability to access and view filed survey maps from mobile devices in the field, during a boundary survey.
- (2) Substantial reduction of ink, paper, and copier costs due to the elimination of paper maps.
- (3) The use of GIS software to analyze trends in map filing in your area of operation. This type of analysis can be used to answer questions such as: What companies are filing the most maps and which type? What areas have the fewest filed survey maps, and which have the oldest? Which areas are the most frequently surveyed?

data storage requirements are large. A land surveying company may maintain their own servers for storing digital maps or it may utilize off-site digital storage services offered by a third party. Small companies may store their files on a single personal computer.

Component #3: Indexing

The ability to quickly locate a filed digital survey map depends on the third component of the land records management system—indexing. One of the most important steps in a boundary survey is obtaining all the evidence of a parcel's boundary location. Survey maps of the parcel filed by previous surveyors are a critical part of this evidence. An index of all pertinent evidence allows the land surveyor to easily locate information relevant to a given parcel and its neighbors. Filed digital survey maps can be used to build this type of index. In some cases the index can link directly to the digital copies of a filed survey map. If this is not possible, the mere fact that surveyors will have access to free geospatial data and open source GIS software makes the establishment and maintenance of a digital filed survey map index a sensible business proposition.

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