

# Metes and Bounds Newsletter

Winter 2017  
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## 2017 Conference Wrap-Up

Now that everyone is back at work, recovering from this year's KAM Conference, I would just like to extend one more thank you to everyone who helped make the 32<sup>nd</sup> Annual KAM Conference run so smoothly.

We had a busy week that started off with Pre-Conference classes on Tuesday. We had a lot of great feedback about all three of the Pre-Conference classes and all were well attended.

Wednesday morning started off bright and early with introductions and other conference updates. The KAM Business meeting was then called to order where announcements were made. The Executive Board did vote to increase both the subscribing and regular membership fees by \$5. The board also voted to combine the nominations and awards committee. It was also announced that one of the directors had to resign during the year and that vacant seat was temporarily filled by Linda Sibert.

KAM awards were presented to the following:

Outstanding Mapping Project - Jeremy Taylor; The KAM Prestigious Cartographer/GIS Professional – Cara Mays; Most Valuable Member – Pam Dunham; George Donatello Lifetime Achievement Award – Pam Cannon

Again, congrats to all of our award winners.

Next, nominations were announced and opened to the floor. Nominations were as follows:

President Elect – Nick Callaghan; Secretary – Amy Roust; Treasurer – Pam Dunham; Director (2-year term) – Drew Bean, Lee Allen & Gail Ogle; Director (1-year term) – Linda Sibert

The KAM Business meeting was then suspended until Friday morning.

Keynote Speakers Annie Wilson, Brian Obermeyer and John Dunham with the Flint Hills Map & Education Program rounded off our morning session.

In the evening members and exhibitors enjoyed a casino night.

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## Member Connection

Submit news, articles, announcements, and events! [kamappers@gmail.com](mailto:kamappers@gmail.com) or [here](#)

## Follow Us!

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## Job Board

Looking for new employees or a new employer? View and submit ads [here](#)

Thursday was jam packed with sessions all day. In the early evening Dawn Buehler with the Friends of the Kaw spoke to our membership. Her presentation was followed by a tour of the Bowersock Mill and Power Company. If you skipped out on this trip you missed out!! It was so neat!

Friday morning, our session reconvened. Newly elected board members were announced as follows: President Elect – Nick Callaghan; Secretary – Amy Roust; Treasurer – Pam Dunham; Director (2-year term) – Drew Bean & Lee Allen; Director (1-year term) – Linda Sibert

Congrats to the new KAM Executive Board.

The board was sworn in, map gallery winners were announced, and the grand prize was given.

President, Amber Reynolds announced that the 2018 Conference would be held October 15-18 at the Hilton Garden Inn in Manhattan, Kansas.

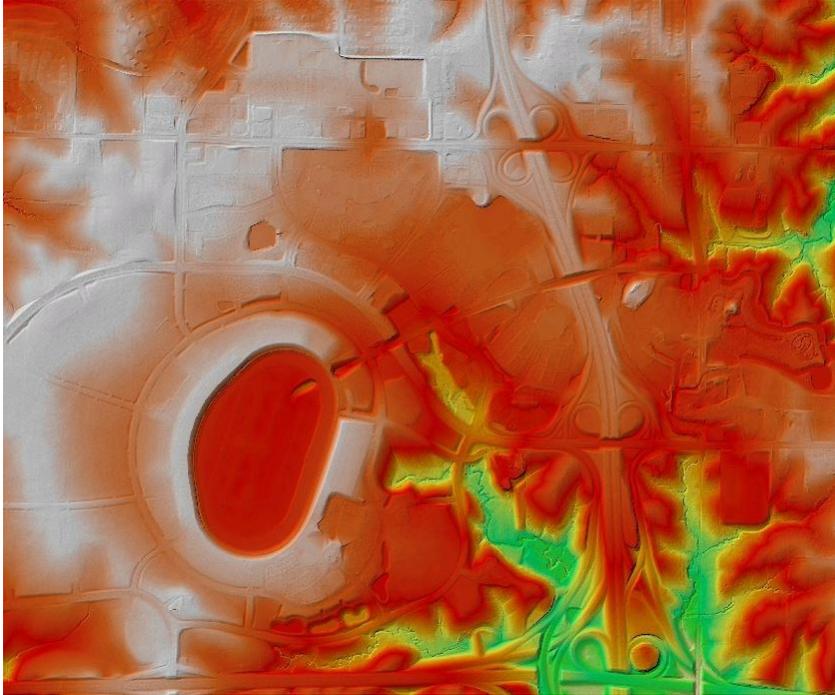
This has been an incredible year serving as your President, and I encourage everyone to become involved in KAM one way or another. We have an awesome organization, and I look forward to see the future of KAM grow!

