Kansas
LTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Road & Bridge Agencies

Using Free Online Tools to Bring New Life to Old Sign Data

By Dylan Dreiling, Barton County summer intern

A summer intern project in Barton County to simplify their GIS capability has brought new life to old data and is opening the doors to new ways of mapping and storing information.

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If you haven't already noticed, the world of technology is growing, fast. We now have daily access to technology that was previously unimagined, and today's toys are quicker, cheaper, and more efficient than anything people used in the past. The practical applications of new technology seem infinite. It may seem difficult and overwhelming at first, but it is highly advantageous to keep yourself and your workplace in the loop and at the forefront of all these changes. And Barton County is doing just that.

I was hired by the Barton County engineering department last summer to assist them in catching up with the times. The department wasn't exactly stuck in the Stone Age when it came to data management, but there was definitely room for improvement. For example, road crews who were assigned projects from the department really had no efficient way of relaying details of said projects to one another. It was "simply" done with dozens of paper maps highlighted with colored markers. These maps were constantly needing to be redrawn and there was no easy way of comparing past jobs with current projects. Not to mention... the amount of time and resources it took to deal with so many stacks of paper were less than ideal.

The computer side of the engineering department faced problems too. For many of its tasks, the department was using a high-powered Geographic Information System (GIS) from a popular GIS vendor. The department keeps track of copious amounts of information and needed something powerful enough to handle it all. However, as the saying goes, "With great power, comes great responsibility." This proved true for Barton County. The GIS cost the county several thousand dollars to purchase initially and needed further investment of thousands of dollars for regular maintenance fees.

The department's GIS package was thought to be a necessary expense for the County for longest time. However, it was an innately complex program with a very steep learning curve for its users. It was loaded with unnecessary features and tools the department simply did not need.

County staff began to wonder if all that complexity and cost was really necessary. This led to a rather straightforward wish list—and a task assigned to me: Figure out a new system that loses no functionality, is user friendly, and is easy on the bank. Easier said than done, right? Wrong. With today's technology it was almost just as easy to do it as it was to say.

As an avid fan of technology, computers and electronics, this job proved to be fun and exciting as I scoured the internet for ways to solve the problems at hand. This kind of work was similar to how I spend my free time, so I quickly stumbled upon a number of possible solutions.

After researching various software programs similar to the one the County was using, along with finding other online tools that could potentially help with our problems, I began to find myself often coming back to products developed by the technology giant, Google. Google is extremely well known for its search engine but what many do not realize is that Google also offers numerous other software programs that cover a wide variety of applications—often with little to no charge.

Inspired by Miami County's Matthew Oehlert and Matthew Landes, I took to using the program Google Earth. Both Matthews were featured in LTAP's Winter 2013 issue describing their approach to enhancing presentations with low cost

software such as Google Earth. It proved to be exactly what Barton County needed.

The first task to tackle was building a database or inventory of all of the road signs in the county. Thankfully, I didn't have to start from scratch. I began the overhaul by using data collected by Adam Krug and Jamie Rusco who were also featured by LTAP back in the Fall 2003 newsletter issue. As past interns, they were faced with the task of gathering huge amounts of data for road signs. They assembled a three person crew, drove up and down every county road, and manually recorded information about the signs, including pictures. Once gathered, they assembled their data into several Microsoft Excel spreadsheets. This worked back then, but again, it was time for an upgrade.

Using a Google web application called Fusion Tables, I imported all of the previously gathered data into one table and let modern technology do its thing. Fusion Tables manages large sets of data very uniquely. Because each of these signs had a corresponding set of GPS coordinates, Fusion Tables was able to make a virtual map with showing the location of each sign, complete with all other necessary information, in a matter of minutes. Once created, I was able to immediately download that map and open it within Google Earth. So, after nearly 10 years of sitting dormant, the old data came alive, complete with satellite and 3D imagery—all in one afternoon. The Google Earth map now became the department's "filing cabinet," with the ability to share and edit the afternoon.

The Google Earth map now became the department's "filing cabinet," with the ability to share and edit the information at a moment's notice. Google Earth also comes with easy-to-use tools and features to make maps even more interactive. Paths and polygonal areas can be overlaid on the maps for detailed and user-friendly labeling.

