

Installment 12 of 12: *The Technology Behind Farmland Protection*

Target publication date: Sunday *18 September 2016*

This article is the twelfth and final post in a year-long series intended to explain how the Berkeley County Farmland Protection Board operates. I've discussed the basics of conservation easements, how applicant properties are rated and scored, what our funding streams are, and what life looks like after an easement goes into effect. I'd like to end this series with a discussion of how we leverage technology in our daily work. This subject involves a story of rapidly changing opportunities, which is what we have all come to expect with technology. If you simply think of how quickly mobile phone technology has changed you will understand how quickly technology has changed in many fields, including those involved with conservation easements. When the first easement for farmland protection went into effect in Berkeley County in 2004, mobile phones were little more than devices to place calls with. No mobile phone back then had a camera and certainly touch screens were only a dream. How things have changed.

The modern smart phone is an extension of an office computer. We use cell phones in our daily work when conducting our annual monitoring visits, or when walking a new applicant property with the land owner. Smart phones are equipped with GPS (Global Positioning System) and when photographs are taken, the GPS coordinates are embedded in the image. Back in the office, the GPS data are extracted from the photographs and used to note the near exact position, on high resolution satellite imagery, where each photo was taken. Often the spatial resolution is better than 20 feet and the vertical resolution may be as good as 10 feet. The high resolution satellite imagery we use is available to everyone. It's simply Google Earth, an incredible and free application that I like to think of as GIS (Geographic Information System) for everyone. You can measure distances or acreage, fly over landscapes, mark property boundaries, or locate the closest gas station using this powerful tool. Sharing this information between users is very easy and we frequently do this when applicant properties are being considered for funding by outside agencies.

Just these two technologies: smart phones and Google Earth remind me of how far we've come in this field. Back in the early part of this new millennium I took photographs using a 35 mm camera with rolls of film, which were then sent off to a developing lab. It could take a week or longer before you received your prints in the mail! We didn't have access to high resolution satellite imagery back then. We used aerial photography taken from planes. Nowadays, using Google Earth, placing the mouse on a point on the image yields the GPS coordinates and the elevation. Layers can be added to the application to help analyze the underlying geology or information about watersheds. Any view in Google Earth can be saved to disk or sent to a printer. The USDA offers a similar web-based application called the Web Soil Survey where you can analyze the soils on a property, again using high resolution satellite imagery. Gone are the days when you went to the local USDA service center and got a copy of a printed soil report for the county. All of that data are now available on line. Our office operations are also moving into the future. Every document of importance is scanned and stored electronically (the originals go to a fireproof safe). We use databases, one tracks information on easements and another tracks applications. Each record tracks data including satellite imagery, soil maps, surveys, and electronic copies of deeds. With a database, we can answer questions quickly. How many acres currently held in easement? (6,516). What's the amount of matching funds received between 2008 and 2011? (\$2,793,609.50). Databases reduce the workload by making it easier to lookup information and ask questions about the data. So we leverage technology in the conservation world, as is done in many businesses, in order to improve the quality of our products and to reduce our costs. However, no matter how much technology we use, it is only a supplement to that enjoyable experience of meeting property owners and walking their land.

So I think it's appropriate to end this year-long discussion with one that looks to the future. I've enjoyed writing this series and have greatly appreciated all of the feedback from readers. I hope this discussion has been helpful, especially to those interested in protecting farmland in Berkeley County.

**747** words