Cara Mays

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## Kansas LiDAR Update

LiDAR (Light Detection and Ranging) elevation data offers many useful applications to local governments including hydraulic modeling for floodplain mapping and public work projects, earthwork calculations for preliminary transportation planning, and line-of-sight distance analysis to name a few. Local governments are fortunate to have statewide LiDAR coverage available and the quality of data and ease of use just keep getting better.



**Photo: Legends Area and the Kansas Speedway, photo courtesyof KC Mapping &GIS.**

### **What's new in Kansas LiDAR?**

The collection of LiDAR data has come a long way since the first state acquisition in 2006. Data has been collected every year through a partnership between state, federal and local agencies. In 2016, an important milestone was reached when statewide coverage was achieved. This winter another project is underway to re-fly much of the state to improve the quality of data available from some of the earlier acquisitions. When this project is complete, the entire state will have quality level 2 (QL2) data coverage, which is the US Geological Survey (USGS) minimum standard for the 3D Elevation Program (3DEP). This project was made possible in large part by funding from the Natural Resource Conservation Service (NRCS). Other products being developed are some additional QL1 data (useful for applications in flat terrain) in Ford and Gray Counties and hydro-enforced digital elevation models for part of the state which are used in hydraulic modeling.

### **How do I get the data?**

LiDAR data can be obtained from the Data Access and Support Center (DASC) website (<http://www.kansasgis.org/>). There are multiple ways to use the data. If you are working in a small area, you may want to download individual grids for use in ArcMap. The LiDAR Grid with Hyperlinks is available as a shapefile or on ArcGIS online (<http://arcg.is/0Gni8z>). Use the identify tool to get the link to the grid of

interest and click it to automatically start the download. If you want county wide mosaics, they are available at the 2-meter cell resolution for many counties. The Kansas Biological Survey has also put together a statewide 5-meter web service that can be accessed here <http://kars.ku.edu/arcgis/rest/services/KansasLIDAR>. There are some excellent tutorials online for working with LiDAR data. If you don't have ArcGIS, see this tutorial for use in the free open-source QGIS software (<http://data.kansasgis.org/dascweb/docs/files/ElevationDataInQGIS.pdf>)

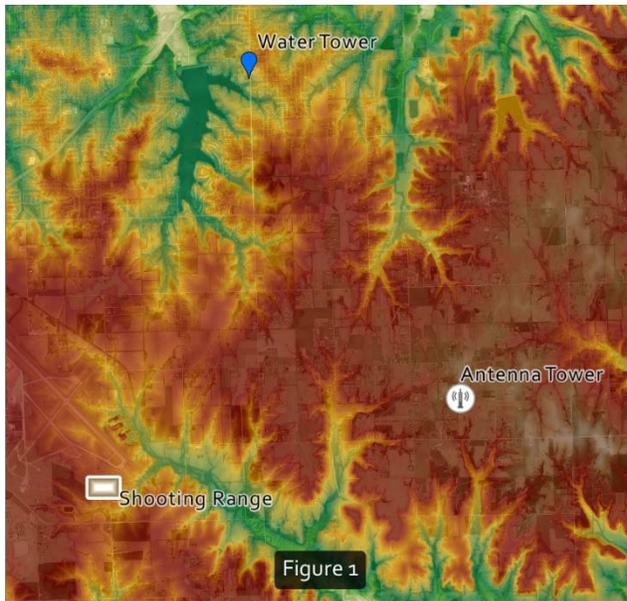
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## Shawnee County Uses GIS to Connect Network Infrastructure

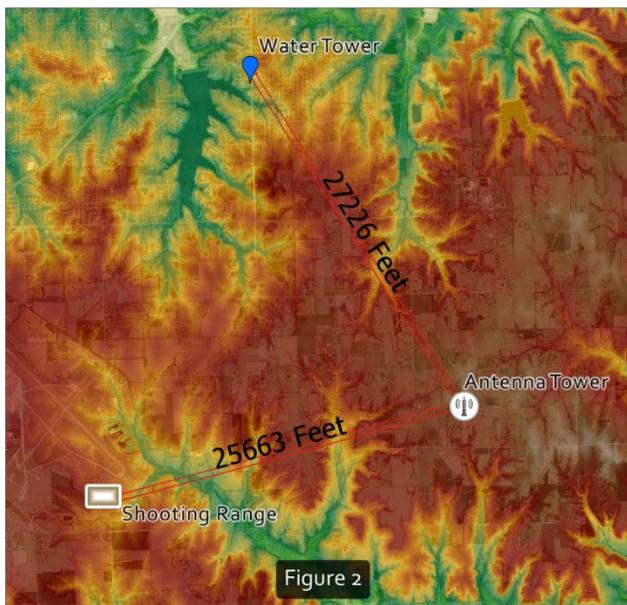
Recently, the Shawnee County I.T. department was looking for a way to get network connectivity to a remote office located at the Sheriff's shooting range which is in a rural area of the county. The I.T. department has previously used wireless network laser equipment to connect other buildings, so the technology was nothing new, but this task would involve using the network equipment from the top of a water tower to the top of an antenna, then to the building. Because of the nature of the gun range, it is located in a low lying area making it difficult to easily determine if there is line of sight for the equipment to work.