The other major program I decided to use for the department was yet
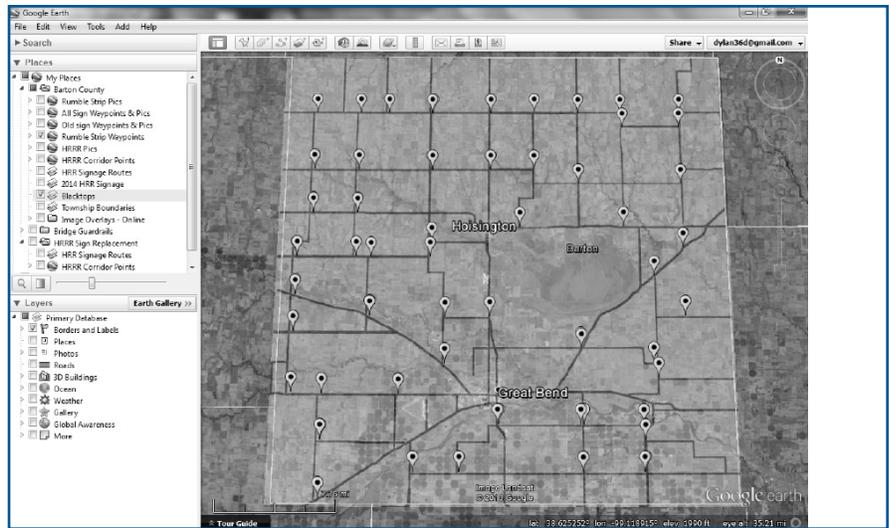
Above, a Google earth map showing locations of signs on blacktop roads in Barton County. *Below,* an example of the detailed data available on each sign, one click away.

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another free program from Google, "Google Picasa." Picasa is picture- managing software capable of handling large amounts of pictures all at once. Because Picasa is a Google product, it can be synced seamlessly with Google Earth. Pictures can also be placed as place marks on a map complete with whatever information is added.
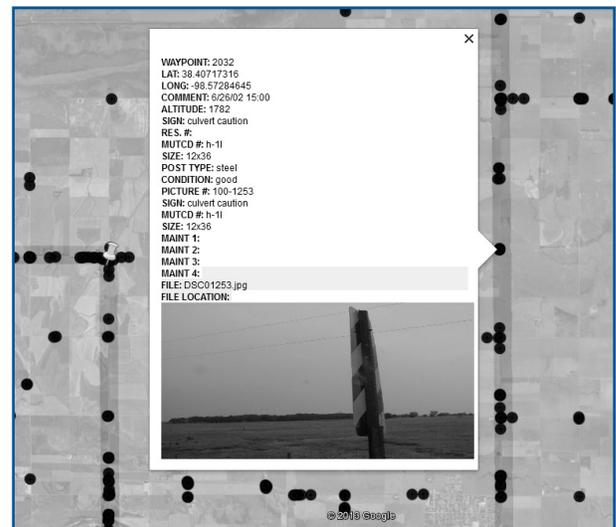
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The geocoding and photo-documenting work previously done with a carload of equipment can now be done with a small digital camera with GPS capabilities. What once took thousands of dollars and hours of man power can now be done with a couple hundred dollars and minutes of computer time.

Like I mentioned before, this technology is by no means limited. Word of the work we were doing quickly spread to other departments in public works. They are finding unique ways to implement the same tools for their own purposes. [See one example in the sidebar on page 3 about how Barton County is using Google Earth to document flood damage.]

Even though the pace of change in technology can seem intimidating, it really is a good thing. The hardest part of "teaching old dogs new tricks" is the transition. Giving up old ways to be replaced by new ones is difficult at

Flood Damage Layer Added

By Lisa Harris

Barton County Road & Bridge (R&B) "took the ball and ran with it" when they sought to use the online tools created by Dreiling to document flood damage. Clark Rusco, county engineer, said that heavy rainfall in August 2013 caused a lot of damage—requiring damage assessments to be done for disaster declarations for the county and also many of the townships. R&B staff needed a way to track this information, and they decided to try Google Earth. However, Dreiling had left for college, and Rusco, who was the only other person with the county with much experience with the tools Dreiling developed, was out of the office more than not, preparing damage assessments.

So R&B staff tried it on their own. They applied the user manual made by Dreiling, geocoded the flood-damaged sites, and developed a flood damage layer that contained cost estimates, project status, and final project costs. They used this information in communicating with FEMA about flood assistance.

Rusco said "The flood damage layer has been a great tool that was developed out of necessity, and with very little input from me. I know [R&B staff] like the flexibility of the system and have plans for several other layers."

An example of the flood damage: This washed-out entrance was the only entrance into a farmstead. John Remmert, R&B dispatcher, had the field crews take geo-tagged photographs of each site. The sites were mapped using Google Earth.

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first, but well worth it when the payoff comes around. When used correctly, the tools available in today's world can improve your ability to perform any task in a timelier, cost-effective fashion. Counties across the state should be able to follow in Barton County's footsteps if they, too, feel the need to give themselves an upgrade.

You can learn more about the Google products used by Barton County at http://www.google.com/about/products/

Reprinted from the Winter 2014 issue of the *Kansas LTAP Newsletter*, a publication of the Kansas Local Technical Assistance Program (LTAP) at the Kansas University Transportation Center.

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Sources:
- Harris, Lisa. Using Google Earth to Enhance Presentations. KS LTAP Newsletter. Winter 2013.
- Krug, Adam. Students Have a Whale of a Time Collecting Data in Barton County. KUTC Newsletter. Fall 2003.
- Interview. Clark Rusco. March 4, 2014.