The I.T. department contacted GIS to ask, "Can we use our maps to determine if a building was viewable from an antenna tower?" The immediate answer was, "Yes, we can do that." As the GIS Manager, I knew a viewshed would be needed to answer the question; the only problem was that I had not created one in several years. Fortunately for me, I have been working with ArcGIS Pro recently and from previous trainings I remembered that there is a Viewshed tool that uses ArcGIS Online services. Recognizing this tool existed was extremely important in delivering a timely answer. Although the geoprocessing tool in 3D Analyst is not too difficult, it would have taken much more time to use our in-house DEM and organize all of the other tool inputs.

To begin, I created points in an existing ArcGIS Pro project using the Insert > Dark Map Notes feature. By default, this creates a set of feature classes in the project database that contains points, lines, and polygons with different symbology. These features are edited in the same way that any other feature classes are edited. I added three features to the Dark – Point Notes layer which included a water tower, an antenna tower, and the shooting range building (Figure 1).

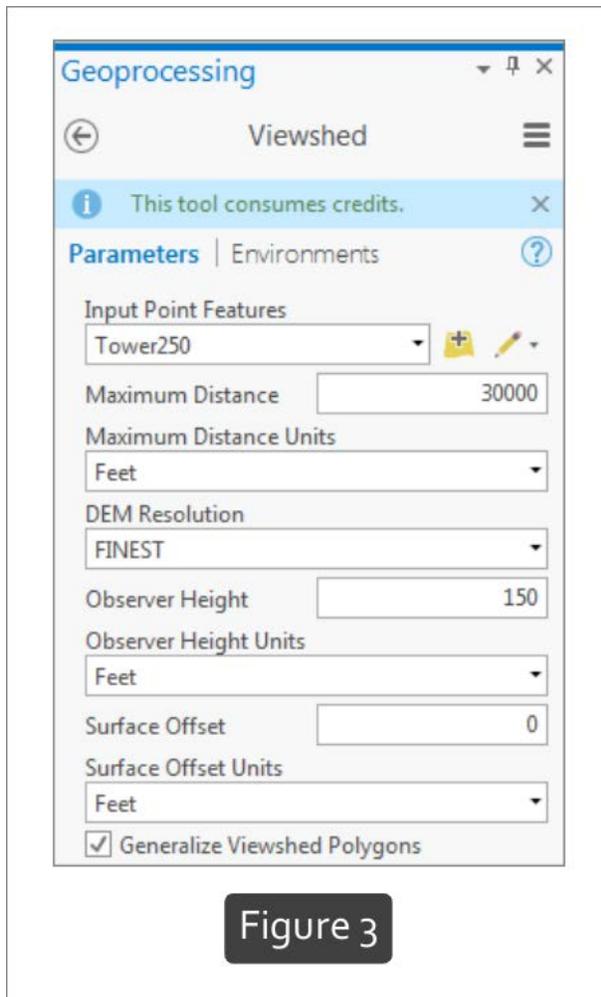


The Viewshed tool requires 5 inputs: [1] Input Point Features, [2] Maximum Distance, [3] DEM Resolution, [4] Observer Height, and [5] Surface Offset. The antenna tower that we needed to “see” is the [1] Input Point Feature. I did a quick measurement to see how far the water tower was to the antenna tower, then the antenna tower to the shooting range and quickly knew that I would need to use 30,000 feet as the [2] Maximum Distance (which is the radius around the Input Point Feature that the viewshed will draw) (Figure 2).

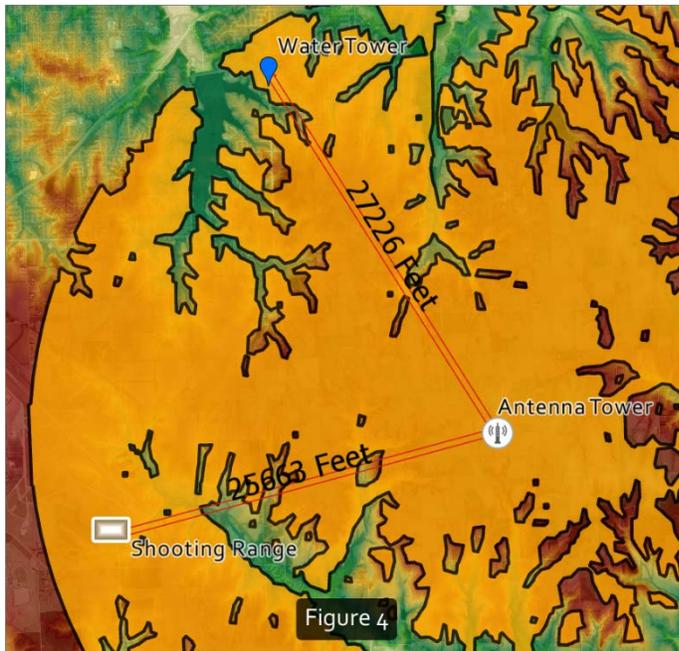


For [3] DEM Resolution, I used FINEST, which would turn out to be 1/3 Arc 10m DEM. The [4] Observer Height was set to 150 Feet (the approximate height of the equipment on the antenna) and [5] Surface

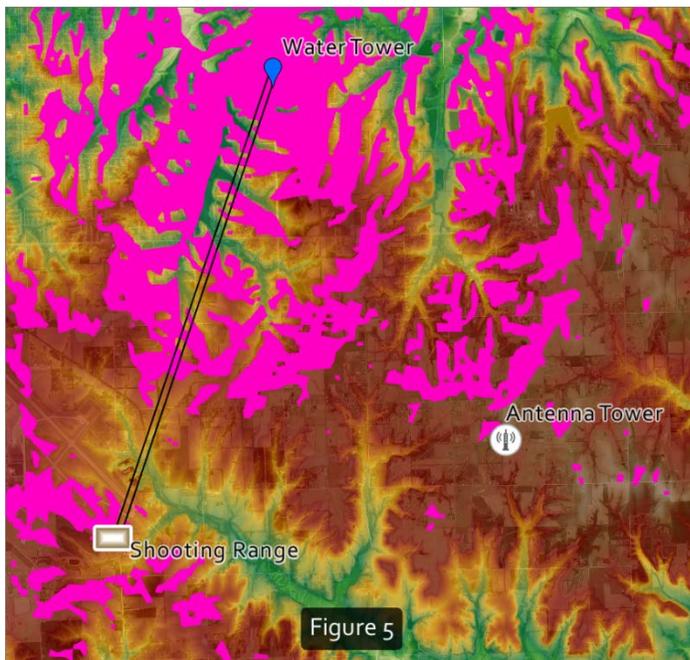
Offset set to zero to make sure the ground could be seen around the shooting range building (Figure 3).



After running the Viewshed tool, a polygon layer showing only the areas that the observer can see is created. These areas did include the water tower and the shooting range (Figure 4 – orange area).



Sometimes it is hard to trust what the software “tells” the user, so for a reality check I used the same methodology to determine if our I.T. department was correct that the shooting range building was not viewable directly from the water tower, and this also turned out to be true (Figure 5 – pink area).



The entire process took only about 30 minutes and saved our I.T. staff from climbing up the tower to physically look to see if the shooting range was viewable (they were very happy about this). At first I was hesitant to

use this tool from ArcGIS Online because it consumes credits, but after finding out how little credit this tool uses (there is a direct link in the tool to the reference web page), I determined we could easily afford the 0.01 credit used for this process. Using ArcGIS Online geoprocessing services through ArcGIS Pro proved to be an efficient method and allowed for accurate information in a very timely manner. These services can also be directly used in ArcGIS Online.

Resources:

<http://pro.arcgis.com/en/pro-app/tool-reference/appendices/geoprocessing-tools-that-use-credits.htm>

<http://doc.arcgis.com/en/arcgis-online/analyze/create-viewshed.htm>

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## Membership Committee Update

We are working diligently to get our membership records up-to-date. We have several lapsed members or members with outdated contact information. Please make sure that your membership record information is up-to-date and your renewal process is complete. Also, remember as you pay your dues, you are paying for the year ahead and no longer till the end of the year. If you have any questions about your membership renewal, please let us know!

Thanks!

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